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Studies in Labor Migration

Middle East and North Africa

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STUDIES IN LABOR MIGRATION: MIDDLE EAST AND NORTH AFRICA

By:

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Dedication

To
My son Omar
and
My daughter Nourhan

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FOREWORD

There is no doubt that labor migration becomes an important global phenomenon in recent decades. Labor migrants now represent about 190 million people, or about 3% of the world population. Labor migrants are represents a vital part of the global workforce. Globalization played an important role in increasing the strength of this phenomenon. Globalization activate the participation of world's countries in the global markets for goods and capital, and consequently labor migration has spread from the concern of a few countries to the concern of most of the world's countries. Virtually all the world's countries become labor senders, receivers, or transit countries, and many are all three.

In the past five years I tried to study the phenomena of labor migration in my region (Middle East and North Africa). This yield of three studies represents in international conferences and received a good acknowledge from scientist in my region and all over the world.

The first study was titled by "Levels and Trends in International Migration in North Africa". It presented at the 26th IUSSP International Population Conference, Marrakech, Morocco, 2009. In this study, the historical and current pattern of migration from North Africa was reviewed. In addition, some phenomena such as increasing feminization among labor migrants, some economic aspects of labor migration (Remittances, and Brain Drain), and the current and future streams of illegal migrations and trafficking in North Africa region were discussed.

The second study was titled by "Estimation of the Arab Brain Drain and the Associated Socio-economic Push factors". It presented in 2008, by Population Policies and Migration Department, League of Arab States (LAS). In this study I tried to investigate a quantitative measure to the impact of socio-economic push factors on brain drain from 22 Arab countries. In this study, estimates of Arab brain drain to OECD countries, and estimates of socio-economic push factors were provided. Lastly, the impact of each socio-economic push factors acts behind the decision of emigration of Arab brains were examined and estimated.

The third study was titled by “Intra-regional Migration as a Tool in Absorbing Arab Unemployment”. It presented as a joint effort of International Organization for Migration (IOM), Arab Labor Organization (ALO) and Partners in Development for Research, Training and Consulting (PID), Cairo, Egypt 2009. The study explored the profile of foreign labor in GCC countries and the profile of unemployment in Arab countries. In addition, it tried to generate a hypothetical model to assess the impact of replacing foreign laborers in GCC countries by similar qualified national and Arab unemployed persons.

My hope is that work will be benefit for all student, researchers, and scientists who work in the fields of labor migration, labor force, labor Migration, and unemployment in Middle East and North Africa region.

Khaled Hassan
Cairo, Egypt
July, 2011.

CHAPTER ONE
LEVELS AND TRENDS IN INTERNATIONAL MIGRATION IN NORTH AFRICA

1. Introduction

International migration has always been considered a demographic and socio-economic phenomenon, which is affected by both internal and external factors. The most important among these factors is the needs of labor markets. Bordering of Northern African to the wealthy countries of the European Union (EU) and Gulf Cooperation Council (GCC) has occurred as a response to the increasing demand on labor in these countries. Large flows of Northern African migrants to Europe can be also explained by the geographical proximity of two regions. Established migration channels, such as between France and the Maghreb countries, have existed for several decades. This pattern has continued until today (IOM, 2005).

Over 8 million migrants originating from North-African countries are currently believed to live abroad, among which 4.7 million in Europe and 2.4 million in Arab oil countries. At the same time, North Africa observed significant intra-regional labor migration, in particular to oil-producing Libya. Over the last decade, North Africa migration system described as migration transition system. The most important feature of this transition is, increasing immigration from sub-Saharan countries to North Africa countries, as a transit zone, for those who willing to migrate to Europe.

1.2. Study Objectives

In view of the previous introduction the study will have the following objectives:

1. Reviewing the historical and current pattern of migration from North Africa region.
2. Discussing the phenomenon of increasing feminization of labor migrations and its appearance among North African migrants.
3. Discussing of some economic aspects of migration in the North Africa region such as remittance, and Brain Drain.

4. Discussing the current and future streams of illegal migrations and trafficking in the region.

1.3. Data sources

Due to the shortage of available and updated data to perform migration studies in general and more specific in North Africa region, the study will depend on the most available data from different sources, such as:

1. Mediterranean Migration report 2005
2. United Nations database
3. Statistics Yearbooks of International Monetary Fund (IMF)
4. In addition to some tables and figures from the previously published scientific studies and reports of International Labor Organization (ILO) and International Organization for Migration (IOM)

1.3. Methodology

The study will mainly depend on the descriptive approach in its discussion and analysis. It also will support by the calculation of some percentage distribution, and percentage of change and figures to clarify the phenomena and outcomes.

2. Migration in North Africa

2.1. Historical Review of Migration in North Africa

The historical expansion of migration from North Africa to Europe is closely connected with the colonial ties between Europe and the countries of this region. Morocco, Algeria, and Tunisia, lead the migration flows from North Africa to Europe (Safir, 1999). The end of the WW II was a landmark in the history of Maghrebian Migration to Europe. By the end of the War, the total number of Maghrebians in France increased to more than 40 thousands. Post-war reconstruction works and the out-migration from Southern Europe in the 1950s and 1960s (King, 2000) created a growing demand on foreign labor, which stimulated migration

streams from Maghreb to France for almost three decades (1945-1975). By the mid-seventies of last century, the estimated number of Maghrebians in France was 1.1 million. However, mid-seventies is regarded as the official end of Maghreb migration to Europe. Due to the economic depression in Europe that followed the 1973 rise in oil prices, the demand for foreign labor decreased and new restrictions on immigration were introduced. These new regulation stimulated the illegal migration. We can look to the illegal migration as a reaction of closing doors in front of North Africa immigrants.

During this time, the views of Maghreb countries toward international migration were liberal and encouraging. Maghreb countries motivate migration for two reasons: reducing unemployment rate, and increasing monetary flows from labor remittances.

2.2. Current Review of Migration in North Africa

Since 1990, EU states reinforced their external border controls and constricted their visa policies (Fargues 2004). However, North African migration to Europe showed a change in terms of destination countries. Spain and Italy have emerged as new major destination countries for Moroccans, Tunisian (mainly to Italy), Algerian (mainly to Spain) and Egyptian (mainly to Italy). Also Portugal hosts an increased flow of undocumented migrant workers (Peixoto 2002).

After 1995, an unexpected resumption of labor migration occurred not only from the Maghreb but also from Egypt to southern Europe (Fargues 2004). The remarkable growth in export-oriented agriculture, construction and tourism in southern Europe has generated an increasing demand for seasonal, flexible and low-skill labor, in the relatively large informal sectors of these countries (Fargues 2004, Schneider and Enste, 2002). It is also associated with an increasing proportion of Maghrebian labor migrants to Southern Europe from women who work as domestic workers or in agriculture and small industries (Salih 2001). From 1990, another trend of highly educated migrants from the Maghreb countries to Canada and USA is observed.

2.3. Recent Profile of North Africa Migrants

Table 1 shows that, on a total of 7.7 million, approximately 4.6 and 2.3 million North African migrant were believed to live in Europe and Arab countries, respectively. Morocco has the largest emigrant population of all countries involved with 3.1 million expatriates, followed by Egypt (2.7 million), Algeria (1.1 million) and Tunisia (840,000). Data of receiving countries lead to substantially lower estimates by about 40% for Morocco, 24% for Algeria, 48% for Tunisia and 59% for Egypt. In the case of the Maghreb countries, this seems to primarily reflect the fact that many receiving countries do not include persons who acquire their nationality as well as second generation in these estimates. Under-registration related to undocumented migration seems to play an additional role in enlarging this jab, particularly in the case of Egypt,

At the country level, Moroccans comprise the largest migrant nationality among Maghrebians and North Africans in Europe in general, and specifically, in France. The total number of Moroccan residing abroad is 3.1 million, represents about 10% of the current population. The total number of Moroccans in Europe is about 2.6 million (in 2004) comprising about 85% of Moroccans residing abroad and 56% of Northern African migrants in Europe (Table 1). Most of Moroccans are concentrated in France (46.5%), Germany, United Kingdom, Belgium, Spain, and Italy respectively. Algerians rank second after Moroccans in Europe with about one million migrants, constitute about 92% of Algerians residing abroad and 21% of Northern African migrants in Europe. Their traditional destination is France (more than 90%). Tunisian migrants in Europe comprise 83% of Tunisians residing abroad and 15% of Northern African migrants in Europe. France is the traditional destination of Tunisian migrants in Europe (75%), followed by Italy (15%) as the second destination country of Tunisian migrants.

Egypt has seen a widespread migration flow directed to GCC countries and other Mashreq Arab countries. Egyptian migrants in Arab countries about 1.9 million (in 2000), represents about 70% of Egyptians residing abroad (Table 1). Egyptian migrants in Europe comprise only 12% of Egyptians residing abroad and 8% of Northern African migrants in Europe. Italy is the preferred destination for Egyptian migrants in Europe (28%), followed by Greece and Netherlands (18% 12% respectively).

Egyptians comprise the largest migrant nationality among Northern African in USA. The total number of Egyptians in USA is 318 thousands, represents about 12% of Egyptians residing abroad, and 50% of Northern African migrants in Northern America continent.

Table 1: North African Migrants by region of residence-2000

Country of Origin	Years	Region of residence				
		Europe	Arab countries	Northern America continent (1)	Other regions (2)	Total
Algeria	**1995**	991.796	66.398	13.933	119	1.072.246
Egypt	**2000**	326.000	1.912.729	428.000	70.000	2.736.729
Morocco	**2004**	2.616.871	282.772	178.914	10.533	3.089.090
Tunisia	**2003**	701.660	38.816	22.800	79.928	843.204
Total		4.636.327	2.300.715	643.647	160.580	7.741.269

Sources: Calculated from tabulated data of "Mediterranean Migration-2005 Report".

(1): includes United States of America and Canada.

(2): includes Asia, Africa, and Australia.

3. Characteristics of North Africa Migrants

Traditionally, North African migration to Europe has generally characterized by the migration of unskilled and semi-skilled workers from rural areas who obtained manual jobs in industry or agriculture, and usually works in informal service sectors. Recently, migration has become more selective for education, more urban and more female (Salih 2001; Labdelaoui 2005). These changes reflect a veritable change in migration selectivity in the destination countries, general processes of urbanization in the both destinations and source countries, and the improvements in literacy and educational achievement in the source countries. However, increase of demand on migration among North Africans, high unemployment among university graduates, and the lack of career opportunities and job satisfaction contributed to selectivity of skilled and higher educated among out-migrants in one hand, and raising the problem of a harmful brain drain in the other hand.

Migration from Egypt to the Gulf has traditionally comprised a relatively high proportion of professionals, which is confirmed by empirical evidence that in Egypt international migrants were better educated than non-migrants on average (Schoorl *et al.* 2000). High-skilled migration from Egypt outside beyond Arab world has traditionally been focused on the US, Canada and Australia. Highly skilled emigration from students and professionals from the Maghreb was traditionally focused on France, but after 1990 there has been a significant increase of highly-skilled migration to the US and Canada.

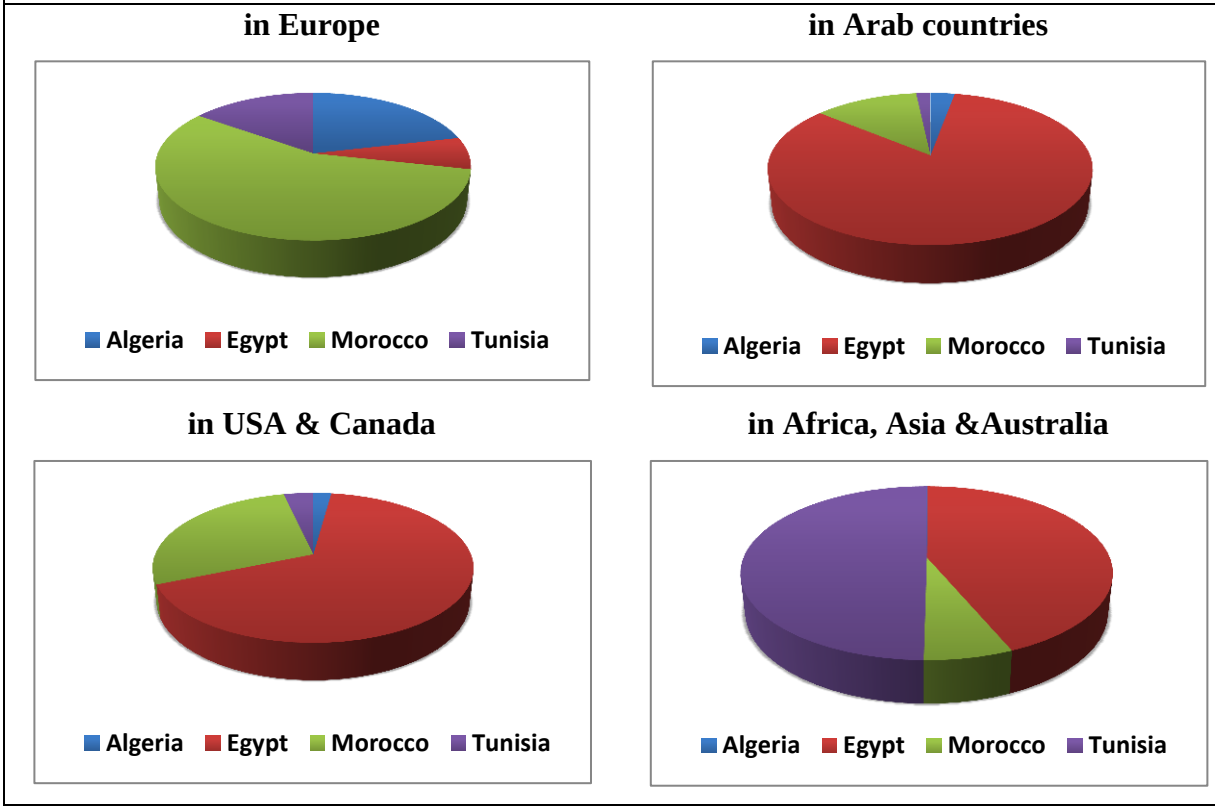
The extensive data analysis identified a striking pattern in which Europe attracts the lower educated while the US and Canada succeed in attracting the higher skilled North Africans (Fargues *et al.* 2005).

A final change in the characteristics of Maghrebian migrants is increasing feminization of labor migration. Many factors played important roles in this increases. More general trends of women's liberation related to their radically improved education and high female unemployment rates played as push factors in the places of origin. While the increasing demand for domestic laborers, nannies, cleaners and other jobs in the informal service sector of Europe played as pull factors in the places of destination. Simultaneously, the share of dependent male migrants has been increased due to increasingly common marriage migration (Fadloullah *et al.* 2000; Hammouda 2005; Labdelaoui 2005; de Haas 2003).

4. Females Among North African Migrants

Although the global history of migration suggested that the mainstreams of international migrants were male, some recent assessments show that this does not describe the global migration during the last half of the 20th century. In some countries, more than half of migrants are female (ILO, 2007). The female proportion is higher in countries that long have been open to immigration, including the United States, Canada, and Australia. They are more likely to be migrating spouses. In countries that permit only temporary migration, the proportion of men may be higher, particularly if admission is limited to certain types of occupations typically dominated by men, such as miners.

Fig. 1: Distribution of North Africa migrants by nationality and region of residence



Female migrations are more extensive from South-to-South, than migrations from South-to-North. Two million Asian migrant women work in countries neighboring their own. The same applies to African women migrants, except in a few regions like Maghreb countries where traditionally most migration involves sea crossings. Most migrant women from Sub-Saharan Africa only move within the borders of their region. The last decades appeared a new trend with very large number of women migrating from South-to-South over a long distance. The Gulf States represent one of the principal destinations for Asian women, since 1995. The figure for Asian women migrating to the Middle East each year estimated as 800,000. One millions Indonesian, Filipino and Sri Lankan women work in Saudi Arabia. However, women migrating from South- to-North are increasing in numbers, women being more in demand in almost all the social occupations.

Many factors are affecting the international migration of women. These factors are classified as individual, familial and societal factors:

Individual factors include age, birth order, race/ethnicity, urban/rural origins, marital status, reproductive status (with or without children), role in the family (wife, daughter, mother), position in family (authoritative or subordinate), educational status, occupational skills, labor force experience, and class position. Family factors include size, age/sex composition, life-cycle stage, structure (nuclear, extended, etc.), parent-ship status (single parent or both parents), and class standing. Societal factors include the norms and cultural values and its view toward the woman's migration, these factors determine the ability of women to migrate and where, how, and with whom can migrate (Martin, 2003).

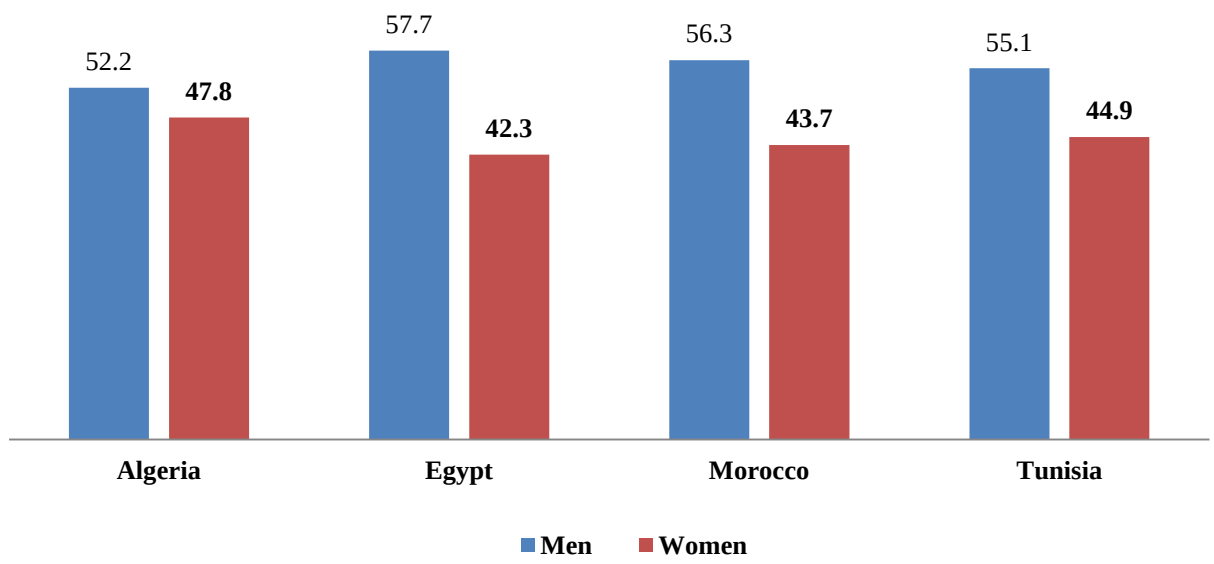
Data of the proportion of female among migrants from North Africa countries is very rare. Data of table 2 represents the most available source in this regard. It shows that, in general, about 45% of migrants from the countries of North Africa to OECD countries are female. The highest percent of female emigrants observed among Algerians (47.8%) followed by Tunisians (44.9%) then Moroccans (43.7%) and lastly among Egyptians, where female emigrants represents about 42.3%).

Table 2: Distribution of North African migrants in some OECD countries by gender, 2000.

Country	Men (%)	Women (%)	# of migrants
Algeria	52.2	47.8	1.364.674
Egypt	57.7	42.3	337.405
Morocco	56.3	43.7	1.604.702
Tunisia	55.1	44.9	443.710

Source: UN/POP/EGM/2006/11.P. 10.

