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***Determinants and Impacts of Migration
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The Case of Palestine and Tunisia***

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FEMISE PROJECT FEM33-16:

**DETERMINANTS AND IMPACTS OF MIGRATION AND
REMITTANCES: THE CASE OF PALESTINE AND
TUNISIA**

**Déterminants et Impacts de la Migration et des transferts :
Cas de la Palestine et de la Tunisie**

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RESUME

Ce rapport est composé de deux parties et traite de plusieurs questions relatives à la migration internationale et aux transferts provenant des migrants vers leur pays d’origine. Il s’intéresse plus particulièrement au rôle et aux déterminants de ces transferts sur le plan macroéconomique ainsi qu’aux effets de la migration des compétences sur l’accumulation de capital humain et la croissance dans les pays d’origine.

Dans la première partie Eljafari explore les effets macroéconomiques les plus significatifs des transferts sur l'économie palestinienne. Dans la deuxième partie préparée par Boughzala et Kouni, l'objectif principal est d'étudier l'effet non seulement du brain-drain mais aussi du brain-gain en termes d'accumulation de capital humain (HC) et de croissance. Dans ce même contexte on examine les déterminants de la migration de retour partant de l'idée que le brain-gain serait plus important quand les migrants retournent chez eux après avoir acquis plus de qualifications dans les pays d'accueil.

1. Les effets macroéconomiques de la migration et des transferts

Sur la base de séries temporelles couvrant la période 1970-2008 Eljafari estime un modèle économétrique en vue d'apprécier les effets des transferts sur les principales variables macroéconomiques en Palestine, à savoir les importations, la consommation privée et les investissements. Ce modèle contient sept équations et prend en considération les principaux déterminants des transferts. Les flux de transferts provenant d'Israël et des pays du Golf (GCC) sont saisis par deux équations distinctes.

Le niveau de l'émigration des palestiniens s'explique par les chocs que subit le PIB palestinien, le taux d'inflation, le taux de change et le taux de chômage. Par conséquent, l'impact des transferts sur les exportations et les importations et sur les investissements et la consommation est considérable.

Comment faire face aux effets négatifs de la volatilité des transferts et comment canaliser ces transferts vers plus d'investissements sont toujours les principaux défis pour les responsables palestiniens.

Pour ces responsables, les transferts sont vus comme la solution potentielle aux principaux problèmes économiques [McKenzie and Sasin, 2007]. Il est assez évident qu'ils constituent une source vitale pour la Palestine et une source non négligeable pour la plupart des pays non pétroliers de la région. Ils sont souvent essentiels pour couvrir des dépenses de consommation, de santé, d'éducation et de logement [Sander, 2003]. Ainsi, ils fournissent des ressources pour l'accumulation de plus de capital humain et peuvent créer une plus forte incitation en faveur de l'investissement en éducation et en formation professionnelle au niveau de l'Etat et des individus.

D'une manière plus générale, les transferts peuvent être à l'origine des effets suivants : i) être une source fiable de devises étrangères, ii) assurer le maintien d'un certain niveau de consommation malgré les chocs dus à l'inflation et au chômage, iii) accélérer les investissements en termes de capital physique et de capital humain. Cependant, selon

plusieurs études [Gregorian and Melkonyan, 2008; Gltsos, 2005; Adams, 2006], jusqu'à récemment, il n'était pas bien établi comment exactement les ménages profitent-ils de l'aide qu'ils reçoivent de leurs proches qui travaillent dans des pays riches en Amérique du Nord, en Europe, en Asie et au Moyen Orient.

La migration internationale ne cesse de s'accélérer malgré toutes les limitations. Au cours des trois dernières décennies, la part des immigrants dans la population des pays industrialisés a doublé et le volume des transferts dépasse maintenant celui de l'aide internationale et celui des investissements étrangers. Un habitant sur dix des pays industrialisé est un immigrant. Pour beaucoup de pays en développement, la part de la population vivant à l'étranger et la part des transferts par rapport au PIB sont à deux chiffres. On estime qu'autour de 180 million de personnes, ou 3% de la population mondiale vivent et travaillent en dehors de leur pays d'origine.

A cause de la modestie des investissements et des capacités d'emploi des nouveaux diplômés en Palestine, la migration demeure le principal recours pour les jeunes diplômés palestiniens. Le chômage structurel est donc, pour les palestiniens et aussi pour les tunisiens, une cause principale de l'émigration et par suite de la dépendance des ressources provenant des transferts de émigrés. L'investissement dans l'éducation et dans la formation professionnelle est alors la voie pour accéder à des emplois décents sur le marché international, principalement au moyen orient concernant les palestiniens et en Europe concernant les tunisiens. Pour les pays de la région les transferts représentent au moins 2% de leur PIB alors que la moyenne pour les pays en développement est au tour de 0.5%. Plus généralement, ils continuent à croître et constituent actuellement leur principale ressource financière ; ils sont autour de US\$160 milliard par an dont 60% vers des pays en développement. Cependant il ne s'agit que d'une estimation plutôt peu précise compte tenu des flux difficiles à observer.

La structure des dépenses des ménages et la répartition des revenus entre consommation et épargne dépendent du niveau des transferts effectifs et anticipés. En conséquence, les facteurs qui déterminent les flux migratoires vont aussi déterminer le comportement des ménages en matière de dépenses telles que l'éducation et la santé.

Au cours des années 2005-2006, le nombre de travailleurs palestiniens en Israël, pour la plupart de la Rive West, avait dépassé les 60 mille. On estime (12^{ème} rapport Annuel de l'Autorité Monétaire palestinienne) que les transferts de cette provenance sont de l'ordre de US\$ 500 million par an, correspondant à 13% du PIB ou 10% du PNB, ou 150% des exportations de biens (équivalent au total des exportations de biens et de services) de La

Palestine. Les transferts rapportent plus que n'importe quel secteur d'activité économique. Plus récemment, la mobilité des travailleurs palestiniens vers Israël était réduite au minimum.

S'agissant de l'importance des transferts, le cas Palestinien, où ils représentent 40% des ressources extérieures, est comparable à celui de la Jordanie et du Liban mais dans une moindre mesure au cas Tunisien ou d'autres pays tels que la Syrie. Le rôle des transferts en Palestine sur le plan macroéconomique peut être résumé de la manière suivante :

- ▶ Au total, ils équivalent à 20% du PIB pour la période 1968-2007 mais avec de fortes fluctuations : 8% au minimum en 2005 et 35% au maximum au milieu des années 1980. Comparé à la plupart des autres pays les transferts occupent une place nettement plus élevée. Ils sont considérés comme le véritable moteur de l'économie palestinienne, à telle enseigne que cette économie est décrite comme une économie de consommation plutôt qu'une économie de production. En effet, la part de l'agriculture, l'industrie et le bâtiment est descendue de 50% en 1990 à moins de 25% en 2009, ce qui signifie que l'écart entre PIB et PNB ne cesse de s'élargir.
- ▶ Les transferts ont permis de stabiliser relativement la consommation qui avait en règle générale dépassé le niveau du PIB. Cette stabilité était au détriment des investissements et donc de la croissance, car les revenus obtenus vont d'abord vers la consommation et ce n'est à titre résiduel à l'investissement.
- ▶ Les restrictions contre la mobilité vers Israël se sont traduites par l'insertion de plus de main d'œuvre en Palestine dans les secteurs les plus intensifs en travail et donc par une tendance à la baisse de la productivité.
- ▶ Le niveau de transfert par personne avait varié entre \$180 en 2007 et \$ 369 en 1999 ; ce niveau dépasse celui de la plupart des autres pays arabes, excepté celui du Liban. En Tunisie, ce niveau était inférieur à \$150 entre 1990 et 2005.

En Tunisie, au total, les transferts avaient tout de même nettement contribué aux revenus et à la croissance puisqu'ils représentent autour de 11% des recettes extérieures mais beaucoup moins qu'en Palestine ou en Jordanie. Néanmoins, ils sont importants et continuent à croître. Plus d'un million de Tunisiens, c'est-à-dire de 10% des tunisiens sont à l'étranger, principalement en Europe, plus de la moitié en France. Malgré toutes les restrictions imposées contre la mobilité des personnes provenant du Sud de la Méditerranée, la migration continue au rythme approximatif de 25 mille personnes par an. Parmi ces nouveaux migrants, la part des qualifiés et de ceux qui avaient bénéficié de la meilleure formation est de plus en plus élevée.

2. L'impact de la migration des qualifiés sur la formation de capital humain et sur la croissance.

La deuxième partie du rapport par Boughzala et Kouni s'intéresse principalement à l'effet de la migration des qualifiés sur la formation de capital humain et par suite sur la croissance suite à la fuite de cerveaux qui en découle (brain-drain) mais aussi au brain-gain dont on essaie de mesurer l'ampleur.

La fuite des cerveaux est en effet une préoccupation sérieuse pour le pays mais la migration des qualifiés ne génère pas que des effets négatifs ; en plus des transferts la migration peut créer une incitation à investir dans le capital humain résultant de la perspective d'émigration et de la possibilité de trouver un emploi plus rémunérateur à l'étranger pour les plus qualifiés. L'émigration pourrait aussi être une opportunité pour acquérir plus de savoir faire dont le pays d'origine pourrait bénéficier en cas de retour vers ce pays. Il n'est pas exclu que l'effet net sur le capital humain soit positif et que le gain l'emporte sur la fuite des cerveaux mais cet effet net demeure incertain. Cela dépend entre autres de la politique d'émigration et de la probabilité de retour au pays. L'idée du gain de cerveaux n'est pas si récente. Plusieurs études s'y étaient intéressées (par exemple Beine et al. ,2001 2003, 2008; Schiff, 2005; Docquier et Rapoport, 2007...). Le vrai débat est de savoir si l'effet positif domine ou l'inverse. Haque et Kim (1995) par exemple concluent que la migration des qualifiés entraîne une réduction de l'accumulation de capital humain et de la croissance et aggrave les inégalités, alors que Docquier et Rapoport (2004) soutiennent que la migration stimule la formation de capital humain et la croissance.

Les résultats obtenus par Boughzala et Kouni, présentés dans la première section de leur article, ne se limitent pas au cas tunisien ; ils s'appliquent aussi à un grand nombre d'autres pays. Leurs calculs sont principalement basés sur les données de Docquier et Marfouk et consistent à explorer l'effet de la migration des compétences sur la formation de capital humain. Sur le plan méthodologique, leur cadre analytique est quasiment le même que celui de Docquier et Marfouk (2008). On trouve que la perspective d'émigration mesurée par un indice que nous avons calculé a un effet positif et clairement significatif sur la formation de capital humain mais que la valeur du coefficient est plutôt faible. C'est dire que l'impact de l'émigration des qualifiés sur le capital humain est réel et l'hypothèse du brain-gain est acceptée mais cet impact est faible. Donc, compte tenu de l'ampleur du brain-drain l'effet net doit être négatif. Cependant, ce résultat doit être nuancé par le fait que dans les circonstances actuelles caractérisées par un fort chômage des diplômés dans

les pays sud-méditerranéens le coût d'opportunité associé au départ de ces diplômés n'est pas si élevé.

3. Les déterminants de la migration de retour

La deuxième section de ce deuxième article porte sur les déterminants et la probabilité de la migration de retour. Partant de l'hypothèse que les bienfaits de la migration sont à leur maximum quand la migration n'est pas définitive et quand le migrant finit par retourner vers son pays d'origine plus riche en connaissances et en savoir (Amin et Mattoo (2005)).

C'est une question qui était longuement débattue notamment par Jérôme Adda & Christian Dustmann et Josep Mestres (2006), Belinda I. Reyes (1997), Mary Haour-Knipe et Anita Davies (2008), Christian Dustmann (2003) et par John Gibson et David McKenzie (2009).

Dans cette littérature, les opportunités d'emploi et de revenu sont toujours vus comme des facteurs importants mais il ya aussi un consensus sur l'importance d'autres facteurs non financiers qui interviennent dans la décision du migrant qui pense au retour, en l'occurrence des facteurs culturels et l'intégration sociale. Cela est confirmé par la recherche présentée dans ce rapport concernant dans le contexte des pays du Maghreb.

Ces résultats sont en effet basés sur les données d'enquête MIREM effectuée dans les trois pays du Maghreb. Un modèle de type logit a été estimé et les résultats les plus importants sont les suivants :

- Premièrement, la probabilité de retour est plus forte pour les expatriés qui avaient une situation plus confortable dans leur pays d'origine avant leur départ à l'étranger. Ainsi, ceux qui étaient au chômage ou qui n'avaient jamais accède à un employé décent dans leur propre pays sont les moins tentés par le retour. Cependant, si une opportunité d'emploi intéressant dans leur pays d'origine s'offrait à eux alors il est probable qu'ils changent d'attitude et renoncent à leur résolution initiale. La qualité et la disponibilité d'emplois dans le pays d'origine est le plus important facteur déterminant du retour indépendamment du statut du migrant durant son séjour à l'étranger. Ce statut s'est avéré non significatif.
- Deuxièmement, le degré d'intégration social dans le pays d'accueil est aussi un facteur important. L'intégration est en effet un facteur très significatif. En outre, ceux qui ont investi dans le pays d'accueil sont moins attirés par le retour. Le coefficient relatif à cette variable est aussi significatif élevé et avec le signe attendu.
- Enfin, le résultat le plus important pour la question de l'impact de la migration des qualifiés sur l'accumulation de capital humain, l'augmentation du niveau éducatif de l'expatrié décourage le retour et le rend moins probable. Ce résultat explique pourquoi la faiblesse de l'effet positif de l'émigration sur l'accumulation de capital humain.

