



## **Medical Brain Drain from Africa: case of central Maghreb doctors to France**

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**Submitted date:** 08-02-2017– **Acceptance date:** 14-03-2018

### **Abstract**

Migrants seem to be a threat for the security of many European countries. However there is a global war to attract the most skilled migrants. Skilled migration from the Maghreb countries (Algeria, Morocco and Tunisia) has become a burning issue since this millennium. Recent data indicate a rise in North African migrants with higher level of education in the OECD countries. How can we explain this growth? Is it the result of a new dimension of migration or is it simply the improvement of education amongst migrants or children of migrants born abroad? To understand this dynamic, we have examined closely the OCDE data (2012), which are quite global but point the way for more research. We need more detailed data to understand this trend of North African migration. From an in-depth analysis of French Labour Force Survey (INSEE, 2012), it seems that migrants with a high level of education are rather heterogeneous. However two profiles are revealed. The first one is that of “engineers”. There is a rich literature on this profile. The second one is that of doctors in medicine. This profile is little explored. The results indicate a high rate of «medical brain drain” from the Maghreb countries and a low educational progress of migrants in France. They also reveal the profiles of the specialists. Algeria records a higher rate than its neighbors in three fields: psychiatrist, ophthalmologist and radiologist.

**Keywords:** skilled migration; dynamic; data; profile; engineers; doctors.

### **Résumé**

Les données récentes indiquent une augmentation du nombre de migrants nord-africains ayant un niveau d'éducation plus élevé dans les pays de l'OCDE. Comment peut-on expliquer cette croissance? Est-ce le résultat d'une nouvelle dimension de la migration ou simplement de l'amélioration de l'éducation parmi les migrants ou les enfants de migrants nés à l'étranger?

Pour comprendre cette dynamique, nous avons examiné de près les données d'OCDE (2012), qui sont assez globales, mais montrent la voie pour plus de recherche. A partir d'une analyse approfondie de l'enquête française sur la population active (INSEE, 2012), il semble que les migrants ayant un niveau d'instruction élevé soient plutôt hétérogènes. Cependant, deux profils sont révélés. Le premier est celui des «ingénieurs». Il existe une littérature riche sur ce profil. Le second est celui des docteurs en médecine qui est peu exploré.

Les résultats indiquent un taux élevé de la fuite des médecins, notamment certaines spécialités, provenant des pays du Maghreb. L'Algérie enregistre un taux plus élevé que ses voisins dans trois domaines: psychiatre, ophtalmologiste et radiologue.

**Mots clés :** migration qualifiée; dynamique; données; profil; ingénieurs; médecins.

#### ملخص

لقد أصبحت هجرة الكفاءات من بلدان المغرب (الجزائر والمغرب وتونس) خلال الألفية الحالية مسألة حساسة إذ تبين البيانات الحديثة نسبة المهاجرين الحاملين لمستوى تعليمي عالي في ارتفاع مستمر خلال العشريتين الأخيرتين. فهل يمكن تعليل ويمكن اعتبار هذه الزيادة، بعدا جديدا لحركة الهجرة أم تعبيرا عن تحسن للمستوى التعليمي للمهاجرين من بلدان المنشأ وفي أوساط الإقامة بالمهجر؟ لفهم هذه الديناميكية فحصنا بكيفية بالدقة اللازمة بيانات منظمة التعاون والتنمية الاقتصادية لسنة 2012 التي بينت لنا الاتجاهات التي يتعين علينا بحثها وهو ما قمنا به باستعمال نتائج التحقيق الذي أنجزه المعهد الوطني الفرنسي للإحصائيات والدراسات الاقتصادية حول اليد العاملة الشغيلة في فرنسا في سنة 2012 حيث برز جليا عدم تجانس خصائص المهاجرين القادمين من بلدان المغرب مع تسجيل أهمية تشكل فئتين هما المهندسين الذين أنجزت بشأنهم عدة بوحث والأطباء الذين لم يحظوا بنفس القدر من الاهتمام العلمي.