Fig. 2: Distribution of North African migrants in some OECD countries by gender, 2000



Much of the available data unclassified by age and other socio-economic variables, so that little light on the impact of the growing feminization of migration can deduced.

In general, most of female migration is legal: The main reasons of moving are work or family ties, with legal "permission" from sending and destination countries, or they arrive as refugees (Martin, 2001).

5. Some Aspects of Labor Migration in North Africa

5.1. Remittance

Remitted money and goods by migrants to their home country is one of the most important aspects of migration. Such flows of wealth are important to both migrants' families and the economy of sending countries (Caldwell 1969). Remittance is defined as money transmitted from one place to another. Remittance can also be sent in-kind. However, Remittance term usually refer to cash transfers.

The historical review to the development of the workers' remittances indicates that, total remittances increased from less than $2 billion in 1970 to $75 billion in 1994. Remittance data are generally under-reported. The most available data of workers' remittances during the period 1995-2000 represents in tables 3. And 4 indicate that:

- Global workers' remittances increased from $74.6 Billion in 1994 to $103.1 billion in 2000. While the development of remittances was yearly-irregular, but the general pattern indicate to an increase of 3.5% annually during the period 1995-2000.

- Developing countries has an increasing share of workers' remittances during the period 1995-2000. Their share shifted from $49.7 billion represents 58.5% of total remittances in 1995 to $65.9 billion represents 63.9% of total remittances in 2000. Middle East share of global remittances dropped from about 7.2% of total remittances in 1995 to about 5.9% in 2000.

Table 3: Distribution of global remittances by main recipient regions of the world, 1995-2000

Year	Total remittances ($ billions)	Share of the most recipient regions (% of total remittances)				
		Asia	Latin America and Caribbean	Middle East	Europe	Africa
1995	85.06	23.0	15.1	7.2	7.0	6.3
1996	88.27	26.0	14.4	7.1	7.5	6.3
1997	103.19	28.9	13.1	6.8	7.2	6.1
1998	99.81	23.0	15.1	6.5	9.2	6.4
1999	103.58	26.3	16.1	6.3	7.9	5.8
2000	103.10	24.7	18.2	5.9	8.6	6.4

Source: IMF Balance of payments Statistics Yearbook 2001.

- Saudi Arabia and USA are the highest paid countries of remittances. India, Mexico and Philippines are the highest three recipient countries of remittances in the world. Egypt

and Morocco are among the highest ten receiving countries of migrant remittances worldwide.

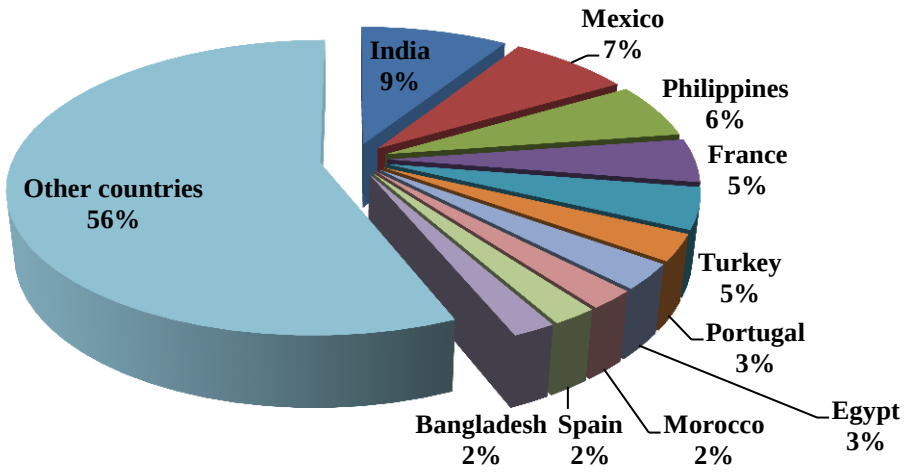
The size and frequency of remittance flows are determined by several factors. Some are related to migrant characteristics and their conditions, such as wage rates, educational levels, years since out-migration, whether or not accompanied by dependents, and household income level. The other factors are related to the economics and political conditions such as size of migrant workers, economic activity in the host and in the sending country, exchange rates, political risk, facilities for transferring funds, and relative interest rate between labor sending and receiving countries.

Table 4: Ranking of top paid and recipient countries of global remittances, 2000

Paid countries		**Recipient countries**	
Countries	**Amount ($ billions)**	**Countries**	**Amount ($ billions)**
USA	24.2	**India**	9.1
Saudi Arabia	15.4	**Mexico**	7.5
Switzerland	5.7	**Philippines**	6.1
Germany	4.0	**France**	4.8
Israel	3.0	**Turkey**	4.5
Luxembourg	2.1	**Portugal**	2.9
Japan	1.7	**Egypt**	2.8
Kuwait	1.6	**Morocco**	2.1
Oman	1.4	**Spain**	2.0
		Bangladesh	1.9
Total	**59.1**		**43.7**

Source: IMF Balance of payments Statistics Yearbook 2001.

Fig. 3: Share of the top recipient countries of world remittances



Remitted funds are important for the economy of the Maghreb country at the macro level as well as at the micro level (Safir, 1999). For the last two decades or more, migrants' remittances to North Africa have constituted the highest ratio to GDP of any region in the world: in 2002, they were 3.1% of GDP, compared with 1.6% for Latin America or 0.6% for sub-Saharan Africa (United Nations, 2004a).

Remittances and tourism represents the major source of foreign currency in Morocco. Remittances to Morocco mainly come from France, where 48.6% of foreign currency flow is remitted from. Another 40.3% of remittances come from other European countries (Mainly, Italy, Netherlands, Belgium/Luxembourg, United Kingdom, and Germany). A low percents of remitted money come from Arab Gulf countries and the United States of America, they represents about 4.6% and 4.2% of total Moroccan remittances respectively (Zohry, 2005).

Remittances flow of Algerian and Tunisian migrants are follow the same shape of Morocco but with a low amounts. The total amount of funds remitted by Algerian migrants abroad was $1 billion in 2000. Most of this amount was remitted from France. Remittances made by Tunisian migrants abroad are the lowest among the Maghreb countries. The Tunisian migrants' remittances are about $0.75 billion per annum (IMF, 1990-2003). Tourism and remittances constitute increasing sources of foreign currency for the Tunisian economy. Remittances are among Egypt's largest sources of foreign currency. The total remitted money by Egyptians abroad was $2.8 billion in 2001 (CBE, 2003). According to the

International Monetary Fund data, Egypt ranked seventh among receiving countries of remittances. Remittances from Egyptian migrants in Europe comprise only 15% of the total remittances by Egyptians abroad ($425 million). The correlation between number of migrants and the percentage share of remittances is not clear in the European case. The percentage contribution of Egyptians to the total amount remitted from countries such as Italy, Greece, and Netherlands which are the main destinations of Egyptian migrants in Europe, is less than in countries with fewer number of Egyptians such as Switzerland and the United Kingdom. It is also important to indicate that unrecorded remitted money by Egyptians abroad represents about 33% of total funds remitted to Egypt. This percentage depends on the extent of foreign exchange controls in the economies. The more open the economy, the greater the incentive to use formal remittance channels.

5.2. Brain Drain

Over the last two decades, the migration of highly skilled professionals from North Africa has become of great concern. Although the rare data is available in this regard, but there are some evidences explain the strength of phenomena of brain drain from North Africa. In just one scientific institution in France there are over 1600 researchers from the Maghreb, of which nearly half are Moroccan (Mghari, 2004).

The merely review of the size of brain drain from North Africa is insufficient to explain to what extent that Northern Africa countries are suffer from brain drain. The picture becomes more obvious when the size of brain drain related to the equivalent residents. Data of tables 5 shows that:

- In general, North African brain drain to OECD countries represents about 8.4% of all highly educated residents in the working age groups. The reading of this percentages means, in front of each 1000 highly educated resident in the working ages, there are another 84 are lost due to emigration.

- Although Egypt has the highest absolute number in brain drain to OECD countries (about 150 thousands) but Maghreb Countries (Morocco, Tunisia and Algeria respectively) are the most influenced by the phenomenon of brain drain.

- Burden of brain drain in Morocco is the highest. Morocco brain drain represents about 20.4% of residents with comparable educational/skills levels. We can read this percent in other way by saying almost 17% of Moroccan highly educated persons are usually migrating to OECD countries. This percentage may shift to more than 20% if we include highly educated migrants to other countries rather than OECD.
- High-pay-rates is not the only reason behind the exodus of professionals from North Africa, but this is a phenomenon reflects the general labor market and social conditions. Disability of economic and business sectors in achieving higher development and investment rates and creating new job opportunities, acting as the most influence reason behind increasing brain drain in Egypt, Morocco, and Tunisia. The Political and social instability plays a significant role in increasing brain drain in Algeria.

- Migration of tertiary educated persons from North Africa region is the biggest brain drain stream among Arab regions. It represents about 52% of the Arab brain drain to OECD countries (Hassan, 2008).

Table 5: Profile of North African brain drain to OECD countries, 2000

Country	Migrants to OECD (Thousands)		% of brain drain to total migrants	Highly educated residents in working-ages (Thousands)	% of brain drain to highly educated residents
	Highly educated (brain drain)	Total			
Algeria	85.5	607.8	14.1	822	10.4
Egypt	149.4	253.9	58.9	3131	4.8
Morocco	141.2	1095.2	12.9	691	20.4
Tunisia	39.4	264.1	14.9	274	14.4
Total	**415.5**	**2221**	**18.7**	**4918**	**8.4**

Source: Hassan, K. (2008) in the Regional Report of Arab Labor Migration 2008, Population Policies and Migration Department, League of Arab States (LAS).

Brain drain patterns in North Africa are largely shaped by the sub-region's geographic proximity and historic ties with Europe. The dominant brain drain flow is from the three French-speaking countries Algeria, Morocco and Tunisia to France or Belgium, but also increasingly Italy. Some movements to North America also take place. Highly skilled Egyptians favor southern Europe and the UK as well as North American destinations (IMO, World Migration Report, 2003). The biggest migratory flows from Africa to the United States are from Egypt.

- European countries are the favored destination for highly educated migrants from Maghreb countries. Approximately 57% of brain drain streams from Maghreb countries are directed to Europe. Morocco is the highest- among North Africa region- in sending of highly educated migrants to Europe, where 44.9% of North Africa brain drain to Europe are Moroccans.

- America is the second preferred destination for highly educated migrants from North Africa region. Approximately 39% of the North Africa brain drain is directed to America. America is the main destination for Egyptian brain drain, where about 62% of North Africa highly skilled migrants who directed to America are Egyptians.

Table 6: Distribution of North African brain drain to OECD countries by destinations, 2000

Country	Destination regions			Total
	America (1)	Europe	Asia & Oceania (2)	
Algeria	22.1	77.2	0.7	85537
Egypt	67.1	20.9	12.0	149432
Morocco	24.8	74.7	0.5	141168
Tunisia	17.8	81.7	0.5	39350

Source: Hassan, K. (2008) in the Regional Report of Arab Labor Migration 2008, Population Policies and Migration Department, League of Arab States (LAS).

(1): Includes US, Canada, and Mexico.

(2): Oceania indicates to Australia and New Zealand.

- Low percentage of North Africa brain drains are directed to Asia and Oceania (only 4%). Egypt is the leading country in the region in sending highly skilled migrants to this region, where 92% of North Africa highly skilled migrants who directed to Asia and Oceania are Egyptians.

6. Illegal Migrations and Transit Migration in North Africa

6.1. Illegal Migration

Illegal migration is motivated by the willing among individuals in developing countries to move to a developed country, settle down and work in the host country in order to improve their living standards and socio-economic conditions and escape poverty in their countries of origin. In the face of the tightened policy adopted by the European community, especially after the Schengen agreement in 1990, illegal migration increased and illegal migration networks grew. Due to the secret nature of these movements, accurate numbers of individuals involved are difficult to estimate. The main two routs of illegal migration from North Africa to South Europe are: from Morocco to Spain (estimated as 14,000 to 21,000 person yearly, and the authorities in Spain caught yearly around 7,000 undocumented migrants in the late 1990's); and from Tunisia and Libya to the nearby Italian coasts and islands across the Mediterranean (it has some 80.000 migrants per year, landing in Sicily and nearby islands, and Malta) (International Center for Migration Policy Development ICMPD, 2004a). Although the governments of sending countries set measures to stop illegal migration, they cannot eradicate it completely. Also, the governments of host countries in Europe cannot stop the movements of illegal migration.

6.2. Transit Migration

For simple geographical reasons, the countries of proximity to the Northern Mediterranean have been either source countries or, more recently, increasingly countries of transit illegal migration. North African countries have become a gateway to Europe and they used as transit route by desperate migrants from sub-Saharan Africa in particular. The number of sub-Saharan migrants in Libya is estimated at around 2 million in year 2001, and the number of

migrants who enter the Maghreb countries is estimated at around 63,000 to 80,000 yearly through the 1990's.

Egypt is thought to possess some 2.7 million emigrants (around 4% of current population), of which one third is permanent migration (Martin, 2005). It has also an estimated three million unrecognized Sudanese refugees (IOM, 2003b: 20) plus numerous other nationalities, such as Somali (Al-Sharmani, 2004) and Palestinian (El Abed, 2003) – all predominantly located in Cairo. The total number of refugees could be as high as 5 million (Martin, 2005), making Egypt clearly a country of net immigration.

Due to the undocumented character of this migration, there are no reliable estimates about the numbers of sub-Saharan migrants living in North-African countries, although it seems certain that their communities are increasing. Alioua (2005) estimates the number of sub-Saharan migrants and refugees living in Morocco at several tens of thousands. According to Libyan authorities, each year between 75,000 and 100,000 foreign nationals enter the country. Libyan local authorities estimate the number of legal foreign workers at 600,000, while illegal immigrants are estimated to number between 750,000 and 1.2 million (Bredeloup and Pliez 2005). Another source claims that Libya houses 2 to 2.5 million immigrants (including 200,000 Moroccans, 60,000 Tunisians and 20,000 to 30,000 Algerians and 1 to 1.5 million sub-Saharan Africans), representing 25 to 30 percent of its total population (Boubakri 2004).

The major transit migration routes, as identified through empirical research by ICMPD, for Africa. The main arrival areas are the Canary Islands, the Gibraltar Strait and the Sicily islands. Most illegal migrants departing from Libya (80%) and Algeria (20%) (ICMPD, 2004a). ICMPD estimates that 100-120.000 irregular migrants cross the Mediterranean every year, of which 35.000 are of sub-Saharan origin, 30.000 from other countries of origin (e.g. Asia) and 55.000 from the South or East Mediterranean (ICMPD, 2004a). Additionally, there is an estimate of lives lost in the Mediterranean crossings (based on detected corpses on the Spanish coastline) of some 2.000 persons per year.

The restriction of migration leads to the increase of smuggling industry. Most of the undocumented migrants are helped to cross borders by human smugglers as the smuggling became an industry with enormous profit. Their annual income is estimated around 3-4 million dollars in Europe only. It exceeded 10 billion dollars per year worldwide.

Therefore, the migration process and policies have entered a vicious circle. Poverty, unemployment, globalization of media, wars and conflicts have increased migration pressure along with closure of borders which leads to the irregular/undocumented migration and the stimulation of the industry of smuggler.

7. Policy Recommendations

In view of the previous discussion, the following policy recommendations are worth considered.

- Creating mechanisms that allow the adoption of new and creative visions, approaches and instruments to humanize migration and maximize its benefits.

- Increasing dialogue advocacy, cooperation, and partnership to management of migration in a way that serves the need for development in both sending and receiving countries and to contribute in the cooperation for development.

- Supporting research and study efforts in order to reach a better understanding of the migration process, impact and opportunities, and building information databases that supply documented and up-to-date data necessary for better migration management and policies.

- Providing capacity building support for governmental and NGO's bodies that deal with migration issue in the sending countries for better management of migration and utilization of its benefits and opportunities.

- Priority should be given to the migration issue in the United Nations, International Organizations, World Bank and other international and regional institutions agendas'. Moreover, the pressing need for establishing efficient and specialized mechanisms/bodies dealing with international migration.

- Ensuring the respect of international migration conventions and protocols including those protecting the rights of migrants, when adopting and implementing migration policies.

8. Strategies to Link Migration and Development

Building an efficient migration management, regional and international strategies linking migration and development should be introduced.

As much as the causes and effects of migration are complex, the linkages between migration and development are not as simple as they may appear. Large cross-border movements can be a response to the ever-increasing gaps in living standards and income between countries; this often means a loss of human capital where it is most needed for development. At the same time, emigration from North Africa can help to alleviate imbalances, including population pressures; furthermore, the mobilization of human and financial resources abroad can become an additional force of origin country development.

- Cooperation between countries of destination, transit and origin is required to fully appreciate and develop the positive benefits of migration and reduce potential divergences of interest from all countries involved.

- Recognizing common migration interests, governments are increasingly negotiating strategies supporting both the sustainable development of sending countries and the labor needs of receiving countries – while giving due regard to migrants' rights. These kinds of negotiated arrangements are based on integrated policy approaches that link migration to development cooperation, trade and investment, as well as demographic and social development at the regional, national and international levels (IOM, 2000).

- Meaningful management of labor-related migration and remittances to harness their targeted contribution to development efforts could have a potentially enormous positive impact on North Africa countries at national, community and family levels. The present problem, however, is that the linkages between brain drain, labor migration and remittances and their impact on development are only fragmentarily understood and favored by governments in many of the continent's countries.

- Undoubtedly, brain drain has deprived North Africa countries of many of the well-educated and skilled nationals they invested in for years. Brain drain problems cannot simply be solved by replacing emigrants with younger generations. Instead, it is necessary to develop innovative forms of emigrant return and contribution as well as strategies for better sharing of knowledge, skills and experience with non-migrants in view of national development priorities. Definitive return of skilled migrants does not appear to be viable as long as socio-economic and political conditions in the origin countries continue to deteriorate.

- Plans to reverse the brain drain are highly encouraging. This can be done by building critical human resources for North Africa's development and to develop strategies for utilizing the transfer know-how and skills of North Africans in the Diaspora for the development of their origin. It aims top building partnerships between host countries and countries of origin that promote positive effects of migration for both and limiting the negative effects of the brain drain.

- Creating and updating databases of skilled migrants to identify their qualifications, competences, geographic location and areas of possible interventions.

- Enabling effective partnership between various actors such as skilled migrants, policymakers, local authorities, business, civil society, and trade unions.

- Developing appropriate migration policies, mainstreaming skilled migration into development policies, and strengthening regional and multinational cooperation.

Although the policies of releasing the developmental potential of migration is limited, governments and development agencies can play a role in increasing the positive impact of migration on development in sending countries through the following ways:

- Firstly, they can try to reduce the transaction costs of remittances.

- Secondly, remittances can be encouraged through exempting remittances from taxation.

- Furthermore, the governments of both receiving and sending countries can provide direct and indirect support to the numerous self-help organizations that migrants have established with the aim of promoting development or establishing development projects in sending countries.

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CHAPTER TWO
ESTIMATION OF THE ARAB BRAIN DRAIN AND THE ASSOCIATED SOCIO_ECONOMIC PUSH FACTORS

1. Introduction

International migration has been accelerated in the last three decades. The number of international migrants increased from 154 million to 175 million during the period from 1990 to 2000 (United Nations, 2002). The phenomenon of worker's mobility is subject to faster increase in the coming decades as a part of the world globalization process. All sending and receiving countries must address the challenges raised by this phenomenon in general, and the migration of skilled workers (brain drain) In particular.