SUMMARY/INTRODUCTION

This report includes two papers which address some of the main issues regarding migration and remittances as they look into their macroeconomic role and their determinants and into the impacts of skilled migration on human capital accumulation and growth. In the first paper, Eljafari explores the significant macroeconomic effects of the remittance inflows on the Palestinian economy. The main purpose of the paper by Boughzala and Kouni is to study the impact of both the brain-drain and the brain-gain on human capital accumulation (HC) and consequently on growth. Within this same context, the determinants of return migration are also examined.

1. The macroeconomic effects of migration and remittances

Using time series data for the period 1970-2008 Eljafari estimates an econometric model in order to trace out the impact of changes in remittances on important economic variables, namely imports, private consumption and investments. His model includes seven equations and the main determinants of remittances. Demand for remittances flows from Israel and GCC countries to Palestine was specified into two separate equations.

The impacts of the mobility of skilled workers, technicians and graduates from Palestine to GCC countries and to Israel were estimated in terms of remittances to the Palestinian economy, given that more than 15% of Palestinian workers in Israel hold at least an intermediate diploma from vocational institutes and most of the Palestinian employees in the GCC countries hold at intermediate diploma and above. Shocks on the Palestinian economy variables such as GDP, unemployment, exchange rates and inflation are highly responsible for the demand of Palestinian workers in Israel and in the GCC countries. Consequently, the impact of remittances on merchandise exports and imports and private investment and consumption were found to be highly considerable.

The main challenge for policy makers remains how to design policies that could offset the adverse effects of remittances. How to channel remittances towards investment in the national economy remains the main challenge to Palestinian policy markers.

Remittances have been viewed by policymakers as a potential solution to many economic problems facing developing economies [McKenzie and Sasin, 2007], and it is obviously the case for Palestine and to some extent to Tunisia. Remittances are a vital income source. On the individual bases, they are utilized to cover the expenses of living, healthcare, education, and housing [Sander, 2003]. They may also provide financial resources needed

for capital accumulation, and may create incentives to more investment in academic education and vocational training by individuals and governments.

In general, remittances could lead to the following consequences: (i) represent a stable and reliable source of foreign exchange, (ii) insure consumption against bad shocks such as inflation and unemployment, (iii) enhance investment in physical and human capital. However, as households in developing countries receive financial support from family members working in wealthy countries in North America, Europe, Asia, and the Middle East, until recently, there has been surprisingly little hard evidence that shows how exactly households benefit from such help [Gregorian and Melkonyan, 2008; Gltsos, 2005; Adams, 2006].

International migration has been accelerating over the past three decades: the contribution of immigrants in industrial countries' populations has doubled and remittances flows to developing countries have become larger than foreign investment or overseas aid. An average of 1 out of every 10 individual living in more developed regions is a migrant. In many developing countries, the percentage of the population working abroad and the rate of Gross remittances as a share of GDP are in the double digits range. It is estimated that around 180 million people or 3% of the world's population work and live away from the country of their birthplace.

Due to the modest investments in Palestine (WBGS) and to the limited capacity of the Palestinian economy to absorb new graduates and because the Palestinian Authority has been unable to create jobs, immigration remains the main and last resort for graduates to seek jobs. Therefore, structural unemployment in Palestine, as well as in Tunisia, is a main reason behind the increase of migration and the dependency on remittances. Investment in academic education and vocational training becomes the solution to seek decent jobs not only in the local economy but also in the international job market, mainly in the Arab region for Palestinian workers and Europe for Tunisian.

In addition, while remittances for all developing countries represented only 0.5% of their GDP since 1970, for the countries of the region they have accounted for at least 2% of GDP since 2004. Remittances represent currently one-third of the total financial flows to developing countries. They have steadily grown and have become the major international financial source for developing countries. Worldwide, remittances are estimated at about US \$167 billion per year, and approximately 60 percent of the remittances were channeled to developing countries. However, remittance estimates are imprecise because they often move through private, unrecorded channels.

Household expenditure patterns and the distribution of income between consumption and saving depend on the level of current and expected remittances. Hence, factors which “explain” migration or remittances may also shape education and healthcare choices.

In the years 2005-2006, the number of Palestinian workers, mainly from the West Bank, in Israel exceeded 60 thousand. Labour remittances from this source were estimated to be \$500 million per year, approximated 13% of the GDP, 10% of GNP, 150% of the merchandise exports and equal to total merchandise and service exports [Palestine Monetary Authority, Twelfth Annual Report, 2007]. More recently, labor mobility of the Palestinian workers through the Palestine-Israel borders has been restricted to the minimum level.

Regarding the role of remittances, the case of Palestine is comparable to countries such as Jordan and Lebanon, but less so to Syria or Tunisia. Remittances counted for more than 40% of the total foreign resources in Palestine. The importance of remittances to the Palestinian economy could be summarized as follows:

- ▶ Total remittances averaged 20% of gross domestic product (GDP) during the period 1968-2007 with wide fluctuations. The proportion of the RM to the GDP ranged between 8% in 2005 to the highest level of 35% in the mid of 1980s. In the year 2000, the proportion of remittances to the GDP reached the peak of 27%. In that year, proportion of remittances to GDP ratio in Palestine was particularly high compared to most other countries. Similarly, net flows of remittances with respect to GNDI showed similar trend, particularly between 1970 and 1990. RMs have been viewed as the engine of the economy, as a result, the Palestinian economy has been viewed more as a consumption and income economies than a production economy. The share of the agricultural, manufacturing and construction sectors have indeed dropped from 50% in the 1990s to less than 25% by the year 2009, and, consequently, the gap between gross national disposable income (GNDI) and GDP has being widened over time. This could be attributed to the fact that for more than 30% of the Palestinian labor force were employed in Israel.

- ▶ Persistent and continuous receipts of remittances have generated relatively stable levels of consumption. Over the past four decades, consumption expenditures exceeded GDP. They came at the expense of long-run growth. Remittances have been found to be highly associated with private consumption and investments, but with some variations. Remittances are allocated first to private consumptions and then to private investments.

- ▶ Israeli restrictions on the mobility of the Palestinian workers to the Israeli economic sectors have pushed the returning workers to join labor intensive sectors. Consequently, total factor productivity declined overtime.
- ▶ Per capita remittances in Palestine ranged between \$180 in 2007 to the peak of \$369 in 1999. It was greater than that in most of the Arab Countries. Only per capita remittances in Lebanon were almost greater than that in Palestine. However, per capita remittance in Tunis was less than \$150 over the period 1990- 2005.
- ▶ The remittances received by Palestinian laborers who worked abroad and in the Israeli economy exceeded the value added of any sector in the national economy. In general, official remittances transferred to the WBGS were greater than foreign direct investments and merchandise exports. The significance of remittances was also due its impact on expansion of the gap between the GNP and GDP, and the deterioration of the trade balance. In fact, Palestinian Authority has financed the budget deficit by trade deficit [Eljafari, 2000; 2001].

In the case of Tunisia, total remittances have also significantly contributed to incomes and growth and have accounted for about 11% of total foreign resources, but not as much as for Palestine or Jordan. Nevertheless, remittances are important and continue to grow. More than one million Tunisian, or 10% of the population, live abroad, mostly in Europe, more than half of them in France. In spite of the restrictions imposed by the European destination countries, migration continues as close to 25000 Tunisian manage to migrate per year. Among them, the share of the most skilled and the best trained young people is increasing.

2. The impact of skilled migration on human capital formation and growth

The second paper by Boughzala and Kouni addresses migration issues from the Tunisian perspective but also referring to a larger set of countries. The main concern is with the impact of both the brain drain and the brain gain on human capital accumulation (HC) and growth. Migration may indeed impact on the accumulation of both human capital (HC) and on physical capital, which are major determinants of economic growth. As mentioned above, individuals are likely to decide to invest more in education in order to qualify for better job opportunities offered not only locally but also abroad. The likelihood of finding a better job abroad has been a powerful engine in terms of HC formation, especially in

countries like Palestine and Jordan. Migration could also provide learning and training opportunities, which create additional incentive for investing more in human capital.

However, the net effect of migration remains uncertain because remittances have positive impacts, the brain-gain, as well as negative impacts, the brain-drain, at both macro and micro levels. The net gain of migration and of the remittances it generates is uncertain and depends to a large extent on the policies applied by the recipient country and on the way remittances are utilized.

The findings of the Boughzala and Kouni paper, especially its first part, are relevant for countries like Tunisia, Palestine and for other similar countries. The data used in this paper for studying the effect of skilled migration on human capital formation is primarily the Docquier and Marfouk international database.

The first part of the paper explores the impact of skilled migration for the countries of origin on human capital (HC) accumulation and growth. The main question is about the existence of a positive effect on HC. This is the brain-gain hypothesis, given that migration from developing countries is increasingly a skilled labor migration. Brain-drain is nevertheless obviously a real concern for the countries of origin, as it is an immediate loss of HC for them, but this loss is not currently very heavy because of the high level of unemployment among the educated youth.

Many studies (for instance Beine et al., 2001 2003, 2008; Schiff, 2005; Docquier and Rapoport, 2007...) were devoted to testing the brain-gain idea in different ways and contexts. The main concern here is more about the net effect: do the losses due to skill migration outweigh the gains or the opposite? For instance, Haque and Kim (1995) concluded that skill migration causes a net reduction in the growth rate of human capital and GDP, and also aggravates the inequality between rich and poor countries. Docquier and Rapoport (2004) argue that the opposite.

For this research, basically, the same analytical framework developed by Beine Dockier and Rapoport (2008) is adopted with some small adaptations. The main finding is that the perceived emigration outlook index has a clearly significant positive effect on human capital formation; however, the value of its coefficient is low. That is, the brain-gain hypothesis is valid, but, given the size of the negative effect, the brain-drain, the net effect of migration must be rather negative.

3. The determinants of return migration

The second part of the paper is about the determinants of return migration. It may be argued that the ideal situation is when migration is temporary and migrants end up soon

enough deciding to return and to bring back home the knowledge and knowhow they have accumulated abroad (Amin et Mattoo (2005)). This is the motivation for studying the determinants and the probability of return of migrants; which is the purpose of the second part of the paper.

This issue has been previously widely addressed and analyzed, mainly by Jérôme Adda & Christian Dustmann and Josep Mestres (2006), Belinda I. Reyes (1997), Mary Haour-Knipe and Anita Davies (2008), Christian Dustmann (2003) and John Gibson et David McKenzie (2009). Income and employment opportunities are always viewed as important factors but there is also a consensus that other important non financial factors enter in the preference function. Cultural variables and social integration also matter; which is confirmed by our results. This

Our results are based on the estimation of a “logit” model using The MIREM database (covering the three Maghreb countries: Algeria, Morocco and Tunisia). However, some emphasis is put on the Tunisian case. Many significant results are found; the following are among the most meaningful.

- First, expatriates would be more likely to return if they had a relatively better situation before migrating, those who used to be unemployed or never had a decent job think less of returning. And if the possibility to find a better employment after returning becomes more available then they may change their attitude and would be more willing to return. The quality and the availability of employment opportunities at home is the most important determinant of return regardless of the employment status during migration. The latter status is not significant.
- Second, people indeed care about how well they are socially accepted in the foreign destination country. Integration is a highly significant variable. Moreover, those who have invested in the foreign country are less interested in returning. The coefficient for this variable is also significant, with a high magnitude and the right sign.
- Finally, and most importantly from the perspective of this paper, the more expatriates acquire skills and obtain higher degrees abroad, especially graduate level degrees, the less they are likely to return. This finding is particularly important and explains why the positive impact of migration on human capital accumulation within the home country has been weak.

**DETERMINANTS AND CONSEQUENCES OF REMITTANCES:
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Abstract

This paper explores the significant macroeconomic effects of the remittance inflows in Palestine. In fact, remittances have been viewed as an engine to the Palestinian economy. They accounted for more than one –fourth of the gross national disposable income (GNDI) . Also, one –fifth of the Palestinian workforce used to be employed in the Israeli economy and around 5% of skilled workers and graduates were employed in the GCC , particularly during 1990s .

