

**Understanding the Brain Drain:
Growth and Development through Reversal**

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May 23, 2013

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Abstract

This paper seeks to examine the relationship between developing and developed countries in terms of the phenomena of human capital flight, more commonly known as the “brain drain”. This is the idea that individuals leave developing countries to settle in developed countries. The resettlement is done either after one completes an advanced education in the developed country and chooses to stay rather than return to their home country, or after one completes an advanced education in one's home country, and then chooses to emigrate to a developed country. These decisions are commonly based on the availability of opportunities that do not exist in one's home country. The majority of the available literature shows that the brain drain has an overall negative effect on the developing countries of the world and hinders their economic growth and development. Therefore, this paper seeks to examine whether or not there are incentive programs and policies that can be pursued to encourage individuals to remain in or return to their home countries rather than emigrate to developed countries. There will be an examination of local, small scale incentive programs, incentive programs created and pursued by non-governmental organizations, and incentive programs established by international organizations to explore different existing options and their successes. The focus of this study will be specifically on the medical field and to avoid being strictly theoretical, will provide an example of Ethiopia as a developing country suffering from the brain drain, as it is one of the most effected countries in Africa. Through an examination of available literature and empirical evidence, this paper aims to suggest policy implications to create and pursue incentive policies to encourage individuals to return to their home countries with their medical training and in turn promote growth and development of their home economies.

Table of Contents:

| | |
|--|-----------|
| Introduction: | 4 |
| I: Background and Broader context | 5 |
| <ul style="list-style-type: none"> • Definitions • Brain Drain phenomena • Historical context • Development • Focus of topic: Ethiopia and medical field | |
| II: Theoretical / Conceptual Perspectives | 9 |
| <ul style="list-style-type: none"> • Historical understandings • Context of medical field | |
| III: Overall effects of brain drain | 16 |
| <ul style="list-style-type: none"> • Magnitude of brain drain • Developing / sending countries • Developed / receiving countries • Conflicting schools of thought • 'Push' and 'Pull' factors | |
| IV: Example: Ethiopia & the medical field | 25 |
| V: Incentives to reverse brain drain | 30 |
| <ul style="list-style-type: none"> • Local scale examples and implications • Global scale examples and implications • Growth and development | |
| VI: Incentives and International Aid | 42 |
| VII: Counter arguments and refutation | 44 |
| <ul style="list-style-type: none"> • Remittances • Resources of Receiving Countries | |
| VIII: Policy Implications | 47 |
| Conclusion | 50 |
| Bibliography | 51 |
| Appendices | 55 |

Introduction

Human capital flight has been negatively impacting the growth and development of developing countries for many centuries. With the increased interconnectedness of today's global economy through globalization, it is now easier than ever for individuals to cross borders and countries to relocate. While these migration flows offer opportunities for individuals to leave underdeveloped or struggling economies to relocate to developed and advancing economies with more opportunities, the negative impacts that these migration flows have on sending countries is hindering their overall economic growth and development. This concept of human capital flight is more commonly known as the "brain drain", for when individuals leave a developing country for a developed country to receive education or professional training, or when individuals take the education and training they received in their home country and relocate to a developed country, their home country suffers from the loss of their knowledge and capacity. Sub-Saharan Africa is one of the hardest hit areas of the world in terms of overall impact on the local economy when individuals leave with their professional skills, or leave for professional training or education. Additionally, the medical field is one of the largest industries involved in the global brain drain. Ethiopia is one of the most impacted countries from the combination of both of these factors - the flow of highly skilled medical workers out of the country, which leaves their country with less doctors and nurses to help aid in overall growth and development. Different organizations and parties around the world are working to reduce these negative impacts, primarily by encouraging individuals to stay in their home countries after receiving their medical training there, or to return to their home countries after receiving a medical education abroad in a developed country. By examining these different organizations and programs in terms of their

overall impact on reversing the brain drain, one can see the impact that encouraging individuals to return to their home countries with their knowledge and skill set would have on the overall growth and development within these sending countries. Through an exploration of current initiatives and programs with a focus on Sub-Saharan Africa and workers in the medical field, there is potential to create policies of incentives to help aid in the reversal of the brain drain, and in turn the overall growth and development of these developing, sending economies.

Section one will explore the background and broader context of the brain drain phenomena in terms of key definitions and understandings, as well as placing the brain drain in its historical context. Section two will present some of the current scholarly explorations and literature surrounding human capital flight. Section three will present some of the specific impacts of the brain drain on developing and developed countries. Section four will present the specific example of Ethiopia and the medical field and their relationship to the brain drain. Section five aims to present different incentive programs and policies currently existing to reverse the brain drain. Section six will explore the relationship between the brain drain, incentives to reverse the brain drain and the role of international aid. Section seven will explore some of the counter arguments to reversing the brain drain. Lastly, section eight will present policy implications and recommendations for moving forward to help developing countries that are negatively impacted by the brain drain.