"cross-border migration, combined with the brain drain from developing to industrial countries will be one of the major forces shaping the landscape of the twenty first century" (World Bank and International Bank for Reconstruction and Development, 2000).

The term brain drain describes the cross-border movement of highly skilled persons who stay abroad for a longer period of time. Highly skilled persons are defined as having studied or currently studying for a university degree or possessing equivalent experience in a given academic field.

The extent of brain drain in Arab countries may explicate in the following examples:

- The largest numbers of African labor migrants in Europe originate from North Africa. Brain drain patterns in North Africa are largely shaped by the sub-region's geographic proximity and historic ties with Europe. The dominant brain drain flow is from the three French-speaking countries Algeria, Morocco and Tunisia to France or Belgium, but also increasingly Italy. Some movements to North America also take place. Highly skilled Egyptians favor southern Europe and the UK as well as North American destinations (IMO, World Migration Report, 2003, chapter 2, P. 216).

- The biggest migratory flows from Africa to the United States are from Egypt, Ghana, and South Africa, with more than 60 percent of immigrants from those three countries having a tertiary education (Carrington, W.J. 1999).

- In year 1976, 23% of engineers, 50% of doctors, and 15% of all Arab first university degree holders emigrated to the developed West. In 1996, those figures increased to fourfold of the 1967 level. Roughly 25% out of 300,000 of first university degree holders who graduated from the Arab universities emigrated to Northern America and Common European Market Countries. Between 1998 and 2000 more than 15,000 Arab doctors migrated to Europe (*Zahlan*, in AHDR, 2003, PP.10, 144).

Reliable data and empirical analysis are essentials for studying the mechanisms of migration process. Despite numerous case studies, there is no systematic empirical assessment of the brain-drain magnitude. Many institutions consider the lack of international data on migration by country of origin and education level as the major problem for monitoring the scope and impact of brain drain in developing areas. In the absence of such empirical data, the debate has remained almost exclusively theoretical.

In another hand, migration is always describe as selectivity matter and is promoted by common factors in both countries of origin and destination. These common factors are frequently mentioned as "push-factors" which prompt migrants to leave their country of origin, and "pull-factors" which attract migrants to enter a specific country of destination. International Organization for Migration (IOM) conducted a survey among African returnees, carried out in the framework of its Return of Qualified African Nationals Program in the mid-1990s. It reveals many different reasons explaining why (highly skilled) Africans have left their country of origin. The push factors include, and not concentrate on the following:

- Poor socio-economic living conditions;
- Unemployment and increasing the dependency burden of household;
- Drops in real income;
- Rigid government employment systems;
- Professional isolation;
- Ethnic discrimination in appointments and personnel policies;

• Corruption;
• Competition with expatriate.

Economic disparities among African countries appear as the most important driving force behind labor migration.

1.1. Objectives

In view of the above introduction, the following objectives are appeal to consider:

1. Reviewing the most updated estimates of Arab brain drain to OECD countries, by country of origin and educational level, includes all the 22 country members of League of Arab States (LAS).

2. Reviewing of the updated estimates of the current situation of the main socio-economic push factors behind the decision of international migration of Arab brains.

3. Investigating the major changes in the emigration rate of Arab highly skilled workers to OECD countries, during the period 1990-2000.

4. Examining the current situation of the main socio-economic push factors acts behind the decision of emigration of Arab brains.

In view of the results of achieving the above two objectives (3 and 4), some recommendations and policy implications can be conveyed to lessen the impact of Arab brain drain and to reduce the impact of inappropriate socio-economic push factors.

1.2. Data Sources

- **Docquier and Marfouk (2005),** which collected from all OECD countries and provided a description of the immigration structure by country of origin and educational level. This data set is based on two main statistical sources:

- U.S. Census data on the skill structure of immigration,
- OECD data on immigration delivered from censuses or registered data.

The data set concentrated in assessing the immigration rates inside the OECD countries, which exceed 90% of the global movement of highly skilled migrants (Docquier and Marfouk A. 2005).

- **Data of the *World Fact Book* (2006),** which produced by the Central Intelligence Agency, Washington, USA, and represents the most recent situation of the main socio-economic push-factors behind the movement of highly skilled migrants outside the Arab countries.

1.3. Methodology

The above described two data sources will utilize to apply the descriptive and comparative analysis, to achieve the above mentioned objectives. More Details about the applied methodology in the following:

- The comparative analysis will utilize to estimate a trend in Arab brain drain to OCED countries, by country of origin and educational attainment. The trend analysis will consider two points of time (1990 and 2000). The resulting estimates are not perfect in many aspects, but they significantly improve our knowledge of the magnitude of the Arab brain drain.

- The study will comprise another descriptive analysis to explore the recent situation of the socio-economic push factors behind the movement of Arab brains abroad.

- The significant of the relationship between each socio-economic push factor and migration of Arab brain drain to OECD countries will be statistically tested using the correlation coefficient.

2. Arab Brain Drain to OECD Countries

Until now, there is no accurate, regular, or systematic empirical assessment of the Arab brain drain. Most of the previous studies in this regard are based on estimates of sending

developing countries. Docquier and Marfouk (2005) is one of the most recent databases of immigrants to OECD countries, by country of origin and educational level. This database is based on the estimates of receiving (industrial) countries rather than the estimates of sending Arabian (developing) countries. The current study will consider this resource as the main data source for analyzing the changes in the bulk and burden of Arab brain drain over the last decade of the 20th century, for the following reasons:

1. It based on data of the immigration structure by educational attainment and country of birth from all OECD receiving countries, where census and register data are available in nearly all OECD countries.

2. It engrossed the great majority of highly skilled migrants around the world. Given census data collected from various non-OECD countries, indicate that about 90 percent of the highly skilled migrants live in one of the 30 member states of the OECD.

2.1. Relative Importance of the Arab Brain Drain:

In general, we can conclude that the relative importance of the bulk of Arab emigrants to OECD countries is small (not exceeds 6% of all immigrants to OECD countries), but they represent a respectable sub-group when they compared with the streams of emigrants from other regions to OECD countries. The following indicators clarify the above argue:

- Emigrants from Arab countries represent about 5.5% of the stock of immigrants to OECD countries. Little difference is observed in the percentages of highly skilled emigrants (Brain Drain) and all emigrants from Arab countries to OECD countries. Arab brain drain to OECD countries represents only 4.2% of all immigrants to OECD countries (Table 1).

- Although the low percent of Arab brain drain to OECD countries (4.2% of all highly skilled immigrants to OECD countries), they represent an effective sub-group when they compared with the streams of highly skilled emigrants from other regions. They represents about 35% of all highly skilled emigrants from Islamic countries; two-third of highly skilled emigrants from MENA region; 57% of highly skilled emigrants from Western Asia region; and all highly skilled emigrants from Northern Africa region.

Regardless the low share of Arab highly skilled migrants to the stock of skilled immigrants to OECD countries (4.2%), the picture is completely differ when we compared the bulk of Arab brain drain with the counterpart in the place of origin. The picture is actually reflects the burden of Arab brain drain. Table 1 gives more emphasis through the following indicators:

- Rate of Arab brain drain is three times higher than the general rate of Arab migrants to OECD countries (7.8% and 2.6% respectively).

- Rate of highly skilled workers among Arab emigrants is three times higher than the rate of highly skilled workers among Arab residents (26.4% and 8.5% respectively).

2.2. Analysis of Arab Brain Drain to OECD Countries

In this subsection, a trial will initiate to explain the following:

- Changes in the bulk of Arab brain drain to OECD countries over the study period 1990-2000.

- Changes in the burden of Arab brain drain during the study period 1990-2000.

Two approaches are designed to assess the burden of Arab brain drain as following:

- By relating the bulk of Arab brain drain to the size of Arab residents with tertiary educational level.

- By determining the change Ratios in Arab brain drain to OECD countries.

The analysis will be at country level, and sub-regional level.

2.2.1. Bulk of Arab Brain Drain to OECD Countries

- The bulk of Arab brain drain to OECD countries increased from about 452 thousands migrant in 1990 to reach about 854 thousands migrant in 2000. The rate of increase in the Arab brain drain reached about 8.9% annually.

- The annual rate of Arab brain drain to OECD countries approximately doubles the annual rate of Arab immigrants to OECD countries during the study period (8.9% versus 4.5%).

- Egypt, Lebanon, Morocco, Iraq, Syria, and Tunisia are the highest six Arab countries in brain drain in 1990, respectively. The share of their brain drain is estimated by 75% of the total Arab brain drain to OECD countries in 1990, increased to about 77% in 2000. By the end of study period 1990-2000, Tunisia is replaced by Algeria in the ranks of the highest six Arab countries in brain drain.

- Data shows that a reduction in the percentage of Egyptian brain drain to the total Arab brain drain to OECD countries. Egyptian brain drain decreased from about 22% of the total Arab brain drain to OECD countries in 1990 to about 17.5% in 2000. Despite the affirmed reduction in the Egyptian brain drain, Egypt still has the highest brain drain among Arab countries. Morocco realized the second highest brain drain among Arab countries in 2000, by 141 thousand migrant to OECD countries.

2.2.2. Burden of Arab Brain Drain to OECD Countries

The merely review of the bulk of Arab brain drain is insufficient to explain to what extent is the Arab countries suffer from brain drain. The picture becomes more obvious when the bulk of Arab brain drain related to the corresponding residents. Data of tables 2 shows that:

- In general, Arab brain drain to OECD countries represents about 8.5% to 9% of all highly educated residents in the working age groups. The reading of this percentages means, in front of each 100 highly educated resident in the working ages, there are another 9 are lost due to emigration.

- The most influenced countries by the phenomena of brain drain are Lebanon, Somalia, Comoros, and Morocco respectively.

- Burden of brain drain in Lebanon is the highest. Lebanon brain drain represents about 63% of residents with comparable educational/skills levels. We can read this percent in other way by saying almost 39% of Lebanon highly educated persons are usually migrating to OECD countries. This percentage may move up to about 50% if we include migrants to other target countries rather than OECD.

- Burden of brain drain in Somalia and Comoros have an increasing trend during the study period. Somalia brain drain set for 21% of residents of equal characteristics in 1990, raised to 48% in 2000. Comoros have the same increasing trend in the burden of brain drain (7% of the equivalent residents in 1990, increased to 27% in 2000).

- It is easy for experts in the Arab region to point different factors as the most influences factors in increasing the bulk and burden of Arab brain drain in the past decades. Disability of economic and business sectors in achieving higher development rates and consequently increasing the investment rate and creating new job opportunities, acting as the most influence reasons behind increasing brain drain in some Arab countries, such as Egypt, Morocco, Lebanon, Syria, and Tunisia. The Political and social instability plays a significant role in increasing brain drain in some other countries, such as Iraq, Somalia, Sudan, Yemen, Algeria, and Palestinian. Competition with expatriates may play an important role in increasing brain drain in some Arab countries, such as GCC countries (Cooperation Council for The Arab States of The Gulf). Detail analysis and interpretation in this regard will be providing in section 3 of the study.

- Migration of tertiary educated persons from Northern Africa region (Egypt, Libya, Tunisia, Algeria, Morocco, and Sudan) is the biggest brain drain stream among Arab regions. It represents about 52% of the Arab brain drain to OECD countries. The burden of Northern Africa brain drain can be explained if we know that, approximately 7.2% of the highly educated persons in the region are migrated to OECD country by year 2000.

- Brain drain from Non-Gulf Arab-Asian countries (Iraq, Syria, Lebanon, Jordan, Palestinian, and Yemen) represents the second biggest brain drain stream among Arab regions. It represents about 40% of the Arab brain drain to OECD countries. Non-Gulf Arab-Asian countries come as the first regarding to the severity of brain drain. Approximately 12% of highly educated persons in this region are migrated to OECD country by year 2000.

- Although GCC countries are consider as one of the attractive regions for highly educated migrants, but a new trend of brain drain is started to be observe in GCC over the last decade of 20th century. Of course the economic push factors are not the main determinate of such flow, but other push factors such the competition with expatriates on the local work markets, the searching for better opportunities to continue education and gain more professional skills, and the searching for better living environmental, metrological, and community conditions, may plays a significant role in this regard. Brain drain of GCC not exceeds 4% of the size of Arab brain drain.

2.2.3. Change Ratios in the Arab Brain Drain to OECD Countries

By relating the size of Arab highly educated emigrants in 2000 to the comparable size in 1990, we get the change ratio in Brain drain through the past decade (1990-2000). These ratios are important in explaining the increasing in the Arab brain drain by countries and regions. Also, it enables to predict to the state of Arab brain drain in the future coming years, on the other side.

- The change ratio of Arab brain drain to OECD countries approximately doubled during the period 1990-2000. All Arab countries achieved an increase in their brain drain change ratio during the study period. Increasing the change ratio of Arab brain drain over time reflects the strength of the economic, social, and political push factors in the origin.

- The highest change ratio in the Arab brain drain to OECD countries is generally associated with the lowest economic development or the highest social/political instability in the sending countries. Comoros and Mauritania are the highest two Arab countries in the change ratio of brain drain to OECD countries during the study period 1990-2000.

Comoros brain drain to OECD countries increased 10 times over the study period, followed by the change ratio of Mauritania brain drain which increased by 9 times during the same period.

- Brain drain change ratio of Yemen, Algeria, Sudan, and Djibouti fluctuated between 3.2 times to 3.8 times increases during the study period.

- Although Kuwait and United Arab Emirates are consider as Pull countries of migrants, but an increasing trend of brain drain from these countries to OECD countries is started during the study period, the expected reasons behind this trend discussed before. The brain drain change ratio from Kuwait and Untied Arab Emirates increased by 4.1 times and 4.8 times respectively during the study period 1990-2000.

- The highest six Arab countries in brain drain to OECD countries (Egypt, Morocco, Lebanon, Iraq, Algeria, and Syria) are associated with the lowest increase in the brain drain change ratio. The brain drain change ratio of these six countries fluctuated between 1.5 times to 3.4 times increase during the study period.

2.3. Distribution of Arab Brain Drain by OECD Destinations

After reviewing the bulk and burden of Arab brain drain to OECD countries, it is important to determine the major destinations of Arab brain drain, and the main changes in the directions of these streams over the study period. Tables 3 represent the distribution of Arab brain drain to OECD countries by destinations. OECD Destinations are classified into 3 groups of countries as following:

- The American countries (includes USA, Canada, and Mexico),
- The European countries,
- The Asia and Oceania countries (indicate to Australia and New Zealand).

The table shows that:

- Approximately one-half of the Arab brain drains are directed to the American countries, with insignificant change in this percent during the study period. American countries are the main destination of Arab brain drain from Egypt, Jordan, Kuwait, Palestinian, Qatar, Saudi Arabia, Sudan, Syria, and United Arab Emirates during the study period. More than two-third of migrants from these countries preferred the American countries as final destination. Approximately, no change in the direction of these streams is observed during the study period.

- European countries are the second destination of Arab brain drain to OECD countries. Moderate increase in the percent of Arab brain drains to the European countries is observed during the study period (40% in 1990, and 44% in 2000). Majority of brain drain from Algeria, Comoros, Mauritania, and Morocco, preferred the European countries as final destination. More than two-third of brain drain streams from these countries are directed to Europe. The geographical proximate and historical ties with Europe, especially the French-speaking countries, shape these migration streams. Approximately, no change in the direction of these streams is observed during the study period.

- Asia and Oceania are the third destination of Arab brain drain to OECD countries, with a declining percent over the study period (10% in 1990, and 7% in 2000). Bahrain, Egypt, Lebanon, and Sudan are the most sending countries of highly skilled migrants to this region. 38% and 25% of the streams of highly educated migrants from Bahrain and Lebanon respectively are preferred Asia and Oceania as final destination. The geographical closeness and profusion of commercial opportunities may play an increasing role in attracting more highly skilled migrant to this region, especially from Bahrain and Lebanon.

3. Socio-economic Push Factors behind Arab Brain Drain

After reviewing the changes in bulk and burden of Arab brain drain over the last decade of the 20th century, it is may be appropriate to discuss the situations of the Socio-economic push factors acting behind these migration streams. Eleven socio-economic variables are selected for this analysis. We believes that these factors have the most influences in pushing persons, especially highly educated persons, to migrate outside the Arab region, mainly to OECD

countries. The previous studies indicate to the economic factors as the most influences driving force behind the decision of migration, especially among highly educated persons (IOM, 2003). In this section we will try to relate the brain drain stream from each Arab country and sub-region to the existing socio-economic push factors. The significant of these relations are statistically tested by the Correlation Coefficient. Table 4 represents the profile of the socio-economic push factors behind brain drain from Arab countries.

3.1. Population Growth Rate (PGR)

It is one of the most important socio-economic indicators. In demographics and ecology, Population Growth Rate (PGR) is the fractional rate at which the number of individuals in a population increases. Specifically, PGR ordinarily refers to the change in population over a specific time period. It is an effective indicator in determining the speed of population increase, the population density within the borders of a country. Additionally, PGR is a useful indicator in predicting the future pressure on goods, services, and infrastructure of the country. For these essential reasons, PGR is also considered as a push factor of migration, when it tends to have an increasing direction.

Population growth rate of Arab countries ranged from about 3.5% as the highest PGR observed in Kuwait and Yemen, and 1% as the lowest PGR observed in Tunisia. The highest six Arab countries in brain drain, Egypt, Morocco, Lebanon, Iraq, Algeria, and Syria (send out about 77% of the Arab brain drain to OECD countries in 2000) have a population growth rate of 2.02%, 1.55%, 1.23%, 2.66%, 1.22%, and 2.3% respectively. It is clear that, population growth rate of the highest six Arab countries in brain drain is mostly less than or close to the replacement level of 2.1%. On the other side, Arab countries with high PGR (more than 3%, such as Kuwait 3.5%, Oman 3.3%, and Yemen 3.5%) featured only about 4% of the total size of Arab brain drain to OECD countries in 2000. Our impression that, current levels of PGR is not a significant push factor, but the accumulated consequences of the past high PGR in some countries, and the future consequences of the current high PGR in other countries, are more effective in taking the decision of migration, especially among highly educated persons. This argument is statistically supported by the insignificant correlation coefficient between the PGR and Arab brain drain (Table 5).

3.2. Unemployment Rate

It is the number of unemployed individuals expressed as a percentage of the labor force. When workers are unemployed, they, their families, and the country as a whole lose. Workers and their families lose wages, and the country loses the goods or services which could have been produced. In addition, the purchasing power of these workers is lost, which can lead to unemployment for yet other workers. Unemployment rate reflect the disability of societies in creating an adequate new job opportunities to absorb the annually increase in the size of new entrance to the labor market, so that, unemployment rate is considered as one of the push factors of migration. Table 4 shows that:

- Unemployment rate among Arab countries ranged from 50% as the highest rate observed in Djibouti to 2.2% as the lowest rate observed in Kuwait. Unemployment rate in the highest six Arab countries in brain drain reached 9.5% in Egypt, 11% in Morocco, 18% in Lebanon, 25% in Iraq, 17.1% in Algeria, and 12.3% in Syria. All the rates are extremely higher than the secure unemployment rate (less than 5%). The figures indicate to a positive relationship between the increase in unemployment rate and the increase in the size of brain drain. Djibouti, Comoros, and Mauritania, the highest three Arab countries in the change ratio of brain drain over the study period (Table 1) are associated with the highest unemployment rate among the Arab countries (50%, 20%, and 20% respectively).