Time series data for the period 1970-2008 are used to estimate an econometric model in order to trace out the impact of changes in remittances on important economic variables such as imports, private consumption and investments. On the other hand, the model includes the main determinants of remittances While remittances have a significant impact on private consumption, investments and imports, the main challenge for policy markers remains how to design policies that could offset the adverse effects of remittances. In this regard, how to channel remittances towards investment in the national economy remains the main challenge to Palestinian policy markers. Lessons could be drawn from practices applied by other countries such as Tunisia.

Résumé

Cet article explore les effets des transferts en Palestine. Les transferts sont en effet considérés comme le moteur de l'économie palestinienne. Ils représentaient plus du quart du revenu national disponible ; en outre plus du cinquième de la population active palestinienne avaient travaillé en Israël et 5% de cette population étaient employés dans les pays du Golf, notamment des travailleurs qualifiés et des diplômés de l'enseignement supérieur, surtout dans les années 1990.

Des données en séries temporelles portant sur la période 1970- 2008 sont utilisées pour estimer un modèle économétrique afin de faire ressortir l'impact de la variation du niveau des transferts sur des variables économiques importantes telles que les importations, la consommation privée et les investissements. Par ailleurs, le modèle tient compte aussi des principaux déterminants des transferts.

On montre qu'alors que les transferts exercent des effets très significatifs sur la consommation privée, l'investissement et les importations, le défi majeur pour les responsables de la politique économique reste celui de la mise en place d'une politique susceptible de contrecarrer les effets indésirables des transferts. En l'occurrence, comment canaliser les transferts vers plus d'investissements, c' est toujours le principal défi pour les responsables palestiniens. Des leçons peuvent être tirées d'expériences d'autres pays tels que la Tunisie.

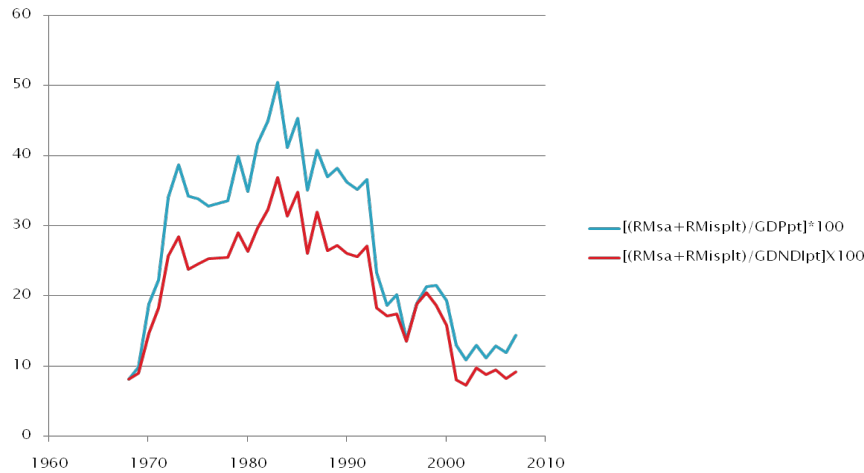
1. Introduction

It is commonly believed that accumulation of human capital (HC) and availability of physical and financial capitals are among the major determinants of economic growth. In particular, the lack of physical resources could be an impediment to economic growth and development. However, it has, increasingly, been recognized that remittances income may be an important substitute for natural and physical resources. Currently, due to increasing mobility in production factors, the process of accumulation HC might be affected in

several ways. In fact, the availability of capital in the form of income from abroad and the elastic supply of both skilled workers and graduates may alone enhance growth prospects. HC accumulations and remittances incomes can mutually reinforce one another through possible “complementary effects”. The fact that there are flows of income from abroad in the home economy can provide incentives to investment in education and health by both individuals and governments. Individuals attain higher level of education in order to qualify for better job opportunities offered locally or abroad. Likewise, governments may want to support the accumulation of HC in order to benefit from potential spillovers of FDI (technology and knowledge transfer).

Migration is a very significant phenomenon as means to enhance the flow of income from abroad. The contribution of immigrants in industrial countries’ populations has doubled over the past three decades and remittances flows to developing countries have become larger than foreign investment or overseas aid. In many developing countries, the percentage of the population working abroad and the percentage of Gross Domestic Product (GDP) represented by remittances run into double digits. Decisions on migration, remittances, labor supply, expenditure allocation, school attendance, child labor and so on are usually determined concurrently. In other words, seeking income from abroad (remittances) has become the engine to function and perform the economies of the developing countries. Hence, characteristics which “explain” migration or remittances may also shape household expenditure patterns, education and healthcare choices, etc. Moreover, many of the characteristics which influence these decisions are marginal and unobservable. These issues make it difficult to establish causality relationship presented typically in reduced form of regression framework. An average of 1 out of every 10 individual living in more developed regions is a migrant. It is estimated that around 180 million people or 3% of the world’s population worked and lived away from the country of their birthplace. In addition, while remittances for all developing countries represented only 0.5% of their GDP in 1970, they accounted for 2% of GDP in 2004. Likewise, remittances represent one-third of the total financial flows to developing countries. They have steadily grown and have become the major international financial source for developing countries. Many households in developing countries receive financial support from family members who work in wealthy countries in North America, Europe, Asia, and the Middle East. However, until recently, there has been surprisingly little hard evidence that shows how

households benefit from such help [Gregorian and Melkonyan, 2008; Gltsos, 2005; Adams, 2006]. .



The most often-used argument in favor of labor migration is that remittances play an extraordinary role in the economies of many developing countries. In fact, remittances have become more important than official development assistance or even the country's foreign direct investment. Worldwide, remittances are estimated at about US \$167 billion per year, and approximately 60 percent of the remittances were channeled to developing countries. Remittance estimates are imprecise, however, because remittances often move through private, unrecorded channels. Migrants' remittances have positive impacts as well as negative impacts at both macro and micro levels. However, the net gain of the remittances depends mainly on the policies applied by the recipient country to maximize the benefits. On the individual bases, remittances are utilized in the recipient country to cover the expenses of living such as healthcare, education, and housing [Sander, 2003]. In general, remittances could lead to the following consequences: (i) represent a stable and reliable source of foreign exchange, (ii) insure consumption against bad shocks such as inflation and unemployment, (iii) enhance investment in physical and human capital. Accordingly, remittances have been viewed by policymakers as potential solution to many economic problems facing developing economies [McKenzie and Sasin, 2007].

2. Macroeconomic Developments in the WBGS

Over the past four decades, Palestinian markets in the West Bank and Gaza Strip (WBGS) have been contained by the Israeli markets. As a result, the performance of the Palestinian economy has been subject to the Israeli economic and security interests. In fact, the Israeli imposition of economic measures and sanctions on the Palestinian economy has been usually justified to protect its interests in the WBGS. Consequently, the level of macroeconomic variables in the WBGS, such as prices, wages, exports, imports, investment and employment, has been determined based on the Israeli economic forces. [Eljafari, 1998, 2000].

Since the early 1970s, the gap between the Palestinian and Israeli wages has pushed more than a third of the Palestinian labor force to seek employment in Israel. In the years 1999 and 2000, remittances paid to Palestinian workers in Israel were approximately more than 20% of the gross national disposable income (GNDI). In addition, the competition in the WBGS markets between domestic and foreign products, mainly imported from Israel, has deprived Palestinians of developing their own economy. Thus, roughly one-fourth of the Palestinian GDP has been transferred to the Israeli economy. The production of food and farm produce as well as finally manufactured products was heading to decline from year after year. In fact, local production of those commodities has gradually been replaced by imports, mainly from Israel. Import of basic goods from Israel has been viewed as cheaper than producing them locally. This may be attributed to the fact that Israeli subsidies granted to producers and farmers make a significant difference in the production costs between the WBGS and Israel [Eljafari, 2000; Naqib, 1997].

Free labor mobility from the WBGS to Israel on one hand, and flexible merchandise and service trade flows from Israel to the Palestinian markets on the other were considered as the main cornerstone of the Israeli-Palestinian trade. In this regard, some economists have considered that type of trade relationship as a quasi-custom union. However, this type of trade between unequal partners is not established on the grounds of efficiency gains nor technology transfer and growth. Thus, it is not surprising to find the economy of the WBGS were classified as an artificial and a consumption economy. Over the past decades, the Palestinian economy tended to depend mainly on the services sectors. While the service

sectors contribution to GDP exceeds more than 65%, they absorb more than 70% of total employment. However, during the 1990s, those figures were around 50% [Eljafari, 2007].

Following a decade of economic relations between the WBGS and Israel by virtue of Paris Protocol (PP), remittances have become the major sources of the PNA income in the WBGS. Therefore, any decline in the flow of these sources would deteriorate the Palestinian economy and lead to an increase in unemployment rates.

This study will evaluate the future economic relations between Palestine and major source of remittances such as Israel and other regional countries. Descriptive presentations of the importance of remittances flows are provided to pave the way for a model which is expected to provide an empirical analysis for the formulation of balanced economic and trade relationships with Israel and other partners.

Recent developments in the WBGS, mainly following the disengagement from the Gaza Strip by Israel in 2005 raise several questions concerning the performance of the Palestinian economy. Exporting laborers, mainly to Israel, continued to be the engine that runs the Palestinian economy. Consequently, real growth rates in the Palestinian GDP tended to be on decline from year to year, particularly when the remittances dropped sharply due to restrictions imposed on the Palestinian labour mobility. In fact, labour remittances had several multiplier effects on consumption expenditures, gross national disposable income, imports, and public revenues. In the years 2005-2006, the number of Palestinian workers, mainly from the West Bank, in Israel exceeded 60 thousand. Labour remittances were estimated to be \$500 million per year, approximated 13% of the GDP, 10% of GNP, 150% of the merchandise exports and equal to total merchandise and service exports [Palestine Monetary Authority, Twelfth Annual Report, 2007]. Labor mobility of the Palestinian workers has been restricted to the minimum level. Over the period, 2005-2007, the proportion of Palestinian workers in Israel compared to that of the laborers in the WBGS accounted for only 5%.

3. The Importance of Remittances to the Palestinian economy

Over the past three decades, 1970-2000, more than 35% of the Palestinian labor force was employed in Israel. Concurrently, 10% of the labor force in the WBGS worked in the Arab countries, mainly, in the Gulf Cooperation Council (GCC). While Palestinian workers in Israel are classified as unskilled and semiskilled, Palestinians in the GCC are educated and skilled. Due to the modest investments in the Palestinian economy, the number of Palestinian workers in Israel and abroad tended to increase overtime. It rose from 30 thousand in 1970 up to 200 thousand in 2000. It was concluded that the employment capacity of the Palestinian economy showed a declining trend. It fell down from 87% in 1970 to 65% in 1985 and to 60% by the mid of 1990s [Statistical Abstract of Israel, 1970-2000].

Several analytical studies indicated that the multiplier effect of remittances on the economy was similar to the investment effect on the economy [Eljafari, 1998: IMF 1997]. Consequently, real growth in the GDP and GNDI by 5% in the year 2005 was attributed to increases in external sources of incomes such as remittances, transfer payments and tax and tariff revenues. Therefore, if the drop in those incomes would continue for at least six months, the disconnection of the WBGS from Israel would push the Palestinian economy into a disaster. The separation of the labor and trade markets of the WBGS from Israel would have a continuous decrease in the Palestinian macroeconomic variables such as GDP, GNDI, investments, private consumption, local employment, remittances and tax and tariff revenues.

Since the year 2000, unemployment rates have increased rapidly overtime, particularly, among graduates. Around 25% of graduates became unemployed. Therefore, it was not surprising to find continuous migration among them. Statistical figures available from Palestinian Bureau of Statistics (PCBS) indicate that the number of educated migrants increased from 10 thousand in the year 2000 to more than 25 thousand by the year 2006 [PCBS, Labor Survey]. It is obvious that most of the return of investments in higher education in the WBGS is received directly by countries which absorb Palestinian graduates, while WBGS may be rather accumulating losses over time [Eljafari, 2004]. Due to the modest investments in the WBGS and the limited capacity of the Palestinian

economy to absorb new graduates and because the Palestinian Authority has been unable to create jobs, immigration becomes the last resort for graduates to seek jobs. Furthermore, the case of Palestine is comparable to other more or less similar countries, such as Jordan, Syria and Tunisia, which export labor in the region. The link between immigration, remittances, HC accumulation and growth may be evidenced by data on these countries. However, the importance of remittances to the Palestinian economy could be summarized as follows:

- ▶ Remittances (RM) averaged 20% of gross domestic product (GDP) during the period 1968-2007. The proportion of the RM to the GDP ranged between 8% in 2005 to the highest level of 35% in the mid of 1980s. In the year 2000, the proportion of remittances to the GDP reached the peak of 27%. In that year, RMs were highly important to the GDP in Palestine compared to other countries. Similarly, net flows of remittances with respect to GNDI showed similar trend, particularly between, 1970-1990. Since then, the gap between proportions of the RM with respect to GDP and GNDI tended to be narrower. RMs have been viewed as the engine of the economy. They have transferred the economies of West Bank and Gaza Strip (WBGS) from production to income economies.
- ▶ Persistent and continuous receipts of remittances have generated stable levels of consumption. Over the past four decades, consumption expenditures exceeded GDP. They came at the expense of long-run growth. Remittances have been found to be highly associated with private consumption and investments , but with some variations. Remittances are allocated to private consumptions than private investments.
- ▶ Israeli restrictions on the mobility of the Palestinian workers to the Israeli economic sectors have pushed the returning workers to join labor intensive sectors. As a result, total factor productivity declined overtime.
- ▶ Per capita remittances in Palestine ranged between \$180 in 2007 to the peak of \$369 in 1999. It was greater than that in most of the Arab Countries. Only per capita remittances in Lebanon were almost greater than that in Palestine. However, per capita remittance in Tunis was less than \$150 over the period 1990- 2005.
- ▶ The remittances received by Palestinian laborers who worked abroad and in the Israeli economy exceeded the value added of any sector in the national economy. In general, official remittances transferred to the WBGS were usually greater than foreign direct investments and merchandise exports. The significance of remittances was also due its impact on expansion of the gap between the GNP and GDP, and deterioration of the trade

balance. In fact, Palestinian Authority has financed the budget deficit by trade deficit [Eljafari, 2000; 2001].