تبين دراستنا ارتفاعا مذهلا لأعداد الأطباء المهاجرين وخاصة المتخصصين منهم من بلدان المغرب إلى فرنسا حيث سجلت الجزائر أعلى نسبة وخاصة لدى المتخصصين في الطب العقلي وطب العيون والأشعة.

الكلمات الدالة: هجرة الكفاءات؛ المستوى التعليمي؛ الديناميكية؛ المهندسون؛ الأطباء.

#### Introduction

This analysis of the brain drain (brain drain) is quite distinct from classical studies based on the push-pull theory. This is more than a scientific argument for the low retention capacity of countries in the South, but it calls for the adoption of an attractive active policy of scientific migration.

This paper is structured on four levels. First a, overview of African migration suggests a growth of scientific migration. Among others, medical brain drain is highly debated. The supposed *brain gain* "when" returnees bring knowledge and capital is lacking behind.

Secondly, an outlook of Maghreban migration reveals a new trend of scientific migration. Thirdly a thorough analysis of Maghreb skills, particularly in France where there is a high concentration of Maghreban migrants with an empirical evaluation of the "brain drain" rate especially for physicians to France. In the fourth section, it is suggested to open a new societal dialogue with a multi-fold insight of migrant's integration.

Finally, some proposals are put forward for a dialogue for a 3-Win policy and for a real strategy for skills mobility hitherto exclusively between the Northern countries. The dream from brain drain to brain circulation in the Mediterranean is also shared by the Maghreb analysts, but the means of achieving it are different.

These results come timely in the midst of the spectrum of deep fear veiling the “crisis migration” not only in Europe but also in USA where migrants are more seen as “devils” and less as “angels”. Global talents like medical officers, but also engineers and artists from third world countries are a “*blessing*” for northern countries which are lacking high skills to sustain their growth rate and well-being of these aging societies.

### 1. Overview of migration from Africa

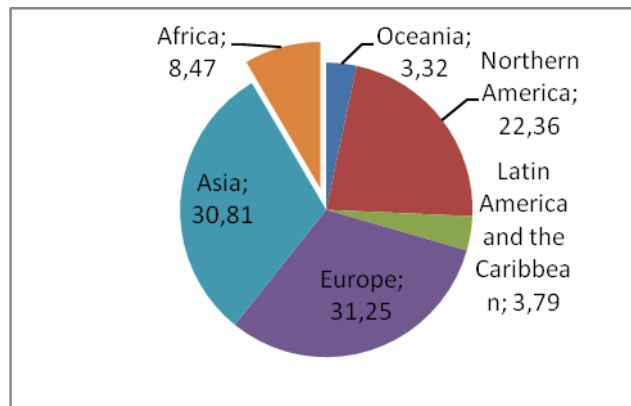
In this section, we present a global overview of African migration followed by a snapshot on brain drain and finally present recent data collected on African doctors abroad.

#### 1.1 African migrations

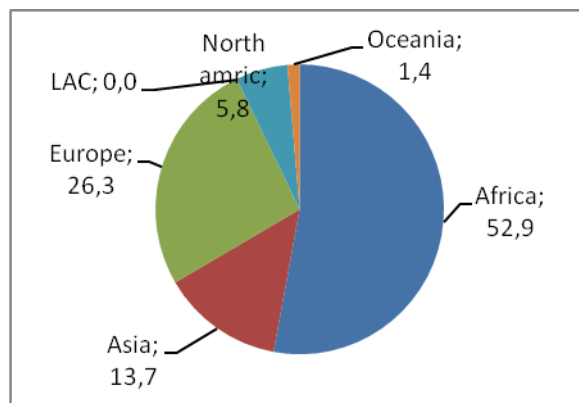
According to UNDESA (2012), migrants in Africa count only for 8.5% (20 millions) of world migration (F1). African migrants stand around 30 millions in the world, 52% of which migrate within Africa (F2), 26% in Europe and 14% in Asia.

