

What are the determinants of the Subsaharian-African Brain Drain?

-How to improve its impacts-

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Summary

The Subsaharian-Africa is an extreme diverse region. It is also the world's largest free trade zone and this region is boasted from a market of 1.2 billion people. It has the potential to forge a new development path, harnessing the potential of its population and its resources. However, Subsaharian-Africa must deal with a lot of economic development challenges.

Its economic growth slow down and the increasing of conflicts and violence in its countries doesn't have a positive effect on the economy. For the next three decades, this region will experience the fastest increasing of the working-aged population. Nonetheless, the number of people that will enter the region's labor market is significantly (almost four times) higher than the number of formal salaried jobs. (World Bank, 2023)

Knowing that Subsaharian-Africa is one of the region concern with a important Brain Drain, we may ask if there is a link between the later and the economic development of this region. Throughout our work, we will try to identify the potential impact of the Subsaharian-African Brain Drain on this region's development. Another important point will be to underline the determinants of this phenomenon. Beyond our analysis, advices to the World Bank or the IMF will be given.

To help you having a deeper understanding of Brain Drain in Sub-Saharan Africa, we invite you to read this policy brief.

Intro:

As Sub-Saharan Africa is a very vast and diverse region, it is difficult to make generalizations, but taking each country on a case-by-case basis is not necessarily more relevant. What's more, the data available is not always accessible or up to date, so quantifying the real impact of the brain drain needs to be taken with a degree of caution, bearing in mind these limitations. Moreover, causal links are often difficult to prove, even if we can assume several, because feedback loops also need to be taken into account. Indeed, whether at the level of impacts, determinants or policies to be implemented, we need to think about the possible interactions between the different elements. To do this, we will first discuss the impact of the brain drain from a demographic, economic and political/social point of view. Then we will show the various determinants of the brain drain, given the shortcomings of the labour market and education. Finally, we will make suggestions to the government on how to limit this brain drain.

◆ 1.The impact of the brain drain in Sub-Saharan Africa.

1.1 The demographic consequences of the brain drain

Migration, particularly to developed OECD countries, is leading to a drain of highly qualified skills (doctors, researchers, engineers), weakening local capacity in key sectors. Maignari Daouda points out that in countries such as Botswana, Gambia, Equatorial Guinea, Namibia and Lesotho, more than 50% of students enrol at foreign universities. (MAIGNARI, 2011)

What's more, according to the UNDP (BOCQUIER, 2013), sub-Saharan Africa lost

around a third of its skilled workforce between 1985 and 1990, i.e. some 60,000 people, affecting key sectors such as medicine, IT and science. This migration represents a major loss of skills, particularly in crucial areas such as medicine, computing and science, directly affecting the potential for growth and development. We can assume that this will push other qualified people to leave and thus create a vicious circle.

In addition, brain drain contributes not only to a loss of skills but also to a demographic imbalance, in particular by encouraging the departure of young managers to other horizons and an ageing of the working population. Indeed, these young executives, often trained at great expense by their country of origin, choose to seek opportunities elsewhere, which leads to an ageing of the remaining active population in the countries of origin. The costs incurred by the country of origin will never be recouped by an increase in GDP or an increase in the HDI. At the same time, we note that migrants, once in the host countries, often find themselves working in jobs that are under-qualified in relation to their initial skills. UNDP figures point to a net migration of around 200,000 (BOCQUIER, 2013) people from sub-Saharan Africa to Western Europe and North America. However, once they have settled in the host countries, many of these migrants find themselves working in jobs that are under-qualified in relation to their skills, representing a double loss for their country of origin, which has invested in their education but will not be able to benefit from it and will be no more useful to the host country.

1.2 The economic impact of the brain drain

As mentioned earlier, massive investment in education is not being recouped because of the brain drain to developed countries, creating a financial deficit for the countries of origin. Sub-Saharan African countries invest in the training of these individuals, but do not fully benefit from the return on their investment because of

their departure, resulting in a financial deficit and a slowdown in economic and social development. At a time when we are in a region that faces many economic challenges, such as the fight against poverty, where 462 million people will be living in extreme poverty, i.e. on less than \$1.90 a day, by 2023. But there is also a risk of over-indebtedness linked to the climate problem and the COVID-19 pandemic (WORLD BANK, 2023), so investing in education policies with no return on investment is a big problem. Malawi is a case in point, with over 2/3 of its nursing posts vacant, while at the same time over half of its nurses have left to work abroad (MANKOU, 2021). The loss of funding and human capital is extremely important.