Palestinian economic policy options have been discussed extensively over the last decade. Most of them focused on the context of economic relationships with Israel [Eljafari, 2000, 2001,1997;Naqib,2003; World Bank,2004]. Absorbing surplus of Palestinian workers in Israel has become a critical issue to policy makers due to the importance of remittances to the economies of the WBGS .Lately, several assumptions have been raised concerning the performance and the function of the Palestinian economy, particularly after it gradually broke –up the one sided custom union between the WBGS and Israel. These are outlined below:

(i) The Palestinian economy would be independent from that of Israel.
(ii) The PNA would exercise full control over its borders and resources.
(iii) The Palestinian State would be free in applying appropriate policies to rehabilitate the national economy. Therefore, future economic and trade relations between the Palestinian State and the State of Israel would be based on reciprocity and mutual interests. The study by UNCTAD (2007) particularly raised several scenarios and simulations based on similar assumptions.

- Decrease the dependency on Israel in absorbing the surplus of the Palestinian labor supply.
- Replace current labor exports by merchandise exports which would eventually narrow the gap between GNP and GDP, create jobs, reduce the trade deficit and ease the unemployment problem.
- application of an easy import substitution policy has become a necessary precondition to adopt the above conditions in order to provide policy makers with specific recommendations on which goods/sectors to target for such policies.

This study aims to examine the determination of remittances with respect to certain macroeconomic indicators such as GDP, Ct. In general, the future economic relationships between the WBGS and Israel and other regional and foreign countries are evaluated, through the remittances model. That could be attributed to the impact of the multiplier effects of the RMs on the main macroeconomic indicators. The empirical results of the

model would be employed to show the transformation process of Palestine from income to productive economy.

4. Research Methodology

Migration, remittances and development issues have been extensively discussed, particularly over the last decade. While research on those issues has been conducted at both macro and micro levels, several methodologies were employed. Although research on migration and remittances is multidisciplinary (Sociology, Economics and Political Sciences) and is a major concern for decision makers, at this stage, only applied economics researches on migration and remittances are reviewed. At the macro level (Glytsos, 2005) investigated the impact of exogenous shocks of remittances on the macro variables such as consumption, investment, imports in five Mediterranean countries Egypt, Greece, Jordan, Morocco and Portugal. The short and long run multipliers indicate that the impact of the remittances was differentiated. Also, (Alleyne, 2005; Mishra 2005) discussed the macroeconomic determinants of migrant remittances to Caribbean Countries. Investment motives were the major determinants behind the flow of remittances from importing countries of labor to the exporting countries. Therefore, investment motives and interest rates could influence migrants' decisions on whether to invest their financial savings in their home countries. Adams (2006) examined the economic impact of remittances on the economic performance at both macro and micro levels of the developing countries. The empirical econometric results indicate that remittances have a direct and significant effect on reducing the level of poverty. Thus, as remittances increase, consumption expenditures on investment goods (education, housing) would exceed spending on food. On the other hand, Yang 2008 examined how households recipients of remittances in Philippine respond to shocks in the country's currency with respect to the U.S currency. Households spent the remittances on investment activities such as education, particularly, child schooling, self-employment and other entrepreneurial activities. Also, Grigorian and Melkonyan 2008, indicated that recipient of remittances in Armenia spent less on child education on one hand and saved more on the other hand due to their expectations that remittances would decline over time. This literature would be used in the development and extension of the analytical framework we would use to investigate the impact of migration and remittances.

Due to the significance of the remittances with respect to exports, imports, the value added to each economic sector and the gap between the GDP and GNP, the model would be specified in a manner to allow testing on the impact of remittances on the performance of

the economy, with an emphasis on the Palestinian economy. We will also discuss empirically the economic and political variables behind the flow of migrants (skilled workers and graduates) from the WBS to regional countries and abroad.

Data on macroeconomic variables such as GDP, private investments and governmental capital expenditures, and remittances will be gathered from National Accounts and National Statistics Authorities (Palestinian, Jordanian and Tunisian) for the period 1970-2008 as well Israeli sources, namely the Israeli Central Bureau of Statistics. Since 1995, when Palestinian Authority replaced the Israeli Civil Administration, data on the Palestinian economy have been published by the Palestinian Bureau of Statistics .

5. The Model

Based on the above discussion, macroeconomic model of remittances has been taken into consideration as well as the influence of macroeconomic variables on determining the level of remittances.

$$(1) \text{ GDP}_{p,t} = f(\text{L}_{p,t}; \text{K}_{p,t}; \text{GDP}_{p,t-1})$$

$$(2) \text{ RMIS}_{p,t} = f(\text{GDP}_{p,t}, \text{GDP}_{i,t}, \text{U}_{p,t}, \text{REX}_{G,t}; \text{NTB}_{j,t}; \text{TT}_{p,t}; \text{RMIS}_{p,t-1})$$

$$(3) \text{ RMSA}_{p,t} = f(\text{GDP}_{p,t}; \text{GDP}_{s,t}; \text{U}_{p,t}; \text{NTB}_{j,t}; \text{TT}_{p,t}; \text{RMSA}_{p,t-1})$$

$$(4) \text{ MM}_{t} = f(\text{PM}_{t}; \text{RMIS}_{p,t}; \text{GNDI}_{p,t}; \text{REX}_{G,t}, \text{MM}_{t-1})$$

$$(5) \text{ MSt} = f(\text{PM}_{t}; \text{RMIS}_{p,t}; \text{GNDI}_{p,t}; \text{REX}_{G,t}; \text{MSt-1})$$

$$(6) \text{ CPL}_{t} = f(\text{RMIS}_{p,t}; \text{GDP}_{p,t}; \text{REX}_{G,t}; \text{Cpl}_{t-1})$$

$$(7) \text{ IPI}_{t} = f(\text{GDP}_{p,t}; \text{RMIS}_{p,t}; \text{RMSA}_{p,t}; \text{FA}_{p,t}; \text{GA}_{E,t}; \text{Ipl}_{t-1})$$

Where:

$\text{RMIS}_{p,t}$ = Remittances flows from Palestinian workers in Israel to the West Bank and Gaza

Strip (\$/millions).

$\text{RMSA}_{p,t}$ = Remittances flows from Palestinian employees in the GCC, such as Saudi Arabia and United Arab Emirates to the West Bank and Gaza

Strip (\$/millions).

IPI_{t} = Palestinian gross capital formation (investments) ,in \$ millions.

CPI_{t} =Palestinian consumption expenditures in \$ millions.

$\text{GDP}_{p,t}$ = Palestinian gross domestic products in (\$/millions).

LPL_{t} = Labor Force employed in Palestine (1000s).

KPL_{t} = Gross Fixed Capital Formation in Palestine (\$/ millions).

GDP_{ist} = Israeli gross domestic products in (\$ / millions).

MM_t =Palestinian merchandise imports in \$ millions.

MSt = Palestinian service imports in \$ millions.

GDP_{sat}= Saudi Arabia gross domestic product in (\$ / millions).

GNDI_{plt}= Palestinian gross national disposable income in (\$/millions).

REX_{Gt}= Real value of U.S Dollar in the Israeli currency , New

Israeli Shekel (NIS) ,where, $REX_{Gt} = EX_{Gt} * (CPI_{U.S} / CPI_{IS})$

EX_{Gt} = Nominal exchange rate ,the value of U.S Dollar in the Israeli currency.

CPI_{U.S}= Consumer price index in the U.S

CPI_{IS}= Consumer price index in Israel.

UPL_t = Unemployment rates in the West Bank and Gaza Strip.

TTPL_t= Inflation rates in the West Bank and Gaza Strip.

FAP_{lt} = Flows of foreign aids to the West Bank and Gaza Strip in \$ millions.

GA_{Et}= Palestinian public capital expenditures in \$ millions.

The Empirical Results

Given that secondary data utilized to estimate the model, the first consideration for estimation procedure is the statistical specification of the equations and selection of the appropriate estimation technique. The specified models are not a system of equations. Each equation contains predetermined variables which are not common to all equations and the disturbance terms of each equation are not correlated. Therefore, ordinary least squares (OLS) have been used to estimate equations (1) to (7). The use of this estimation procedure for each independent equation provides consistent and unbiased parameter estimates [Wooldridge, 2009].

Table (1) shows the estimated equation of the Gross Domestic Product (GDP). All the estimated coefficients have the right signs. They indicate that the current GDP is more heavily dependent on labor force than on capital in both short and long runs. An increase in the labor force by one percent will increase the GDP by 0.98 percent , two times than the increase in capital. In fact, Palestinian economy has been classified as labor intensive one with medium technology. However, any increases in labor should be associated with similar percentages in capital. Over the past decade , the increase in labor forces has been directed to service and agriculture only without any increases in capital. Therefore, it was

not surprising to find stagnation in the GDP, where labor productivity in those sectors tended to decrease over time. Annual growth rates in the GDP did not exceed 1%. In this regard, employment opportunities should be created in the production sectors to reverse the trend of job creation in the agricultural, manufactured and construction sectors.

Although most of the explanatory variables appear highly significant and with expected signs, workers remittance have been found to be highly sensitive with respect to the GDP, unemployment rates in the WBGS and real exchange rates. It is obvious that any expansion in the capacity of the Palestinian economy would absorb more labor force and consequently the demand for jobs mainly, in Israel, would eventually, decline. Similarly, an increase in the employment rates in the WBGS would increase the flow of remittances as a result of Palestinian labor mobility to Israel. Over the past four decades, potential employment rates in the WBGS exceeded 40%. Likewise the inflows of remittances have negatively affected labor force participation in the WBGS. Due to higher salaries and wages with respect to those prevailed in the WBGS, Palestinian workers tended to seek jobs in Israel and GCC. Mainly, skilled, semi-skilled and educated workers moved from the local sectors to the Israeli and GCC economies. Consequently, the productivity of agriculture, industry and construction sectors showed a decreasing trend.

Also, remittances were sensitive to changes in the real exchange rates. Due to the continuous and persistent depreciation in the Israeli currency with respect to U.S dollar in the past four decades, wages in Israel tended to increase and consequently the value of remittances increased. This situation has made sending remittances in U.S currency or Jordanian dinar more attractive so as to provide additional incomes to Palestinian families to cover consumption expenses. On the other hand, RMs are not sensitive to changes in Israeli and Palestinian inflation rates. In the long run, any change toward RM, depends mainly on changes in the domestic factors; full adjustment requires around five years.

► For the case of remittances from the GCC, it was found that remittances were highly associated and sensitive to changes in the GDP of Saudi Arabia and the GDP of the WBGS. It is expected that an increase in the Saudi Arabia's GDP by 1 percent, would increase remittances flows to the WBGS by 1.5 percent. Remittances flows from the GCC are compensated for the Palestinian skilled laborers and educated employees. Due to the

modest investment in production sectors, graduates and skilled laborers seek employment abroad

▶ However, remittances flows to the WBGS from GCC were insensitive to changes in the Palestinian macroeconomic indicators such as unemployment rates, real exchange rates and inflation. On the other hand, mobility restrictions imposed by Israeli Authorities on Palestinian workers movement to the Israeli economic sectors have positive effects on labor remittances .As a result, domestic labor market pushed skilled workers, and technicians to seek employment in the GCC, mainly in Saudi Arabia. In fact, over the past four decades, the impact of Israeli restrictions has been increasing over time. Labor exports to Israel have been substituted by export to the other countries.

▶ Remittances from Israel play an important role in determining merchandise imports from or through Israel. It was obvious that over the past four decades RM were the major component in financing imports through increasing GNDI.