Three countries in Africa (South Africa, Ivory Coast and Nigeria are most attracting (F3).

**Figure 1: World migration by regions of the world**

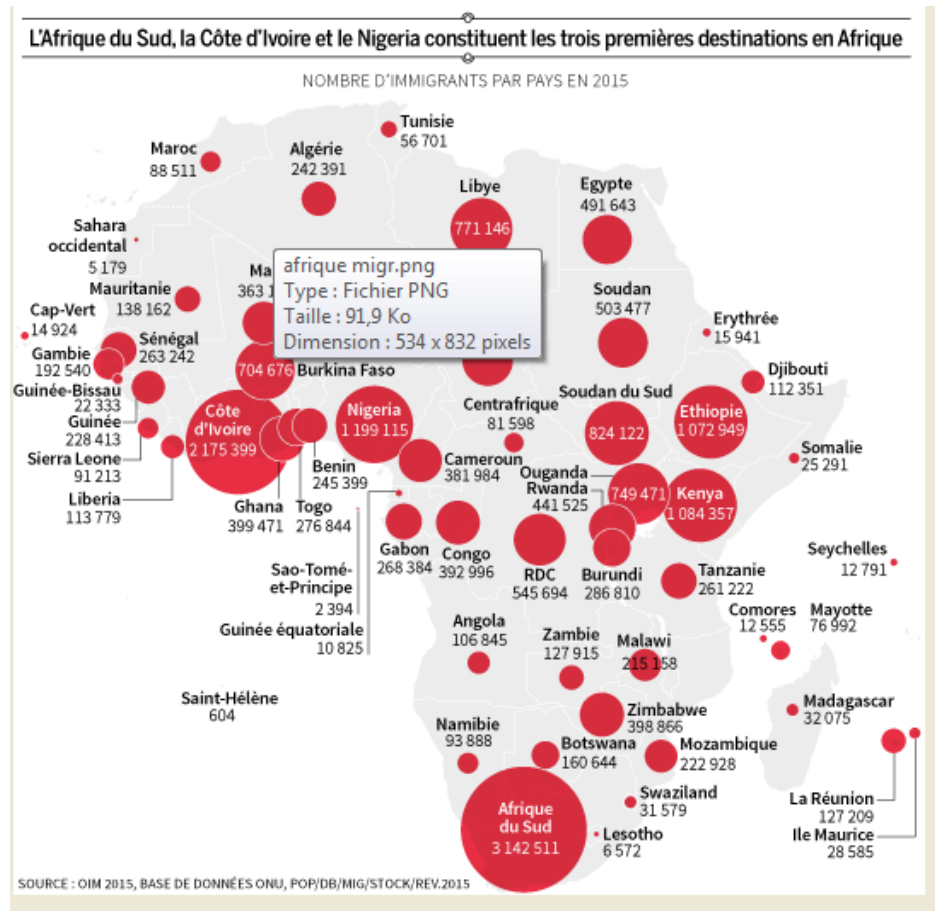


**Figure 2: African migrants by regions**



Source: UNDESA, 2016 - UN

Figure 3. Migrants in Africa



Source: UNDESA, 2016

Our concern in this paper is to shed light on African scientific migrants living abroad. Within this group, our focus is on medical brain drain from Africa. Let us have a glance on the concept of brain drain.

### 1.2 Brain drain from Africa: gain or lost?

The issue of "brain drain" is not new in the literature on international migration. But there is need to renew the scientific views of brain drain in the era of globalization. A synthetic review of the literature has been produced by Gaillard & Meyer (1996) on the evolution of the perception of the "brain drain" phenomenon. Some years later, the World Bank analysts (Bollard et al, 2011) also revisit the links between brain drain and remittances.