- In spite of the above explanation, unemployment rate, as a push factor of migration, take a reverse direction and not found to be statistically significant (Table 5). The only explanation of this phenomena may returns to the association of high unemployment rate with low brain drain size in some Arab countries such as Libya, Oman, Saudi Arabia, and Yemen (Tables 1 and 4).

3.3. Dependency Ratio

It is a measure of the portion of a population which is composed of dependents (people who are too young or too old to work). The dependency ratio is equal to the number of individuals aged below 15 and above 64 divided by the number of individuals aged 15 to 64, expressed as a percentage. It is one of the most important socio-economic indicators. It indicates to the

average number of persons maintained by a working person in the society. It is clear that increasing the dependency ratio consider as a push factor to migration.

- Dependency ratio in Arab countries ranged from 6:1 as the highest dependency ratio observed in Comoros to 1:1 as the lowest ratio observed in United Arab Emirates in 2006. Dependency ratio in the highest six Arab countries in brain drain reached 3.5:1 in Egypt, 3.3:1 in Morocco, 1.8:1 in Lebanon, 4.8:1 in Iraq, 3.9:1 in Algeria, and 4.2:1 in Syria. Theoretically, as the dependency ratio increase, the working person will be motivated to leave the place of origin, searching about better work opportunity (outside the home country), with higher salary, and better working and living conditions, to lessen the burden of dependency. Of course, the above mentioned high ratios of dependency have a positive impact on increasing the international migration in general and the Arab brain drain in particular. All the Arab countries achieved a dependency ratio greater than 2:1 except United Arab Emirates, Kuwait, and Lebanon, which promote the statistically significant relationship between increasing the dependency ratio and increasing the Arab brain drain (Table 5 and Figure 1).

3.4. Illiteracy Rate

The United Nations defines illiteracy as the inability to read and write a simple message in any language. It is a socio-economic indicator which summaries the situation of many other indicators in the society such as, the improvement in educational level, the technological level adopted in goods and services production. Theoretically, as the illiteracy level increases, the percent of educated persons decreases, the societies become in a mass need to its qualified persons, and consequently the migration of highly qualified persons decreases; keeping other influences factors constant.

- Illiteracy rate vary among Arab countries. It fluctuated from 62.2% as the highest illiteracy rate observed in Somalia to 8.7% as the lowest rate observed in Kuwait in 2006. Illiteracy rate in the highest six Arab countries in brain drain reached about 42.3% in Egypt, 48.3% in Morocco, 12.6% in Lebanon, 59.6% in Iraq, 30% in Algeria, and 23.1% in Syria. Although, the observed high illiteracy rate among majority of Arab countries, we can assert that, the large size of population, the historical culture of these nations which

respect the education and the educated persons, and increasing the value and importance of education among Arab governments in the past decades, producing an adequate size of highly educated persons, and consequently more brain drain as a results of inadequate socio-economic conditions in their origin. This may gives interpretation of the negative significant association between illiteracy rate in Arab countries and brain drain from these countries (Table 5 and Figure 2).

3.5. Life Expectancy at Birth

It is a statistical measure of the average length of survival of a human. It is often calculated separately for each gender and geographic location. Popularly, it is most often construed to mean of the life expectancy at birth for a given human population, which is the same as the expected age at death. However, technically, life expectancy means the expected time remaining to live, and it can be calculated for any age. It is one of the demographic indicators that conclude the development in health services, the expansion in the reproductive health services, the progress in infant and child death rates, and the improvement in the educational level. Theoretically, as the life expectancy at birth (as indicator to many other variables) increases, the person become more ambition for long life and better conditions for live, and consequently the motivation to migration increases.

- The highest life expectancy at birth among Arab countries was about 78.4 year observed in Jordan, while the lowest life expectancy observed in Djibouti, about 43.2 year. Life expectancy at birth in the highest six Arab countries in brain drain reached 71.3 year in Egypt, 70.9 year in Morocco, 72.9 year in Lebanon, 69.0 year in Iraq, 73.3 year in Algeria, and 70.3 year in Syria. The association between increasing life expectancy and increasing the streams of brain drain my returns to the above mentioned association between life expectancy and the improvement in many other variables. Improving of these factors increases the ambition and desire among highly educated persons for migration and searching about better opportunity for work and living outside their home countries. The relationship between life expectancy at birth and Arab brain drain is observed to be positive and statistically significant (Table 5 and Figure 3).

3.6. Gross Domestic Production (GDP)

Gross Domestic Production is one of the ways of measuring the size of economy. GDP is defined as the market value of all final goods and services produced within a country in a given period of time. It is also considered the sum of value added at every stage of production of all final goods and services produced within a country in a given period of time. GDP growth rate is a fundamental economic measure determines the improvement or reduction in the expenditure on services and goods. Theoretically, as the GDP growth rate increases, the level of expenditure on services and good production increases, and consequently the standard level of living raises and the level of migration go down. Table 4 shows that:

- GDP growth rate among Arab countries fluctuated from 8.8% as the highest positive growth rate observed in Qatar, to 0.5% as the lowest positive growth rate observed in Lebanon, and it reduced to -3.0% as the negative growth rate observed in Iraq in 2006.

- GDP growth rate of the highest six Arab countries in brain drain reached 4.9% in Egypt, 1.8% in Morocco, 0.5% in Lebanon, -3.0% in Iraq, 6% in Algeria, and 4.5% in Syria. Comparing the GDP growth rate with the population growth rate of these countries indicate that; Population growth rate of Lebanon and Iraq is higher than the GDP growth rate; Morocco achieved approximately equal growth rate of both GDP and population; while Egypt, Syria, and Algeria achieved a slightly higher growth rate of GDP than population growth rate. The accomplished GDP growth arte is inadequate to create substantial development in the levels of per-capita income, services provides, investment, job opportunities, and general standard of live. Another type of comparison can be utilized if the GDP growth rate is related to the percent of highly educated among emigrants from Arab countries. It indicates that the current level of GDP growth rate is insufficient to achieve a considerable economic, technologic and scientific improvement, attract the highly educated persons to stay in their origins. From our point of view, any GDP growth rate less than three times of population growth rate is insufficient to achieve a developmental level, which consider as a pull factor for Arab brains to stay in their origins.

- Given the low GDP growth rate among Arab countries and the positive correlation coefficient of GDP growth rate with Arab brain drain (table 5 and Figure 4), the study

expect the continuation of Arab brain drain in the future. It was estimated that, if the rate of GDP growth observed in Arab countries in the last quarter of the 20th century continues, it would take about 140 years to double the per capita GDP (Arab Human Development Report, 2002).

3.7. Per Capita Income

It means how much each individual receives, in monetary terms, of the yearly income that is generated in their country through productive activities. Per capita income is often used as a measure of the wealth of the population of a nation, particularly in comparison to other nations. It is usually expressed in terms of a commonly-used international currency, and is useful because it is widely known and produces a straight forward statistic for comparison. Per-Capita income is an economic measure for the well being and purchase parity of individuals. Theoretically, as the per-capita income increases, the tendency toward international migration decreases.

- The study indicates to a considerable fluctuation among Arab countries in the levels of per capita income. The highest level in per capita income is observed in Qatar (43 thousand Dollar annually) in year 2006, while it not exceed one thousand Dollar in Djibouti, Comoros, Mauritania, Somalia, Sudan, and Yemen.

- Per capita income of the highest six Arab countries in brain drain fluctuated between 1.3 thousand Dollar in Egypt, 1.7 thousand Dollar in Morocco and Iraq, 6 thousands dollar in Lebanon, 3.1 thousand Dollar in Algeria, and 1.6 thousand Dollar id Syria. It is clear that, the highest six Arab countries in brain drain (responsible about 77% of Arab brain drain to OECD countries) are suffer from a low level of per capita income. Low level of per-capita income is not concentrated only on the highest six Arab countries in brain drain but it extended to the majority of Arab countries, which indicate to the importance of per-capita income as a push factor for Arab highly educated persons. The correlation between levels of per-capita income in Arab countries and the streams of highly qualified emigrants is examined and the study indicates to the statistically significant positive association (Table 5 and Figure 5). The positive correlation coefficient indicates to

increasing the tendency among highly educated persons to migrate out side the origin in view of the current low per-capita income.

3.8. Population below Poverty Line

It is a theoretical line distributes the population according to the daily income. Persons with income less than 1$ per day are considered to be below the poverty line. The most important purpose of a poverty measure is to enable poverty comparisons. Measures of poverty have a very significant consideration in sustainable development. An increase in this indicator implies worsening of the poverty situation with a greater proportion of the population falling below the poverty line. In general, this indicator is linked to many other sustainable development measures, for example, net migration rate, adult literacy rate, and per capita income. As the proportion of population below the poverty line increases, the tendency of migration, especially among highly skilled persons increases.

- Data of table 4 indicates to variations in the percentage of population below poverty line among Arab countries. The lowest percent of population below poverty line observed in Tunisia (7.4%), and the highest percents are observed in Comoros (60%), Djibouti (50%), and Mauritania and Sudan (40%).

- Population below poverty line in the highest six Arab countries in brain drain reached about 20% in Egypt, 19% in Morocco, 28% in Lebanon, 25% in Algeria, 20% in Syria, while it was not determined for Iraq in 2006. Although, the high proportion of population below the poverty line among Arab countries, the study indicates to statistically insignificant association with Arab brain drain to OECD countries (Table 5). The insignificant association and the reverse correlation coefficient may returns to the unavailability of population below poverty line indicator in nine Arab countries (Iraq, GCC countries, Libya, and Somalia).

3.9. Investment Rate

It is defined as any use of resources intended to increase future production output or income. In economics, investment is the production per unit time of goods which are not consumed

but are to be use for future production. Investment is divided into foreign investment and residential investment. Investment is often modeled as a function of income and interest rates, an increase in income encourages higher investment, whereas a higher interest rate may discourage investment. Usually, the investment rate assess as a percent of GDP. Theoretically, as the investment rate increases, the tendency of migration, especially among highly educated persons decreases and vice versa.

- The available data (Table 4) indicates to the low level of investment among Arab countries. The highest investment rate was 23.7% of GDP observed in Morocco, while the lowest rate was 11.4% of GDP observed in Libya. Of course the stability of political, social, military and security situations plays an important role in attracting and allocation of new investment in general, and foreigner investment in particular. Many of Arab countries are far behind these stability situations in the recent time. The study indicates to the statistically significant correlation of investment rate with streams of Arab brain drain to OECD countries. The negative correlation coefficient implies as the investment rates decreases the level of Arab brain drain to OECD countries increases.

3.10. Inflation Rate

The word “inflation” refers to a general rise in prices measured against a standard level of purchasing power. Inflation is measured by comparing two sets of goods at two points in time, and computing the increase in cost not reflected by an increase in quality. There are, therefore, many measures of inflation depending on the specific circumstances. The most well known are the Consumer Prices Index (CPI) which measures the price of a selection of goods purchased by a "typical consumer”. Theoretically, as inflation rate increase, the purchase power decrease, consequently, the cost of living and the tendency for migration increases.

- Table 4 explains that, most of Arab countries are suffer from a high rate of inflation, and these inflation rates are increasing overtime. The inflation rate of Iraq is extraordinary; it reached 33% in 2006. The highest inflation rate among Arab countries was 11.8% in Yemen, while the lowest inflation rate observed was in Qatar, about 0.4%.

- The inflation rates in the highest six Arab countries in brain drain are fluctuated between the high, moderate, and low rates. It reached about 4.9% in Egypt, 33% in Iraq, and 5% in Syria, while Morocco, Lebanon, and Algeria have a moderate to low inflation rate, ranged from 1% to 2.4%. The linkage between the per-capita income and the inflation rate explain the impact of inflation rate on the increasing of migration rate, especially among highly educated persons. For instance, the lowest Arab countries in per-capita income (less than one thousand Dollar annually) are suffer from inflation rate exceeds 7%, such as Mauritania, Sudan, and Yemen (Table 4). The study noted to a positive correlation coefficient between the inflation rate and Arab brain drain to OECD countries (Table 5 and Figure 6).

3.11. Public Debt

It means borrowings by government to finance expenditures not covered by current tax revenues. To facilitate the comparison across times, or among countries, public debt is always measures as a percent to GDP. Increasing the public debt consider as deficient economic situation, and consequently as a push factor for migration.

- Most of the Arab countries are suffer from relatively high rates of public debt. Reviewing the data of table 4 enables to classify the Arab countries according to their public debt rates to four groups. The first group, contains the countries with extraordinary public debt rates (where the rates are higher than 100%, which means public debt value exceeds the GDP value), such as Egypt, Lebanon, and Sudan. The second group, contains the Arab countries with very high public debt rates (where the rates are higher than 50% of GDP), such as Jordan, Morocco, and Tunisia. The third group, contains the Arab countries with moderate public debt rates (where the rates are higher than 25% and less than 50% of GDP), such as Algeria, Bahrain, Qatar, Saudi Arabia, Syria, and Yemen. While the forth group contains the Arab countries with realistic public debt rates (where the rates are less than 25% of GDP) such as Kuwait, Libya, Oman, and United Arab Emirates.

- According to the above classification, it is clear that the highest six Arab countries in brain drain are fall in the highest groups, according to their public debt rates. The study found a positive correlation between increasing the public debt rates and increasing the

migration streams of talent persons in Arab countries, but the power of correlation was insignificant.

4. Conclusion and Policy Implication

4.1. Conclusion

The present study aims to investigating the major changes in the Arab brain drain to OECD countries, during the period 1990-2000 and to examining the current situation of the main socio-economic push factors acts behind the decision of emigration of highly qualified Arabians. The study depended on two sources of data:

- Docquier and Marfouk (2005) data set, which collected from all OECD countries and provided a description of the immigration structure by country of origin and educational level.

- Data of the World Fact Book (2006), which produced by the Central Intelligence Agency, Washington, USA and represents the most recent situation of the main socio-economic push-factors behind the movement of highly skilled migrants outside the Arab countries.

The study depended on the descriptive and comparison analysis types. Correlation Coefficient is applied as statistical measure to assess the impact of each socio-economic push factor on the emigration of Arab brain drain to OECD countries.

The study emphasis that:

- In general, the relative importance of the bulk of Arab brain drain to OECD countries is small (not exceeds 4.2% of all highly skilled immigrants to OECD countries), but they represent a respectable sub-group when they compared with the streams of emigrants from other regions. They represent about 35% of all highly skilled emigrants from Islamic countries; two-third of highly skilled emigrants from MENA region; and 57% of highly skilled emigrants from Western Asia region.

- Rate of Arab highly skilled workers among emigrants is three times higher than the rate of Arab highly skilled workers among residents (26.4% and 8.5% respectively).

- Rate of Arab brain drain to OECD countries increased by about 8.9% annually during the period 1990-2000.

- Egypt, Lebanon, Morocco, Iraq, Syria, and Tunisia respectively, are the highest six Arab countries in the bulk of brain drain. Their share of the total Arab brain drain to OECD countries is estimated by 75% in 1990, increased to about 77% in 2000.

- Arab brain drain to OECD countries represents about 9% of all highly educated residents in the working age groups. The reading of this percentages means, in front of each 100 highly educated residents in the working ages, there are another 9 are lost due to emigration.

- Lebanon, Somalia, Comoros, and Morocco respectively are the most influenced Arab countries by the phenomena of brain drain. Burden of brain drain in Lebanon is the highest. Almost 39% of Lebanon's highly educated persons are usually migrates to OECD countries. This percentage may move up to about 50% if we include migrants to other target countries rather than OECD.

- Migration of tertiary educated persons from Northern Africa region (Egypt, Libya, Tunisia, Algeria, Morocco, and Sudan) is the biggest brain drain stream among Arab regions. It represents about 52% of the Arab brain drain to OECD countries. The burden of Northern Africa brain drain can be explained if we know that, approximately 7.2% of the highly educated persons in the region are migrated to OECD country by year 2000.

- Change ratio of Arab brain drain to OECD countries approximately doubled during the period 1990-2000. All Arab countries achieved an increase in their brain drain change ratio during the study period. Increasing the change ratio of Arab brain drain over time reflects the strength of the economic, social, and political push factors in the origins. The highest change ratio in the Arab brain drain to OECD countries is generally associated

with the lowest economic development or the highest social/political instability in the sending countries.

- Approximately one-half of the Arab brain drains are directed to the American countries. American countries are the main destination of Arab brain drain from Egypt, Jordan, Kuwait, Palestinian, Qatar, Saudi Arabia, Sudan, Syria, and United Arab Emirates. More than two-third of emigrants from these countries preferred the American countries as final destination.

- European countries are the second destination of the Arab brain drain to OECD countries. Majority of highly qualified persons from Algeria, Comoros, Mauritania, and Morocco, preferred the European countries as final destination. More than two-third of brain drain streams from these countries are directed to Europe. The geographical proximate and historical ties with Europe, especially the French-speaking countries, shape this migration stream.

- Asia and Oceania are the third destination of Arab brain drain to OECD countries. Bahrain, Egypt, Lebanon, and Sudan are the most sending countries of highly skilled migrants to this region. 38% and 25% of the streams of highly educated emigrants from Bahrain and Lebanon respectively are preferred Asia and Oceania region as final destination. The geographical closeness and profusion of commercial opportunities may play an increasing role in attracting more highly skilled migrant to this region.

The study determined a set of eleven socio-economic push factors, which believes that they have the great impact on the choice of migration among Arab highly skilled persons, the study found that:

- GDP growth rate and GDP per-capita appears a significant positive correlation Coefficient ($P<0.05$) with the streams of Arab brain drain to OECD countries. The positive correlation indicates to inadequate levels of economic growth and social development in Arab countries to attract highly skilled persons to stay in origins.

- Illiteracy Rate appear a significant negative correlation coefficient (P<0.05), indicating that, as the illiteracy rate decrease the tendency among highly skilled persons to migrate increase, as a result of increasing the competition among educated persons on the available limited work opportunities.

- Dependency Ratio, and Life Expectancy at Birth have a significant positive correlation Coefficient (P<0.1) with the streams of Arab brain drain to OECD countries, while Investment rate have a significant negative correlation coefficient (P<0.1).

4.2. Recommended Policies

Migration can be both costly and beneficial for Arab countries. The main cost is the significant loss of human capital and subsequent manpower gaps in key-sectors for national development. However, migration contributes to enhance knowledge and technology transfers from developed countries. In particular, remittances from the Arab migrants contribute in major ways to the cumulative national purchasing power as well as to individual household income

- The potential loss of Arab brain drain is not only concentrated on the delay of development process, but it extend to delay the process of building the knowledge societies in their origins. Reducing the flood of that loss requires serious actions; firstly to tap the Arab brain drain abroad; and secondly to provide Arab expatriates with incentives to return to their homeland either on temporary assignments or for permanent. This will not happen unless the conditions at home countries are changed and become favorable to fulfillment in their personal, professional and public lives and that allow them to contribute to national development. Creating such conditions requires a serious project in human development and knowledge acquisition in Arab countries, to attract emigrants back to participate in creating a knowledge society and to share in the development process of their countries.

- One solution to the Arab brain drain includes establishing a network between the home country and its immigrant community abroad. The aim of such networks is to create “an

emigrant think-tank" of experts that will serve as a bridge with their country through the exchange of information, offering consultancies and coming on sabbaticals to their home countries.

- More focused infrastructure programs are important enabler on initiatives that indirectly affect decisions on migration. But, more generally, higher economic growth plane, increase employment, raise real income, and narrow the wage gaps between Arab workers and possible migration destinations are important elements to reduce the tendency of migration among Arab highly skilled persons.