▶ Also, the influence of GDP on the remittances is still moderate. The contribution of productive sectors, agriculture, manufacture and construction on the GDP tended to decrease overtime. It decreased from 45% in 1995 to 20% in the years 2007-2009. The reduction in GDP growth rates in the production sectors has increased the flows of merchandise imports from or /and through Israel to the WBGS markets. On the other hand, workers who lost their jobs in the Israeli and GCC markets have sought employment in the agricultural sector. The increase of employment in that sector was not accompanied with an improvement of the average productivity of that sector. This results came concurrent with results published in the literature which revealed that remittances had decreased economic growth [Chami et al, 2008]. The decline in the real growth rate of GDP and changes in its structure have put pressure on the economic situations. Merchandise imports were highly sensitive to changes in the GDP, import prices and RM through increasing GNDI.

▶ The situation for service imports was totally different from that of merchandise imports. The impact of RM on service imports was very weak. The influence of the GDP showed that it was negatively associated with service imports. Most of the service imports are highly sophisticated. They account for only 7% of total imports .In fact, remittances could increase the GNDI and consequently the GDP through stimulating the demand for local services and products in domestic markets. However, the situation in the WBGS has been viewed in a completely different manner. The increases in remittances have increased merchandise imports and consequently service imports. In fact, Palestinian merchandise

imports from or through Israel depend mainly on Israeli trade facilitation and services such as transportation, clearance, health and veterinary inspections and insurance [Eljafari, 2010]. Consumption expenditures were highly determined by the GDP RM and CPI , since they were highly sensitive to any changes in both short and long run..

Policy Implications

✧ Although Palestine is not a unique case, workers' remittances have pushed the WBGS from productive to income and artificial economies and to be contained by Israeli economy. Instead of replacing labor export revenues by merchandise exports, particularly since 2000, foreign aids have become the main financial sources to cover the deficit of the PNA current budget. Over the past decade, the contribution of the productive sector tended to decline. In addition, absorption capacity of the private sector in terms of employment has been shrinking. Based on the empirical results of the estimated model, exporting labor to Israel and the GCC has widened the gap between the economies of the WBGS and the regional countries. Since the impact of the remittances was very harmful to the Palestinian economy, it became very essential to substitute them. Despite the importance of remittances with respect to GDP and GNDI, non economic development policies were adopted. Therefore, it was not surprising to find out that the remittances were directed to consumption rather than investment. On the other hand, less remittances were directed to invest in production sectors. Hence, saving –investment gap has widened over time. Consequently, less economic growth has ensued. This requires having a very sound policy to transform the performance and function of the economy from income bases to production ones.

✧ Based on the empirical results of the estimated model, exporting labor to Israel and to the GCC has widened the gap between the WBGS economics and those of the regional countries. Due to the Israeli economic shocks toward Palestinian economy, proportion of per capita income in the WBGS to that of Israel tended to decrease over time. Consequently, Palestinian workers in Israel and GCC kept on remitting high percentages of their incomes to protect their families from poverty and to maintain certain quality of life. Since the impact of the remittances was very harmful to the Palestinian economy, their substitution became very essential. Likewise, this also requires an application of a very

sound policy to transform the performance and functioning of the economy from income bases to production ones.

✧ Palestinian employment in Israel is highly linked to merchandise trade and investment. Remittances have been viewed as an engine to the entire economy. On the other hand, many Palestinian workers who acquire skills and savings have invested in Israeli economic sectors, such as construction, agriculture and manufacturing. Seeking high returns under attractive investment climate with the criterion of ease of doing business have considered as the major reasons behind investing in the Israeli economy. Due to the Israeli restrictions imposed on the performance and the functioning of the Palestinian economy, Palestinian ranking in the ease of doing business does appear particularly poor (World Bank 2007;2010). It is obvious the consequences of remittances and working outside the national economy is similar to that in the Maghreb countries such as Tunisia and Morocco.

✧ Several questions could be raised about remittances:

- Maximization of the benefits from remittances to guarantee their flow into production sectors.
- Improvement of the absorption capacity of the private sector.
- The efficient allocation of remittances between consumption and investment through an increase the role of RM in the accumulation of savings. It has become obvious that seeking employment abroad appears to respond to some Israeli economic indicators such as price level and exchange rates. Therefore, more remittances have become indispensable to obtain additional income at both macro and household levels to certain quality of standard of living. In this regard, one could conclude that the adverse effects of remittances and external incomes have determined the performance and the function of the Palestinian economy since the Israeli Military Occupation of the WBGS over the past four decades from 1967 until present.
- Due to their significant role in transferring the Palestinian economy from production to income, it becomes necessary to find out how much time is required to decrease dependency on remittances as the engine of the economy.
- The multiplier effects of the Palestinian workers remittances on budgetary revenues, GDP and GNDI have been found to be very marginal. They indicate the insignificant effects on restructuring the economy.

In the short- run, focus should be devoted to the mechanism of maximization of benefits from remittances to alleviate poverty through finding jobs to the continuous over supply of labor. Over the past decades, absorption of over- supply of labor outside national economy has exonerated the PNA from acting policy reforms to enhance the absorptive capacity of private sector. On the other hand, the policies of financing the wage- bill of over employment in the public sector from taxes, VATS, and financial flows from donor countries are marked as both poor and dependent.

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Table 1: Determination of Palestinian Gross Domestic Product

Variables	Estimated	Standard	Estimated
Constant	-161.8	90.92	
Labor Force Employed	0.25	0.0488	0.96
Gross Fixed Capital Formation	0.00472	0.00202	0.43
Mobility Restrictions Imposed by Israeli	600.55	350.2	0.28
Mobility Restrictions Imposed by Israeli	320.33	280.22	-0.17
Mobility Restrictions Imposed by Israeli	-700.22	95.5	-0.5
Lagged Dependent Variable, PRMist-1	0.56	0.101	0.48
R2=.92			

Table 2: Determination of Palestinian Workers' Remittances Flows From Israel

Variables	Estimated coefficient t	Standard error of estimates	Estimated elasticity at the mean
Constant	180.99	90.92	
Palestinian gross domestic product (PGDP)	-0.25	0.0488	1.5
Israeli gross domestic product(IGDP)	0.00472	0.00202	0.08
Palestinian Unemployment Rates	10.27	3.818	0.68
Palestinian Inflation Rates	0.401	0.05	0.002
Real Exchange Rates (the real value of \$U.S in the Israeli currency)	261.2	160.22	0.85
Mobility Restrictions Imposed by Israeli Authorities between 1988-1994	200.55	150.2	0.28
Mobility Restrictions Imposed by Israeli Authorities between 1995-2001	120.33	80.22	-0.17
Mobility Restrictions Imposed by Israeli Authorities between 2002-2007	-350.22	95.5	-0.5
Lagged Dependent Variable, PRMist-1	0.46	0.101	0.48
R2= .87 F=38.67			

**Table3:Determination of Palestinian Workers
Remittances Flows From the GCC**

Variables	Estimated	Standard	Estimated
Constant	0.84	0.13	
Palestinian gross domestic product (PGDP)	-0.0064	0.00006	0.48
Saudi Arabia gross domestic product(IGDP)	0.00026	0.000059	0.87
Palestinian Unemployment Rates	0.0317	0.004	0.08
Palestinian Inflation Rates	0.051	0.03	0.001
Real Exchange Rates (the real value of \$U.S	0.69	0.002	0.01
Mobility Restrictions Imposed by Israeli	20.33	10.2	0.17
Mobility Restrictions Imposed by Israeli	34.00	15.22	0.29
Mobility Restrictions Imposed by Israeli	42.00	25.33	0.36
Lagged Dependent Variable, PRMsat-1	0.56	0.156	
R2=0.81			

Table 4: Determination of Palestinian Merchandise Imports

Variables	Estimated coefficient	Standard error of estimates	Estimated elasticity at the mean
Constant	153.84	825.1	
Palestinian gross domestic product (GDPT)	-1.7	0.56	-0.29
Import price index (PMt)	-5.63	0.055	-5.4
Palestinian Remittances from (RMist)	5.22	0.48	0.99
Real Exchange Rates(REXGt)	-261.36	187.97	-0.16
Economic Restrictions Imposed by Israeli Authorities between 1988-1994	-593.5	331.00	-0.03
Economic Restrictions Imposed by Israeli Authorities between 1995-2001	450.55	225	0.02
Economic Restrictions Imposed by Israeli Authorities between 2002-2007	-220.00	152.2	-0.01
Lagged Dependent Variable (MMt-1)	0.2	0.1	0.75
R2=0.82 F=26.2			

Table 5: Determination of Palestinian Service Imports

Variables	Estimated coefficient	Standard error of estimates	Estimated elasticity at the mean
Constant	-24.35	70.05	
Palestinian gross domestic product	-0.024	0.008	-0.46
Service import price index (PMt)	-1.47	0.08	-0.49
Palestinian Remittances from (RMist)	0.011	0.003	-.01
Real Exchange Rates(REXGt)	-20.3	4.147	-0.09
Economic Restrictions Imposed by	56.00	36.00	0.02
Economic Restrictions Imposed by	-38.66	12.66	-0.01
Economic Restrictions Imposed by	86.44	37.22	0.08
Lagged Dependent Variable(SMt-1)	0.49	0.133	0.5
R2=0.95			

Table 6: Determination of the Palestinian Expenditures

Variables	Estimated coefficient	Standard error of estimates	Estimated elasticity at the mean
Constant	67.71	1580.43	
Palestinian gross domestic product (GDP)	1.2	0.28	1.24
Palestinian Remittances from (RMist)	2.722	1.109	2.59
Real Exchange Rates(REXGt)	215.81	79.00	-0.44
Consumer price index (CPIt)	- 4.20	1.35	-1.8
Palestinian Unemployment Rates	22.0	0.14	-0.15
Economic Restrictions Imposed by Israeli	402.06	241.0	0.012
Economic Restrictions Imposed by Israeli	632.4	465.22	0.019
Economic Restrictions Imposed by Israeli	-564.7	233.07	-0.02
Lagged Dependent Variable (Cpt-1)	0.12	0.016	0.88
R2=0.87			

Table 7: Determination of Palestinian Private Investment Expenditures

Variables	Estimated coefficient	Standard error of estimates	Estimated elasticity at the mean
Constant	48.39	59.35	
Palestinian gross domestic product (GDPT)	0.37	0.05	1.52
Palestinian Remittances from Israel (RMist)	0.26	0.18	0.12
Palestinian Remittances from the GCC	4.73	1.15	0.15
Flows of Foreign Aids to the Palestinian Territories(FAt)	0.28	0.17	0.29
Government Capital Expenditures (GCAEt)	-0.29	0.36	0.001
Economic Restrictions Imposed by Israeli Authorities between 1988-1994	55.2	42.5	0.08
Economic Restrictions Imposed by Israeli Authorities between 1995-2001	78.3	39.2	0.101
Economic Restrictions Imposed by Israeli Authorities between 2002-2007	-80.52	49.8	-0.1
Lagged Dependent Variable (Ipt-1)	0.0.63	0.09	0.37
R2=0.96 F=155			

THE GROWTH EFFECTS OF SKILLED LABOR MIGRATION

Mongi BOUGHZALA & Mohamed KOUNI ¹

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Summary

More than one million Tunisian, or 10% of the population, live abroad, mostly in Europe and more than half of them are in France. In spite of the restrictions migration continues; close to 25000 Tunisian manage to migrate per year. Among them, more and more, there are the most skilled and the best trained young people.

Brain drain is a real concern but skilled labor migration is also likely to generate positive effects, not only in terms of remittances but also in terms of human capital accumulation. Migration may offer learning and training opportunities and creates an incentive for investing more in human capital as an outcome of the likelihood of finding a better job abroad. The net effect in terms of

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HK formation may be positive. This paper's first focus is on exploring the positive impact for the country of origin on human capital (HK) accumulation and growth. This is the brain gain effect.

The ideal situation being when migration is temporary and migrants decide to return and to bring back home the knowledge and knowhow they have accumulated abroad (Amin et Mattoo (2005)), this paper also studies the determinants and the probability of return of migrants.

The findings of this paper are based mainly on the Docquier and Marfouk international database for studying the brain gain, and the MIREM database covering the three Maghreb countries (Algeria, Morocco and Tunisia) for studying the determinants of return migration.

The idea of brain gain is not new. Many studies (for instance Beine et al. ,2001 2003, 2008; Schiff, 2005; Docquier and Rapoport, 2007...) were devoted to testing it in different ways and contexts. The debate is more about the net effect: do the losses outweigh the gains or the opposite? For instance, Haque and Kim (1995) concluded that skill migration causes a net reduction in the growth rate of human capital and GDP, and also aggravates the inequality between rich and poor countries. Docquier and Rapoport (2004) argue that the opposite.

Basically, the same analytical framework developed by Beine Dockier and Rapoport (2008) is adopted here with the some improvements. The main finding is that the variable indicating the perceived emigration outlook has a clearly significant positive effect on human capital formation; however, the value of the coefficient is low. Consequently, given the size of the negative brain drain effect, it the net effect of migration must be rather negative.