Transnationalism theory nevertheless insists that the Diaspora should not be addressed only on the issue of remittances. Peggy Levitt (2006) argues that the relationships between migration and development are not only financial but must also include social remittances.

Among developing countries, the phenomenon was raised at the African Union, particularly within the NEPAD program. Our approach builds on the progress made in the study and knowledge of the phenomenon. It also brings a new vision based on social remittances. It considers the scientific migration as a potential resource which can be mobilized to contribute to the economic, technological, scientific and social development of the country. Through a strategy designed for migrant remittances, this "resource" is not exclusively material but it is also immaterial or social remittances (Musette, 2011).

There are also other views stated than brain drain is important and even may be good for countries of origin, even for Africa (Easterly et al. 2008).

There is no clear-cut data of brain drain from Africa. Some data have been collected from industrialized countries. For example, according to OCDE Data, there is "A high percentage of highly educated African migrate overseas. For example, between 1990 and 2000, the stock of high-skilled immigrants from African countries residing in the OECD countries increased by 90% (Capuano & Marfouk, 2013). Most recent data show from a slower rate of the growth of African migration to Europe is merely 47% (5.7m to 8.4m) but the rate for highly educated reaches 79% (1.4m à 2.4m) during this decade.

These data covers only the unveiled part of High Skilled migrants from Africa. But how can we distinguish these migrants according to their fields and specialization? OCDE data are limited at this level. There is need for more in-depth research to construct these data. We do have some literatures on engineers and recently we have some data for medical practitioners. Such migrations have a severe impact of countries of countries. The more so, these migrants are trained in their country of origin.

### 1.3 Medical brain drain from Africa

It is during this millennium that some data have been revealed on medical brain drain namely from Africa (Clemens & Pettersson, 2008). They explored Census data of receiving countries and found, among others, there were 65 000 African doctors abroad, that is one fifth of all African-born physicians in the world, a decade ago.

Three sub-Saharan African countries (South Africa, Uganda, Nigeria ...) are severely affected by the MBD penalizing their weak health systems. They have the weakest medical densities in the world. Half of their doctors have emigrated during the period of structural adjustment policies. A study of Bhargava and Docquier (2008) indicate that the medical emigration rate in the Sub-Saharan African countries has increased significantly between 1990 and 2004. This has contributed to the weakening of health systems of these countries to deal with major pandemics. WHO data<sup>1</sup> show that about 57 countries in the world are suffering from an acute shortage of doctors, 36 are in Sub-Saharan Africa region. It affects many countries of the world:

<sup>1</sup> World Health Organisation (2006), « The global shortage of health workers and its », *Fact sheet n° 302*, Geneva.

Caribbean and Pacific islands, Ireland and sub-Saharan African countries register the highest emigration rate of doctors (OCDE, 2013).

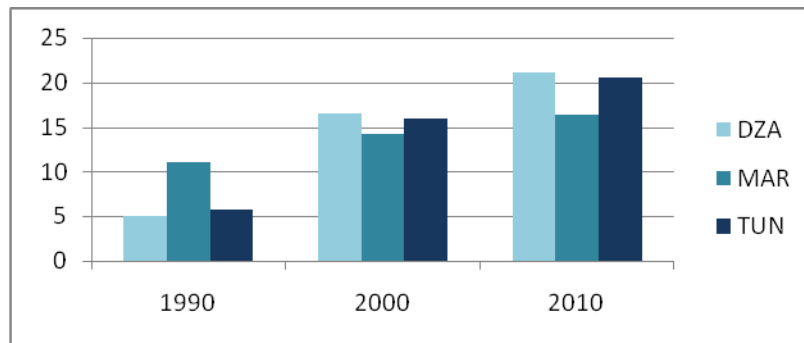
Recently, World Bank economist (Ozden, 2013) reminds some fundamentals about measuring medical brain drain. There is a need to make the distinction between the place of birth, the country of training and migration data. Let's have a look on some Maghreb countries.

