MEDICAL BRAIN DRAIN - A THEORETICAL APPROACH

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Abstract: *Medical brain drain is defined as the migration of health personnel from developing countries to developed countries and between industrialized nations in search for better opportunities. This phenomenon became a global growing concern due to its impact on both the donor and the destination countries. This article aims to present the main theoretical contributions starting from 1950 until today and the historical evolution, in the attempt of correlating the particular case of medical brain drain with the theory and evolution of the brain drain in general. This article raises questions and offers answers, identifies the main issues and looks for possible solutions in order to reduce the emigration of medical doctors. Factors of influence include push (low level of income, poor working conditions, the absence of job openings and social recognition, oppressive political climate) and pull (better remuneration and working conditions, prospects for career development, job satisfaction, security) factors. Developing countries are confronting with the loss of their most valuable intellectuals and the investment in their education, at the benefit of developed nations. An ethical debate arises as the disparities between countries increases, industrialized nations filling in the gaps in health systems with professionals from countries already facing shortages. However, recent literature emphasizes the possibility of a "beneficial brain drain" through education incentives offered by the emigration prospects. Other sources of "brain gain" for donor country are the remittances, the scientific networks and return migration. Measures to stem the medical brain drain involve the common effort and collaboration between developing and developed countries and international organizations. Measures adopted by donor countries include higher salaries, better working conditions, security, career opportunities, incentives to stimulate return migration. Destination countries could fight against the exodus of physicians through self-sufficiency, financial compensations paid for the skilled workforce coming from developing countries and agreements forbidding the recruitment of health professionals from countries already suffering of scarce resources. International organizations' contribution includes collaboration and actions oriented towards the adoption of an ethical guideline. As the medical brain drain is a global concern, its contraction requires global solutions.*

Keywords: *brain drain, medical brain drain, migration, health system*

JEL classification: *F22, J21, J24, O15*

1. Introduction

Medical brain drain is defined as the migration of health personnel in search of better opportunities (Dodani and LaPorte, 2005). Although the majority of definitions mention as direction of emigration the one from developing to developed countries, the first to confront with this phenomenon were the developed nations. A proper definition should be: the migration of physicians from developing to developed

countries and between industrialized nations (Wright, Flis and Gupta, 2008). An interesting definition (Muula, 2005) include the loss of health workers (named hard brain drain) and the unavailability of research results to users, in the particular case of Africa (soft brain drain).
Starting with a literature review, this article has two major objectives. Firstly, the article identifies the main theoretical contributions and historical evolution of two phenomena: brain drain and medical brain drain, in the attempt of correlating and emphasizing the similarities. Secondly, the article seeks to raise questions and offer answers, identify main issues and propose solutions for the reduction of medical doctors' emigration from developing to developed countries.

2. Literature review

The four decades of economic research of the brain drain evolution resulted in the highlighting of three main waves (Docquier and Rapoport, 2011). The first wave of economics papers (Grubel and Scott, 1966, Johnson, 1967, Berry and Soligo, 1969) pointed out that the impact of the brain drain on source countries is a neutral one, to some extent even benefic (remittances and positive feedback), the world economy gaining from the free migration (Docquier and Rapoport, 2011).
The second wave (Bhagwati and Hamada, 1974, McCulloch and Yellen, 1977, Miyagiwa, 1991, Haque and Kim, 1995) disclosed the negative impact of the brain drain on the country of origin (unemployment, reduction of economic growth rate, distortions on labour markets, decreased human capital accumulation) and the emphasis of disparities between countries (Docquier and Rapoport, 2011). A solution proposed was the financial compensation ("Bhagwati Tax") offered by the developed nations to the developing ones for their loss of skilled workforce.
The third wave of interest, named the new economics of brain drain (1990s), accepted both the detrimental and beneficial effects on the country of origin. An important contribution represented the empirical studies (Carrington and Detragiache, 1998, Docquier and Marfouk, 2005, Dumont and Lemaître, 2005, Beine et al., 2006), which offered a better understanding of this phenomenon's magnitude (Docquier and Rapoport, 2011).
The medical brain drain and its impact on developing countries attracted interest and reactions amidst research community. Studies tackling the health domain are scarce and little has been written about the historical origins, but to some extent, the three stages of evolution can be identified.
Early literature in the medical brain drain domain consisted in American and British studies pointing out the impact in the "first world" countries (McKay, 1969, Abel-Smith and Gales, 1964, in Wright, Flis and Gupta, 2008) and even more, the benefits offered to developing countries in terms of experience and access to advanced technology, gained by their emigrants (Rashi Fein, 1967, Margulies and Bloch, 1969, in Wright, Flis and Gupta, 2008).
The next wave of studies (J. Van Hoek, 1970, Committee on the International Migration of Talent's study, 1970, in Wright, Flis and Gupta, 2008) reflected the lack of accurate statistical data as the main limit in the process of quantifying the impact of health professionals' migration on developing countries and pointed out the detrimental effects over the donors. The three monographs published between 1971 and 1977, by Oscar Gish, investigated the economic impact on developing countries (Wright, Flis and Gupta, 2008).