- The wide collection of telecommunication instruments as part of the larger technology revolution has improved the prospects of reducing the magnitude of the brain drain. While the technology revolution seems to be set up for those skilled workers in ICT field, its influence actually cuts across all areas of professional work.

- The spreading of the use of internet as a real time communications media has effectively closed the gap between users and suppliers of high skill work without actual physical displacement. In particular, programming and software services are being transacted through the internet without the necessity of worker migration. This has had notable experience in India and Philippines. This approach can be adopted in the Arab countries by enhancing the spread availability of data fast transferring services and communications backbone. Aside from this, the development of labor services in this area will have ripple effects on other related and contributory services.

- Arab countries have an opportunity to gain a huge benefit from technology revolution of the recent global era. Technology revolution has recently activated the shifts in backroom tasks and services to lower wage developing countries. These backroom tasks ranged from accounting to database storage. This technology revolution will reduce the need to import skills and in the same time will encourage the development of related economic activities. Benefits of technology revolution is not concentrated only on Information and Communications Technology (ICT) field, the rest of occupations, where Arab highly skilled migrants are present, have also the opportunity to be affected through by varying degrees. For example on-line computer imaging now allow medical institutions to cross-

refer highly skilled diagnosis without movement of either patients or physicians and medical specialists. The potential of the technology is far-reaching and would have long-term impact on the cycle of both temporary and permanent migration from the Arab countries.

- League of Arab States, Arab Labor Organization, Arab Economic and Social Council, and Arab Non-governmental Originations interested in Brain drain are invited to set a complete Arab strategy to absorb and limit the phenomena of brain drain. This could be done in collaboration and benefits from the experience of other international organizations, such as UNISCO and ILO. The following suggestions may contributes in putting such strategy:

- Conducting a comprehensive survey aiming to determine the size of Arab highly qualified emigrants, area of destinations, fields of specializations, their relations and work conditions.

- Formatting a central Arab policy for labor force based on incorporation of Arab labor force, enables of exchange the oversize of labor force in some Arab countries with the deficient in other countries.

- Preparing a set of conferences for Arab emigrants aiming to better engagement of their efforts and experiences in the process of development in their origins, especially in the fields of technology transfer and projects' establishment.

Tables

Table 1: Share of Arab countries in the global brain drain to OECD countries, for some regions**

Regions	Share in OECD stock*		Emigration rate		Share in origin	
	Skilled	Total	Skilled	Total	Skilled workers Among residents	Skilled workers among migrants
Arab countries (1)	4.2%	5.5%	7.8%	2.6%	8.5%	26.4%
Islamic countries (2)	11.9%	14.4%	7.1%	1.6%	5.9%	28.7%
MENA countries (3)	6.0%	6.5%	8.9%	2.8%	9.4%	32.0%
Northern Africa (4)	2.2%	3.9%	7.3%	2.9%	7.5%	19.6%
Western Asia (5)	3.5%	5.3%	6.9%	3.5%	11.4%	22.9%

Source: World Bank Policy Research Working Paper, n. 33821, Release 1.0 (2004), and the updated version-Release 1.1 (2005).

*: OECD stock includes the unknowns and the dependent territories.

**: Regions selected include Arab countries.

(1) Arab countries: all the 22 country members of League of Arab States.

(2) Islamic countries: Arab countries plus (Afghanistan, Albania, Azerbaijan, Bangladesh, Benin, Brunei, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Gabon, Gambia, Guinea, Guinea-Bissau, Guyana, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Malaysia, Maldives, Mali, Mozambique, Niger, Nigeria, Pakistan, Senegal, Sierra Leone, Suriname, Tajikistan, Togo, Turkey, Turkmenistan, Uganda, Uzbekistan).

(3) Middle East and Northern Africa (MENA): Algeria, Bahrain, Cyprus, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Palestine, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, Yemen.

(4) Northern Africa: Algeria, Egypt, Libya, Morocco, Sudan, Tunisia.

(5) Western Asia: Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iraq, Israel, Jordan, Kuwait, Lebanon, Occupied Palestinian Territory, Oman, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen.

Table 2: Change in brain drain from Arab countries to OECD countries, 1990-2000

Country	Emigration from Arab countries to OECD countries. 1990, 2000										Brain drain change ratio 2000/1990
	1990					2000					
	Numbers of emigrants to OECD		Numbers of highly educated working-aged residents (Thousands)	Percentages		Numbers of emigrants to OECD		Numbers of highly educated working-aged residents (Thousands)	Percentages		
	Highly educated* (Thousands)	Total (Thousands)				Highly educated* (Thousands)	Total (Thousands)				
	(1)	(2)	(3)	(1/2)	(1/3)	(4)	(5)	(6)	(4/5)	(4/6)	(4/1)
Algeria	25.5	505.5	326	5.0	7.82	85.5	607.8	822	14.1	10.4	3.4
Bahrain	1.2	2.4	26	49.8	4.55	2.4	4.6	46	50.7	5.1	2.0
Comoros	0.1	3.6	2	3.7	6.65	1.3	10.0	5	13.4	27.0	10.1
Djibouti	0.2	0.8	2	20.4	8.05	0.6	1.6	5	37.5	12.3	3.8
Egypt	100.1	188.7	1604	53.0	6.24	149.4	253.9	3131	58.9	4.8	1.5
Iraq	34.3	91.1	388	37.6	8.83	95.1	246.4	758	38.6	12.5	2.8
Jordan	16.7	36.8	178	45.4	9.38	32.8	59.0	421	55.6	7.8	2.0
Kuwait	3.9	5.7	134	68.0	2.89	15.8	23.3	206	67.8	7.7	4.1
Lebanon	93.3	240.3	119	38.8	78.41	138.2	310.8	220	44.5	62.8	1.5
Libya	6.3	14.9	271	42.5	2.34	11.4	21.1	471	54.1	2.4	1.8
Mauritania	0.3	4.8	10	5.7	2.77	2.6	11.7	19	21.9	13.5	9.2
Morocco	80.4	731.4	291	11.0	27.64	141.2	1095.2	691	12.9	20.4	1.8
Palestinian*	9.8	21.0	123	46.8	7.98	18.0	32.7	232	55.0	7.7	1.8
Oman	0.3	0.8	74	38.9	0.39	0.8	1.3	139	62.7	0.6	2.7
Qatar	0.5	0.9	29	58.5	1.84	1.1	1.6	44	69.6	2.6	2.1
Saudi Arabia	6.0	11.5	639	51.8	0.93	10.7	16.6	1169	64.6	0.9	1.8

*: Occupied Palestinian Territory

Table 2: Continued

Country	Emigration from Arab countries to OECD countries. 1990, 2000										Brain drain change ratio 2000/1990
	1990					2000					
	Numbers of emigrants to OECD		Numbers of highly educated working-aged residents (Thousands)	Percentages		Numbers of emigrants to OECD		Numbers of highly educated working-aged residents (Thousands)	Percentages		
	Highly educated* (Thousands)	Total (Thousands)				Highly educated* (Thousands)	Total (Thousands)				
	(1)	(2)	(3)	(1/2)	(1/3)	(4)	(5)	(6)	(4/5)	(4/6)	(4/1)
Somalia	9.6	40.8	46	23.5	20.84	27.9	99.1	58	28.2	48.1	2.9
Sudan	**5.2**	**10.3**	**94**	**49.9**	**5.49**	**18.8**	**36.1**	**252**	**52.0**	**7.5**	**3.6**
Syria	**30.1**	**79.3**	**398**	**38.0**	**7.57**	**51.8**	**117.1**	**805**	**44.3**	**6.4**	**1.7**
Tunisia	**25.2**	**236.6**	**117**	**10.7**	**21.57**	**39.4**	**264.1**	**274**	**14.9**	**14.4**	**1.6**
United Arab Emirates	**0.4**	**1.1**	**113**	**39.1**	**0.39**	**2.1**	**3.1**	**208**	**67.4**	**1.0**	**4.8**
Yemen	**2.2**	**8.1**	**39**	**27.6**	**5.77**	**7.2**	**20.9**	**112**	**34.5**	**6.4**	**3.2**
Total	**451.6**	**2236.4**	**5023**	**20.2**	**8.95**	**854.2**	**3238.0**	**10088**	**26.4**	**8.5**	**1.9**

Source: World Bank Policy Research Working Paper, n. 33821, Release 1.0 (2004), and the updated version-Release 1.1 (2005)

Table 3: Change in brain drain from Arab countries to OECD countries by destination, 1990-2000

Country	Emigration from Arab countries to OECD countries. 1990, 2000							
	1990				2000			
	Destination countries				Destination countries			
	America[1]	Europe	Asia & Oceania[2]	Total	America	Europe	Asia & Oceania	Total
Algeria	21.7	77.1	1.2	25480	22.1	77.2	0.7	85537
Bahrain	57.3	27.0	15.7	1184	50.0	37.7	12.3	2351
Comoros	11.3	88.7	0.0	133	11.3	88.4	0.3	1349
Djibouti	28.6	58.4	13.0	161	26.0	70.1	3.9	615
Egypt	62.7	20.0	17.3	100060	67.1	20.9	12.0	149432
Iraq	55.9	34.3	9.8	34255	43.7	45.9	10.4	95086
Jordan	75.7	18.5	5.8	16697	79.2	15.8	5.0	32768
Kuwait	85.3	9.1	5.6	3875	82.3	11.7	6.0	15785
Lebanon	58.7	23.0	18.3	93312	62.2	25.0	12.8	138214
Libya	63.3	30.9	5.8	6344	58.7	37.3	4.0	11441
Mauritania	33.6	66.4	0.0	277	40.6	59.2	0.2	2556
Morocco	24.7	74.7	0.6	80431	24.8	74.7	0.5	141168
Palestinian*	92.2	7.4	0.4	9821	83.2	9.8	7.0	17977
Oman	47.6	50.3	2.1	292	64.0	27.8	8.2	791
Qatar	74.7	23.1	2.2	533	76.5	16.7	6.8	1128
Saudi Arabia	85.4	10.8	3.8	5952	82.5	14.8	2.7	10738
Somalia	27.1	71.3	1.6	9585	43.0	52.7	4.3	27916

Source: World Bank Policy Research Working Paper, n. 33821, Release 1.0 (2004), and the updated version-Release 1.1 (2005)

1: Including US, Canada, and Mexico.

2: Oceania indicates to Australia and New Zealand. *: Occupied Palestinian Territory

Table 3: Continued

Country	Emigration from Arab countries to OECD countries. 1990, 2000							
	1990				2000			
	Destination countries				Destination countries			
	America[1]	Europe	Asia & Oceania[2]	Total	America	Europe	Asia & Oceania	Total
Sudan	61.4	24.5	14.1	5157	60.4	28.7	10.9	18789
Syria	63.0	29.0	8.0	30134	62.3	33.3	4.4	51851
Tunisia	15.7	83.6	0.7	25238	17.8	81.7	0.5	39350
United Arab Emirates	60.4	37.6	2.0	439	74.7	18.5	6.8	2119
Yemen	55.5	38.8	5.7	2249	55.6	41.2	3.2	7218
Total	50.4	39.8	9.8	451609	49.5	43.7	6.8	854179

Table 4: Recent profile of the socio-economic push factors of migration in Arab countries, 2006

Countries*	Socio-economic Push Factors				
	Population growth Rate (%)	Unemployment rate	Dependency Ratio §	Illiteracy Rate (%)	Life Expectancy At Birth (Years)
Algeria	1.22	17.1	3.9	30.0	73.3
Bahrain	1.45	15.0	2.2	10.9	74.5
Comoros	2.87	20.0	6.0	43.5	62.3
Djibouti	2.02	50.0	3.5	32.1	43.2
Egypt	1.75	9.5	4.1	42.3	71.3
Iraq	2.66	25.0	4.8	59.6	69.0
Jordan	2.49	12.5	4.6	8.7	78.4
Kuwait	3.52	2.2	1.5	16.5	77.2
Lebanon	1.23	18.0	1.8	12.6	72.9
Libya	2.30	30.0	5.1	17.4	76.7
Mauritania	2.88	20.0	5.1	58.3	53.1
Morocco	1.55	11.0	3.3	48.3	70.9
Oman	3.28	15.0	4.0	24.2	73.4
Qatar	2.50	2.7	2.1	11.0	73.9
Saudi Arabia	2.18	13.0	4.6	21.2	75.7
Somalia	2.85	NA		62.2	48.5
Sudan	2.55	18.7	4.6	38.9	58.9
Syria	2.30	12.3	4.2	23.1	70.3
Tunisia	0.99	14.2	3.5	25.7	75.1
United Arab Emirates	1.52	2.4	1.0	22.1	75.4
Yemen	3.46	35.0	5.7	49.8	62.1

***: Palestine excluded from the table due to shortage of data. †: Out labor force due to unemployment excluded. §: (No. of dependent persons per a working person).**

Table 4: (continued)

Countries*	Socio-economic Push Factors					
	GDP (Real Growth Rate) %	GDP-per capita (Thousands $)	Population Below Poverty Line %	Investment (% of GDP)	Inflation Rate (Consumer Prices) %	Public Debt (% of GDP)
Algeria	6.0	3.1	25.0	22.6	1.9	30.2
Bahrain	5.9	18.4	NA	19.5	2.7	33.5
Comoros	3.0	0.6	60.0	NA	3.0	NA
Djibouti	3.5	1	50.0	NA	2.0	NA
Egypt	4.9	1.3	20.0	17.2	4.9	104.7
Iraq	-3.0	1.7	NA	NA	33.0	NA
Jordan	6.1	2.3	30.0	20.2	4.5	79.1
Kuwait	4.8	26	NA	14.3	4.1	12.1
Lebanon	0.5	6	28.0	18.4	2.4	180.5
Libya	8.5	6.7	NA	11.4	3.4	8.2
Mauritania	5.5	0.7	40.0	NA	7.0	NA
Morocco	1.8	1.7	19.0	23.7	1.0	72.0
Oman	4.3	12.7	NA	14.8	1.2	8.1
Qatar	8.8	43.1	NA	21.9	8.8	35.6
Saudi Arabia	6.1	13.4	NA	16.3	0.4	44.2
Somalia	2.4	0.6	NA	NA	NA	NA
Sudan	7.0	0.8	40.0	16.3	9.0	107.0
Syria	4.5	1.6	20.0	21.9	5.0	40.1
Tunisia	4.3	2.8	7.4	22.4	2.1	59.1
United Arab Emirates	6.7	27	NA	20.7	10.5	17.5
Yemen	2.4	0.6	45.2	14.2	11.8	34.4

Source: World Fact Book 2006, Central Intelligence Agency, Washington, USA

***: Palestine excluded from the table due to shortage of data.**

NA: Not Assigned

Table 5: Correlation coefficient of highly skilled migration rate with the socio-economic push factors, Arab countries (2000-2005)

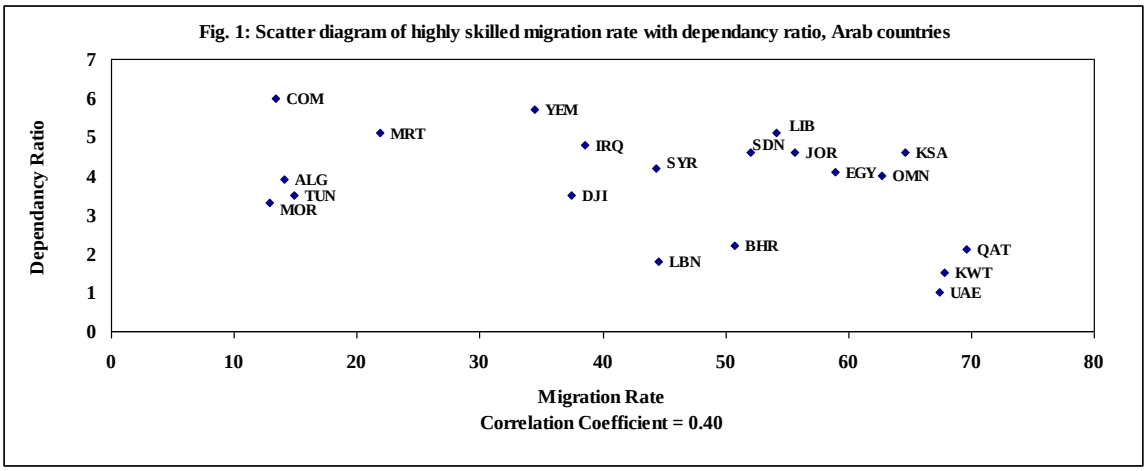
Socio-economic push factors	Pearson Correlation Coefficient
Population growth rate (PGR)	0.22 (0.34)
Unemployment rate	- 0.36 (0.12)
Dependency ratio	0.41 (0.08) †
Illiteracy rate	- 0.58 (0.01) $
Life expectancy at birth	0.41 (0.06) †
GDP Growth rate	0.43 (0.05) $
GDP per capita	0.66 (0.001) $
Population below poverty line (%)	- 0.03 (0.93)
Investment (as % of GDP)	- 0.48 (0.06) †
Inflation rate	0.06 (0.81)
Public debt (as % of GDP)	0.17 (0.53)

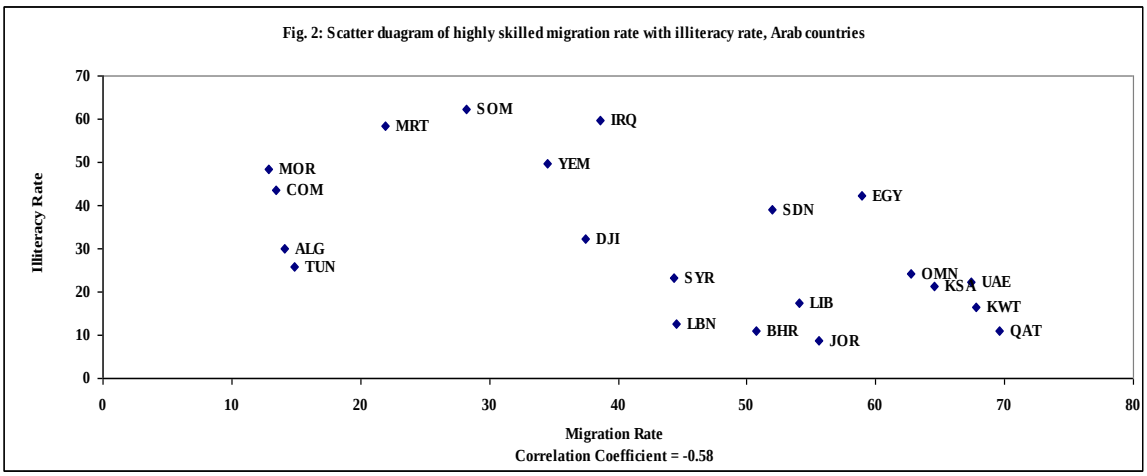
†: P< 0.1

$: P<0.05

Figures

Plots of the statistically significant socio-economic push factors with highly skilled migration rate, Arab countries





