Between Mobility and Migration. 

The Circulation in Europe of Highly Skilled Human Resources from non-European Countries

Author: Emanuela Varinetti
Between mobility and migration.
The circulation in Europe of highly skilled human resources from non-European countries

Emanuela Varinetti¹
Sapienza University of Rome

This article analyzes the phenomenon of Highly Skilled Human Resource (HSHR) originating from non-European countries in Europe. Accordingly, this paper has been organized as follows: the first descriptive part will function both to define a theoretical framework of the concept of intellectual mobility and migration, and also to outline a profile of the “highly qualified figures”, who are the object of this study. Furthermore, the new meanings that the terms mobility and migration have acquired will be touched upon. In the second explorative-quantitative part, the main characteristics of the databases of international organizations will be described. Thanks to the consistence of these databanks, it will be possible to map the mobility of highly skilled migrant workers in Europe.

INTRODUCTION

This article is the product of an explorative phase fundamental to the development of the research design of the Doctoral project in Applied Social Sciences. The aforementioned research proposes a better comprehension of the particular characteristics of the circulation of Highly Skilled Human Resource (HSHR) originating from non-European countries in Europe. It aims to understand on what terms the circulation of these figures is conditioned by the diverse contexts of the nations of departure and arrival, starting from the framework of opportunity, and restrictions and limitations demarcated by public policy (Dunnewijk, 2008; Jonker, Castro 2013; Canibano, Woolley 2015). Further comprehension of how and by how much the context of the countries of origin and arrival influence HSHR in their choice to transform short-term mobility to a definitive act of migration will be sought (Mahroum, 2000; Børing et al. 2015). The hypothesis proposed is that the quality of national scientific system and the incentives of mobility, promoted by destination countries, produces different effects on the attraction and mobility of highly skilled foreigners. Differences in the contexts of origin as well as levels of innovation and economic development, and subsidies for

¹ PhD student at the Department of Social Sciences and Economics; Sapienza University of Rome. Email: emanuela.varinetti@uniroma1.it
mobility are hypothesized to have an influence on the individual's decision to transform short-term mobility into long-term migration. This paper represents an exploration of secondary data and is divided as follows: the first part defines the theoretical framework for the concepts related to mobility and intellectual migration. The second part is dedicated to outline the profile of the highly skilled figure. In the third part, the methodological approach and characteristics of the main database used will be described. Finally, two case studies with reference to the Maghreb and BRICS countries will be presented.

**MOBILITY AND INTELLECTUAL MIGRATION – THEORETICAL NUANCES**

Contemporary society is increasingly propelled towards the transfer of information. Virtual platforms allow individual knowledge to become collective. Thanks to the development of information technologies this intangible asset that is knowledge can be easily transferred in real-time to any part of the world. Notwithstanding the advances in technology, intellectual mobility in the physical sense remains an intrinsic condition of knowledge dissemination (Gaillard & Gaillard, 1997). To this day, HSHR mobility has acquired marked traits of a true migratory phenomenon which accounts for, in OECD countries alone, more than 27 million highly qualified migrants (Dumont, Spielvogel, Widmaier 2010). This migrant “élite”, which has increased by 70% in the last ten years according to OECD data, is influenced by attraction factors, such as academic prestige, lucrative job offers and advantageous contracts, as well as push factors. Socio-economic instability and difficulty of countries of origin in absorbing highly qualified figures into the job market fall within the push factors (Mahroum, 2000). The concept of mobility brings with it not only the idea of physical movement but also transfer within the same sector, discipline or field of work. This term may also be associated with numerous activities within diverse fields such as university, industry and the public sector; or again with the dynamism of the same subject in more than one field of research. Furthermore, a type of virtual mobility may exist, made possible by databases and registries accessible through eScience, which permit collaboration in the production of patents, miscellaneous publications and multidisciplinary networks between geographically distant subjects. The term migration on the other hand brings with it the idea of an individual project aimed at the betterment of social and economic conditions, achieved over the long term. A choice orientated not only towards the expectations of the single individual but also potentially swayed by emotional and domestic expectations. Intellectual mobility may therefore be assigned sector-based and transitory attributes, as opposed to migration, which has the characteristic of continuity in the achievement of long term prospects.