Based on these studies, WHO published several reports (in 1973, 1975, 1976, 1978, 1979) emphasizing the complex nature of the international migration of health workforce, where the poorest countries were the losers (Wright, Flis and Gupta, 2008).
Recent literature consists of both theoretical and cross-country empirical studies, underlining the positive and negative effects of medical brain drain mostly on the country of origin, the ethics of the phenomenon and also the global measures that should be taken in order to find a solution for a global growing concern.
The possibility of a "beneficial brain drain" (Beine, Docquier and Rapoport, 2001) through education incentives was also analyzed. Kangasniemi et al. (2007) applied a survey to the Indian doctors working in United Kingdom and found relatively weak links between the migration possibilities and the education decisions (only a percent of 28%). However, the necessary condition for a brain gain is that the proportion of students reacting to emigration prospects exceeds the actual emigration rate. Moreover, in another study, Defoort, 2009 (in Docquier and Rapoport, 2009) identified an optimal brain drain rate of 9 percent, concluding that the number of African countries affected by the medical brain drain (20) is inferior to the number of countries that will report a gain (30) from an increase in medical emigration rate (Docquier and Rapoport, 2009).

3. Historical evolution

Brain drain phenomenon attracted the interest of researchers and provoked controversy starting from its origins (in 1950s) until present. Although the highly skilled migration has its roots in prehistoric times, significantly outflows were reported from the third decade of the 20th century (the inter-war period being defined as a forced emigration from Europe to the United States – German intellectuals requesting asylum) (Brandi, 2004).
The period of time from 1946 to 1960 was characterized by an attractive immigration policy implemented by the United States and a context of economic privation affecting most of the European countries. As a consequence, between 1956 and 1961, Britain and Germany supplied USA with scientists: 28.23%, respectively 22.59% of the total emigrants (scientists). Both countries were suffering damages after the War and were incapable of absorbing the surplus of intellectuals produced by their first-class universities, whose emigration was inevitable (Brandi, 2004). Canada and Australia represented also destination countries for skilled emigrants.
The term "brain drain" was mentioned for the first time in Royal Society of London's Report (1963) correlated with the ruinous effects of highly skilled workforce emigration on Britain's economy (Brandi, 2004). Measures were introduced by governments in donor countries in order to diminish the exodus, felt by the US in a drastic decline of British and German immigrants.
The medical brain drain had a similar evolution. The necessity of filling the gaps in the health system with foreign workforce led to a number of 12 000 new foreign medical graduates registered in the United States by 1973.
British medical graduates and physicians crossed the Atlantic in order to find new opportunities in United States or Canada, or, even more, in Australia and New Zeeland (Wright, Flis and Gupta, 2008*).* The gaps in the health system were filled by an inflow of foreign doctors – in 1966, a number of 8785 physicians from developing world were working in Britain, 70% coming from India (Wright, Flis and Gupta, 2008).

The period from 1970 to 1980 was defined by new migration flows. United States continued its policy of attracting students and intellectuals, but developing countries became the main source. Due to a lack of academic institutions in their country of origin, the outflows consisted in an increased number of students from the former colonies (Britain and France being the most common destinations) or Asian countries. The US maintained its top position as a recipient country, but other industrialized countries begun to attract skilled emigrants – United Kingdom, Canada, Australia, Germany, France (Brandi, 2004). The evolution of the medical brain drain was similar during this period of time.

Between 1960s and 1970s, industrialized countries confronted with personnel shortages in the health sector. The need of recruiting outside its borders came naturally and the ex-colonies represented the main source. The setting of medical universities in the new territories by the great colonizers and the good command of English language, combined with the desire for a better life and the insufficient salaries and inadequate equipment conducted to the emigration of medical doctors to the developed world (Arnold, 2011:351).