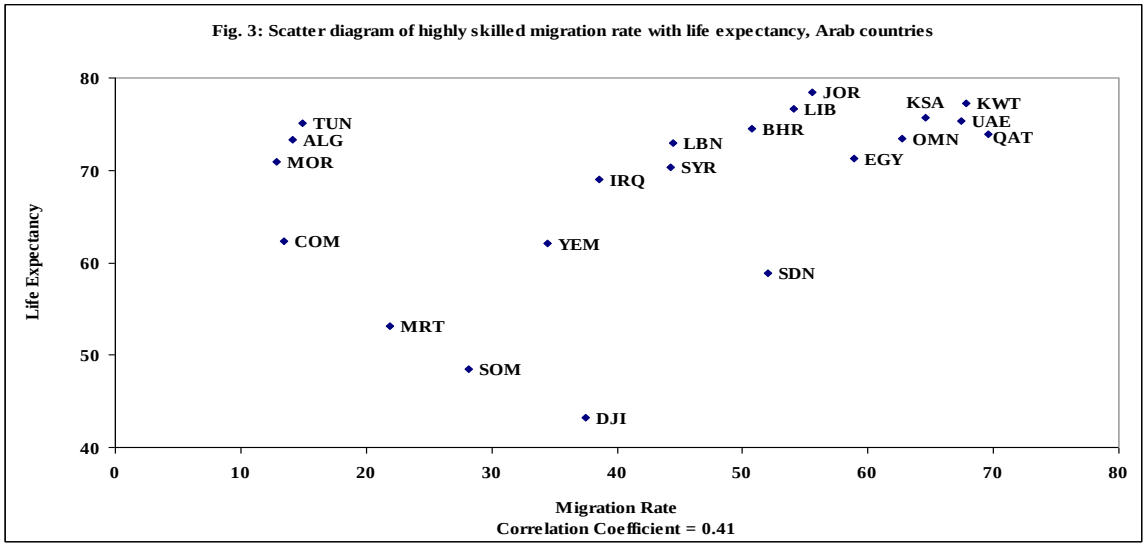


Fig. 4: Scatter diagram of highly skilled migration rate with GDP growth rate, Arab countries

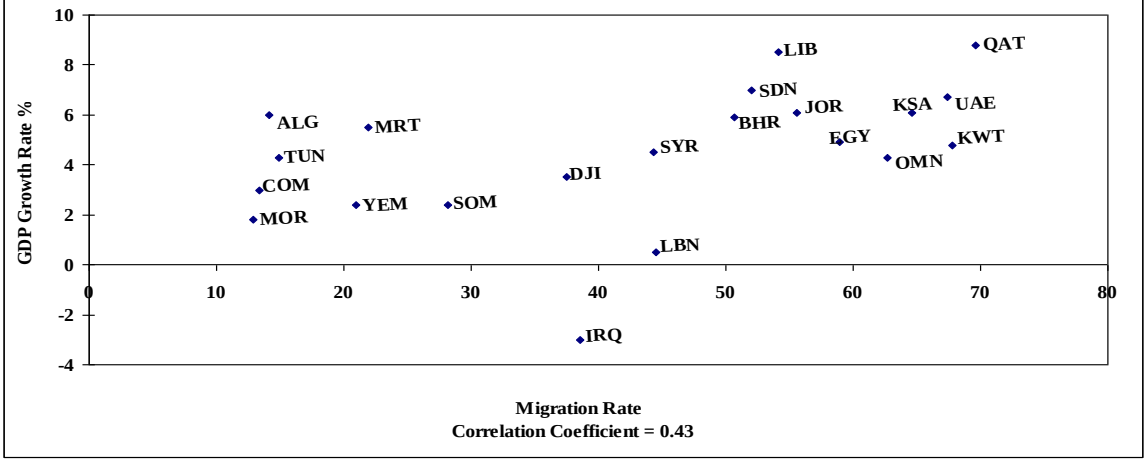


Fig. 5: Scatter diagram of highly skilled migration rate with GDP per capita, Arab countries

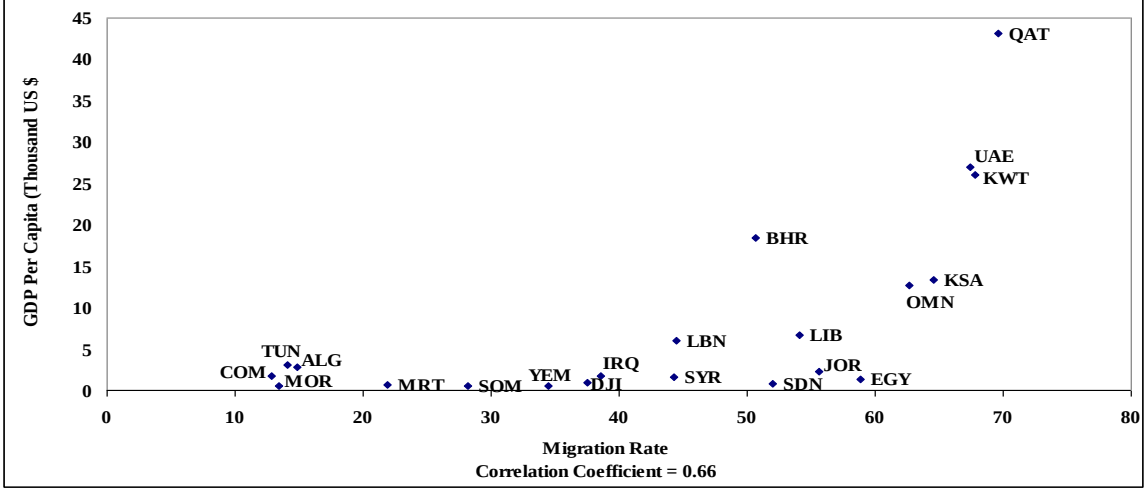
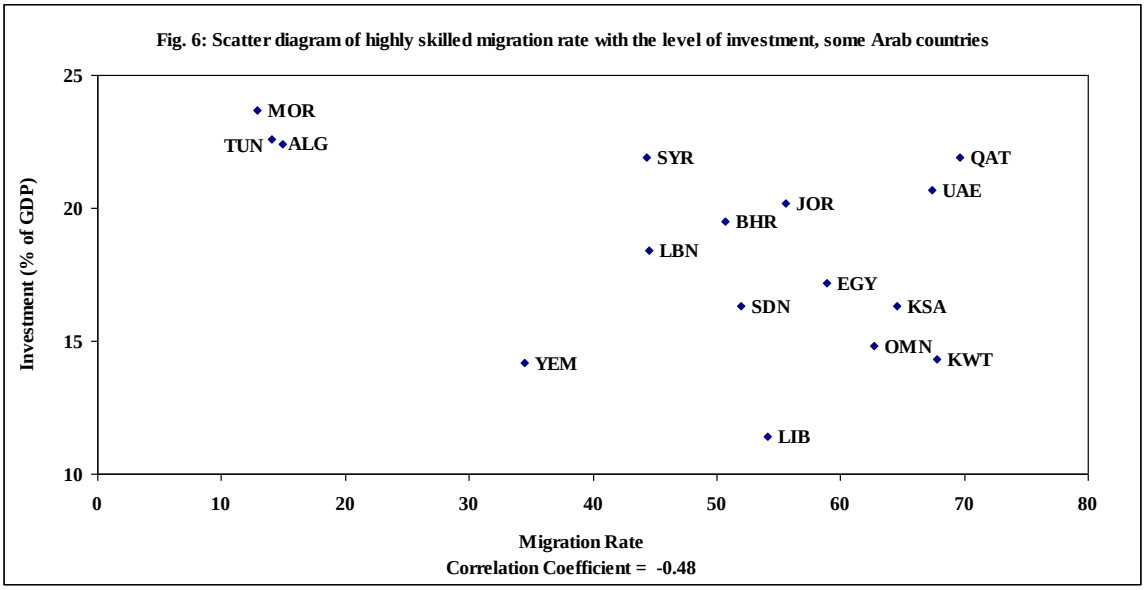


Fig. 6: Scatter diagram of highly skilled migration rate with the level of investment, some Arab countries



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CHAPTER THREE
INTRA-REGIONAL MIGRATION AS A TOOL IN ABSORBING ARAB UNEMPLOYMENT

1. Introduction

The Arab region is characterized by some contradictory economic phenomena related to migration and unemployment. On one hand, unemployment rate in Arab countries reaches on average 15% (three times higher than economically acceptable average) (Kapiszewski, 2003). On the other hand, the Gulf Cooperation Council (GCC)[1] countries, hosts the highest concentration of migrant labor in the world (Brian, 1998).

When domestic labor markets cannot fully absorb the increase in labor force, migration is an important channel for resolving local market imbalances with potentially large benefits to the individuals and nations involved. Arab labor movement is particularly important for countries facing excess labor supply (such as Egypt, Yemen, Syria, Palestine and Jordan), and countries facing excess capital supply (such as the GCC countries). This imbalance within the region creates an opportunity for a mutually beneficial exchange between the two groups of countries.

Despite an array of cross-cutting similarities, such as the commonness language, culture, history, the close geographic and political borders, and mostly religion, the percentage of Arab labor migrants in GCC countries is tend to decrease over time. The percentage of Arab labor in GCC decreased from about 70% in the sevenths of last century to only 25% - 30% in the recent time (Kapiszewski, 2003).

1.2. Study Objectives

In view of the above mentioned introduction, the present study has the following aims:

[1] Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE)

1. Reviewing the trend and profile of foreign labor in GCC countries, classified by major expatriate communities (Arab versus Asian labor), gender, educational level, and occupational structure.
2. Reviewing the bulk of unemployment in Arab countries, classified by youth unemployment, female unemployment and educational level.
3. Linkage between the above two sets of data to generate a hypothetical model to assess the impact of replacing Asian labor in GCC countries by similar qualified nationals and Arab unemployed persons.
4. Testing the impact of applying this model in reducing the bulk of unemployment in Arab countries.

1.3. Methodology

The Descriptive analysis will try to explain the variation in the two variables under study (migrant labors in GCC countries and unemployment in Arab countries). In Addition, some simple interpolations, simulation models, and mathematical equations will be applied to execute the hypothetical model and to measure its impact in reducing burden of unemployment in GCC countries and in the five[2] Arab countries that are mostly sending their migrant labor force to GCC countries. Detail description of the model specifications, relation between the model's variables, mathematical operations, assumption and limitation are provided in section III.

1.4. Data Sources

The study will use data collected by several international organizations such as: Arab Labor Organization (ALO), International Migration Organization (IOM), League of Arab States (LAS), and United Nations (UN) in addition to data from other published scientific papers.

[2] (Egypt, Yemen, Syria, Palestine, and Jordan)

2. Labor Migrants in GCC Countries

Difficult economic situation in many of Arab and South East Asian countries in the last few decades has made labor emigration an attractive option for citizens of these countries (Al-Najjar, 2001 and Abella, 1995). Such emigration has generally been supported by the governments of these countries to ease the pressure on labor markets, reduce unemployment, and accelerate development. At the same time the GCC countries appears as one of the attractive large market for Arab and Asian job seekers. Since the discovery of oil, these countries, suffering from a shortage in national manpower, have been employing a large number of migrant workers.

2.1. Trends in Labor Migrants in GCC Countries

At the beginning of the oil era, the majority of labor migrants to the GCC countries came from the neighboring Arab countries. Their linguistic, cultural and religious compatibility with the local populations made them more attractive to nationals than other non-Arab migrants. The largest labor sending countries were Egypt and Yemen and particularly to Saudi Arabia. Later (after 1973 war and the raise of oil prices), new waves of Arabs laborers arrived to GCC countries; Palestinians/Jordanian, Sudanese, and Syrian. Finally, many Indian, Pakistani, Bangladeshis, Filipinos, and Indonesians laborers went to the GCC countries. As a result, foreign laborers in GCC countries increased 39% in 1975 to reach about 70% in 2005. The period 1980-1995 represented the pick-up period of employing foreigner in GCC countries. After 1995, the percent of foreign workers tended to lessen slowly as a result of increasing the pressures of national unemployment (Table 1.1).

At the beginning the Arab workers were welcome, but relatively quickly, the preference of GCC countries governments changed, and they began to be more open to Asian workers. They were less expensive to employ, easier to lay-off and thought to be more efficient. Asian workers were also preferable as they were used to leaving their families in their home countries, whereas Arab immigrants usually brought their families to the Gulf with the hope of settling there permanently. This possibility was not acceptable for the GCC authorities.

A major shift in the composition of GCC countries foreign labor force occurred with Iraq's invasion of Kuwait (1991 Gulf War). Many Arab workers were distrusted and forced to leave

the GCC countries. Aapproximately 2 million Arab expatriate workers and their dependents were estimated to have been dislocated from their residences in GCC countries. Asian workers were the main beneficiaries of the results of this war. They replaced in the jobs that had originally been occupied by Arab migrants.

In 1975, the size of labor force was 2.8 million workers, 39 percent were expatriates. In 1995 foreign labor in GCC countries comprises 74% of the total workforce. Expatriates also constituted a majority of the labor force in each country; in 2000 the average was almost 70 percent, while in Qatar and the UAE almost 90 percent of the workforce was foreigners. Bahrain and Saudi Arabia had the lowest rates, but even there expatriates constituted 55 percent of the workforce; in Kuwait 80.4 percent of the workforce was foreign. These rates did not change much in the recent decade, implying that the percentage of foreign workers in the total GCC workforce has remained basically the same (see table 1.1).

2.2. Profile of Labor Migrants in GCC Countries

Non-nationals constituted a majority of the labor force in all the GCC countries, with the average for the year 2005 being close to 70 percent. The lowest rates were recorded in Qatar and Bahrain but even there expatriates constituted above 55% of the workforce. The highest rate of expatriates among workforce is observed in UAE and Kuwait, about 82%. Two-third of the workforce in Oman and Saudi Arabia are non-national (Table 1.2).

Analyzing of the current composition of foreign workers by region of origin indicate to decreasing the percentage of Arab workers in GCC countries to 23% in 2005. The reduction in the percentage of Arab workers associated with the increase in the percentage of Asian workers to reach about 70%. UAE and Oman are the highest among GCC countries depending on Non-Arab workers in their economies. Arab workers represent less than 10% of foreign workers in these two countries. Even though the percentage of Arabs among foreign workers in Qatar, Saudi Arabia and Kuwait not exceed 40%, but these countries consider as the highest among GCC countries in employing Arab workers (Table 1.3).

2.3. Women in the Labor Market of GCC Countries

Although worldwide there is an increasing trend in the female share to total migrant flow, the GCC countries are considered as one of the least receiving countries of female migrants. In general, participation of women in the labor market of GCC countries has been limited due to religious norms and tradition (Kapiszewski, 2001). Total percentage of female migrants in GCC countries is about 29 % of total migrants (Dito, 2008). GCC countries have the lowest proportions of female migrants (all below 35%). The proportion of women in the labor force in the GCC countries has risen since the late 1970s and early 1980s when they accounted for 10 per cent of the foreign workforce (UN, 2003). Moreover, female labor force participation has also increased among national women. Today, female migrants constitute one-third of the foreign labor force in Oman; one-fifth of that in Bahrain and Kuwait. However, in Qatar and Saudi Arabia, women account still fewer than 15% of the foreign workforce.

Improving education of women, the existing economic needs and changing attitudes to women work outside homes in the society are among the factors that have recently increased national women's participation in the workforce. The highest increase in the participation of national female in labor force observed in Kuwait, Qatar and Bahrain, where the participation rates of national female in national Labor force were 38%, 28%, and 27% respectively (Table 1.4).

In general, the majority of women in the GCC workforce are foreigners. Over than 80% of working women in UAE are expatriate, while in Bahrain it is 55%. Overall the GCC countries, national women comprised between 2-10 percent of the total national workforce, while expatriate women between 10-25 percent of the expatriate workforce. The gender dimension of the labor migration reflects the nature of labor demand in GCC countries. Domestic work remains the single most important profession among Asian women migrants in the GCC region. The heavy dependence on domestic home workers can be explained as outcome of both, improving living conditions, and increasing the participation rate of national females in the workforce.

2.4. Skills of Labor migrants in GCC Countries

Data of table 1.5 suggest that GCC countries absorb a wide range of labor migrants with different educational levels. In Saudi Arabia, for example, 41.7% of the expatriates in the labor market with no education (i.e., either illiterate or read and write). Similar observation can be said about UAE, Kuwait and Oman, with percentages 49.7%, 44.9%, and 51.2% respectively. In general we can conclude that, one-half of labor migrants in GCC countries with no education, one-forth with low education, and the other one-forth with intermediate and high education. The previous studies indicate to increasing the educational level among Arab workers in GCC countries compared with non-Arab workers, especially Asian migrants. The Saudi Labor Force Survey of 2002 found that the bulk of immigrant workers still have low levels of skills (54.1% with no education or only primary education), and particularly women immigrant workers (66.7% with no education or only primary education and only 9.6% with university education). Illiteracy rate among non-Arab workers in GCC countries is higher than the compatible rate among Arab workers (Shamsi, 2006).

Data on the occupational structure of Arab and Asian workers are available for Kuwait 2001 (Table 1.6) shows that, Arabs dominated the upper levels of occupational categories (Technical, Managerial, and Clerical), with a percent about 40% of Arab workers in Kuwait. Asians dominated the lower levels of occupational categories (Services, Agriculture, and Production), with a percent about 86% of Asian workers in Kuwait. The mid-skills category (Sales) evenly shared by Arabs and Asians, with some tendency toward Arabs, 9.2% and 4.6% respectively. The strength of the above distribution is more appearance among female foreign workers in Kuwait than male. More than 80% of Arab females participated in Technical, Managerial, and Clerical works, while the same percent among Asian female workers not exceed 10%. On contrast, majority of Asian female workers are dominated in services works (85.8%), while the same percent among Arab female workers not exceed 10%. In spite of the large decline in the number of Arab workers in 2000 and the substantial increase in the number of Asians, Arabs still held the majority of high-skill occupations.

Of course, we can't generalize the occupational structure of Kuwait on other GCC countries, but due to the close similarity in the economic structure and the same sending countries of

migrant workers, we can anticipate a great similarity between the occupational structure of Kuwait and other GCC countries. The previous studies suggested the same similarity

"***The picture that emerges, assuming that Kuwait in 2000 is representative of the Gulf region, is that Asian migrant workers are hired in all occupations but with a distinct bias toward low skill categories. The opposite is true for Arabs"*** (Girgis, 2002).

3. Unemployment in Arab Countries

The issue of unemployment in Arab countries is aggravated to the extent that the ultimate goal of development and inter-Arab cooperation is to support curbing unemployment. The general rate of unemployment in Arab states is more than 15.3%, which means that the Arab region has 15 millions struck by unemployment (ALO, 2005). Unemployment is a phenomenon that covers all Arab countries without exception.

3.1. Profile of Unemployment in Arab Countries

All societies suffer from unemployment. The full-employment is a hypothesis case. Economists described unemployment rates under 5% as the economically acceptable rate. Table 2.1 shows that, most of GCC countries have unemployment around this rate. The average unemployment rate of GCC countries is 4.7% in 2005. The highest rates of unemployment observed in Oman and Saudi Arabia, 7.5% and 6.1% respectively. The size of unemployment in GCC countries is 643 thousand. The size of unemployment in Saudi Arabia represents about 71% of the total unemployment in GCC countries. Size of unemployment in GCC countries represents only 6% of the size of foreign workers in these countries. From our opinion, any serious programs to replacing part of foreign workers by national unemployed persons can achieve its target and absorb unemployment in GCC countries, within a short-run plan. The cost of applying such programs will not be much higher than the saved remittances which were transferred abroad by replaced workers.