The question of the determinants of migration has been widely addressed and analyzed, mainly by Jérôme Adda & Christian Dustmann and Josep Mestres (2006), Belinda I. Reyes (1997), Mary Haour-Knipe and Anita Davies (2008), Christian Dustmann (2003) and John Gibson et David McKenzie (2009). Income and employment opportunities are always viewed as important factors but there is also a consensus that other important non financial factors enter in the preference function. Cultural variables and social integration also matter. On this issue, this paper's findings are as follows.

First, expatriates would be more likely to return if they had a relatively better situation before migrating, those who used to be unemployed or never had a decent job think less of returning. And if the possibility to find a better employment after returning becomes more available then they may change their attitude and would be more willing to return. The quality and the availability of employment opportunities at home is the most important determinant regardless of the employment status during migration. The latter is not significant.

Second, people indeed care about how well they are accepted in the foreign destination country. Integration is a highly significant variable. Moreover, those who have invested in the foreign country are less interested in returning. The coefficient for this variable is also significant, with a high magnitude and the right sign.

Finally, and most importantly from the perspective of this paper, the more the more expatriates acquire skills and obtain higher degrees, especially graduate level degrees, the less likely they want to return. This finding is particularly important and explains why the impact of migration on human capital accumulation within the home country has been weak.

Résumé

Plus d'un million de tunisiens vivent à l'étranger, principalement en Europe et plus de la moitié en France. Malgré les restrictions croissantes, l'émigration continue, autour de 25000 tunisiens réussissent à émigrer annuellement avec une proportion croissante de jeunes, les mieux instruits et les plus qualifiés.

La fuite des cerveaux est en effet une préoccupation sérieuse pour le pays mais la migration des qualifiés ne génère pas que des effets négatifs ; en plus des transferts il est possible que la migration contribue à la formation de capital humain. Elle peut créer une incitation à investir dans le capital humain résultant de la perspective pour ceux qui sont dans le pays d'émigrer à leur tour. Il n'est pas exclu que l'effet net sur le capital humain soit positif et que le gain l'emporte sur la fuite des cerveaux. L'idée du gain de cerveaux n'est pas si récente. Plusieurs études s'y étaient intéressées (par exemple Beine et al. ,2001 2003, 2008; Schiff, 2005; Docquier et Rapoport, 2007...). Le vrai débat est de savoir si l'effet positif domine ou l'inverse. Haque et Kim (1995) par exemple concluent que la migration des qualifiés entraîne une réduction de l'accumulation de capital humain et de la croissance et aggrave les inégalités, alors que Docquier et Rapoport (2004) soutiennent que la migration stimule la formation de capital humain et la croissance

Cet article essaie principalement d'estimer les effets positifs et négatifs de la migration des qualifications et par conséquent de dire dans quels cas les effets nets seraient positifs.

En particulier, le gain doit être plus important quand les émigrants finissent par retourner à leur pays d'origine ; ainsi ils ramènent avec eux les qualifications et le savoir faire qu'ils ont acquis (Amin & Mattoo (2005)) et contribuent plus nettement à l'accumulation de capital humain dans leur pays d'origine. Dans ce contexte, cet article étudie les déterminants de la probabilité de retour.

Les analyses ne portent pas exclusivement sur le cas tunisien. La base de données internationale de Docquier et Marfouk est exploitée pour étudier l'impact de la migration sur l'accumulation de capital humain tandis que la base de données MIREM portant sur les trois pays du Maghreb sert à l'étude des déterminants du retour.

Le cadre analytique utilisé pour étudier l'impact de l'émigration sur la formation de capital humain et donc sur la croissance est essentiellement celui de Beine, Dockier and Rapoport (2008). Le principal résultat obtenu est que l'indice des perspectives d'émigration est en effet une variable significative comme facteur déterminant du capital humain réalisée mais la valeur du coefficient obtenu est faible. Par conséquent étant donné l'ampleur de l'effet négatif (la fuite des cerveaux) l'effet net doit être bien négatif.

La question des déterminants du retour avait fait l'objet de plusieurs études, notamment par Jérôme Adda et Christian Dustmann et par Josep Mestres (2006), Belinda I. Reyes (1997), Mary Haour-Knipe et Anita Davies (2008), Christian Dustmann (2003) et John Gibson et David McKenzie (2009). Le revenu et les opportunités d'emploi sont toujours vus comme des facteurs explicatifs importants, cependant il est aussi entendu que d'autres facteurs non financiers comptent aussi. En l'occurrence, des facteurs culturels et le degré d'intégration sociale de l'immigré sont des facteurs importants. Les résultats présentés dans cet article peuvent être résumés comme suit.

Premièrement, le retour est plus probable pour les émigrants qui avaient une meilleure situation chez eux avant leur départ ; en revanche, ceux qui étaient au chômage ou étaient dans la précarité sont moins motivés par le retour. Mais si une bonne opportunité d'emploi dans leur pays d'origine se présentait alors ils pourraient changer d'attitude et seraient plus intéressés par le retour. La qualité de l'emploi disponible au pays d'origine est le facteur le plus déterminant, alors que le type d'emploi dans le pays d'accueil n'est pas un facteur significatif.

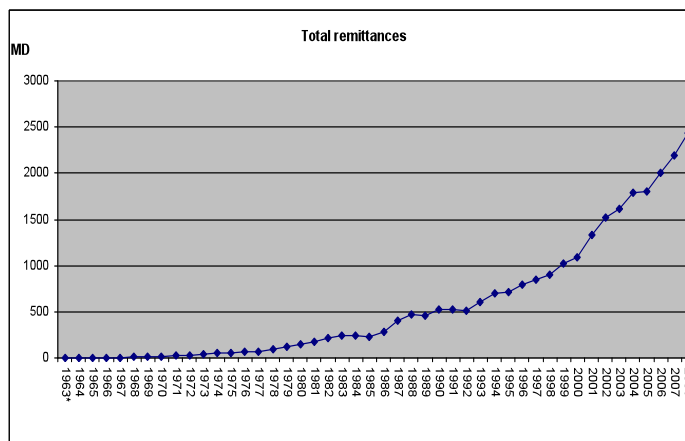
Deuxièmement, l'intégration dans le pays d'accueil est très importante, il est nettement plus probable que ceux qui se sentent mal acceptés retournent à leur pays d'accueil. Ceux qui ont investi dans le pays d'accueil sont par contre ont une plus faible probabilité de retour.

Enfin, et c'est encore plus important, plus l'émigré réussit à se former et à obtenir des diplômes, surtout des diplômes de troisième cycle, la probabilité de son retour devient plus faible. Ce résultat explique en partie la faiblesse de l'impact de la migration sur la formation de capital humain dans le pays d'accueil.

Introduction

Tunisia's total population is a little more than ten million and more than one million Tunisian live abroad, mostly in Europe, more than half of them are in France. In spite of the restrictions imposed by the European countries migration continues; close to 25000 Tunisian manage to migrate per year, among them, the proportion of the more educated and the more skilled has been fast growing. Because more and more skilled people, the best trained and the most capable young people are leaving the country and face less entry barriers, brain-drain has been a persistent concern. Nevertheless, skilled labor migration also generates positive effects, the most obvious being the contribution to the flows of remittances. In the case of Tunisia, total remittances have significantly contributed to incomes and growth and have accounted for about 11% of total foreign resources. Although not as much as for countries like Palestine or Jordan, remittances are important and continue to grow.

Figure 1: Tunisia total remittances



Source: based on Central Bank (BCT) data

The main focus in this paper is on the exploration of a longer term effect of skilled labor migration, primarily on the positive impact for the country of origin on human capital (HK) accumulation and growth. In the short run, given the rising unemployment among the educated youth in Tunisia, the cost of migration may be small anyhow and net gains may look more plausible. In the long run, migration may offer learning and training opportunities which would generate additional HK formation for the home country if the workers ever return. It may also create an incentive for investing more in human capital as an outcome of the likelihood of finding a better job abroad. Admittedly, only a proportion of those who are driven by the migration perspective and, as a result, invest in training and higher education end up migrating. Consequently, the net effect in terms of HK formation may be positive. BRAIN GAIN is thus not to be excluded. The aim of this paper is

to discuss and to assess this effect. The brain gain is highest when migration is temporary, so migrants decide to return and to bring back home the skills and knowhow they have acquired abroad (Amin et Mattoo (2005)). Then, skill migration would in the first phase allow to alleviate the initial level of unemployment in the home country and later to benefit from all the gains just mentioned. Consequently it is important to explore the behavior of the returning migrants, with a special attention to the skilled, and to study the determinants and the probability of return. In particular, to what extent this happens to the more skilled?

This paper is organized in three sections: after an overview of the structure of the Tunisian population abroad and its evolution in section 1, section 2 provides an assessment of the brain gain through the impact of migration on human capital accumulation; while section 3 gives an estimate and a discussion of the determinants and the likelihood of return migration. The findings of sections 2 and 3 are relevant for Tunisia but not restricted to the case of Tunisia. Section 2 is based on an international database and the model used to investigate the determinants of return migration is estimated using the MIREM database, which is the outcome of a survey covering the three Maghreb countries (Algeria, Morocco and Tunisia).

1. The Tunisian Migration to Europe

For centuries, Tunisia had been a country of destination for other people migrating mainly from southern European, the reversal started after the second world war and intensified starting in the 1960s. Currently about 10% of the Tunisian population, more than one million since 2007, live abroad, primarily in Europe (82.5% in 2008) and more than half in France.

Not surprisingly, between 1995 and 2008 the total number of Tunisian emigrants had doubled. Only a rough estimate about its growth is available. It is clear that the number published by the Tunisian National Institute (INS), less than ten thousand per year, is an underestimation. Using the Ministry of Foreign Affairs data, it comes out that around 25000 per year is a more acceptable estimate. These data show that the average rate of growth of the Tunisian in Europe is close to 4% (3.9%) while the natural rate of growth of this population cannot exceed 1%. This means that the extra three percent are new arrivals, which gives the 25000 approximation. Anyhow, the numbers of emigrants are expected to keep growing for the years to come.

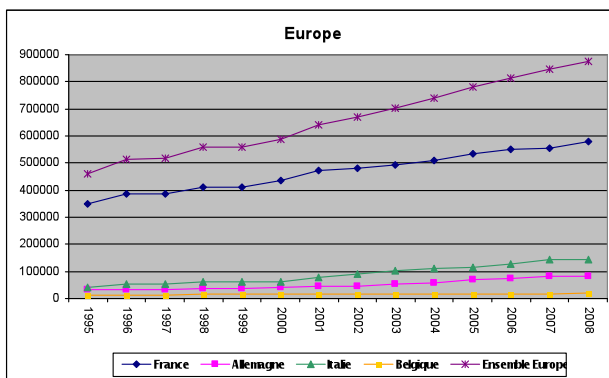
Table 1 : Tunisian emigrants by group of countries.

Country	1995	2000	2005	2006	2007	2008
Europe	459116	589075	779161	815483	846803	873947
Maghreb	97268	59764	90735	90946	98109	102930

Arab countries	35364	31783	38138	38718	44546	50326
North America	10335	16177	23054	25006	26188	27579
Africa	326	623	1236	1277	754	1057
Asia	739	530	976	1066	1073	1246
Oceania	152	156	644	644	700	712
Total	603 300	698 108	933944	973140	1018173	1057797

Source : Ministry of foreign affairs, Tunisia

Figure 3 : Tunisian migration flows to the main European countries: France, Germany, Italy, Belgium



Source : Ministry of foreign affairs, Tunisia

Table 2 : Growth of the numbers of Tunisians in Europe

Country	2006		2007		2008	
	EFFECTIFS	Taux d'accrois	EFFECTIFS	Taux d'accrois	EFFECTIFS	Taux d'accrois
France	551668	+3,0	555347	+ 0,6	577998	+ 4.1

Italy	127059	+11,6	142972	+ 12,5	141907	- 0.7
Germany	72112	+2,5	80336	+ 11,4	82635	+2.9
Belgium	17852	+17,4	18033	+ 1,0	19441	+7.8
Switzerland	10953	+2,5	11533	+ 5,3	12318	+6.8
Holland	8031	+14,7	8129	+ 1,2	8222	+1.1
Austria	5124	+17,3	5896	+ 15,1	5870	-0.4
UK	5869	-	5621	- 4,2	6526	+16.1
Sweden	7153	+5,7	7153	--	7593	+6.2
Other countries	9662	+2,2	11783	+ 21,9	11437	-2.9
Europe	815483	+4,7	846803	+ 3,8	873947	+3.2

Source : Ministry of foreign affairs, Tunisia

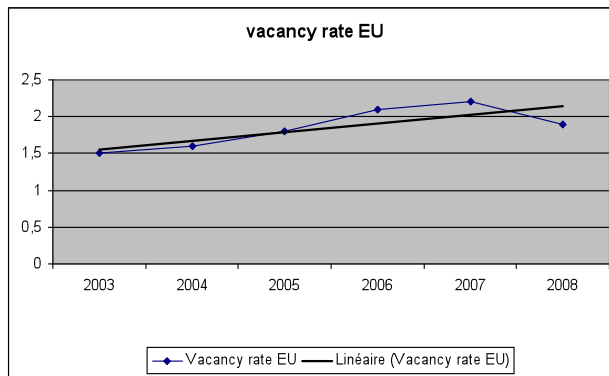
It is true that by far the majority of the Tunisian population in Europe (80% of them) are rather unskilled (with little schooling) and working unskilled jobs. However, the number of the more skilled is increasing faster, and it has become much easier for the skilled to get access to Europe. The number of Tunisian students in Europe has also been increasing fast; it has almost doubled in just five years, between 2003 and 2008. Out of these students, the number of those who decide to settle and seek work in Europe is also increasing, and quite often they are the most talented of the country.