The estimations regarding the loss of physicians from developing to developed countries was of 70 000 in 1972 alone ((Wright, Flis and Gupta, 2008).

After reaching a peak in 1966-1975, physician migration reduced its level, as industrialized nations oriented through the self-production of a sufficient number of medical doctors (Wright, Flis and Gupta, 2008).

In Europe, the free movement of labour force established by the Treaty of Schengen resulted in a rise in the number of skilled migrants, but, due to the lack of proper monitor, the consequences are difficult to be interpreted. The result was, mainly, a "brain exchange" (Straubhaar, 2000:20). The phenomenon is common to the health sector – 60% of Switzerland's international medical graduates are from Germany, as do 33% of Norway's (Mullan, 2005:1816).

After 1990s**,** the globalization phenomenon and the development of ITC industry created the premise for a global competition between industrialized nations (USA, Canada, Australia, France, Britain) in attracting the highly skilled. After the dissolution of the Eastern Bloc, the former communist countries offered a new source of skilled emigrants – between 1990 and 1995, Russia lost 120000 intellectuals (Brandi, 2004).

Developed nations attract physicians from developing countries but also draw on each other: Britain physicians represent the largest group of international medical graduates in Canada and Australia, and Canadian physicians are placed on the fifth position in the top of medical immigrants in United States. This is the case of a "brain circulation", where the net beneficiaries are US and Australia and the net donors are UK and Canada (Mullan, 2005:1814).

A recent study of physician brain drain analyzing the emigration factor (reflecting the level of emigration of physicians from each source country to the 4 recipient countries – US, UK, Canada and Australia) concluded that lower income countries contribute with 40% of the international medical graduates in Australia and with 75.2% in United Kingdom (Mullan, 2005:1813). India is the country that sends the most physicians to recipient countries, followed by Philippines and Pakistan (Mullan, 2005:1814).

African continent is the most affected by the medical brain drain phenomenon. Also, it is particularly severe in Sub Saharan Africa, South Asia, East Asia and Latin America. The most affected countries are Grenada, Dominica, Saint Lucia, Ireland, Liberia, Jamaica and Fiji (Docquier and Rapoport, 2009). Dominica has an

emigration rate of health professionals of 98.1% (2 doctors out of 100 educated will remain in the country), followed by Grenada – 97.9% and Santa Lucia – 69.8% (Docquier and Schiff, 2009).
Importers of medical personnel are Australia, Canada, France, Belgium, UK and US. Donor countries could be classified into surplus countries voluntary sending medical workers abroad (Cuba, India, Egypt and Philippines) and shortage countries (Africa, the Caribbean and Asia) (Rutten, 2009).
The emigration rate of doctors is highly correlated with the emigration rate of highly skilled in general, the impact on the socio-economic development being harsher for the first category (OECD, 2007).
The ethics of this phenomenon is questionable, as the disparities between developed and developing countries are growing constantly. Developed nations supply their gaps with skilled workforce from developing countries, the latter confronting with scarce human resources and the loss of their investments in creating highly skilled individuals.
The main issue related to the medical brain drain phenomenon is the accuracy of statistics existent. Developing countries don't hold accurate statistics concerning the emigration of medical doctors, which is a hindrance in monitoring and assessing the impact. Usually, the empirical studies are based on data available in destination countries or in international databases (WHO, World Bank, etc). Another limit is the different definition offered by literature, which leads to difficulties in comparing the values between countries: Clemens and Peterson (2006) use the country of birth for defining medical emigrants, whilst Docquier and Bhargava (2006) use the country of training (Docquier and Rapoport, 2009).

4. Medical brain drain and developing countries

The majority of skilled emigrants in health sector come from developing countries, fact that attracted controversy at international level regarding the impact over the health system and economic growth of donor countries. A combination of economic, social and personal factors contributes to the decision of leaving the country (Dodani and LaPorte, 2005).
What factors influence the medical brain drain? Some studies centered on the identification of push and pull factors influencing the migration of health personnel. Pull factors are associated with the country of destination and include better remuneration and working conditions, prospects for career development, job satisfaction, security. Push factors are associated with the country of origin and include the low level of income, poor working conditions, the absence of job openings and social recognition, oppressive political climate.
Push and pull factors are closely connected with economic environment and the possibilities of advancement. As opposed, the "stick factors" are linked with personal or social aspects of life (Tjadens, Weilandt and Eckert, 2013:47). "Grab factors" are also mentioned in the literature, tied with developed countries (Muula, 2005).
What impact has medical professionals' emigration? One of the main factors for the economic growth and human development in a developing country is the size and quality of the health sector (Docquier and Rapoport, 2009). Moreover, the efficiency of a health system is dependent on its human resources (both quantity and quality). Many studies concluded that the medical brain drain is the major factor contributing to insufficient medical personnel, whose consequences are affecting not only health

systems in donor countries, but also the economic development and the national security.