## 2. Outlook of scientific migration from Maghreb

Central Maghreb countries (Algeria, Morocco and Tunisia) recorded just over 80 million population in 2015,, more than double against only 27 million in 1960 (UNDESA, 2015). These countries are also known to be emigration countries particularly since their independence in the 1960s. It must also be reminded that these countries have been for long, a land of immigration from Northern citizens, particularly from the former colonial France.

By now, there is a stock of 5 million migrants abroad, including nearly 90% in Europe according to the same UN data, representing 6.2% of Maghreb's population. The volume of North African high level migrants is estimated at around 800 000 in the OECD countries, an average rate of 20% in 2010 against 10% in 1990 (OECD, 2014). The rate has been doubled during these two decades. It should be noted that Maghreban migrants are not only in OECD countries.

**Figure N° 4. Growth rate of Maghreban High Level Migration to OECD countries from 1990 to 2010**



*Source: prepared by the authors based on OECD data*

In the light of these data, the growth rate is different for these three countries. Algeria recorded a stronger growth from a rate of 5% in 1990 to 21% in 2010, a multiplier of 4.2 compared to 2 for Tunisia and Morocco for 1.5. Some questions are necessary. Is this rise means brain drain, as put forward by OECD analyst? An in-depth analysis is necessary to discard non migrant from migrant. Moreover, measuring brain drain rate calls to differentiate people who has been trained in the country of origin from those having been graduated in the host countries.

The volume of Maghreb high skills migrants (over 25 years' old) in France is estimated at about 324 000 according to the French 2012 Labour Force Survey (INSEE, 2014).

**Table 1. Distribution of Maghreban High Skills Migrant in France by Countries of origin**

Graduation	MAR	DZA	TUN	TOTAL
<b>High level graduate (at least 2 years graduation)</b>	<b>87 294</b>	<b>95 630</b>	<b>26 782</b>	<b>209 706</b>
<i>Of which doctors in medicine</i>	5 106	17 658	5 106	27 870
<i>Of which ba level</i>	4 961	21 034	4 961	30 956
<i>Of which engineers</i>	6 787	14 115	6 787	27 689
Bachelors	52 407	44 255	17 325	113 987
<i>Of which technicians</i>	8 891	17 762	8 891	35 544
<b>Total high skills</b>	<b>139 702</b>	<b>139 885</b>	<b>44 107</b>	<b>323 694</b>
Employed migrants (25-64 years old)	640 046	453 395	230 402	1 323 843
High skills migration rate (%)	21,8	30,9	19,1	24,5

*Source: prepared by the authors based on INSEE - LFS 2012 data - France*

These data show some details so far little known. We focus particularly engineers and doctors. The supply of these two profiles is almost the same level as a whole. Algeria appears still to exception: three times for doctors from Algeria and twice for engineers, compared to those of neighboring countries. If the knowledge on North African engineers is fairly documented, the second profile, that of doctors, is quite unknown. What are the profiles of the doctors? Are all Maghreban doctors are migrants? Have they have been trained in the countries of origin? These data do not consider "citizenship" as criteria for migrants, but it includes also nationals, whatever is the date of departure from Maghreb countries. From a historical outlook, these data can be questioned. However, the Human Development Report (CNES, 2015:27), shows that 73.3% of doctors from Algeria have been graduated in the home country, on the contrary, the rate is only 3.8% for Tunisians and 20.4% for Moroccans who have been graduated in their countries of origin.



### 3. The medical brain drain from Maghreb Countries<sup>2</sup>

At the Maghreb level, the medical density in Tunisia is similar to that recorded in Algeria. However, Morocco displays a lower density. Overall, medical density in the Maghreb countries has improved significantly during the last three decades, even if the regional disparities persist. The pace of physician training is much higher in Algeria than in Tunisia and Morocco. This country displays a deficit of doctors to meet the needs of its population. World Health Organization classified Morocco, among the 57 countries worldwide, with acute shortage of medical staff. Aware of this situation, Morocco has launched a training program to improve the rate of medical density by 2020.