With the loss of around a third of its skilled workforce between 1985 and 1990, sub-Saharan Africa is facing a critical shortfall in a number of sectors. This massive migration, particularly in engineering, will have an impact on these countries' ability to innovate, progress and remain economically competitive (BOCQUIER, 2013). Brain drain weakens their position in the global context by reducing their potential for growth and innovation. A country's economic competitiveness depends in part on its ability to attract, retain and develop skilled talent. When this talent emigrates en masse to other destinations, it weakens the competitive position of the country of origin on the world stage. Countries that continue to lose their brainpower are less attractive to investors, international companies, and trading partners, which can put them at an economic disadvantage.

1.3 The political and social impact

Migration favours the departure of the most dynamic individuals, creating a gap between emigrants and those who remain in their country of origin. These individuals are motivated by a strong desire for exploration and personal and professional growth. These people often have greater access to

information and international networks, which makes them more aware of opportunities abroad. In addition, their flexibility and ability to adapt to different cultures, languages and lifestyles encourages them to seize opportunities outside their country of origin. This migration therefore creates a gap between those who leave and those who stay, increasing socio-economic inequalities within the remaining population.

However, migrants encounter obstacles when integrating into their host countries, with higher unemployment rates and difficulties in asserting their skills, often facing discrimination in recruitment. This explains why they work in under-qualified jobs in their host countries. The unemployment rate of migrants from sub-Saharan Africa living in developed countries is two to three times higher than that of people from developed countries.

However, a number of data points support the idea that developed countries, particularly Western Europe and North America, are attracting a significant proportion of skilled brains, thereby reinforcing their dominant position in the reception of skilled talent and exacerbating the development gaps between regions. Around 200,000 people from sub-Saharan Africa are migrating to Western Europe and North America. This net migration indicates a strong trend towards these regions, demonstrating their attractiveness for skilled talent. Of the 1.7 million students studying abroad, 26.5% are in the United States and 45.2% in Western Europe (BOCQUIER, 2013). These figures highlight the significant concentration of foreign students, including those from developing countries, in these regions. There is a clear preference for developed countries among skilled brains, accentuating their privileged position as key destinations for individuals seeking educational, professional and research opportunities.

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In conclusion, it is important to understand that the brain drain in sub-Saharan Africa leads to a critical loss of skills, weakening local capacity in key sectors. This creates a financial deficit for the countries of origin, reducing their economic competitiveness and capacity for innovation. In addition, this selective migration accentuates inequalities within the population and reinforces the dominant position of developed countries in receiving skilled talent, thus exacerbating development disparities between regions.

Ultimately, the brain drain in sub-Saharan Africa represents a multidimensional challenge, affecting the region's demography, economy and social fabric, and accentuating development gaps. With this in mind, we are now going to analyse the determinants of the brain drain.

◆ 2.The Brain Drain determinants

So, as it was said in the first part, we can see that Brain Drain seems to deeply impact countries of Sub-Saharan Africa. In this part, we will try to find an explanation to this phenomenon. This section will analyze different Sub-Saharan African countries in the aim to identify some flaws of their system that can explain Brain Drain. Actually, a first part will describe the labor market in Sub-Saharan Africa. Then, we will point out the flaws of the educational system. Finally, the different opportunities to study abroad will be explained. Before starting, we remind that we analyze a tendency among some countries of Sub-Saharan Africa. What we observe can change from one country to another.

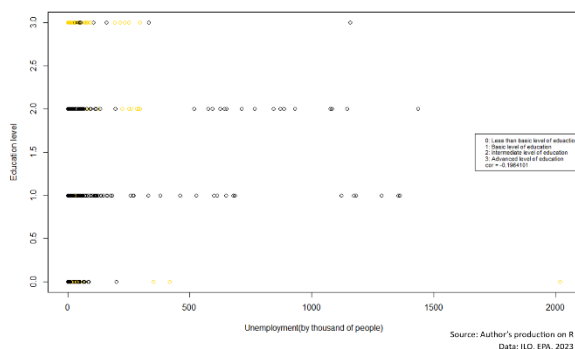
2.1. The Labor Market

“Up to 12million youth will enter the labor market across the [Sub-Saharan Africa] every year in the coming decades, yet only about 3 million new formal wage jobs are currently created each year”.(WORLD BANK, 2023).

