

Mechanisms Used To Benefit From Immigrants' Competencies: An Analytical Study Of The Various Effects Of The Brain Drain Phenomenon On The Economies Of Developing Countries.

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Abstract:

In order to achieve the main goals of the study, the researcher tried to determine how skilled workers drain can have either economic or social effects on the economy of sending countries. The findings of the study have demonstrated that brain drain certainly has negative impacts on the sending countries, but not to the point of making it the major source economic backwardness. In addition. The study also proved that Brain Drain can have positive effects on sending countries. The study also concluded that Diasporas as well as circular mobility can be considered as one of the most effective mechanism used to deal with the negative effects of the brain drain phenomenon.

Key words: Brain Drain; Brain Gain; Diasporas; Circular mobility.

Jel Classification Codes: J61; J41 ; O15

الملخص:

هدفت هذه الدراسة الى استقصاء حجم وطبيعة الآثار الاقتصادية والاجتماعية المرتبطة بظاهرة هجرة الأدمغة على اقتصاديات الدول المرسله. أظهرت نتائج الدراسة أن هجرة الأدمغة تؤدي الى احداث جملة من الآثار السلبية على المستويين الاقتصادي او الاجتماعي، حيث تؤثر هذه الأخيرة سلبا على كل من الدخل ومستويات السعار وكدي توازن سوق العمل، غير انها حققت في المقابل جملة من الآثار الايجابية التي من شأنها السماح لهذه الدول محدودة الدخل من الاستفادة من التحويلات المالية احادية الجانب المتتالية من الخارج اضافة الى امكانية الاستفادة من عملية نقل التكنولوجيا والخبرة المحصلة من طرف العمال المهاجرين، كما خلصت الدراسة أيضا إلى اعتبار كل من آلية شبكات المهاجرين اضافة الى آلية التنقل المتجدد من بين انجع التقنيات واقلها تكلفة في التعامل التعامل مع الآثار السلبية لظاهرة هجرة الأدمغة.

الكلمات المفتاحية: هجرة الأدمغة، كسب الأدمغة، شبكات المهاجرين، التنقل المتجدد.

تصنيف JEL: J61; J41 ; O15.

1. Introduction:

The emigration of skilled workers is often qualified as a major problem affecting the economy of developing countries. Many researchers and academics have demonstrated the harmful effects of this phenomenon. This type of emigration is called Brain Drain. The term already has either a negative connotation that incriminates either the fugitive or the recipient countries who plunder the countries that issue this resource. Indeed, the constant state of imbalance between the demand for skilled workers and the supply in the developed countries has pushed the latter to turn more towards skilled migrants, in the form of an immigration policy called selected immigration (Bhagwati & Hanson, 2009). Thus, according to several studies in the field, we observe an increasingly marked orientation of the immigration systems of developed countries towards the reception of qualified migrants. The problem posed by the Brain Drain is that this flow would deprive the sending country of an essential tool for their growth: skilled workers with their skills and human capital. The concept of Brain Drain can also pose a lot of problems relating to the return policy envisaged later by these workers. In order to provide a concrete answer to these problems, we will try in this study to present an objective and detailed analysis of the effects of the brain drain on the sending countries and more particularly on the developing countries, then we will propose some solutions in order to deal with the negative effects relating to this phenomenon. In order to achieve this objectives we will try to answer the following questions:

- How can the brain drain be positive or negative for developing countries?
- What are the negative effects of the brain drain on the economy of the sending countries?
- What are the proposed solutions and mechanisms to deal with the negative effects of the brain drain phenomenon?

Objectives and importance of the study:

The present study has a significant contribution to the expansion of researches in the field, related to the Importance of qualified workers in the establishment of a strong and an organized economy of the sending countries. In achieving this aim, the objectives examined include: determining the nature and the scope

of economic and social effects related to this phenomenon; explain the different mechanism and policies used to deal with the side effects of the brain drain.

Structure of the study:

The study consist of four main parts, the first part contain the conceptual clarification of the brain drain phenomenon. The second part includes the negative economic and social effects of brain drain on both sending and host countries. While the third part introduce the concept of brain gain which include the positive effect of skilled worker departure. The fourth part include the mechanism used to deal with the negative effects of brain drain.