The strength of unemployment in non-Gulf Arab countries is more strictly. Table 2.2 shows that, all Non-Gulf Arabs countries feature unemployment rates higher than the economically acceptable level (5%). The overall average of unemployment is about 14.3%. Unemployment size in non-Gulf Arab countries reaches 10.3 million in 2005. Unemployment rates in the five Arab countries the most sending of migrants to GCC countries were 10.7% in Egypt, 16.3%

in Yemen, 23.5% in Palestine, 8.1% in Syria and 13% in Jordan. The size of unemployment in these five countries is about 3.9 million, represents about one-half of the size of Asian workers in GCC countries.

3.2. Gender Dimension in Youth Unemployment

Tables 2.1 and 2.2 show that, high rate of youth unemployment is the most obvious general characteristic in Arab countries. Unemployment rate is higher among youth than adults. The observation is true across a wide range of countries and across gender. Youth unemployment rate in GCC countries reached about 18.8% in 2005, with higher rate among females than males, 16.8% and 25.5% respectively. Saudi Arabia and Kuwait are the highest among GCC countries in youth unemployment rate, 25.9% and 23.3% respectively, while Qatar are the highest among them in Gender gap (unemployment among youth females is four times higher than unemployment among youth males). UAE has the lowest youth unemployment rate (6.3%). The gender gap is in the reverse direction in UAE and Bahrain, where unemployment rate among youth females is lower than unemployment rate among youth males.

Unemployment among youth in non-Gulf Arabs countries is higher and the gender gap is more obvious. Youth females are more vulnerable to unemployment threats than males. The average youth unemployment rate in non-Gulf Arabs countries is about 28.7%. Unemployment rate among youth females is observed to be as high as 2 times the rate for youth males in Egypt and Syria. Yemen, Morocco, Tunisia, and Lebanon have a lower unemployment rate among youth females than males.

In conclusion, we can say, part of the Arab countries (Saudi Arabia, Kuwait, Oman, Qatar, Sudan, Egypt, Algeria, Syria, and Jordan) is suffered from higher youth female unemployment rate than youth male. This may attributes to reducing to role of government, which was the major employer for females. In addition, the private sector does not prefer to employ national females to avoid their work's rights (such as paid leave for maternity, unpaid leave to care about family), thus, part of these countries (Gulf countries and Jordan) prefer to employ migrant workers.

In the other part of Arab countries (UAE, Bahrain, Morocco, Yemen, Tunisia, Palestine, and Lebanon), youth female has lower unemployment rate than youth male. The reasons for this are not totally obvious. One important reason may due to the fact that young women enter the labor market are generally more educated than male counterparts and can, therefore, find employment more quickly and easily. Another reason, it could be the greater demand on females in specific occupations (such as media, tourism services, information, network and telecommunication).

3.3. Skills of Arab Unemployment

The most important characteristic in evaluating the skills of unemployment is the educational level. Unemployment tends to vary with the educational levels of individuals. The first, important observation is that, unemployment is generally concentrated among youth with intermediate and high levels of education and is more restricted among persons with no or low levels of education. The difference in the percentage of unemployment among those with no education relative to those with intermediate education is tended to widen, (36.7% versus 13.6% in GCC countries, and 62.8% versus 3.2% in the five Arab countries the most sending of migrants). Persons with high education (University and above) constitute relatively a small fraction of the unemployed (7.4% in GCC countries and 19.6% in the five Arab countries the most sending of migrants), except in Jordan, where they make up about 34.2% (Table 2.3).

In general, the burden of unemployment in GCC countries, concentrate among persons with low education (42% of the size of unemployment), while the burden of unemployment, in the five Arab countries the most sending of migrants, concentrate among persons with intermediate education (63% of the size of unemployment). Egypt is the highest among the five countries the most sending of migrants abroad, suffering from burden of unemployment, it represents about 58.4% from the sum of unemployment size of these countries, while Saudi Arabia is the highest among GCC countries, suffering from burden of unemployment, it represents about 71.3% of the sum of unemployment size of GCC countries (Tables 2.4 & 2.5).

The previous literature may add additional information can help in predicting the actual profile of Unemployment in Arab countries. The average duration of unemployment is highest among youth (15-25 age groups). The incidence rate of unemployment is highest among first-time job seekers. The relationship between unemployment and education attainment appears to be negative, suggested a negative labor market returns to education, (Radwan, 2002),

3.4. The Relationship between Unemployment and Migration

The relation between unemployment and emigration is ambiguous and differ from one society to other. Although high unemployment rate is considered as a push factor for migrating from origin, but the decision on migration depends on other factors, mostly related to the pull factors in the destination. Positive relationship between increasing unemployment in Arab countries and increasing emigration streams, especially among persons with high educational level is observed. (Hassan, 2007). Little apparent relationship between unemployment and immigration in the United States is observed. While it might seem spontaneous that immigrants would compete with many native workers for jobs, and potentially cause unemployment to rise when jobs are relatively scarce, the fact is that the causes of unemployment are far from whether or not immigrants are in the labor force (Paral *et al*, 2009).

Turning to the exporting Arab countries of laborers to GCC countries, Egypt, Yemen, Syria, Palestine, and Jordan are the main countries. Jordan export workers to the GCC countries, but also import workers from neighboring countries like Egypt. Within this group, Egypt has been the largest labor exporter, sending about 10 percent of its labor force to other Arab countries. Egypt exported mainly educated skilled workers to the GCC and uneducated workers to Jordan and Lebanon. According to the estimates of the Central Agency of Public Mobilization and Statistics (CAPMAS) in 2000, Egyptian temporary migration flows comprise both highly skilled and unskilled persons. During the early 1970s, many Egyptian workers were employed in construction. Since then, the percentage of scientists and technicians has increased and the share of production workers has declined. More than 40 percent of Egyptian migrants in the region are skilled workers. However, unskilled laborers have been replaced by Asians workers to a greater extent than skilled workers. Based on the

work permits granted to Egyptians by occupation, Egyptian migrants in the Gulf countries are more skilled than those in Jordan, Lebanon, and Iraq. Jordanians and Palestinians were in the main skilled workers and professionals, Yemenis were mostly unskilled and semi-skilled. (Bardak, 2005).

4. The Hypothetical Model of Replacing Asian Workers By National and Arab unemployed persons

In the previous sections we reviewed the changes in the structure and characteristics of expatriate workers in GCC countries. Despite Arab workers share the same language, culture and attitude, and even religious, with national citizens, in addition to their advances in the educational levels and skills, but the main change in the composition of foreign workers in GCC countries shifted toward Asian workers.

The process and reasons of shifting from Arab workers to Asian workers passed through two stages:

The first stage began from the mid of 80s of last century, where the economic situation followed the sharp decline in oil prices and government's expenditure, forced governmental, public and private employers to cut costs, including labors. This also reinforced by a fundamental shift in the demand for labor, where most of infrastructure projects had been completed and a new emphasis was placed on maintenance rather than on building new projects. Given the fact that Asian workers were less expensive to employ, easier to lay-off, thought to be more efficient, and they were preferable as they used to leave their families in their home countries, a replacement of Arab migrants by less skilled Asian migrants started to take place.

Another reason contributed to the reduction in the size of Arab migrants in GCC countries is increasing the capability of nationals - as a result of increasing their educational, occupational and professional skills - to fulfill the positions that was initially devoted to Arab migrants such as teachers, journalists and clerks, among others, and, in general, in occupations that require dealing directly with the public.

The second stage occurred with Iraq's invasion of Kuwait (1991 Gulf War) where many Arab workers were distrusted and forced to leave the GCC countries. Aapproximately 2 million Arab expatriate workers and their dependents were estimated to have been dislocated from their residences in GCC countries. Asian workers were the main beneficiaries of the results of this war. They replaced in the jobs that had originally been occupied by Arab migrants.
Increases the pressure of unemployment in GCC countries during the recent decade did not affect the continuity of increasing the trend of employing expatriates, especially Asian, which indicate to the failure of nationalization programs in GCC countries from achieving an adequate success.

In this section, we will try to construct a hypothetical model to replace Asian workers by nationals and Arab unemployed persons through a short-run plan (3-5 years). The suggested model aims to the following:

a. Achieving the full employment of national unemployed persons or at least reducing unemployment to its minimum size.
b. Achieving one of the most important goals of Arab cooperation in the field of labor market, which is reducing the high unemployment rates and creating extra work opportunities for Arab workers.
c. Modifying the obvious unbalance in the structure of GCC labor market, which resulted from growing the size of Asian workers with its associated social and economic troubles.

4.1. Specifications of the Model

The model presented in this study will try to identify the size of unemployed nationals in GCC countries and in the Arab sending countries that can replacing a part of Asian workers in GCC countries. The model aims to achieve a kind of balance in the distribution of foreign workers in GCC countries (Asian versus Arab) and to reduce the high unemployment rate in GCC countries and in Arab sending countries.

4.2.The Model's Variables

Executing of the model will depend on three basic variables, namely are.

1- Classification of unemployment among nationals in GCC countries by their educational levels.
2- Classification of unemployment in the most sending Arab countries of migrants to GCC countries by their educational levels.
3- Classification of Asian workers in GCC countries by their educational levels.

4.3. Relation between the Model's Variables

In view of the current employment and migration conditions in GCC and Arab sending countries, and in view to the previously nationalization programs adopted by GCC governments, the relation between the model's variables (unemployment and migration), are assumed to follow the following hypothetical approach:

As unemployment rates among nationals in GCC countries increases, the tendency of governments to replace foreign workers (basically Asian workers) by unemployed national's increases. The governments will take specific direct actions to replace part of the Asian workers in the governmental sector and will take some indirect actions to enforce or encourage the private sector to do such replacing. The process of substitute will base on the equivalency in education levels.

As Unemployment rates in the sending Arab countries increases, the tendency among unemployed persons to migrate increases. This tendency is expected to associate with some sacrifices to go out of their unemployment status, such as acceptance of quiet low wages, more flexibility in work conditions, and tendency to migrate individually to reduce the cost of living in the receiving countries. In such situations the cost of recruiting Arab workers will be close to the cost of recruiting Asian workers. This new situations combined with the indirect action take from government's side may encourage the private sector (which employ 80% of foreign workers in GCC countries) to replace part of the Asian workers by counterpart Arab workers who are equivalent in their education levels.

4.4. Mathematical Operations of the Model

4.4.1. Mathematical Operations of Applying the Model

Due to the shortage of data regarding the distribution of foreign workers in GCC countries by their educational levels and/or occupational structure, the model tried to utilize the most available data sets as following:

1. Classification of Asian workers in GCC countries by their educational levels:

We follow the following steps:

a) Average distribution of foreign labor in GCC countries by educational levels (represents in Table 1.5) is interpolated in view of the size of Asian and Arab workers (represents in Table 1.3).
b) The results of interpolation are weighted in view the occupational structure of Asian workers in Kuwait 2001 (Table 1.6). Although we can't generalize the distribution of Asian workers in Kuwait as fully represents to the distribution of Asian workers in GCC countries as a whole, but many points of similarities are observed between both distributions. The same assumption is used by Nasra Shah (Shah, 2003, P7).
c) B**a**sed on the fact that Arab workers in GCC countries are higher in their educational level and occupational structure than Asian counterpart, higher weight are given to Asian workers with no and low educational levels, while higher weight is given to Arab workers with intermediate and above levels of education. d. As a result, the model reaches to the following educational structure of Asian workers:

- Asian workers w**i**th no education (illiterate or read and write) represents about 52.3% of the total Asian workers in GCC countries.
- Asian workers with low educational level (primary and preparatory) represent about 28.8%.
- Asian workers with intermediate educational level (General/vocational secondary, and above secondary) represents about 11.8%.

- Asian workers with high educational level (University and above) represents about 8.1%.

Results of interpolation and weight are represents in the column (A) in Table 3.1

Total number of Asian workers in GCC countries (Table 1.3) is redistributed in view of percentage distribution of Asian workers according to their educational levels Column (A) in Table 3.1 and represents in column (B) in Table 3.1.
Total number of national unemployed persons in GCC countries (Table 2.1) is redistributed in view of the percentage distribution of Asian workers according to their educational levels (Table 2.3) and represents in column (C) in Table 3.1.

Total number of unemployed persons in the most sending countries of migrants to GCC region is obtained from Table 2.2 and redistributed according to their educational levels (Table 2.3) and represents in column (D) in Table 3.1.

Rates of replacing nationals and Arab unemployed persons determined based on the model's assumptions (see sub-section of model's assumptions) and represents in columns (E) and (G) in Table 3.1.

No. of national unemployed persons will replace by each educational category is represents in Column (F) in Table 3.1. It calculated as the following equation:

$$F = \frac{B \times E}{100}$$

Where:
F: No. of national unemployed persons will replace
B: No. of Asian workers
E: Rate of replacing national workers

No. of Arab unemployed persons will replace by each educational category is represents in column (H) in Table 3.1. It calculated as the following equation:

$$H = \frac{B \times G}{100}$$

Where:

H: No. of national unemployed persons will replace

B: No. of Asian workers

E: Rate of replacing Arab unemployment

4.4.2. Mathematical Operations of the Model's Impact

The model constructed the following mathematical relation to assess its Impact in reducing the unemployment rates among nationals in GCC countries and in the Arab five countries most sending of migrants to GCC region, and to achieved an adequate balance in the composition of foreign labor market in GCC countries. They are represents in Tables 3.2 and 3.3.

1. Unemployment sizes and unemployment rate are obtained from Tables 2.1 and 2.2 and they represent in columns (A) and (B) in Tables 3.2 and 3.3.
2. Estimation of the labor force size of each country is represents in column (C) in Tables 3.2 and 3.3 and it calculated as the following equation.

$$\boldsymbol{C = \frac{A}{B} \times 100}$$

Where:

C: Estimation of labor force size for each country

A: Unemployment size for each country

B: Unemployment rate for each country

Column (D) in Tables 3.2 and 3.3 represents the percentage distribution of unemployment size.

Sum of Column (E) are obtained from Table 3.1. It represents the estimated reduction in unemployment size as a result of applying the model. The sum is distributed in view of the percentage distribution of unemployment size in column (D) to get the estimated reduction in unemployment size for each country (in Tables 3.2 and 3.3).

The estimated new unemployment rate for each country is represents in column (F) in Tables 3.2 and 3.3. it calculated as the following equation :

$$F = \frac{(A - E)}{C} \times 100$$

Where:

F: The estimated new unemployment rate as a result of applying the model, for each country.

A: Unemployment size for each country

E: The estimated reduction in unemployment size for each country

C: Estimated labor force size

4.4.3. Assumptions of the Model

The suggested model will construct under the following assumptions: No change in the quality of services and/or production will occur. The best guarantee of achieving this assumption is that, Asian workers will replace by equivalent national or Arab unemployed persons.

The model's execution assumes a short-run plan and specific rates of replacement as following:

Three years to replace 5% of Asian workers with no education by the equivalent national and Arab unemployed persons (2% for national and 3% for Arab).

Five years to replace 50% of Asian workers with low educational level by the equivalent national and Arab unemployed persons (14% for national and 36% for Arab).

Five years to replace 50% of Asian workers with intermediate educational level by the equivalent national and Arab unemployed persons (28% for national and 22% for Arab).

Five years to replace 50% of Asian workers with high educational level by the equivalent national and Arab unemployed persons (7.5% for national and 42.5% for Arab).

4.4.4.Limitations of the Model's Success

As the previous studies indicates, the private sector in GCC countries absorbing more than 80% of expatriate workers. For that, the process of replacing Asian workers by Arab unemployment should conduct with no/or minimum additional costs on employers (i.e. the same prevalence level of wages for Asian workers will apply on the replaced Arab unemployment).

Regarding the national unemployed persons, the suggested model expects entering of GCC governments to reimburse employer who will be willing in employing national workers. The existing Human Resources Development Funds and Unemployment Funds can play a great role in this extent. These funds can be self-financed from issuance/renewing the work's permits to foreigners, in addition to governmental financial support. The model suggests reimbursing employers by 50% of the salary of national unemployed person, in order to encourage private sector's employers to hire national unemployed persons, and for duration of 3 years, until the national persons gains the expected talents and skills to achieve jobs with an adequate degree of performance. Whatever, the model expect, the financial support that will be directed to the replacing process will be balanced with the saved remittance due to the reduction in the size of expatriate workers.

Despite the models is constructed on the principle of selecting the equivalent alternative in the replacement. The model can achieve more success, if the principle of shifting across the educational levels is permitted (i.e. replacing part of non-educated Asian workers by national and/or Arab unemployed persons, with low educational level. Another alternative is replacing part of Asian workers, with low educational level, by national and/or Arab unemployed persons, with intermediate educational level). Such shifting will achieve a great impact in enhancing the educational, technical, and skill composition of labor market in GCC countries.

The replacing process will covers the existing jobs occupied by Asian workers, while the future job opportunities, will be basically assigned for new entrants to labor market from nationals and/or Arabs.

Lastly, the model assumes a great sense of cooperation and a real tendency of change among all Arab countries toward achieving Pan-Arab labor market. This will require efficient actions from the side of GCC countries to activate and implement all the declarations and agreements in this field form 1968 till now.

In 1968, the Arab Labor Organization called all the Arab states to give priority to Arab workers; in 1975 a similar resolution was adopted by the Arab League. The Strategy for Joint Arab Economic Action of the 1980s stated that *"Arab manpower must be resorted to increasingly reduce dependence on foreign labor."* In 1984, the Arab Declaration of Principles on the Movement of Manpower stressed once more the need to give preference to Arab nationals before the nationals of third countries. In the annual GCC summit held in Bahrain in December 2004 where the presence of expatriates was described as *"a danger for our Arab-Islamic culture" ,* and lastly in The Manama Dialogue Forum, held in the Kingdom of Bahrain in mid-December 2008", where it stated *"There is also a need to work on having a more diversified immigrant workforce. The focus should be on recruiting Arab workforce, whose specialization, culture and language is akin to that of Gulf countries. On the other hand, steps should be taken towards greater Arab economic integration and for addressing rising unemployment in the Arab world that has reached dangerous proportions"***.**

Detail description of the model's mathematics equations are provided under tables 3.1, 3.2, and 3.3. They represent the results of applying the suggested model. They show that:

5. Impact of Applying the Hypothetical Model on GCC Countries

The suggested model will achieve approximately, the full employment to the current cohort of unemployed persons in GCC countries. It expected to achieve 99% of employment to the current cohort of unemployed nationals. Unemployment rate will reduces to less than 1% in all GCC countries (Table 3.2).

The suggested model will offer 637 thousand work opportunity for national unemployed persons, distributes as following; 74 thousand (11.6%) work opportunity for unemployed persons with no education; 286 thousand (44.8%) for unemployed persons with low education; 234 thousand (36.8%) for unemployed persons with intermediate education; and 43 thousand (19.2%) work opportunity for unemployed persons with high education (Table 3.1).

The model will achieve a kind of balance in the composition of foreign labor markets in GCC countries, where the size of Asia labor will reduce from 69.8% to about 51% of the size of foreign workers in GCC countries, while the size of Arab workers will shift from 23.3% to be around 35.8% of foreign workers. The size of national employees will also rise from 29.8% to about 33.8% of the size of labor force in GCC countries (as a result of applied the model).

Since the unemployment rate among national youth females, in most of GCC countries, is higher than the compatible rate among youth male, and they are mostly characterize by higher educational level. The model guarantee more than 43 thousand work opportunity through the process of replacing Asian workers with high educational level. Of course, most of these jobs will be directed to unemployed youth females. In additional, youth females will have an adequate share from about 234 thousand work opportunity will be directed to national unemployed persons with intermediate educational level.

6. Impact of Applying the Hypothetical Model on Sending Countries

The suggested model will replace about 1.3 million Asian workers in GCC countries by their equivalent from the current cohort of unemployment in the five Arab countries the most sending of migrants to GCC countries (Table 3.1).