The development of an economy and of a society based on knowledge has opened new trajectories in work mobility, above all towards OECD countries, with a rise in the demand for specialized figures and an increase in competition within the job market between highly qualified professionals (Sabour, Habti 2010). Globalisation and progress in technology, however, have not yet allowed the disparity between the periphery and the centers, where knowledge is produced. Globalisation and progress could represent themselves the causes for this ever widening gap. “Peripheries”, corresponding to less advanced economies, suffer from a double disadvantage. They are geographically distant from the centers of knowledge production and they are scarcely
attractive in terms of human capital (Jonker, Castro 2013). The concentration and the attractiveness of resources are fundamental not only for the confluence of highly qualified workers, native and foreign, but above all due to the positive fallout in terms of socio-economic growth that the presence of these resources may generate.

Several theories examine skilled labour mobility with regards to the positive impact that the acquisition of human capital can generate in the host economy in specific production sectors or fields of research (Canibano, Woolley 2015). These theories may be aligned with the optimistic approach proposed by the internationalist model which sees intellectual migration as a favorable phenomenon both for the countries of origin as well as for those of the destination. The promoters of such approach believe that considering outward flux of highly qualified migrants as a loss for the country of origin is simplistic. They put emphasis on how and where the human capital of these subjects can be best utilized. Indeed, highly qualified migrants in many cases maintain ties with their country of origin, not only through money transfers but also through investment in entrepreneurial activities. HSHR migrants launch scientific collaborations between countries of arrival and departure, contributing to social and economic growth (Agrawal et al. 2011). Surveys conducted in growth economies such as China and India report cases in which the migration of the highly skilled produced models of success, which, when associated with processes of technology and know-how transfer have permitted an acceleration of industrial development in the information technology sector (Saxenian, 2005). In contrast to the internationalist theory, the supporters of the nationalist model are positioned to consider the negative impact, above all in less advanced economies, consequent to the way out of human capital. This theory sees mobility of engineers and scientists, primarily, as an economic loss, when indeed their training was financed by the public education system. This situation is manifest mostly in countries of smaller dimension, in sub-Saharan Africa or in central America, where a sizable reduction in the highly qualified work force has been recorded, due to a mass emigration (Dunnewijk, 2008). The exit of this category of workers also entails an abandonment of key social functions in cases in which these subjects have roles in public function, such as for example teaching or institutional activities. More serious consequences are observed in cases where these figures had pivotal roles in innovation hubs, and whose know-how is strategic to the growth of their Department (Canibano, Wolley 2015). This pessimistic approach may be surpassed just by considering that the foreign work experience may constitute an opportunity to accumulate knowledge and skills, which might later be transferred from the destination country back to the country of origin (Saxenian, 2005). These highly qualified professionals, if successfully integrated into this form of rotating mobility, may return to their home country in the long-term, and hence initial loss of resources is as such recuperated in terms of more specialized professionalism. Other authors further emphasize the positive aspects of mobility, sustaining that the same migratory prospect can be considered in itself a stimulus for many to access third level education paths. The same subjects, once their studies are completed, may decide to join the national workforce thus renouncing their initial plan to migrate (Canibano, Woolley 2015). Obviously this hypothesis is conditioned by that which the job market has to offer, and its capacity to absorb these highly qualified workers.

The declinations given to intellectual mobility have varied depending on the repercussions produced, in terms of acquisition or loss of human resources, on the destination and origin countries. Some definitions to the phenomenon, divided by a
vertical classification corresponding to the consequences: Positive/Neutral/Negative; and a horizontal classification based on levels of impact: Low/Medium/High, are as follows:

**TABLE 1**

*INTELLECTUAL MOBILITY MODEL BASED ON LEVELS OF IMPACT-CONSEQUENCE*

<table>
<thead>
<tr>
<th>Levels of Impact</th>
<th>Consequence</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Brain gain</td>
<td>Skills circulation not as a loss but as network expansion. (Canibano, Wolley 2015)</td>
<td>Brain globalization</td>
<td>HSHR emigration as a result of the demands of the global market. (ILO, 2001)</td>
</tr>
<tr>
<td>Medium</td>
<td>Brain export</td>
<td>HSHR emigration offset by remittances, from technology transfer and investment inflow. (ILO 2001)</td>
<td>Brain exchange</td>
<td>HSHR emigration offset by immigration of foreigners HSHR. (Habti, Sabour 2010)</td>
</tr>
<tr>
<td></td>
<td>Brain circulation</td>
<td>Flow and benefits for both countries of origin and destination. HSHR considered a bridge for technology exchange. (Saxenian 2005)</td>
<td>Brain bank</td>
<td>Accumulation of knowledge abroad then transferred to their home country. (Agrawal et al. 2011)</td>
</tr>
</tbody>
</table>

The production of these multiple definitions confirms the fact that intellectual mobility and migration is a kaleidoscopic phenomenon which is difficult to conceptualize, and that a positive or negative appraisal is subject to a *country-specific* analysis. Its characteristics are differentiated or changed according to the point of view of the observer, whether institutional, geographic or political (Ackers, 2005). In the article, *International Mobility: Findings from a Survey of Researchers in EU*, Børing proposes an alternative to the classic distinction between migrant workers and forms of mobility which does not take into account a change of job role. The author distinguishes the movement of researchers into “mobility with” and “mobility without” a defined duration (Børing et al. 2015). Indeed, for highly qualified professionals, such as lecturers or researchers, mobility is a necessary condition in order to meet some of their professional demands. The vast majority of researchers consider mobility as an essential condition for the access to new technologies, for the acquisition of new skills and for scientific exchange between international groups of research.
WHO ARE THE HSHR MIGRANTS

Highly Skilled Human Resource migrants more than other groups of migrants, may not perceive the act of departure as a one-way trip but also as a temporary choice. The international scientific community has been questioning itself for a while on how to characterize the choices of this category of “globetrotters” (Mahroum, 2000). According to the neo-classical theory, the migrant flux of students and highly skilled workers is steered towards countries which offer greater occupational and economic advantages. For this category of migrants, above all originating from less advanced or emerging areas of the globe, in many cases the decision not to return to the country of origin culminates during or at the conclusion of their study-abroad experience (Sabour, Habti 2010). In the transition from the status of student to employed, when job opportunities offered by the host country satisfy and coincide with their expertise, mobility may transform into migration. The choice to remain is actually further facilitated by public policy which makes easier the possibility of undertaking a course of study abroad thanks to the policy of internationalization of tertiary education. Also, increasingly open migratory policies with regards to highly skilled workers represent another incentive to remain in an advanced economy definitively. Flexible migratory policies discourage HSHR’s repatriation processes (Sabour, Habti 2010). The propensity to migrate depends, however, not only on the opportunities offered by the host, but above all on the capacity of the labour market of the country of origin to adequately place these human resources (Habti, Sabour, 2010). Highly qualified professionals and researchers are attracted by contexts in which return is not only limited to economic factors. These subjects are attracted by work environments in which there are a greater possibility to increase their skills and create professional partnerships (Canibano, Woolley 2015).

Mahroum, in an article from 2000. Highly skilled globetrotters. Mapping the international migration of human capital pinpointed the more volatile subjects from the technical and engineering categories within the employment market. These categories of workers are more inclined to set their sights on destinations where not only income needs may be negotiated and satisfied. In this article, we find an interesting description of the migratory and mobility choices undertaken by highly qualified subjects by professional categories according to the ISCO² standards (Mahroum, 2000). For managers and executives, mobility is a requirement of the company, in order to transfer their know-how to the foreign context in the initial phases of the internationalization of a business. Engineers and technicians, as refer to previously, are driven towards mobility by economic and professional opportunities and are also more vulnerable to government policies. Entrepreneurs, on the other hand, are encouraged towards mobility by the state subsidies which some countries offer in order to create new businesses. Lastly, the academic and scientific world considers mobility as obligatory in terms of career but also necessary to the fulfillment of research activities. Mobility, indeed, allows the need for professional socialization to be met, paving the way for validation of individual discoveries (ibidem). Andres Solimano in the volume The International Mobility of Talent: Types, Causes and Development Impact, from 2008, also highlights