According to a lot of academic writings and books, economic growth seems to be a synonymous of low inclusivity and low job creation. (HUGON, 2018) It is a fact, the increasing of the number of youths in the educational system has not allowed an increasing of employment. Cities of Sub-Saharan Africa are characterized by an increasing of unemployment especially for high-skilled workers. On average, African labor markets are not only imperfect but they are also fragmented by a multitude of contract types. All those elements directly impact income inequalities among job seekers. However, according to some econometrics studies, education allows people to perceive higher income. (KUÉPIÉ, NORDMAN AND ROUBAUD, 2013) Actually, in Sub-Saharan countries, a trend toward creation of informal and non-protected jobs as the stagnation of salary employment is point out. Some writings relate the fact that the labor market structure favorized precarious jobs or secondary jobs. If we analyze this pattern of the employment structure of Sub-Saharan Africa, we can easily say that the jobs created do not fit to high-skilled workers. (BAUMANN, 2004).

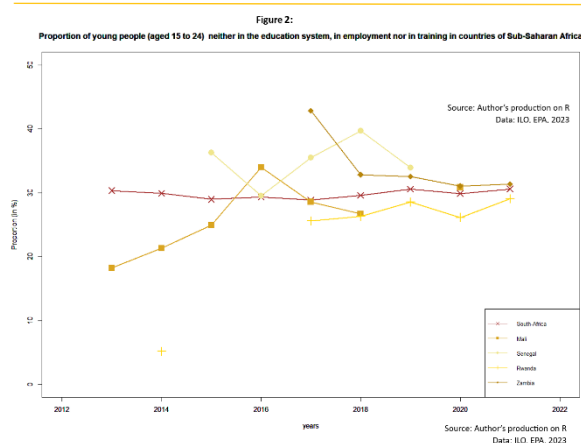
Now that we have clearly identified the structure of the labor market, let's take a closer look at the returns to education on the labor market in countries of Sub-Saharan Africa.

Figure 1: Unemployment according to education Level in countries of Sub-Saharan Africa



As we can see in figure 1, there is a negative correlation between unemployment and the education level among countries of Sub-Saharan Africa. However, this correlation is quite small (only -0.1964101). Moreover, as

we can see in this plot that data tends to cluster towards the left across all levels of education. We can say that the return of education on the labor market is rather low even if we can see that it seems easier to find a job if we have a level of education lower than the basic one (education level = 0) or if we have an advanced level of education (education level = 3). Nonetheless, it is extremely important to keep in mind that some of those data can be unreliable and that high-skilled people struggle to find a job that suits their capacities. In addition, some people agree that unemployment rate increases with the education level. According to ILO, Higher education graduates are 2 to 3 times more exposed than young people who have not continued their education beyond primary



education. (HUGON, 2018)

Another aspect of returns to education that we can underline is the proportion of young people that are neither in employment nor in education or in training which is particularly interesting. As we can see in the figure 2, for five different countries from Sub-Saharan Africa the proportion of young people who do not work or study varies from nearly 20% to more than 40%. Those data are particularly alarming. It underlines flaws of the educational system such as flaws of the labor market. We can see that on average 1 young people out of 3 is completely out of the education system or the labor market. If we have already talk about

the labor market flaws, let us focus on the education system's ones.

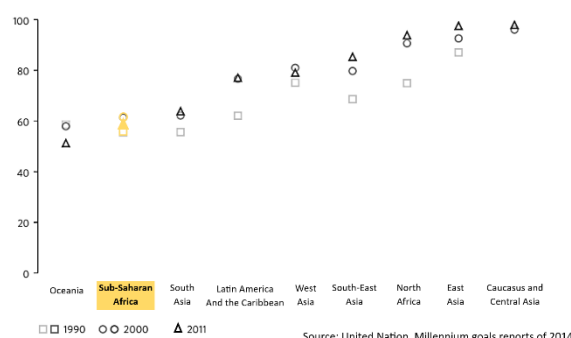
2.2. The education and its flaws

This part will be separated in two main sections. The first one will discuss the strong inequalities while the second one will point out the low education quality.