2. Conceptual clarification of the brain drain:

In this part, we will introduce the brain drain phenomenon. To do this, we will first present the different definitions of the phenomenon, then we will focus on the different causes that may push qualified workers to migrate in other countries. Finally we will summarize the several contemporary theories that address the subject.

2-1 Definition of Brain Drain:

The brain drain refers to the massive departure of executives to countries where, without being invited or strongly wanted, they hope for a better life. These departures, under the helpless gaze of the native countries and sometimes with their tacit agreement, are confused with immigration and the debates that accompany it focus on the professional integration of migrants in various sectors, including those neglected by nationals, on their administrative, social, or cultural situation.(Maingari, 2011)

2-2 Causes of brain drain:

According to many studies in the field, the causes of brain drain can be summarized as follow: labor conditions, economic crises and wage conditions, search characteristics (Kouvibidila, 2009), the disparity between supply and demand for skilled workers in the face of the expansion of higher education and the political environment.

2-2-1 labor conditions:

Labor conditions and expectations vary according to the teaching and research structures and depend on the sources of information, the difficulty of linking local research to the international scientific scale, the non-availability of work tools (paper, telephone line, and Internet connection), etc. For the social sectors (law, economics or literature) we can note the lack of libraries, subscription to scientific journals, etc. If the researchers are dissatisfied, non-existent or have a: defective equipment, an absence of national or international scientific journals, or if they suffer from scientific isolation, they are obliged to change their workplace and leave for developed countries and their active scientific community.(Todaro & Smith, 2011, p. 312)

2-2-2Wages conditions:

The difficulty for academics to live decently on their salary is obvious. Senior executives by their high level of training and the potential they represent, their salaries remain modest to allow them to live from their knowledge and devote themselves to their work. As an example the devaluation of the Algerian dinar in the early 1990 caused it to lose more than 50% of its value and the purchasing power of local workers was very limited. Their salary and the additional income obtained from secondary jobs are no longer sufficient to cover social and family charges. To preserve their image and maintain their consumption of senior executives, they were obliged to emigrate in foreign countries especially in Europe and North America.(Tchouassi & Sikod, 2006, p. 246)

Mohsin Ali mentioned that the causes of brain drain can be divided upon two groups: (Sajjad, 2011)

- a) Push factors:** according to the author these factors can arise from the following sources:

Economic reasons which includes:

- Job satisfaction.
- Academically progressive environment.
- Better pay and service condition.

Lack of financial and academic reasons which includes:

- Better life and higher education.
- Lack of institutions for research along with doctorate and post doctorate level studies opportunities.
- Political Instability.

Lack of Higher Education Institutions

b) Pull factors: these factors can arise from the following sources:(Noor & Baloch, 2016, p. 203)

- Availability of resources in foreign countries to perform research.
- Higher wage levels for researchers in recipient countries.
- Better life conditions in recipient countries: education quality to their children, housing, health care...
- Different economic, social, intercultural benefits.

3. Negative effects of the brain drain:

In this part, we will trace the economic and social losses that are attributed to the Brain Drain.

3-1 Economic costs of Brain Drain

The main economic problem that the Brain Drain poses to the sending countries is the loss for these countries of their qualified individuals. This phenomenon has several adverse economic effects. First of all, there are the direct effects which are the most easily visible and measurable effects, such as the effects on: human capital, income, qualified labor shortage, labor market imbalances...