Despite the need for medical staff, the Maghreb countries seem to face to the MBD phenomenon. These countries lose each year many doctors, who prefer to go abroad, mainly in France and in Canada. To quantify this phenomenon, we have exploited and cross multiple data sources: those of the Ministries of Health of the three Maghreb countries, the employment survey conducted by INSEE (2012) and data from the Council of the Medical Association (CNOM, France).

**Table 2: Global medical brain drain rate in the Maghreb (country of birth)**

Employment status of physicians	Algeria	Morocco	Tunisia
Doctors born in the native country, settled in France (INSEE Survey, 2012)	14 847	6 230	3 846
Active physicians workforce in the native country (Countries Data)	48 184	19 770	13 640
<b>MBD rate</b>	<b>24%</b>	<b>24%</b>	<b>22%</b>

*Source: prepared by the authors based on data from MSPRH, MSM, MST, CNOM and INSEE*

The average emigration rate is 23% in 2012 for the whole Maghreb. This rate takes into account all the doctors born in North Africa, whatever their place of training (France and Maghreb countries) and practicing as a doctor in France. The emigration rate is even more important if we include all doctors established in France engaged in the medical or other sector, it reached almost 30%.

The majority of North African doctors emigrating to France because of historical, cultural, geographical factors and their training system are inspired by the French model and the existence of inter-university agreements. The number of North African doctors registered in French Physicians Order (TOM) is 16 821 in 2014<sup>3</sup>. Almost 92% of doctors worked in regular activity position.

<sup>2</sup> Part of this paper has been written in collaboration with Dr. Ahcen Zenati, in a paper published recently in an online journal of Economics and Complexity, Italy. Datas are slightly different for table 1 and table 2

<sup>3</sup> Not all practicing doctors in France enrolled in TOM. The number of practicing physicians is therefore higher.



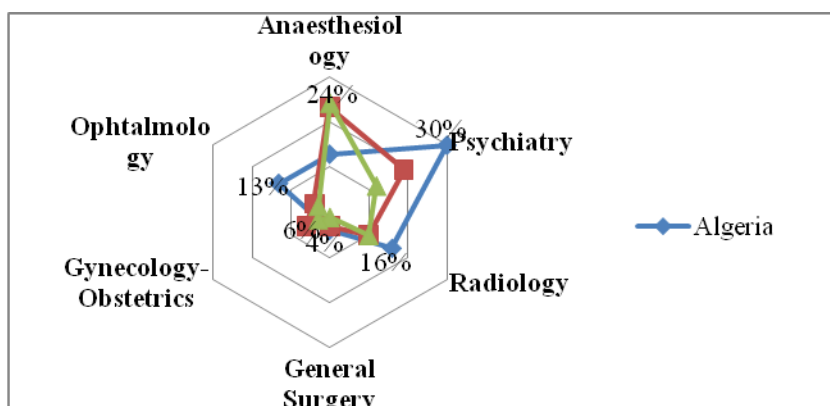
**Table 3. Medical workforce according to the type of activity**

	Algeria	Morocco	Tunisia
Temporary without activity	274	159	73
Substitute	484	250	169
Regular activity	9 561	4 598	2 662

*Source: prepared by the authors based on data from CNOM, 2014.*

This recent survey of CNOM (Le Breton-Lerouvillois G., 2014) indicates that the number of doctors born outside of the European Union working in France rose by 10.4% between 2007 and 2014 and has a high probability to continue to grow in 2020. More than one of two doctors was born in a Maghreb country. The specialties are affected differentially by MBD. The following figure shows the emigration rate in some specialties where data were available.