Inequalities

It is a fact, countries of Sub-Saharan Africa succeed through last years in significantly increasing the number of children enrolled in education. However, we can see that there is strong inequalities that can partly explain the figure 2. First, we can see inequalities according to the place children are living in. For instance, if a child is born in a rich country and live in a urbanized place, they have more chance to go to school. We can see that there is a gap in favor of industrialized countries in school life expectancy of 7 years between poor countries and industrialized countries of Sub-Saharan Africa. Moreover, almost 40 million of children

Figure 3: Proportion of students starting the first year of study in primary education and completing the last year of the primary cycle, 1990, 2000 and 2011 (in percent)



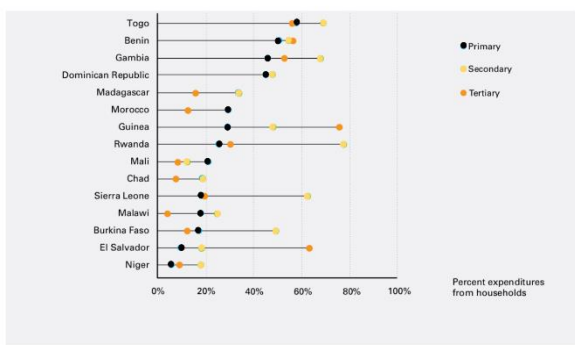
are not enrolled in education and the poorest countries usually depend on developed countries financial aid. (HUGON, 2018)

Another important point to notice is the inequalities of education enrollment according to the level of education. In fact, according to Jacquemot 2016, we can say that the percentage of children that are enrolled in education get lower and lower when the

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education level increases. On average, there is 81% of youth who entering primary school but there is only 52% of them who leave (by completing their last year). It is 33% of youth who entering the first cycle of secondary school but 26% who leave, 9.6% who enter the second cycle of secondary school and 8% who leave and finally, 4% who enter in higher education. (HUGON, 2018) This is also well represented in figure 3. We may explain this by how households distribute their budget for education. Figure 4 underlines the fact that higher education is usually less financed by households than primary or secondary

Figure 4: Percentage of total education expenditures contributed directly by households, most recent values 2004-2012

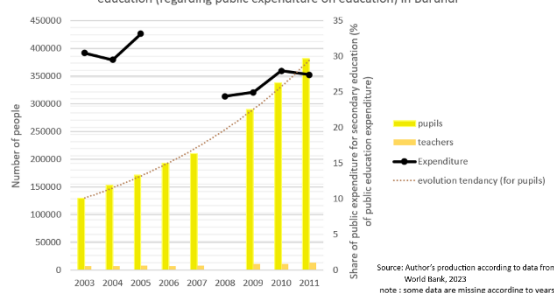


Source: UIS Data Centre and Pôle de Dakar V17.6, accessed in 2014.

education. Inequalities exist also between gender. However, we are not going to focus on it in this part.

To conclude this part, we can take a closer look at figure 5 in which we can clearly see the exponential increasing of the number of student while the stagnation of the number of teachers in secondary education. For our example of Burundi, we find an interesting correlation between the ratio of students by teachers and the share of the government budget for education dedicated to secondary education. In fact, the correlation that we find is equal to -0.6359077 . So regarding our results, we can say that public expenditures on education is linked to the ratio students/teachers.