The negative impact on health systems, health personnel scarcity and disparities between regions, the fight against HIV and AIDS became a growing concern (Mullan, 2005). Developing countries confront with the loss of the financial investments in creating health professionals and their most valuable intellectuals in the benefit of developed nations. The emigration of a medical professional represents a loss of US$184,000 to Africa (Rutten, 2009). On the other hand, according to Van Hoek and Gish studies, emigrants from developing countries are treated as “dispensable commodities”, used only when necessary and the quality of their training is considered to be inferior, thus transforming the native medical personnel into preferred candidates (Wright, Flis and Gupta, 2008).

Beside all these negative consequences, recent literature raised the possibility of a “brain gain” for the developing countries – in terms of remittances, diaspora externalities, return migration.

Remittances contribute to the development of the donor country. Money send back to family can contribute to further investments in education, in the attempt of emigration prospects. The tendency of physicians is to migrate permanently and to bring their family with them in the destination country, and consequently the remittance level is lower than in the case of low-skilled workers. However, for countries like China, India, Philippines, Egypt and Cuba, remittances are considered important source of revenues (Rutten, 2009).

Scientific networks facilitate the movement of people, goods, ideas between sending and receiving countries. Also, they contribute to the increase of foreign direct investments inflows (Docquier, 2006)

Return migration is another source of “brain gain”, medical doctors returning in their country of origin with the experience and knowledge acquired in developed world. Emigrants’ return constitutes a potential source of growth for the donor county (Docquier, 2006). The main problem is that the available equipment and working conditions in developing countries are not adequate to the skills they gained during their training abroad. In this case, the big challenge consists in identifying the best methods that should be implemented to stimulate return migration and transform it into a benefit.

What measures could be adopted to stem the medical brain drain? As the medical brain drain represents a global and growing concern, resulting from a combination of push and pull factors the measures to stem it should be addressed at global level and should be the result of an agreed participation of developing countries, developed ones and international organizations (Pang et al, 2002).

Developing countries’ action may include better salaries and working conditions, security and career opportunities in order to reduce the emigration rate, or incentives to stimulate return migration. Current political and economic situation of donor countries combined with the freedom of medical doctors to move, study and practice wherever they want, make this policy option an illusory one.

Measures that could be implemented by the developed nations include: self-sufficiency, financial compensations paid for the skilled workforce received from developing countries and agreements forbidding the recruitment of health professionals from those countries already suffering from scarce resources. Some measures have already been implemented, like the Global Code for Practice for International Recruitment of Health Personnel, implemented in 2010 (WHO, 2011).

The reaction of international organizations (such as World Health Organization, International Organization for Migration, World Bank, United Nations) should consists in collaboration and common efforts in the adoption of ethical guidelines in the fight against this disastrous phenomenon (Pang et al, 2002).

Conclusions

This study offers a review of the literature on the brain drain and medical brain drain starting with the early contributions (from 1950s) until present. The first attempt is to identify similarities between the two phenomena. The three stages of research highlighted in the brain drain literature can be identified to some extent in the medical brain drain literature. Offering a survey of the most important contributions, this study may represent the starting point for future research with regard to the possibility of transforming the brain drain into a brain gain.

A historical evolution of the outflows of skilled emigrants in general and medical doctors in particular showed same trends from 1946 to present. The main limit identified is the lack of accurate and comparable statistical data, mostly in donor countries, thus leading to difficulties in identifying the magnitude of the phenomena. The research done so far is a proof of the fact that the first step in dealing with medical brain drain has been accomplished: the awareness. Future research may focus on the measures to be adopted, area in which little has been done.

A third way of development in this domain can be the debate over the ethics of health professionals' emigration. The free movement of people is supposed to bring benefits for both developed and developing countries, but the reality seems to be far away from this: the disparities between countries are growing constantly, the world being divided between "winners" and "losers", between core and periphery. Industrialized nations compete in attracting the highly skilled while donor countries confront with the loss of their most valuable intellectuals and the investments in their education.

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