---

² ISCO, International Standard Classification of Occupations, is one of the principal instruments of classification of the professions and is produced by ILO. This classification will dealt be with in more depth in the subsequent paragraphs.
the heterogeneity of professional figures and the motives for international mobility as significant elements in the study of this phenomenon. He proposes this differentiation: directly productive talent, talent in the social and cultural sectors, and academic talent. All professionals for whom mobility is pivotal for the production of goods and services are assigned to the first group, such as entrepreneurs, engineers, technicians and business men. These are followed by professional figures employed in social and health services such as doctors and nursing personnel, but also writers, painters and artists involved in cultural and creative production. Lastly the author examines academic mobility making reference to scientists and academics who produce scientific knowledge. The production of scientific knowledge may occur in more than one location and in some cases may be transformed into commercial opportunities and in financial returns as seen in the case of patenting. This is confirmed by the definition found in the Frascati Manual, which identifies researchers as professionals occupied in the conception and creation of new knowledge, products, processes, methods and systems, and in project management (2002). Those subjects are potentially suited to integration into the national scientific system of the host country, also they constitute an important cog in the mechanism of the economic and social growth of the country of origin. Identification of these subjects is made with reference to the definition provided by the Canberra Manual, useful in clearly outlining the object of this research: Human Resources in Science and Technology (HRST) are people who fulfill one or other of the following conditions: a) successfully completed education at the third level in an S&T field of study; b) not formally qualified as above, but employed in a S&T occupation where the above qualifications are normally required. (OECD, Eurostat, 1995, p.16)

In the subsequent paragraphs definition of the phenomenon will be attempted through a quantitative approach to processing the data produced by the OECD, with the aim of better comprehending the migratory routes of HSHR towards OECD countries, the status of the workforce and the principal sectors of employment.

METHODS

A preliminary analyses of datasets contained within databases of international organization performed with the intention of carrying out an initial overview of the foreign presence of highly qualified human resources in Europe will be presented in this article. This is a phenomenon readily observable from the databases already mentioned, as it concerns persons with a valid work or study permit. The data, therefore, can only be considered representative as they exclude, a priori, the presence of illegal immigrants.

The dataset utilized for this study was extracted from the Database on Immigrants in OECD Countries (DIOC). The DIOC contains data acquired through censuses performed at the national level in OECD countries. In the latest version, in collaboration with the World Bank and Oxford University, OECD-DIOC has been integrated with data referring to a series of non-OECD countries (Dumont, Spielvogel, Widmaier 2010). The first census began in 2000/01, with updates in 2005/6 and in 2010/11. The last census includes, in addition to demographic information such as gender and age,
temporal data such as the length of stay. The abundance of data on education level\(^3\), fields of study, and, more generally, on the characteristics of the workforce in terms of status, occupation type and activity sector is relevant \((Ibidem)\). As regards to education level the DIOC uses the International Standard Classification of Education (ISCED) produced by UNESCO as a reference. OECD-DIOC Database permits data interrogation on two levels: \textit{detailed} and \textit{broad}. The following shows a simplified and concise scheme of this classification, which will be used in the following analysis:

\begin{table}
\centering
\caption{ISCED LEVEL: EDUCATIONAL ATTAINMENT BROAD IN OECD CLASSIFICATION OF VARIABLES. SOURCE: OECD}
\begin{tabular}{|c|p{14cm}|}
\hline
Level Broad & Level of Education \\
\hline
ISCED 0/1/2 & Less than primary, primary and lower secondary education \\
ISCED 3/4 & Upper secondary and post-secondary non-tertiary education \\
ISCED 5/6 & Tertiary education (5= BSc, MSc; 6= PhD) \\
\hline
\end{tabular}
\end{table}