Figure 5: Number of pupils comparing to number of teachers in secondary education (regarding public expenditure on education) in Burundi



Source: Author's production according to data from World Bank, 2023
note : some data are missing according to years

A lower quality

Now, let us focus on the quality of education. A lot of writings agree on the fact that the increasing of number of children enrolled in education is accompanied by the decline in education quality. Almost 3 students of their second year in education out of 4 cannot count beyond 80 besides, we can see lack in the capacity to read or understand something that is written. (WORLD BANK, 2018) The question that we may ask is how it is possible to have such results. Many factors can explain this. In fact, the weakness of teaching materials, overcrowded classes, high dropout rates, great linguistic diversity, lack of nursery training, poorly trained, poorly supervised, and poorly encouraged teachers largely explain these difficulties. (HUGON, 2018) Furthermore, the cognitive style in application in primary and secondary schools is essentially based on listening, memorization, repetition in a process of transmission of knowledge where the acquisition of this only involves mimicry; reflexivity and critical analysis are often absent, except for marginal educational experiences. In the classroom, the teacher is the undisputed master: no one really dares to discuss his instructions, question his knowledge, or simply ask a question. (LANGE, 2007)

However, we can find inequalities in the way of teaching according to parents' income. In fact, we can take the example of Sahel countries in which private schools have a better education system compared as public schools. (HUGON, 2018)

All these elements can help us to visualize the educational system of countries of Sub-Saharan Africa. By determining its faults, we can now start to explain a kind of Brain Drain. Now, we are going to analyze the different opportunities to go abroad that can clearly explain the choice to leave the origin country.

2.3. The opportunities to go

Figure 6: Top 15 countries in terms of emigration rate of high-skilled, number of high-skilled emigrants and difference in rates between 2000/01 and 2015/16

	Emigration rate of high-skilled (%)		High-skilled emigrants ('000)		Increase in emigration rate of high skilled (pp)
Guyana	70.8	India	3 085	Liberia	27.9
Trinidad and Tobago	65.6	China	2 001	Bhutan	15.4
Mauritius	62.5	Philippines	1 794	Moldova	14.6
Liberia	57.0	United Kingdom	1 681	Albania	14.6
Jamaica	50.3	Germany	1 435	Romania	11.8
Haiti	48.7	Poland	1 174	Bosnia and Herzegovina	11.5
Fiji	39.2	Mexico	1 136	Somalia	10.4
Albania	38.1	Russia	1 074	Bulgaria	10.3
Bosnia and Herzegovina	34.0	Ukraine	774	North Macedonia	10.0
Guinea-Bissau	32.4	Romania	773	Nepal	9.6
Cuba	31.1	France	752	Zimbabwe	9.4
Mozambique	29.7	United States	654	Mauritius	8.4
Somalia	29.4	Canada	635	Cuba	6.9
Congo	26.4	Vietnam	633	Armenia	6.6
Rwanda	26.0	Italy	587	Guinea	6.6

Note: The emigration rate is calculated as the ratio between the number of emigrants living in OECD countries and the total sum of the resident population and emigrants living in OECD countries.
Source: Database on Immigrants in OECD Countries (DIOC) 2000/01 and 2015/16.

abroad

The first part will discuss the opportunities of studying abroad regarding the education system. Then we will discuss the same thing but this time regarding the employment benefits. In figure 6 we can see that a great among of Sub-Sharan Countries are among the top 15 of emigrants for education. Usually, emigrants of what we can identify as Brain Drain are more educated than the average with a good income level. We can first notice that 30% of African executives trained abroad. This can be explained by a lot of factors such as the inequal access to training, the polarization of knowledge and the scientific divide between developed or emerging countries and poor countries, caught in poverty traps,

experiencing an educational implosion and a growing exodus of skills (HUGON, 2018). OECD also identified that there is strong correlation between gender gap in emigration and gender gap in educational attainment in source countries. So, we can say that those gender differences encourage skilled woman to go study abroad. The rate of female emigration significantly increase last years. It may be noticed that emigration abroad can be also made between poor countries of Sub-Saharan Africa and Industrialized ones. In fact, 66% of foreign students of South Africa come from other African countries (Angola, Bostwana, DRC, Lesotho, Malawi,...) especially in higher education. (OECD, 2008) Going study abroad allows people from Sub-Saharan countries to have positive work externalities. In fact, by going abroad African students can seek for qualified jobs that are not offered in their countries of origin. Besides, migrants are less often unemployed on their return to their country of origin with equal qualifications. The selection effect through migration seems to add to an effect of valorization of qualifications acquired abroad, often judged to be better by employers. (BOCQUIER, 2013) We can also notice that workers trained abroad enjoy higher wages and employment rates than workers trained in their countries of origin, especially if they come from countries with low-quality education systems. (COULOMBE AND TREMBLAY, 2009) Docquier even underlines that 50 percent of high skilled people who went study abroad declared that they were contemplating emigration to gain access to better wages, working conditions and lifestyles (DOCQUIER, 2012). Then, we can see two types of emigrants : those who go study then they return to their country of origin in the aim to perceive better work conditions and those who go study abroad and stay in developed countries to find a qualified job that suits what they want to do. The pressure of uncertain economic conditions of their origin country can lead some people to go study in other countries of Sub-Saharan Africa such as Gabon, Botswana, Namibia or South Africa. According