Geographic and cultural proximity makes Europe the most attractive destination for Tunisian seeking a better life abroad. For a historical and linguistic reason France comes first. More generally, the pull factors have been and remain very strong determinants of the Tunisian migration to Europe. Average salaries and working conditions are by far, up to ten times, better in Europe, and there is a wide consensus (for a synthetic overview World Bank, 2009) that in the long run Europe's demand for foreign labor is going to increase. The overall EU vacancy rate shows that even recently opportunities have been available for emigrants.

Table 3 : Tunisian students abroad

year	2003		2004		2005		2006		2007		2008	
	Number	(%)	Number	Growth (%)	Number	Growth (%)	Number	Growth (%)	Number	Growth (%)	Number	Growth (%)
France	16418	71,2	26094	58,9	28876	+ 10,7	28257	-2,1	23876	- 15,5	25153	+5,3
Germany	876	3,8	2007	+129,1	3336	66,2	3073	-7,9	4359	41,8	6255	+43,5
Belgium	1268	5,5	2867	+126,1	2867	-	2452	-14,4	2468	0,6	2740	+11,0
Switzerland	208	0,9	327	+57,2	230	-29,7	340	+47,8	432	27,1	300	-30,5
Canada	1799	7,8	5054	+180,9	2975	-41,1	2975	-----	511	- 82,8	3145	+515,5
USA	323	1,4	1195	+270,0	1227	+2,7	1227	-----	1501	22,3	1562	+4,1
Total	23059	100 (%)	42034	-	44478	-	43326	-	39615	-	45246	-
Growth Rate (%)	-----				+ 5,8		- 2,5		- 8,5		+14,2	

Source : Ministry of Foreign Affairs

Figure 4: Vacancy rates in the EU

Migration out of Tunisia is also caused by push factors. Unemployment is certainly the most important one. In Tunisia, structural unemployment has been persistently higher than 14% (14.2% in 2008). It is much higher, larger than 30%, for youth, and it has become the hardest for the more educated, especially the university graduates. For them unemployment reached 21.6% in 2008, after 19% in 2007 and 10% in 2000. The least educated and skilled may find jobs more rapidly but in the informal sector where working conditions are below their expectations. In some regions of the country, youth unemployment is higher than 40%!

It is natural that tens of thousands of young Tunisian would be willing to leave their region or their country in order to look for better work and life opportunity. Centuries of human kind history shows that such a push factor is so strong that it cannot, and should not, be suppressed. However, it is true that if some of the heavy barriers imposed by the European countries to restrict flows of foreign laborers were lifted then there would be tens of thousands more leaving to Europe, including a high proportion of skilled and educated workers. This category is the more likely to leave because the outlook for jobs in Europe is better for them than for the unskilled. Is this desirable, and would the country gain or lose when its skilled workforce migrate to other countries? The next section is to provide an answer to this question.

Table 4: unemployment rates in Tunisia by age bracket (2007)

Age bracket	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+	Total
Unemployment rate (in %)	34.1	30.2	23.9	13.3	6.9	4.7	3.5	2.9	2.8	3.0	2.4	1.0	14.1

Source : INS , Enquête emploi 2007

Table 5 : Labor force by education attainment (2007)

Education	None	Primary	Secondary	tertiary	N.A	Total
Numbers (in 1000)	417	1315	1319	539	4.5	3594
Share of total	11,60%	36,59%	36,70%	15,00%	0,13%	100,00%

Source : INS , Enquête emploi 2007

2. Estimating the impact of migration on Human Capital and Growth

2.1. The debate

The idea that migration may generate not only negative effects through the immediate loss of human capital (brain drain) but also positive effects, in terms of remittances and a higher rate of capital accumulation, is not new. Many studies (for instance Beine et al. ,2001 2003, 2008; Schiff, 2005; Docquier and Rapoport, 2007...) were devoted to testing it in different ways and contexts. The debate is more about the net effect: do the losses outweigh the gains or the opposite. It is not surprising that people have not been unanimous about this and that the final results vary over countries or samples of countries; for they depend among other things on the opportunity cost of migration and on the destination and behaviour of the migrants, which are not constant. Haque and Kim (1995) had an early contribution to this debate and concluded that skill migration cause a reduction in the growth rate of human capital and GDP, and also aggravates the inequality between rich and poor countries. Boulila (1997) confirmed the same result using a standard growth model. On the opposite side, Docquier and Rapoport (2004) argue that the higher incomes obtained by Indian medical doctors when they emigrate to the UK have created a strong incentive for training more medical doctors and developing the medical profession in India, and that the final outcome was beneficial for India....

The debate has recently intensified as a result of the acceleration of the migration of skilled workers from developing to developed countries. Some statistics are particularly alarming. The following table shows that almost all the countries (except the UK) with the highest rates of skilled labor migration are developing countries, and the lowest rates are mostly in developed and/or high growth countries. This rate is given by the ratio of skilled labor force living abroad in OECD countries to total skilled labor force staying at home. Many studies have shown that skilled labor migration will continue as long as the expected employment outlook, wage level, working conditions and quality of jobs are better in the developed countries but there will be regional differences. Empirical studies show that demographic variables, cultural and institutional factors and the existing networks of fellow country people also matter and could explain the choice of destination of the migrants (Bartel, 1989; Mahmood et Schömann, 2003; DeVoretz & Maki,1983...).

Table 6 : Rates of skilled emigration by country of origin (in 2000)

CLASSIFICATION	30 HIGHEST RATES		30 LOWEST RATES	
1	Haïti	81.6%	Sweden	4.4%
2	Somalie	58.6%	Egypt	4.2%
3	Ghana	42.9%	China	4.2%
4	Mozambique	42.0%	India	4.2%
5	Sierra Leone	41.0%	Moldova	4.2%
6	Vietnam	39.0%	France	3.9%
7	Nigeria	36.1%	Libya	3.8%
8	Madagascar	36.0%	Burma (Myanmar)	3.4%
9	El Salvador	31.5%	Venezuela	3.3%
10	Nicaragua	30.9%	Brazil	3.3%
11	Lebanon	29.7%	Burkina Faso	3.3%
12	Croatia	29.4%	Belarus	3.0%
13	Cuba	28.9%	Nepal	2.7%
14	Hong Kong	28.7%	Georgia	2.6%
15	Papua new guinea	28.2%	Azerbaijan	2.6%
16	Sri lank	27.5%	Spain	2.6%
17	Kenya	26.3%	Argentina	2.5%
18	Angola	25.6%	Australia	2.3%
19	Senegal	24.1%	Paraguay	2.3%
20	Honduras	21.8%	Thailand	2.2%
21	Dominican republic	21.7%	Indonesia	2.0%
22	Uganda	21.6%	Japan	1.5%
23	Guatemala	21.5%	Russian federation	1.3%
24	Burundi	19.9%	Kazakhstan	1.1%
25	Rwanda	19.0%	Uzbekistan	1.0%
26	Serbia and Montenegro	17.4%	Kyrgyzstan	0.7%
27	Ethiopia	17.0%	Saudi Arabia	0.7%
28	United kingdom	16.7%	Tajikistan	0.7%
29	Tanzania	15.8%	United states	0.5%
30	Slovakia	15.3%	Turkmenistan	0.1%

Source : Docquier & Rapoport (2004). Some of these figures may be questioned, for instance the rate for Egypt looks too low.

2.2. The database and the analytical framework

2.2.1. The Docquier and Marfouk database

Empirically, the debate is ongoing and the essential question remains open for specific countries and regions because of the lack of sufficient and reliable data. In particular, a fully adequate database for Tunisia, or for the Maghreb countries, is not available. Detailed information by age, skill level, country of destination, time of migration and eventually of return for a long enough time series simply does not exist.

The most complete database on international migration is the one produced by Docquier and Marfouk (DM). In total 195 countries, including MENA countries, are covered and emigration to the group of 30 OECD countries is described. Arguably, the conclusions drawn from comparative analysis are relevant for the countries of the region, including Tunisia and Palestine. Additional data from the World Bank Development Indicators are used. Our sample is restricted to 128 developing countries of origin: 53 low income countries, 46 low middle income countries and 28 higher medium countries for which the database is complete.

The purpose of our empirical investigation is to test to what extent skill migration leads to more (or less) human capital accumulation and, implicitly, to growth, assuming that more HK yields more growth.

To this end, we adopt basically the same analytical framework as Beine Dockier and Rapoport (2008) with an attempt to improve the measure of human capital used and the index for migration outlook.

– 2.2.2. The model

The model may be written in the following form:

$$\ln(h_{moy,00} / h_{moy,90}) = c_0 + c_1(\ln h_{moy,90}) + c_2(\ln gmp_{H,90}) + c_3(\ln gdp_{90}) + c_4(\ln gmp_{H,90} \times DPIB) + c_5(\ln d_pop_{90}) + c_6(RM_{90}) + c_7(DFR) + \varepsilon \quad (1)$$

For a given country,

h is a measure of human capital and $h_{moy,t}$ denotes the average level of human capital in time t ;

$\ln(h_{moy,00} / h_{moy,90})$ is an indicator of the growth of human capital from 1990 to 2000; if this rate is small enough $\ln(h_{moy,00} / h_{moy,90})$ would be approximately equal to the usual growth rate. The operator \ln denotes the logarithm transformation;

$gmp_{H,90}$ is an index for skilled migration outlook based on 1990 data;

Gdp_{90} is the per capita GDP in 1990 in constant \$US (2000 prices);

$DPIB$ is a dummy taking a zero value for countries whose per capita GDP is equal to at least US\$1000 and zero otherwise, presumably for the first category of countries people wanting to emigrate will not be constrained by the cost of emigration;

d_pop_{90} is the population density in 1990;

RM denotes remittances as a share of total GDP;

DFR is a dummy equal to one for low income countries and to zero for the other countries;

ε denotes the residual term.

The main idea and hypothesis expressed by this model is that when people invest in education and human capital in general, especially in higher education and high skill acquisition, they expect to have access to better and more skill demanding employment either in their own country and/or in a foreign accessible country. That is, the higher the probability to find a job abroad the more people are willing to invest in human capital accumulation and consequently human capital will grow faster. How do they assess the probability to find employment abroad, several previous studies used simply the current rate of skilled labor migration as an indicator. In this paper, human capital is regressed on a more complex index for the migration outlook, $gmp_{H,90}$. Thus, the coefficient c_2 is expected to be positive; this is the main hypothesis to be tested. In addition, in this model the migration outlook effect is detected in interaction with the financial capacity of the candidate to migration. Actual migration is conditioned by the availability of liquid resources to cover its travelling and other costs. The corresponding coefficient is c_4 ; it is expected to be negative given the definition of the dummy $DPIB$.

Of course growth of human capital depends on many other variables. In the spirit of endogenous capital growth models, it depends on the level of the stock of human capital

reached in the previous period, indicated here by the average level of human capital in 1990 ($h_{moy,90}$). Any country is expected to allocate a share of its existing human capital (primarily the education and health staff..) to the production of human capital. Hence, the coefficient c_1 is also expected to be positive. It is also expected that a higher per capita GDP is likely to allow for more resources for human capital accumulation and to give a positive sign for the coefficient c_3 , however, this is less certain. Since equation (1) is a reduced form of a structural form there may be other indirect effects acting in the opposite directions. For instance, according to the Todaro² mechanism a higher gdp makes migration less attractive and may lower the gain from migration... Population density (d_pop_{90}) generates more competition and creates an incentive for more investment in education and for stronger migration flows; consequently, its coefficient c_5 is expected to be positive. Remittances received by the country of origin are partly used for a better education and health care for the family members staying at home, which means that the coefficient for RM should be positive. Finally, the expected sign for is less obvious but it is expected to be significant because people in lower income countries do behave differently in terms of migration and perform differently in terms of human capital accumulation.

The measure of the human capital (h) and the migration outlook (gmp) are extensions of those adopted by Docquier and Marfouk (2006).