In reference to occupation levels, on the other hand, the DIOC databank uses the \textit{International Standard Classification of Occupations} (ISCO) produced by ILO. ISCO is an international system which allows classification of skills and specialization and collates the diverse occupation levels present in the employment market in a hierarchical manner. The ISCO is subdivided into \textit{Major Groups, Sub- major, Minor and Unit Groups}. The macro-analysis will be limited to the first three \textit{Major Groups} (1-2-3), shown in table 3, together with the corresponding subgroups:

\begin{table}
\centering
\caption{MAJOR AND SUB- MAJOR GROUPS ISCO. SOURCE: ILO 2012}
\begin{tabular}{|c|p{14cm}|}
\hline
Major and Sub- Major Groups (ISCO) & \\
\hline
1 Managers & \\
11 Chief Executives, Senior Officials and Legislators \\
12 Administrative and Commercial Managers \\
13 Production and Specialized Services Managers \\
14 Hospitality, Retail and Other Services Managers \\
\hline
2 Professionals & \\
21 Science and Engineering Professionals \\
22 Health Professionals \\
23 Teaching Professionals\(^4\) \\
24 Business and Administration Professionals \\
25 Information and Communications Technology Professionals \\
26 Legal, Social and Cultural Professionals \\
\hline
3 Technicians and Associate Professionals & \\
\hline
\end{tabular}
\end{table}

\(^{3}\) As regards to the education level the DIOC uses the International Standard Classification of Education (ISCED) produced by UNESCO as a reference which allows data analysis on two levels: \textit{detailed} and \textit{broad}.

\(^{4}\) “Teaching professionals teach the theory and practice of one or more disciplines at different educational levels, conduct research and improve or develop concepts, theories and operational methods pertaining to their particular discipline, and prepare scholarly papers and books” \((ILO, 2012)\)
DATA

In this second explorative part of the data, an initial overview of the phenomenon in quantitative terms will be presented. Through the use of the dataset extracted from the OECD databank, individuation of the origin of foreigners in Europe, considering diverse levels of analysis, will be sought. Firstly, the origin of the foreign workforce in Europe by continent\(^5\) and level of education. Secondly two *case studies* will be examined, with particular reference to the migrant flux of HSHR in Europe originating from the Maghreb and BRICS\(^6\) countries. Lastly, the phenomenon shall be examined on the European level, taking into consideration *overqualified* employed foreigners originating from the abovementioned areas and directed towards four specific destination countries: France, the United Kingdom, Spain and Italy.

Figure 1 shows the level of education of the foreign workforce in 28 European countries. The principal macro-regions of origin are confirmed as Africa and Asia (OECD-DIOC 2010/2011), with a high prevalence of first level education (70%). The quotas of foreign workers with low levels of education are also more prevalent from Asia and South America as compared to the other two categories (over 40%). On the contrary the North American and Oceania-derived workforce boasts a quota of highly qualified figures that exceeds 45% of the population (ISCED 5/6).

The objective of comparing HSHR migrants flux in Europe that originate from the Maghreb and BRICS countries is to obtain a general panorama of two groups which, although arising from vastly different realities, generate considerable numbers of international migrants. The goal is to better understand the similarities and/or the differences in professional profiles of those bound for the EU. Indeed, the Maghreb is

---

\(^5\) The data on intra-European mobility were discarded as they will be examined at a later stage and as they are considered as an “exception” given the free circulation of transport and people.

\(^6\) The acronym BRICS stands for Brazil, Russia, China, India and South Africa. The intrinsic socioeconomic disparities between these macro-groups will be borne in mind in future observations.
one of the regions bordering the EU with a high rate of emigration and medium-low rates of development/growth. The BRICS countries, on the contrary, are considered emerging economies, however as in the case of the Maghreb, produce large numbers of migrants, solely considering the flow of HS of Chinese and Indian origin. The BRICS countries are home to 40% of the world’s population. These emerging countries are distinguishable mainly in terms of rapid industrial growth and the field of innovation. In countries such as China and India, technological innovation is attributable in part to the transfer of know-how operated by networks of HSHR who have emigrated to the United States, and in particular to Silicon Valley (Saxenian, 2005). The Maghreb has been characterized from the 1960’s by significant demographic growth, an increase in youth unemployment and high levels of urbanization, but also by a rise in the number of students enrolled in study cycles above primary level education\(^7\). The migration in these areas is divided into “traditional” towards France, Belgium, Holland and Germany; “recent” towards Italy and Spain and finally “emergent” towards Canada and the United States (Natter 2014). On the global level, the percentage of emigrants with third level education out of the whole population, with similar levels of education, both for the years 1990 and 2000, was higher in the Maghreb area as compared to the BRICS countries (Fig. 2).