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to some studies, those countries are considered as alternatives to Europe, the United States or the Gulf States. (OECD, 2008)

◆ 3.Our Recommendations

3.1. Current policies are not sufficient

Return policy

A Return Policy is a strategy employed by governments to encourage students who have graduated abroad to return to their countries of origin. It is often characterized by incentives and career opportunities. Historically, this approach had significant efficacy since the 1960s. However, a notable deceleration happened in the early 1990s, as a result of the economic crisis of that period. Factors contributing to this slowdown included restrictive monetary policies and a loss of confidence of agents because of the 1990 oil price shock (WALSH, 1993).

The immediate consequences of this economic downturn consisted in early retirements and a freeze in the recruitment of new graduates (MAINGARI, 2011). Despite its proven impact, the Return Policy remains costly, with the primary aim of replicating the favorable work conditions found in the host country within the country of origin.

One critical way of improvement is the establishment of world-class laboratories that can compete with international standards. Transparency in recruitment conditions is another crucial aspect.

Contributive Diaspora

Contributive diaspora policies often focus on the financial contributions sent back to the home country, which support families and may

contribute to small-scale entrepreneurial activities.

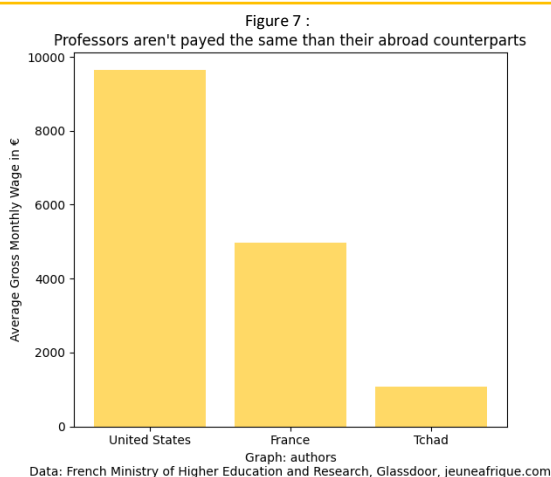
However, financial contributions alone cannot replace the critical aspect of knowledge transfer and the diffusion of expertise within society.

The creation of a dynamic intellectual environment within the home country is important, especially in the scientific and technical sectors. While financial remittances are beneficial, they do not foster the intellectual stimulation that is essential for sustainable progress.

3.2. Policies recommendations

Living and working conditions improvement

One sure way to make the home country more attractive for graduates, particularly those with doctoral degrees, is to improve their living conditions. For example, Chadians professors are paid 78% less than French ones, which are themselves paid 48% less than their American counterparts (FRENCH MINISTRY, GLASSDOOR, BROULARD 2015).



Another way to encourage graduates to come back to their home countries after studies abroad consists in offering non-financial benefits. Providing accommodations, professional development opportunities, and a

supportive work-life balance can be significant enough to convince graduates that it is as interesting to come back as to stay in their host country.

Beyond monetary considerations, these benefits enhance the overall quality of life. By acknowledging and addressing the diverse needs of returnees, nations can establish an environment that not only values their expertise but also act as a complement to financial incentives, making the prospect of returning to one's home country more appealing for graduates.

| Conclusion:

We have seen that even though Sub-Saharan Africa is a vast and diverse region, brain drain is a deeply anchored issue for countries' demographics, economics, politics, and socials with many complex determinants, among which we considered inadequate job offerings, flaws in the education system, and better opportunities abroad. To address this, we went further than currently applied policies, and suggested better financial and non-financial benefits for returnees, as well as scholarships conditioned to the student's return.

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