Measuring human capital:

Simpler measures have been previously adopted. In particular, Barro and Lee (1993, 2000) took the average number of years of schooling. Ours is somehow a combination of the number of years of schooling and of the shares of workers by level of education [none, primary or low (L), secondary or medium (M) and tertiary or high (H)]. We assume that the total number of years of schooling all the way to the end of the tertiary level is 18 (of which seven in secondary schools and five in tertiary schools), and we define h on a scale from 1 to 4. It would be equal to 1 if nobody ever went to school and 4 if every body had a full university education; that is even those who did not have any schooling possess basic knowhow and traditional training and have a unit value. Thus for a given country j and time t the average level of human capital is given by

$$h_{t,moy}^j = h_{t,L}^j + h_{t,M}^j + h_{t,H}^j + 1$$

² Migration is governed by the difference between the expected income in the destination location and the expected income in the original location.

With $0 \leq h_{i,s}^j \leq 1$

And $s = L, M, H$

The calculation of these indices is based on the DM database.

Measuring the emigration outlook *gmp*:

How easy is it for a person in a developing country to emigrate and what is the probability he can indeed do it? It is a real challenge to provide an accurate measure for what we called the migration outlook. It is clear that it depends not only on the degree of openness of a destination country, it also depends on the attractiveness of this destination indicated by the gain in expected income it offers and on the cost of migration. The definition of *gmp* we have calculated is the produce of these three terms. Because complete data on the cost of migration by country of origin to each country of destination is not available the geographical distance is used as a proxy.

2.2.3. Empirical results

Before estimating the main equation, some tests have been run. The Nakamura test was applied to test for the endogeneity of the explanatory variables. Heteroskedasticity and multi-collinearity were also explored. Based on these tests, it comes out that the best estimates could be obtained for separate groups of country, low, medium low and medium high income level (no high income countries in our sample) and when the GMM estimation method is applied. In the full sample case, estimations have blurred some effects and multi-collinearity arises. For the separate group estimation the dummy DFR does not make sense and is omitted.

For all the following results, $\ln(h_{moy,00} / h_{moy,90})$ is the dependent variable and four alternative specifications are considered. For instance, in table 7/columns (3) and (4) specifications population density is taken out.

Table 7 : GMM full sample

VARIABLES	(1)	(2)	(3)	(4)
Constante	-2832629 (-3.02)***	-3044239 (-3.54)***	-2770756 (-3.07)***	-1333809 (-4.12)***
ln h_{moy, 90}	.2333299 (1.86)*	.2454853 (2.00)**	.2316889 (1.89)*	
ln gmp_{H, 90}	.0165739 (5.11)***	.0169651 (5.12)***	.0160784 (5.64)***	.018498 (5.30)***
ln gdp₉₀	.0128923 (3.64)***	.0143728 (5.60)***	.012276 (3.50)***	.0166739 (4.38)***
ln d_{pop90}	-.0001435 (-0.11)	-.0003474 (-0.28)		
RM₉₀	.0003684 (1.35)	.0003682 (1.33)	.0003536 (1.33)	.0003184 (1.22)
DFR	-.0038805 (-0.60)		-.004407 (-0.69)	-.0066445 (-0.97)
chi2	107.20	105.30	92.47	69.99
Prob > chi2	0.0000	0.0000	0.0000	0.0000
R²	0.5545	0.5479	0.5614	0.4921

Table 8:GMM High middle income

VARIABLES	(1)	(2)	(3)	(4)
Constante	-1.1777917 (-2.01)**	-.1113683 (-1.14)	-.3440796 (-2.00)**	-.2801119 (-1.89)***
ln h_{moy, 90}	.0063645 (0.04)	-.0744392 (-0.45)	.1245817 (0.57)	.1158302 (0.63)
ln gmp_{H, 90}	.0227696 (2.77)***	.0188551 (4.30)***	.0450703 (3.46)***	.0275797 (3.89)***
ln gdp₉₀	.020035 (2.93)***	.0198381 (3.18)***	.0281231 (2.85)***	.0213087 (3.51)***
ln d_{pop90}	-.0005068 (-0.33)		-.0054361 (-1.48)	
RM₉₀	.0034937 (5.76)***	.0041244 (5.80)***		
chi2	604.08	495.70	30.74	25.12
Prob > chi2	0.0000	0.0000	0.0000	0.0000
R²	0.9060	0.9131	0.6009	0.5946

Table 9: GMM Low middle income

VARIABLES	(1)	(2)	(3)	(4)
Constante	-.1899044 (-1.99)**	-.1816691 (-1.96)**	-.1720043 (-4.83)***	-.1747824 (-4.70)***
ln h_{moy, 90}	.0299587 (0.24)	.0125156 (0.10)		
ln gmp_{H, 90}	.0119837 (2.72)***	.0111344 (2.73)***	.0121511 (2.71)***	.0113289 (2.69)***
ln gdp₉₀	.0227472 (4.75)***	.0231755 (4.57)***	.0234281 (4.97)***	.0235081 (4.85)***
ln d_{pop}₉₀	-.0010013 (-0.63)		-.0009746 (-0.64)	
RM₉₀	.0013136 (6.78)***	.0013216 (5.88)***	.0013136 (7.01)***	.001318 (6.03)***
chi2	253.73	216.22	240.66	209.76
Prob > chi2	0.0000	0.0000	0.0000	0.0000
R²	0.6943	0.6836	0.6944	0.6845

Table 10: GMM Low income

VARIABLES	(1)	(2)	(3)	(4)
Constante	-.0306662 (-4.27)***	-.0706379 (-1.70)*	-.0305576 (-4.34)***	-.0779574 (-1.64)*
<i>ln h_{moy, 90}</i>		.0570129 (0.96)		.0676754 (0.99)
<i>ln gmp_{H, 90}</i>	.0019519 (1.95)*	.0018251 (1.96)**	.0019379 (1.92)*	.0018916 (2.01)**
<i>ln gdp₉₀</i>	.0054688 (4.31)***	.0050655 (3.38)***	.005433 (4.24)***	.0050245 (3.28)***
<i>ln d_{pop90}</i>			.0000386 (0.11)	-.0001502 (-0.41)
<i>RM₉₀</i>	-.0000119 (-0.66)	-3.19e-06 (-0.19)	-.0000121 (-0.67)	-1.83e-06 (-0.11)
<i>chi2</i>	32.15	31.50	33.97	31.04
<i>Prob > chi2</i>	0.0000	0.0000	0.0000	0.0000
<i>R²</i>	0.4186	0.4383	0.4189	0.4373

The main findings that come out of these calculations can be summarized as follows:

- Emigration, more exactly the perceived emigration outlook(*gmp*), has a clearly significant positive effect on human capital formation. This result is robust and is confirmed under all specifications (and also when alternative estimation methods are applied).
- However, the value of the *gmp* coefficient, which is really the elasticity of the rate of growth of human capital (over one decade) with respect to *gmp* is very low. The highest elasticity is obtained for the relatively high income countries and is at 4% in the

best case. Consequently, given the size of the negative brain drain effect, it is likely that the net effect of migration is rather negative, but this net effect is not calculated here.

- Human capital formation is also sensitive to the per capita GDP and to the level of remittances, but again the elasticity for these two variables is low.
- The initial level of human capital and population density have the right sign but are not significant.
- All together, there must be other important explanatory variables not included in this model and worth investigating.

We know that the migration negative effect will be reduced and the gain will be increased if the migrant decides to return, especially in the case of skilled workers.

3. The determinants of return migration

The question of the determinants of migration and of return have been widely addressed and analyzed. Jérôme Adda & Christian Dustmann and Josep Mestres (2006); Belinda I. Reyes (1997); Mary Haour-Knipe and Anita Davies (2008); Christian Dustmann (2003) and John Gibson et David McKenzie (2009) are among the main contributions to this domain. Income and employment opportunities are always viewed as important factors but there is also a consensus that the decision to migrate and to return are not fully determined by a financial cost and benefit analysis and that other important factors enter in the preference function. Cultural variables and social integration also matter. It also comes out that the process is often dynamic and changing. Individuals are likely to change their decisions, they may intend to emigrate temporarily and stay for ever, or decide to return and discover that the outlook back home is disappointing and migrate again...There is a need for further investigations and. The North African region is even less studied than other regions. The study and the survey (Mirem) undertaken by the Robert Schuman Centre for Advanced Studies (2007) is one of the most valuable and offers the most complete and publicly available database that can be used to identify the determinants of return migration of people originating in Maghreb countries and returning from EU countries. 992 individuals returning to Algeria, Morocco and Tunisia form the sample for this survey.

In this section, we present a simple model describing the return process and its estimation results based on this database.

The model

Although we agree that migration and return follow a stochastic and dynamic process, our model captures only the return phase, which does not have to be final. Actually, after spending some time abroad people who consider returning are likely to in an exploratory position. Some have made up their minds others are more hesitating, and once they do return they may change their minds in all possible ways. This information is provided by the Mirem database. For each individual, it tells whether he is returning permanently ($y=1$) or is not sure yet and is back just for exploring and testing ($y=0$). Since the database does not include information on a reference sample of people who decided not to return, this binary y variable will be our basic decision variable and dependent variable. Our assumption is that each individual decides in an uncertain environment according to his preferences, which depend on income and non income factors, and that he is risk avert. He weights the expected benefits and the risks and decides to return when the expected benefits are high enough given the level of risk. Because not all the steps of this process are observable, we simply say that the individual's decision follows the following binary decision model:

$y=1$ means that the net expected utility of return is higher than the utility of staying abroad,

$y=0$ otherwise

Probability of ($y=1$) depends on a set of observable variables including age, social status before migration, level of education, country of residence of family and children, degree of integration within the country of destination, employment abroad, employment in the home country after return... This gives a binary logistic model.

The estimation results are given in the following table:

Table 11: determinants of return migration

	B	S.E.	Wald	df	Sig.	Exp(B)
country	.0	.024	.664	1	.415	1.020
age	,0	,006	44,190	1	,000	1,042
Employment before	,0	,024	6,736	1	,009	1,064
Family	.0	,168	,299	1	,584	1,096
integration	,2	,096	7,718	1	,005	1,305
Investment in destination	,5	,268	4,017	1	,045	1,710
Children abroad	-	,165	,084	1	,772	,953
Studies abroad	-	,189	9,171	1	,002	,565
Vocational training abroad	-	,198	,495	1	,482	,870
Remittances	,0	,039	1,158	1	,282	1,043
Employment after return	,1	,032	20,547	1	,000	1,154
Investment projects at	,1	,114	1,089	1	,297	1,127
Employment abroad	,0	,025	,270	1	,604	1,013
Constant	-	5,02	2,390	1	,122	,000

Country = Algeria, Morocco, Tunisia

Employment before, during and after migration is indicated by : unemployed (0), family aid (1), seasonal worker (2), temporary worker (3), limited time contract (4), Self employed risky (5) permanent job contract(6), (student, women at home, retired) (7), executive employer (8). The numbers are used as a scale for the quality and security of the employment and/or social employment.

Family stands for whether family resides in the same country as the migrant

Integration is revealed by the answer to the question “to what extent the individual has felt accepted by the people of the destination country”: very well (1), fairly well (2), had some problem or uncertain about his feelings (3), major problem. The numbers are also used as an indicator of the level of integration.

Investment abroad takes 1 if yes 2 if no.

The findings are indeed quite illuminating.

- First the country is not significant, which means that there are no differences between Algerian, Moroccan and Tunisian behavior.
- Age is as expected an explanatory variable, the older the person the higher the probability to return.
- An important finding is that people would be likelier to return if they had a relatively better situation before migrating, those who used to be unemployed or never had a decent job think less of returning. And if the possibility to find a better employment after returning becomes more available then they change their attitude and will be willing to return. The quality of the available employment at home is the most important determinant regardless of the employment status during migration. The latter is not significant.
- The second finding is that people indeed care about how well they are accepted in the foreign country. Integration is a highly significant variable.
- Those who moreover have invested in the foreign country are less interested in returning. The coefficient for this variable is significant, with a high magnitude and the right sign (positive given that the variable takes a 1 value when the answer is yes and 2 when no).

– Finally, and most importantly from the perspective of this paper, the more the individual acquires skills and obtains higher degrees, especially graduate level degrees, the less likely this individual will want to return permanently. Of course, this is the essential conclusion for the impact of migration on human capital formation in the home country. It is a rather negative conclusion indicating that in the case of the Maghreb countries, including Tunisia, the impact of migration is likely to be weak, which confirms the low level of the elasticities we obtained in the previous section.

Conclusion

This leads us to final conclusion, which is that in the current situation characterized by high educated youth employment migration may alleviate unemployment, bring revenues and a limited incentive to continue to invest in human capital accumulation. However, in the long run, the benefits of migration may be outweighed by the losses in terms of brain drain. The probability that those who migrate will someday return and bring back the fruit of their experience and their skills depends in the first place on the availability of decent employment at home. This also means that good policy and growth at home determine return of skills and less the reciprocal (migration causing growth).

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