3-1-1 Effects on human capital:

A first direct effect of the departure of qualified individuals is the decrease in human capital at the national level since qualified individuals are those with the highest human capital. Human capital as defined by the OECD, "covers the knowledge, skills,

competences and other qualities of an individual that promote personal, social and economic well-being”.(Brücker, Capuano, & Marfouk , 2013). And, according to Adam Smith, it is the “useful talents acquired by inhabitants or members of society”, in other words human capital, which fuels economic activity. (Brücker, Capuano, & Marfouk , 2013, p. 2). “ Human capital can alternatively be measured by the average number of years of education of workers, the proportion of workers with a given diploma or by the average literacy rate of workers”, in clear the level of education of the workers. We therefore understand that human capital is an essential factor in economic growth (docquier, 2007, p. 69). A decrease in human capital poses several problems: First, there is a decrease in labor productivity in the industries operating in the sending countries. Then, innovation decreases in countries affected by the departure of scientists and researchers. (Rapoport, 2010, p. 114)

3-1-2 Effects on income:

The second direct effect of the brain drain on countries of emigration is the reduction in income. Indeed, qualified individuals are those who generally receive the highest level of income. Their departure therefore means the loss of their income and their expenditure within the sending countries. However, we know that revenues are important for economic growth, especially for the government budget. This loss of tax revenue is even more accentuated when the state finances, in part or in full, the education of its citizens, including these future expatriate elites. In this situation the emigration of qualified individuals is a non-return on the investment in education that the State has undertaken, since its qualified individuals will offer the results of this investment to a foreign country. This effect is even more exacerbated when skilled citizens emigrate early in their working life, i.e. having worked very little or not at all in their native countries. And, it turns out that “the frequency of international migration peaks at the time of entry into working life”. (Rapoport, 2010, p. 111).

3-1-3 Effects on volume of qualified labor in primary economic sectors:

The brain drain can also create shortages in the main pillars of a country's economic development. For example the Brain Drain can cause a shortage of doctors in a country. However, medicine is one of the professions that strongly influences the productivity of other workers in a country. Thus a lack of doctors would have a negative effect on productivity in a country. Another kind of shortage of professionals that can have bad repercussions on development and which can appear as a result of a Brain Drain is a shortage of workers responsible for the accumulation and sharing of human capital. Thus, for example, without professors or teachers, the human capital and therefore the productivity of a country would decrease. The brain drain affecting academic circles can be particularly harmful for a country.(Docquier & Rapoport, 2012, p. 700).

3-1-4 Effects on the balance of labor market:

The brain drain has a significant impact on the labor market of the sending countries. By the results it can affect employment and wages in sending countries as stages of a complex process. According to many studies in the field the first stage of this process takes place before the brain drain (case of developing countries). This context is problematic in terms of the balance between labor supply/demand forces and public spending. It is the resident elites who are the source of these problems. Indeed, the elites of developing countries being well informed of the living conditions of their peers in developed countries try to replicate the standard of living of their fellows. Achieving this standard of living requires incomes higher than the incomes usually paid to qualified workers in developing countries. These workers will therefore claim wages equivalent to those of their peers in developed countries. As a result, qualified individuals in employment will end up with wages well above the average wage in the country. As a results of the previous situation three phenomena will occur as follow: On the one hand, there will be an increase in the unemployment of qualified individuals due to wage inflation. Then the national product will also decrease since the products requiring skilled labor

will be produced in smaller quantities. Finally, with more citizens unemployed, the state will have less taxable income available, hence lower tax revenues. Then, the second stage of the process is triggered when the increase in the wages of the qualified individuals employed causes a phenomenon of pushing up wages in general where the lowest wages try to close their gap with the highest wages. Consequently, the wages of the unskilled workers will also increase. The repercussions of this increase in wages on the economy are multiple. First, with regard to employment, we will notice in this case the increase of the unemployment rate among the unqualified workers. Moreover, as fewer workers will be employed, the national product will decrease more. Moreover, the increase in wages for qualified individuals will create a strong incentive to pursue higher education among the student population, which in turn will generate a demand for increasing the number of higher study programs. States will respond to this demand by increasing government spending on education and creating more college programs. However, according to the study, because of the rush in which these projects are carried out and the general lack of source of financing and expertise in developing countries, the programs created will be of very low quality. Thus, the states will lose more by investing in higher education programs, since on the one hand the quality of the training offered will be low and on the other hand the graduate students will be unemployed because of the unrealistic salary demands of the qualified individuals. (Abokor ABDI, 2017, p. 10). The third and last stage corresponds to the phenomenon beginning. In the case of qualified emigration, two things can happen, if the emigration of qualified workers only provides jobs for skilled workers who were unemployed in their country, and therefore does not affect wages, it is positive for the sending countries. As a result of this case, the production and national income will not be negatively affected. Moreover, with this type of emigration, per capital income – when emigrants are included – will increase and unemployment will decrease. However, the most plausible scenario is that the Brain Drain will result in an increase in the salaries of qualified individuals from the sending countries. Two mechanisms lead to this result. First, when skilled individuals emigrate and find employment abroad, the