Fig. 2 – Emigration rates of the population with tertiary education from Maghreb and BRICS\(^8\); years: 1990 - 2000. Source: World Bank

Consistent flow has been registered above all from Morocco, influenced indeed in the early 1990’s by a combination of push and pull factors. Economic inequalities, a rise in unemployment and demand of workforce in southern Europe countries (Italy, Spain) have contributed to this increase (Natter 2014). Of the BRICS area, South Africa emerges in the forefront. Historical, cultural and political reasons may explain this emigration, including the push for many South-African whites, opposed to Nelson Mandela’s policies at the end of apartheid in the early 1990’s, to leave their country and migrate towards the USA, Canada, the United Kingdom and Australia. Furthermore, availability of British passports for around 800 thousand South-Africans rendered the United Kingdom the principal destination country for this flow (Bhorat, Meyer, Mlatsheni 2002).

\(^7\) The literature states that the prospect of migration in itself may encourage students to undertake university studies.

\(^8\) Algeria (DZA); Libya (LBY); Mauritania (MRT); Morocco (MAR); Tunisia (TUN); Russia (RUS); South Africa (ZAF); Brazil (BRA); China (CHN); India (IND)
The BRICS countries, being growth economies, have recorded an increase in the rate of school and university enrollment over a very short period of time. Indeed, as can be observed from figure 3, the number of foreigners with second level education is almost equal to those with primary level education. Hence, significant pull factors may be identified on one hand as economic and on the other as “technological”. The majority of emigrants from the Maghreb countries are low-skilled, in fact the more the level of education increases the more the foreign workers from this area decreases. Furthermore, the chart demonstrates how the BRICS exceed the Maghreb in terms of foreign presence with ISCED of 3/4 and 5/6.

The four destination countries in aggregated form, France, the United Kingdom, Spain and Italy, are represented in figure 4; the chart presents three ISCO major groups previously mentioned. It also demonstrates that the dominant profile of employment is that of the Professionals, the ISCO group mainly connected to the areas of research and science (OECD, Eurostat, 1995). Of the four countries taken into consideration, France and the United Kingdom are among the primary destination countries for the flow of HSHR originating from the Maghreb and BRICS (OECD-DIOC 2010/2011). The motives for this destination of flow are not only circumscribed to economic or language factors, nor their colonial past. Rather, the United Kingdom and France are among the foremost countries at the European level in terms of investment in construction of industrial parks and the promotion of collaboration between universities and businesses. More generally they are identified as innovative technology hubs (Rolfo et al. 2006).
Technology innovation may therefore be a key attraction factor drawing the HSHR from the countries studied.

CONCLUSION AND NEXT STEPS

In this preliminary study an initial exploration of the current literature on this topic was performed. Subsequently, the profile of the study target group, the HSHR, was defined; specifically, the professional profile and levels of education of non-European subjects were clearly established using the ISCED and ISCO classifications. Thanks to the dataset supplied by the OECD, the quantification of the phenomenon within a defined European context was undertaken. In this initial analysis the fact that in Europe, as in the United States, the presence of innovative technology hubs as a potential attraction factor for HSHR coming mostly from developing countries, is highlighted. The latter element will be the object of future study and research, through comparison with intra-European mobility in the attempt to elucidate the similarities with and differences from the extra-European HSHR migrant flow. Moreover, subsequent to this initial overview the next step in this research will be to examine further key aspects such as gender and age. Finally, the need for further in-depth analysis of this research must be highlighted, that is, an examination of migration policies in terms of qualified work, considered a bridging factor permitting the circulation not only of human resources but also of innovation and knowledge.

REFERENCES