**Figure N° 5: Brain Drain Rate of physicians, born and trained in Maghreb Countries immigrated to France (%)**



*Source: Prepared by the authors based on data from CNOM, 2014*

This figure shows the emigration rate of doctors born and trained exclusively in the Maghreb. Psychiatry remains the specialty who knows the most important emigration rate: 30%, 19% and 12% respectively for Algeria, Morocco and Tunisia. North Africans are in total 63.9% of psychiatrists trained outside the EU and Algeria topped the list with 41%.

The Anesthesia comes second with an emigration rate of 24%, 23% and 13% respectively for Tunisia, Morocco and Algeria. Half of Maghreb anesthetists practicing in France have graduated in their origin country. Radiology is in third position with 16% in Algeria, 10% in both Morocco and Tunisia. Almost 50% of Algerian radiologists graduated in Algeria. One third of Moroccan radiologists established in France have graduated in their country. Finally, 25% of Tunisian radiologists arrived with their diplomas in France. Ophthalmology are in place 4th with emigration rate of 13% for Algeria, Morocco 4% and 3% for Tunisia. 37% of Algerian

ophthalmologists have been trained in Algeria, 12% in Morocco and 13% in Tunisia. Gynecology obstetrics display a brain drain rate of 6% for Morocco, 3% for both Algeria and Tunisia. The percentage of North African gynecologists established in France who obtained their degree in their home country is 41.4% for Algeria, 57.5% for Morocco and 45.8% for Tunisia. General surgery shows the lowest rate at 4%, 3% and 1% respectively for Algeria, Morocco and Tunisia. 41%, 23% and 6.5% of gynecologists have been trained respectively in Algeria, Morocco and Tunisia.

Through these data, we see that the specialties are not affected to the same extent by the MBD phenomenon. This craze for emigration is to lie with health personnel needs in the host countries that will observe a significant growth in coming years. In the absence of qualitative surveys, it is difficult to identify the motives of MBD. The register of motivation is certainly multivalent. The MBD is disconnected from the financial constraint. New tracks are to be explored together within a broader societal dialogue.

Our results suggest that remittances decay is expected in the long run. It is accompanied by the continuing brain drain. How to avoid the end of the transfer and how to turn the brain drain into brain circulation?

First, it is necessary to reconsider the theories enabling the country to benefit from a compensation deal with the losses recorded by the departures of skills. Then new actions deserve to be taken at the level of the Maghreb countries, although these countries are relatively better endowed with human resources as the rest of Africa, with a few exceptions.

The thesis of remittances, as compensation from abroad is reversed for the Maghreb countries already some years ago by the MIREM (2007) study. High skilled workers contribute far less to transfers than those who are less skilled. However, it was observed that intangible gains are possible but are invaluable in terms of the measurement. Further detailed analyzes are needed on remittances to reduce informal flows.

The thesis of "brain gain", inspired by the human capital theory, is quite attractive for the Maghreb countries with some nuances. This human capital gain proceeds from a migration desire for new generations who strive to acquire "exportable" skills. The return of negative images of the failure of high skills for the validation of diplomas needs new dialogue with northern countries.

The classic sociological vision of migration as a social success needs also to be revised. Migration is expected to participate in a reclassification of the social scale. Such is not the case and for the best, as these doctors not allowed to practice overseas, who became taxi drivers. Qualitative studies are needed on the image of qualified North African migrants abroad. The renewal of the European Blue Card in 2015 could bring more lights on the quality of new Maghreb skills, these countries having recently adopted the LMD system.

The thesis of "network Diaspora" skills appears to be a good inspiration for Maghreb authorities. It is validated by analysts in Algeria and Morocco. The analysis of the operation of

networks, with the advent of new communication technologies, however, is not easy. Continuous observation of network activities would first distinguish their demography (birth and death), the nature of actions taken in three senses of the law, the legality and legitimacy and measure forms of compensation that would benefit the country of origin.