supply of skilled labor at the international level decreases, which results in an increase in the price of skilled labor and therefore an increase in wages. Then, the second mechanism arises from the fact that qualified resident citizens will react to the condition of their qualified emigrant compatriots who have access to better remuneration after having emigrated. Thus, as for the first stage of the process, qualified citizens will want to model their standard of living on the standard of living not of their foreign peers this time, but on that of their emigrated compatriots. The upward wage process will resume again and again, with the lowest wages trying to catch up with the highest wages. The general increase in wages will have the effect of increasing unemployment among the skilled and the unskilled. Moreover, the increase in the wages of qualified individuals will create a demand among the population for more qualified training. The state will therefore invest in higher education programs which, again, will be of poor quality. Thus, we will witness a situation where, in addition to having a low quality diploma, there will be a high number of unemployed among the graduates because of the inflation of the wages of qualified individuals. Moreover, some graduates will emigrate instead of participating in the economic activity of their country. In sum, per capita income will decline due to rising unemployment, national product will decline due to unemployment and emigration, and the state budget will also decline due to inadequate spending on education.

3-2 Social costs of brain drain:

The migration of skilled workers also has a number of social costs for sending countries. In this part of research we will focus essentially on: the different social externalities, social product and the beneficial effects of elites on institutional development.

3-2-1 Effects on social externalities:

There are also social benefits to the presence of elites on the quality of life in a society. These are the externalities that seem to us the most intuitive, such as an increase in civic sense, a reduction

in crime, a better quality of the environment and an improvement in public health. That we can call static social externalities. The emigration of qualified individuals would therefore lead to the loss of these positive externalities for the economic and social development of the sending countries.(Lucas, 2005, p. 146)

3-2-2 Effects on social product:

In this context, several studies have shown that the social product of the human capital of qualified individuals is in many cases higher than their economic product. Take for example the case of a university professor, its economic product will be measured according to the number of students who will graduate after taking its courses or by the number of articles or books it will produce. His emigration from a purely economic point of view will only lead to the loss of so many books or so many students. However, the greatest loss that this professor will cause to his country is the loss resulting from the absence of knowledge, created by his departure. A knowledge that could certainly have improved the level of professionals working in the country, or even that could have led to a major technological advance. The same reasoning applies to doctors. Indeed, their economic product is estimated according to the number of patients they treat. However, their social product is invaluable, such as all the good health practices that they disseminate in society and which significantly increase the general health of the population. Thus the emigration of elites also has costs in social terms that must be taken into account when evaluating the effects of their departure.

3-2-3 Effects on institutions progress and governance:

Institutions are defined as “the rules of the game in a society, or more formally, they are the socially constructed constraints that frame human interactions”.(Acemoglu, Johnson, & Robinson, 2005, p. 386).

In the same vein several studies have demonstrated the positive effects of Institutions governance on the economic and social development of a country. For example, property rights that are part of economic institutions are the guarantors of investment in a country. Indeed, because of the uncertainty that would result from

the absence of the enforcement of property rights in a country, entrepreneurs would be less encouraged to invest in the country. (Acemoglu, Johnson, & Robinson, 2005, p. 389)

Generally speaking, the citizens of a country react in three different ways when faced with bad institutions or bad governance: either they walk away from the problem, or they speak up, or they remain silent. Defection (emigration in this case) consists in leaving the country. The defection is not necessarily final, since some emigrants return to their native country through return migration. The strategy of speaking out is illustrated by a struggle via processes such as political demonstrations, complaints or the organization of opposition groups (Xiaoyang & McHale, 2009, p. 4). Finally, the strategy of silence takes place when the individuals in question do not feel particularly concerned by the problem.