The suggested model will achieve a reduction in size of unemployment in the five Arab countries the most sending of migrants by 32.8% (about 1.3 million unemployed person), distributes as following; 111 thousand (8.7%) work opportunity for unemployed persons with no education; 735 thousand (57.7%) for unemployed persons with low education; 184 thousand (14.4%) for unemployed persons with intermediate education; and 244 thousand (19.2%) work opportunity for unemployed persons with high education (Table 3.3).

The suggested model will achieve a reduction in unemployment rate of the five Arab countries the most sending of migrants by 3.8 percent (from 11.6 to 7.8). More specifically, unemployment rate of Egypt will reduce (as a result of applied the model) form 10.7% to 7.2%; in Yemen from 16.3% to 10.9%; in Syria from 8.1% to 5.4%; in Palestine from 23.5% to 15.8%; lastly, in Jordan from 13% to 8.7% (Table 3.3).

7. Policy Implications

In view of the analysis and discussions emerged in the study, the following recommendations and policy implications are worth considering:

1. Lack of timely and routinely available data on the subjects of labor migrants in GCC countries and unemployment in Arab countries, in addition to the discrepancies in the definitions between different data sources, makes the analysis of trends, and the prediction of the future phenomena is difficult. The study suggests that, Arab Labor Organization (ALO) should carry the responsibility of collecting data from its official sources in Arab countries, based on specific definitions, classifying, analyzing, and publishing these data in a yearly statistical book.

2. Despite, the current wages of Asian workers in GCC countries are unattractive for many of unemployed persons in Arab countries to migrate and work in GCC countries, especially those with intermediate and high educational levels. The study recommends that a package of indirect assistances should be directed to Arab migrants in GCC countries. These assistances aim to increasing the attractiveness of Gulf market and lessening the cost of living for those migrants. These include but not limit to:

    a. Free health fees and health insurance for the migrants as well as their families, if they were accompanied.

    b. Free issuance/renewal of residence permits, work permits, driver's license etc.

c. Another mechanism that may indirectly assist in achieving the balance in the foreign labor markets in GCC countries is raising the fee that an employer must pay for bringing and/or hiring non-Arab worker.

3. To guarantee an effective Pan-Arab labor market, the following recommendations are important:

   a. Establishing an organizational body responsible for design, follow-up, implement and developing pan-Arab legal instruments for employment throughout Arab countries. It aims particularly, to ensuring a standard contract types with detail and clear determinations of the duties and rights of employee and employer.

   b. Establishing Arab Labor Court. It consists of judges from sending and receiving Arab countries. It will be responsible for fast and final judging in the discrepancies that may appears between employer and employee.

   c. Despite the higher educational levels and occupational structures among Arab workers than Asian workers, but the study recommends that, Arab region is in mass need to establishing an organizational body responsible for design, plan, follow-up and evaluate a pan-Arab training programs. Designing of these training programs should be at international standards. These training programs aim to enhance the capacity and skills of Arab labor to satisfy the needs of Arab and international labor markets. These training programs will implement, either in the country of origin, before migration, or on-site training at the place of destination. The certificate of completing these training will be highly appreciated and will be mostly required for jobs with high and intermediate educational levels. Similar vocational training programs should design and implement for workers with low or intermediate vocational education levels.

   d. Developing new financial and banking tools in GCC countries enables Arab workers to keep and investment their remittances for different periods of time and with an encouraging rate of interest. Such tools will be useful for both, the workers and the economies of GCC countries. In one hand, it will maximize the

value of worker's remittance at the end of their works. In other hand, it will delay transferring these remittances abroad, and increase the revenue from reinvestment of these remittances inside the society.

Tables

Table 1.1: Trend in the percentage of expatriates in the labor force of GCC countries, 1975-2000										
GCC Countries	**Years**									
	1975		**1980**		**1985**		**1995**		**2000**	
	No. (000s)	**% of expatriates**	**No. (000s)**	**% of expatriates**	**No. (000s)**	**% of expatriates**	**No. (000s)**	**% of expatriates**	**No. (000s)**	**% of expatriates**
Saudi Arabia	1,923.7	25.2	3,212.7	52.7	4,342.1	62.7	6,450.0	63.5	7,176.3	55.8
UAE	278.8	84.0	706.3	92.4	865.3	90.6	1,088.2	89.8	1,355.7	89.8
Kuwait	304.6	81.8	491.5	84.9	670.4	85.7	1,051.5	83.4	1,320.1	80.4
Oman	225.0	31.1	280.0	40.0	369.0	51.8	670.3	64.2	858.7	64.3
Qatar	68.7	83.0	95.6	82.6	100.2	76.5	218.0	82.1	-	90.0
Bahrain	60.0	81.8	142.4	57.0	170.6	57.9	226.5	60.0	-	54.0
Total	**2,860.8**	**39.0**	**4,928.5**	**61.6**	**6,517.6**	**68.2**	**9,704.5**	**74.0**	**-**	**64.0**

Source: Nasra, Shah , Patterns of Arab Migration in Gulf, Regional conference on Arab Migration in View of Globalization, September 2003, Cairo. Egypt. P 13.

Table 1.2: Distribution of national and non-national labor in GCC countries, 2005					
GCC Countries	**Labor force size**				
	Total	**National**		**Non-national**	
		No.	**%**	**No.**	**%**
Saudi Arabia	7,579,000	2,685,000	**35.4**	4,894,000	64.6
UAE	3,315,000	577,000	**17.7**	2,738,000	**82.3**
Kuwait	1,594,603	291,812	**18.3**	1,302,791	**81.7**
Oman	914,000	309,000	**33.9**	605,000	**66.1**
Qatar	555,714	240,680	**43.3**	315,034	**56.7**
Bahrain	522,000	216,000	**41.4**	306,000	**58.6**
Total	**14,480,317**	**4,319,492**	**29.8**	**10,160,825**	**70.2**

Source: Arab Labor Organization (ALO) database.

Table 1.3: Major Communities of expatriate labor in GCC countries, 2005							
GCC Countries	**Expatriate labor by communities**						
	Total of expatriate workers	**Arab**		**Asian**		**Others**	
		No.	**%**	**No.**	**%**	**No.**	**%**
Saudi Arabia	4,894,000	1,527,000	**31.2**	2,902,000	**59.3**	465,000	**9.5**
UAE	2,738,000	238,000	**8.7**	2,386,000	**87.1**	114,000	**4.2**
Kuwait	1,302,791	403,000	**30.9**	851,000	**65.3**	48,791	**3.7**
Oman	605,000	34,000	**5.6**	559,000	**92.4**	12,000	**2.0**
Qatar	315,034	126,013	**40.0**	144,915	**46.0**	44,106	**14.0**
Bahrain	306,000	38,000	**12.4**	245,000	**80.1**	23,000	**7.5**
Total	**10,160,825**	**2,366,013**	**23.3**	**7,087,915**	**69.8**	**706,897**	**7.0**

Source: Arab Labor Organization (ALO) database.

Table 1.4: Trend in the percentage of female participating in labor force, in GCC countries, different years.				
GCC Countries	**Year**	**% of Female participating in labor force**		
		Total Labor force	**National labor force**	**Foreign Labor force**
Saudi Arabia	**1974**	5.6	5.7	5.1
	2002	14.4	14.8	14.1
UAE	**1980**	5.0	3.6	5.1
	2000	13.2	-	-
Kuwait	**1995**	26.1	31.9	24.6
	2003	25.4	38.2	22.4
Oman	**1993**	9.6	8.4	10.4
	2001	-	-	34.5
Qatar	**1986**	9.5	14.3	8.9
	2001	15.5	28.3	13.4
Bahrain	**1981**	13.0	18.5	8.6
	2003	22.4	27.2	19.1

Source: United Nations 2003; the Cooperation Council of Arab States of the Gulf, information center, Statistical Department.

Table 1.5: Distribution of foreign labor in GCC countries by educational level, different years						
GCC Countries	**Year**	**Educational level**				
		Illiterate	**Read & write**	**Low**	**Intermediate**	**High**
Saudi Arabia [§]	**2002**	12.5	29.2	12.3	27.2	18.8
UAE	**1985**	25.4	24.3	19.8	19.8	10.7
Kuwait	**1996**	14.1	30.8	27.8	14.7	12.6
Oman	**1993**	20.5	30.7	24.0	10.9	13.9
Qatar	**1994**	12.4	3.0	4.7	16.1	63.8
Bahrain	**1991**	9.6	24.4	31.0	18.4	16.6
Averages*		**18.4**	**28.1**	**24.5**	**15.7**	**13.3**

Low: Primary and preparatory educational level.

Intermediate: Secondary educational level (general or vocational).

High: Above intermediate/University and above educational level.

*** :** Weighted by the number of workers.

Sources: Regional Report on Arab Labor Migration 2006. Population Policies and Migration Department, League of Arab States.

§: data of Saudi Arabia obtained from Population Census 2002.

Table 1.6: Distribution of Arab and Asian foreign labor by occupational structure and gender, Kuwait 2001.												
Occupational Structure	**Foreign workers**											
	Arab						**Asian**					
	Male		**Female**		**Total**		**Male**		**Female**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
professionals & technical	36,940	**13.7**	11,763	**46.2**	48,703	**16.5**	20,206	**4.2**	9,743	**5.4**	29,949	**4.5**
Administrative & managerial	11,864	**4.4**	586	**2.3**	12,450	**4.2**	6,254	**1.3**	180	**0.1**	6,435	**0.9**
Clericals	47,187	**17.5**	8,402	**33.0**	55,589	**18.9**	21,649	**4.5**	6,135	**3.4**	27,784	**4.2**
Sales workers	25,346	**9.4**	1,859	**7.3**	27,205	**9.2**	26,941	**5.6**	3,609	**2.0**	30,550	**4.6**
Services workers	22,919	**8.5**	2,470	**9.7**	25,389	**8.6**	117,867	**24.5**	156,978	**87.0**	274,845	**41.5**
Farmers & related works	3,236	**1.2**	0	**0.0**	3,236	**1.1**	9,622	**2.0**	0	**0.0**	9,622	**1.5**
Production & related works	122,146	**45.3**	382	**1.5**	122,528	**41.5**	278,550	**57.9**	3,789	**2.1**	282,339	**42.8**
Total	**269,638**	**100.0**	**25,461**	**100.0**	**295,099**	**100.0**	**481,088**	**100.0**	**180,435**	**100.0**	**661,523**	**100.0**

Source: Regional Report on Arab Labor Migration 2006. Population Policies and Migration Department, League of Arab States

Table 2.1: Profile of Unemployment in GCC countries, 2005						
GCC Countries	No. of unemployed	Unemployment rate		Unemployment rate among youth		
		Among national labor force*	Among All labor force	Male	Female	Total
Saudi Arabia	458,587	**17.1**	**6.1**	24.4	31.6	**25.9**
UAE	59,041	**10.3**	**2.3**	6.4	5.7	**6.3**
Kuwait	27,438	**9.5**	**1.7**	13.3	24.4	**23.3**
Oman	68,550	**22.2**	**7.5**	17.7	22.3	**19.7**
Qatar	11,114	**6.4**	**2.0**	11.6	50.9	**17.0**
Bahrain	18,768	**8.7**	**3.4**	27.5	17.8	**20.7**
Total	**643,498**	**14.9**	**4.7**	**16.8**	**25.5**	**18.8**

Source: Arab Labor Organization (ALO).

*: Calculated based on the number of national labor force represents in table 1.2.

Table 2.2: Profile of Unemployment in some Arab countries, 2005					
Countries	No. of unemployed	Unemployment Rate	Unemployment rate among youth		
			Male	Female	Total
Sudan	2,600,000	18.5	36.6	43.3	41.3
Egypt*	**2,267,000**	**10.7**	**18.4**	**37.2**	**25.8**
Morocco	1,748,980	15.7	16.2	14.4	15.7
Algeria	1,448,000	15.3	47.2	56.4	45.6
Yemen*	**834,057**	**16.3**	**20.5**	**13.5**	**18.7**
Tunisia	486,307	14.2	28.9	20.2	26.5
Syria*	**412,860**	**8.1**	**16.0**	**33.7**	**19.9**
Jordan*	**170,700**	**13.0**	**35.5**	**55.0**	**38.9**
Palestine*	**194,000**	**23.5**	**33.6**	**30.7**	**33.1**
Lebanon	90,744	8.2	22.8	17.4	**21.3**
Total	**10,252,648**	**14.3**	**27.6**	**32.2**	**28.7**

Source: Arab Labor Organization (ALO).

*: Most Arab countries sending of migrants to GCC countries.

Table 2.3: Distribution of unemployment by educational level in some GCC countries and some Arab sending countries, of migrant labor to GCC countries, different years					
Countries	**Year**	**Distribution of unemployment by educational Level**			
		Illiterate / Read & write	**Low**	**Intermediate**	**High**
GCC countries					
Bahrain	**2003**	2.3	38.6	39.8	19.3
Oman	**2002**	16.7	43.3	35.9	4.1
Average*		**13.6**	**42.3**	**36.7**	**7.4**
Sending countries					
Egypt	**2001**	1.8	1.4	75.3	21.5
Syria	**2002**	11.5	69.0	16.4	3.1
Jordan	**2004**	2.2	54.2	9.4	34.2
Average*		**3.2**	**14.4**	**62.8**	**19.6**

Source: Bahrain data of ILO 2004; Oman ILO 2002; Egypt CAPMAS 2001, Syria Labor Force Sample Survey 2002; and Jordan Department of Statistics 2004.

***:** Weighted by number of Unemployment in each country in 2005 (from Tables 2.1 and 2.2).

Table 2.4: Estimation of unemployment's size by educational level, GCC countries 2005.					
GCC Countries	**No. of unemployed persons**	**Educational Level**			
		Illiterate / Read & write	**Low**	**Intermediate**	**High**
Saudi Arabia	458,587	62,367	193,983	168,301	33,936
UAE	59,041	8,030	24,974	21,668	4,369
Kuwait	27,438	3,732	11,606	10,070	2,030
Oman	68,550	9,323	28,997	25,157	5,073
Qatar	11,114	1,512	4,701	4,079	822
Bahrain	18,768	2,552	7,939	6,888	1,389
Total	**643,498**	**87,516**	**272,200**	**236,163**	**47,619**

Source: based on data of tables (2.1 & 2.3).

Table 2.5: Estimation of unemployment's size by educational level, in the Arab countries, most sending of migrants to GCC countries, 2005					
GCC countries	**No. of unemployed persons**	**Educational Level**			
		Illiterate / Read & write	**Low**	**Intermediate**	**High**
Egypt	2,267,000	72,544	326,448	1,423,676	444,332
Yemen	834,057	26,690	120,104	523,788	163,475
Syria	412,860	13,212	59,452	259,275	80,921
Palestine	194,000	6,208	27,936	121,832	38,024
Jordan	170,700	5,462	24,581	107,200	33,457
Total	**3,878,617**	**124,116**	**558,521**	**2,435,771**	**760,209**

Source: based on data of tables (2.2 & 2.3).

Table 3.1: Results of applying the hypothesis model of replacing the Asian workers in GCC countries, by national and Arab unemployment persons.								
Educational levels (1)	**Distribution of Asian workers**	**No. of Asian workers**	**No. of Unemployed persons in GCC countries**	**No. of Arab unemployed persons in the most sending countries**	**Rate of replacing national unemployment**	**No. of National unemployed persons will replace**	**Rate of replacing Arab unemployment**	**No. of Arab unemployed person will replace**
Equations Symbols	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
No education	52.3	3,706,980	87,516	124,116	2.0	74,140	3.0	111,209
Low	28.8	2,041,320	272,200	558,521	14.0	285,785	36.0	734,875
Intermediate	11.8	836,374	236,163	2,435,771	28.0	234,185	22.0	184,002
High	8.1	574,121	47,619	760,209	7.5	43,059	42.5	244,001
Total	100.0	**7,087,915**	**643,498**	**3,878,617**		**637,168**		**1,274,088**

(1): No education (illiterate and read and write only); **Low** (primary and preparatory levels): **Intermediate** (General Secondary, Vocational secondary, and above secondary levels); **High** (university and above).

Table 3.2: Impact of applying the hypothesis model on GCC countries									
GCC Countries	**Unemployment Size**	**Unemployment rate**		**Estimation of labor force size**		**% distribution of unemployment size**	**Estimated reduction in Unemployment Size**	**Estimated new unemployment rate**	
		Among national labor force	**Among all labor force**	**National**	**All**			**Among national labor force**	**Among all labor force**
Equations symbols	**A**	**B**		**C**		**D**	**E**	**F**	
Saudi Arabia	458,587	17.1	6.1	2,681,795	7,517,820	71.2	454,076	0.17	**0.06**
UAE	59,041	10.3	2.3	573,214	2,567,000	9.2	58,460	0.10	0.02
Kuwait	27,438	9.5	1.7	288,821	1,614,000	4.3	27,168	0.09	0.02
Oman	68,550	22.2	7.5	308,783	914,000	10.7	67,876	0.22	0.07
Qatar	11,114	6.4	2.0	173,656	555,700	1.7	11,005	0.06	0.02
Bahrain	18,768	8.7	3.4	215,724	552,000	2.9	18,583	0.09	0.03
Total	**643,498**	14.9	4.7	**3,933,210** [(1)]	**13,720,520** [(2)]	100.0	**637,168**	0.16	0.05

(1): The estimated national labor force size is less than the actual Labor force size for year 2005, represents in table 1.2 by about 386 thousand. This difference represents only 8% of the actual labor force size. **(2):** The estimated labor force size (national and foreigner) is less than the actual Labor force size for year 2005, represents in table 1.2 by about 759 thousand. This difference represents only 5% of the actual labor force size. **Note:** these variations occurred as a result of differences in the years of data sources and due to the interpolation and weight process. This small fraction of difference represents a great measure of the validity of model's hypotheses and estimations.

Table 3.3: Impact of applying the hypothesis model on the five Arab countries, most sending of migrant labor to GCC countries						
Arab countries	**Unemployment Size**	**Unemployment rate**	**Estimation of labor force size**	**% distribution of unemployment size**	**Estimated reduction in Unemployment Size**	**Estimated new unemployment rate**
Equations	**A**	**B**	**C**	**D**	**E**	**F**
Egypt	2,267,000	10.7	21,186,916	58.4	744,688	7.2
Yemen	834,057	16.3	5,116,914	21.5	273,980	10.9
Syria	412,860	8.1	5,097,037	10.6	135,620	5.4
Palestine	194,000	23.5	825,532	5.0	63,727	15.8
Jordan	170,700	13	1,313,077	4.4	56,073	8.7
Total	**3878617**	**11.6**	**33,539,476**	**100.0**	**1,274,088**	**7.8**

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Labor migration becomes an important global phenomenon in recent decades. It represents about 190 million people, or about 3% of the world population, and a vital part of the global workforce. As a sequence of Globalization, labor migration has spread from the concern of a few countries to the concern of most of the world's countries. Virtually all the world's countries become labor senders, receivers, or transit countries, and many are all three. This book contains three studies represents in international conferences and received a good acknowledge from scientist in my region and all over the world. These studies dealt with description and analysis to some phenomenon related to labor migration in Middle East and North Africa region such as labor migration, brain drain, impact of migrant's remittances in the development of origin, and illegal migration from the region to west of Europe. In addition the possibility of intra-regional migration among the countries of the region in absorbing some sophisticated socioeconomic phenomena such as unemployment was addressed.

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