#### **4. New Societal Dialogue in regards of integration process**

The integration of the Euro-Med countries from international migration is rooted in political, economic, social and cultural context. The concept of integration has taken new dimensions since the new millennium. The contemporary period is crossed by an accelerated process of globalization and intensification of geopolitical conflicts around the Mediterranean. Globalization requires strong economic ties for the prosperity of the countries in the region. The intensification of geopolitical conflicts tends to the dissolution of societal, if not civilizational links with risks of violence endangering the security and stability of all countries of the two shores of the Mediterranean.

The current context and calls a renewal if not a break with past visions of integration, laying new foundations for social dialogue to the prosperity of countries of both banks. This social dialogue requires, in turn, taking into account the dimensions of the environment. Regional and international organizations will continue to weigh all their weight on the nature of the desired integration. It is in this sense that the integration of the peoples on both sides deserves to be revisited through North-South but also South-South Societal Dialogues.

Integration through international migration is not new in literature. The European Union has set up an observatory for the integration of migrants, with a set of indicators for assessing and monitoring strategies of EU member states. This observatory is backed by the establishment of a border security system (FRONTEX) and a large-scale information system.

Similarly the EU has funded a series of studies and programs (I-MAP, EUROMED migration ...) in the region. Similarly, it should be remembered that migration was an early subject of consultations in the region (such as the 5 + 5 Group, the Barcelona Process, UPM Initiative Rabat) and recently the consultation Europe-Africa in Valletta (2015). Despite these efforts, the Mediterranean has become a "graveyard" of migrants and refugees, with numbers that are increasing. On the one hand, fear is settled in several countries of Europe, fueled by sensational press, which demonizes migrants. Furthermore, all demographic indicators attest to a need immigration to maintain the level of economic growth and "well being" of European countries.

Several questions arise from this position and these observations: How can we revisit integration through international migration in the light of new realities? Is economic integration a prelude to shared prosperity? By reducing economic inequality, can we bring the growth of "well-being" of all people of the Mediterranean? Integration, in the Durkheimian sense of "living together", is compatible with the plurality of modes of governance of migration? The integration, often opposed to assimilation, can it leads to interculturalism?

Three tracks are suggested to initiate a renewal of a societal dialogue with the viewpoints of the two sides of the Mediterranean on integration through migration.

### **Conclusion: Relationships between migration and development**

Despite the restrictions imposed on both sides of the Mediterranean, migration flow cannot be interrupted. The movement patterns (regular, irregular, mixed ...) will continue. Prospective studies should be constantly updated in both North and South, especially for the needs of the international labor market, which currently operate without rules or ethical. If for skills mobility, the war for talent is engaged by the head hunters, for the less skilled, informal economy without borders operates with a workforce made vulnerable by illegal working conditions which they are involved. Studies undertaken on remittances indicate migrant remittances will be decaying in the long run. Moreover, initiatives are undertaken through the networks of the North African Diaspora for making investments in the countries of origin.

### **Harmonization of the modes of governance of migration flows from Maghreb**

Migratory movements are powered by population displacement caused by cyclical crises created by geostrategic issues in the Mediterranean region, both in the Sahel and in the Middle East. The investments made by countries to secure the borders, with the construction of "walls" are heavy and unsustainable in the medium and long term. The costs of humanitarian protection of forcibly displaced populations require a strong contribution of civil society that could dwindle over time. Other forms of "migration crisis" are expected with climate changes affecting the countries in the region. The different Maghreb countries have undertaken a review of migration management strategies *without* constituting an extension of the borders of countries of the North Shore.

### **Building bridges between the banks: the Mediterranean an area of well being.**

Migratory movements, seen on both sides (economic and political) call a new societal vision for the peaceful coexistence of peoples of the two shores of the Mediterranean. A perspective of interculturalism is still a wealth of the Mediterranean: the market for global talent (medical officers, engineers, artists, sportsmen ...) deserves greater visibility to build societal dialogue in this region. Transnational migration, and presents carried by binational and birésidents, can be the suitable bridge between the two banks. Around these two dimensions, a new perspective on integration, through migration may be designed. Our people are condemned to live together.

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