4. Positive effects of the brain drain (Brain Gain):

Many theories criticizing the brain drain, especially the classic theories of the 1970s, ignore a set of retroactive effects of the phenomenon on the sending countries that can be seen as positive. (Docquier & Rapoport, 2008, p. 28)

On the other hand other theories suggest that the brain drain creates an incentive to pursue higher education and thus increases human capital in the sending countries. Brain drain can indeed have positive effects for the economic growth of developing countries. One of the effects is the ripple effect that the prospect of future emigration has on the pursuit of higher education in the sending countries. Indeed, given that skilled workers have a better salary abroad, citizens of developing countries will see an additional incentive to engage in post-Graduate studies if they open up possibilities for emigration at the end of program. There is an increase in the "expected return to education". Thus, in the presence of possibilities to emigrate, workers choose to increase their human capital in comparison to an absence of possibilities to emigrate. This phenomenon is explained by the fact that the probability that an immigration request will be granted by the receiving country "depends on the level of education attained, which is observable, and not on individual capacities, which are not

perfectly observable, so this effect of the brain drain on human capital is called Brain Gain.(docquier, 2007, p. 74).

4-1 Effects of Brain gain on financial transfers:

Immigrants often maintain relationships with their families and loved ones who have remained in their native countries, which explains why financial remittances have continued to grow. They went from \$127 billion in 2000 to \$630 billion in 2022(Rutkowski, 2022). in the same context many studies have shown the impact of brain drain on financial transfers, but we have to identify the nature of effects of this outward remittance on the economy of sending countries. First of all, in the short term, the effects of financial transfers on the recipient countries are essentially a function of the level of the economic shock created by the transfers and the degree of flexibility of wages and prices vis-à-vis the transfers. Indeed, initially if financial transfers are customary in nature and are regular, these will not affect consumption or production so much since employers and traders will have already adapted to this and will have determined wages and prices. Consequently, if prices and wages are very flexible, they will adapt quickly to unexpected variations in expenditure caused by financial transfers. In this case, too, financial transfers will have a very weak effect on consumption and production. According to this theory, only unexpected financial transfers accompanied by a price system and wages that adapt very slowly to it can create the conditions necessary for financial transfers to significantly affect the economy of the recipient countries. (Docquier & Rapoport, 2008)

4-2Effects of Brain gain on innovation:

According to several studies, the emigration of skilled workers may have positive effects on innovation. This studies have demonstrated that the emigration of skilled workers is a good thing for innovation and technical progress at the global level, because the talents of these individuals are often underused in their native countries. Moreover, even developing countries would gain more by letting their skilled workers emigrate. Indeed, according to this studies, developing countries will benefit in return from imported technological products of better quality and at lower prices. Moreover, qualified emigrants who choose to return will have more skills, access to networks of scientists and innovative ideas, which

are in general useful for the technological development of the sending countries. (Agrawal & McHale, 2011, p. 49).

5. Remedial mechanisms against negative effects of brain drain:

Various solutions are proposed to remediate against the unwanted effects of brain drain, which can include the following policies: the continuation of the policy of return, the encouragement of the mobilization of the diaspora (emigration networks), the improvement in labor conditions such as : wages, equipment for laboratories, regional integration, but also the establishment of a climate of trust and security.

5-1 The return policy:

If we take the Algerian economy as an example, the return movements from recipient countries were abruptly slowed down by the economic crisis and the structural adjustment programs imposed in the 1990s by the IMF and the World Bank. Their immediate effects were early retirements and freezing the recruitment of graduates. Organizing the return of graduates requires a set of conditions such as: political will and a considerable financial effort to reproduce the same working conditions as those in the recipient countries. The conditions for exercising scientific and academic professions should be improved by equipping laboratories, making recruitment conditions transparent and clearly defining a work and career plan. Such an implementation would make it possible to recover the investment made in skills training plus the added value resulting from the experience acquired in the recipient countries. (Maingari, 2011, p. 137)

For many researchers, the establishment of a student return program can only be effective if the national authorities make considerable efforts to reconnect their elites with the appropriate scientific and technical networks. Gathering activities such as meetings and workshops between the local scientific and technical community, scholarship programs and other scientific and technical activities are essential in promoting links and exchanges of expatriates with their native countries colleagues. Finally we should notify that the return policy is strongly linked to the country's

economic growth and the development of an efficient national research system, it also depends on the density and quality of exchanges between the country of origin and the expatriate scientific diaspora.

5-2 Role of immigrant's networks (diaspora):

This approach concerns immigrants who do not intend to return to their native country and lead their family and professional life in the host country. The aim is to create the conditions for their involvement in the development of their native country by avoiding a temporary or permanent physical return. The transformation of these dispersed emigrants into a real diaspora is essential, by establishing social, economic, political or cultural exchanges between the country of origin and the different countries of residence.

If we take the example of African countries, five countries (Kenya, Morocco, Nigeria, South Africa and Tunisia) have developed scientific and intellectual networks for nationals abroad. At the end of 2003, Mali organized an international meeting with its diaspora to reflect on its living conditions abroad, its expectations vis-à-vis the country and its possible contributions in the face of economic, social and cultural problems.(Maingari, 2011, p. 139)

With regard to the African region The MIDA (International Migration for Development in Africa) of the International Organization for Migration also works to affiliate expatriate elites to networks to promote the transfer of science and knowledge more than the physical return. The MIDA program identifies skills needs and makes them public. It engages with governments to encourage them to adopt measures allowing migrants to come and go freely without losing their rights.

5-2The use of intellectual property:

Another solution to limit the brain drain is the development of intellectual property: copyright, trademarks, geographical indicators and patents. In the same context patents, can stimulate inventions at the national level and ensure the benefit of foreign direct investment. In addition to technology transfer related to patent utilization, stimulation of research and development in universities

and research centers is also a springboard for developing knowledge locally. These measures concerning the management and promotion of intellectual property, could enable research structures to promote their discoveries or to protect the arts, pharmacopoeia, biodiversity and cultural property by allaying the fears of researchers who feel forced to move abroad or join Western universities to have their work recognized.

5-3 circular mobility (short-term emigration):

Nowadays, many developed countries promote circular mobility as an alternative to the permanent form of emigration. This new form allows foreigners to work and specialize for a few years before returning to their native country. Circular mobility benefits both the sending countries as well as the recipient countries, thanks to the transfer of skills and knowledge that it allows. Such practices of mutual benefit between host and home countries are at work in the academic world.

6. CONCLUSION

The challenge of the development of emerging countries requires it to make a singular effort to train and maintain its human resources on its soil. The massive brain drain shows that it will take more than an incitement to patriotism to bring back executives settled abroad or deter people tempted by an extraterritorial professional adventure. The countries of departure must improve the living and working conditions of academics and researchers, facilitate the movement of students and researchers, encourage the return of graduates and help them in forming a constructive diaspora. The host countries must therefore avoid retaining the human resources of emigrants and help them to return to their native countries. The effort of reflection must focus on a comprehensive approach to the concept of brain drain which, if it does not provide a practical solution, makes it possible to identify its meaning. It is by digging into its conceptual field and the range of considerations that surround it that appropriate solutions will be found, far from the artificial answers resulting from superficial analyses.

Through the above discussion, the following results were reached:

- The negative effects of Brain drain are the most direct and visible effects.
- The Brain Drain has an economic and a social costs for the sending countries.
- This phenomenon leads to a decline in human capital, to an imbalance in the labor market.
- Brain Drain leads also to a loss of positive externalities linked to the presence of elites.
- One of the negative effects of brain drain is related to the shortages of professionals in pillar sectors of the economy such as health sector, education...
- The other side of this phenomenon is that brain drain may have some positive effects such as financial remittance, which lead to rise the consumption level, and affect also the power of the local currency.
- The networks formed by qualified citizens have a positive effects on economic growth, technological progress and social progress in the sending country.
- Developing countries can rely on different mechanism and policies (constructive diaspora, intellectual property, circular mobility...) to deal with the negative effects of brain drain.

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