I: Background and broader context

Before one can truly understand the magnitude of the 'brain drain' phenomena it is

essential to understand the different factors and historical context of the issue, starting with key definitions. This paper will rely heavily on established and accepted definitions as understood by the field of international development studies and foreign aid. First, the definition of the 'brain drain'. The brain drain is the common vernacular for “human capital flight”, which is understood as the “loss of educated and high-skilled citizens to other countries”¹ and almost always refers to the flow of these individuals from developing countries to developed countries where there are more opportunities. Michel Beine, et al provide a nice and succinct definition of the brain drain. They write that the “term brain drain designates the international transfer of resources in the form of human capital and mainly applies to the migration of relatively highly educated individuals from developing to developed countries”².

Two other essential definitions and concepts to this discussion are that of developing/sending countries and developed/receiving countries. In the brain drain relationship, developing countries are the sending countries. Developing countries are those countries previously understood as 'third-world' countries, and are understood in relation to the Western world as countries with lower per capita incomes, higher rates of poverty, where a high proportion of the population is engaged in agriculture, where exports are mainly from the primary sector³, and generally where standards of living are low, such as access to healthcare, low life expectancies, high levels of infant-mortality rates, and low levels of access to education and levels of educational achievement. Lastly, developed countries are understood as the

1 Ian Goldin & Kenneth Reinert, *Globalization for Development: Trade, Finance, Aid, Migration, and Policy* (New York: Palgrave Macmillian & The World Bank) 2007: 14.

2 Michel Beine, Frederic Docquier & Hillel Rapoport. “Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers.” *The Economic Journal*. 118 (2008) 631.

3 John Rapley, *Understanding Development: Theory and Practice in the Third World* (Colorado: Lynne Rienner Publishers) 2007: 18.

receiving countries in the brain drain relationship, for they are the Western world countries, with growing and expanding economies and opportunities. Developed countries are the higher income countries, with more industrialized economies and higher standards of living.

Developed countries and developing countries are measured by many different standards, the most common and accepted measurement being that of the United Nations' 'Human Development Index' (HDI) , which measures life expectancy, education, and gross-national income⁴. Based on these standards, countries are ranked in comparison to each other as either 'very high human development', 'high human development', 'medium human development' or 'low human development'⁵. As this paper will use the example of Ethiopia and explore the relationship between Ethiopia as a sending country to the United States and Canada, the receiving countries, it is important to note that based on 2012 measurements, Ethiopia was labeled as 'low human development' and ranked 173 out of 186 countries, whereas the United States and Canada were both considered 'very high human development' and ranked third and eleventh respectively⁶. These examples of HDI classifications highlight the definitions presented above of developing and developed countries and their relationship within the brain drain as sending and receiving countries.

As previously stated and as an exploration of some of the present literature will show, the brain drain negatively impacts the developing/sending countries for many different reasons. One of these key reasons is that the emigration of the highly skilled labor force from a developing

4 UNDP, *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World*. (New York: UNDP) 2013: 1.

5 UNDP, *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World*. (New York: UNDP) 2013: 144 – 147.

6 UNDP, *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World*. (New York: UNDP) 2013: 144 – 147.

country to a developed country leaves the sending country lacking these skilled workers and possible contributors to the growth and development of the local economy. As Goldin and Reinert present, the brain drain refers to “the phenomenon of highly skilled workers leaving their home country and not returning, at least during their most productive years - [which] has historically been viewed as one of the most significant costs to source countries of international migration”⁷. This highlights two of the major elements negatively impacting the sending countries. First, the idea that the highly skilled workers who leave are not returning during their productive years means there is a loss of a young, highly-skilled work force, which is one of the key contributors to improving economic development and growth⁸. Second, this explanation draws attention to the 'significant costs' to the source country and does not highlight any 'benefits', implying, as others have also noted, that the negative impacts of the brain drain outweigh the positive impacts on the sending countries. As stated by the Organization for Economic Co-operation and Development (OECD), “emigration of highly skilled workers may adversely affect small countries by preventing them reaching a critical mass of human resources, which would be necessary to foster long-term economic development”⁹. Additionally, the loss of wages and income reimbursed into the society is important to address as a negative impact on the sending countries, for these individuals are taking their consumer habits and money to consume out of the country and into a different economy. Another significant factor is the loss on return of investment that the developing country may have put into the education of these individuals at

7 Ian Goldin & Kenneth Reinert, *Globalization for Development: Trade, Finance, Aid, Migration, and Policy* (New York: Palgrave Macmillian & The World Bank) 2007: 172.

8 Michael Woolcock. "Social capital and economic development: Toward a theoretical synthesis and policy framework." *Theory and Society* 27, no. 2 (1998): 151-208.

9 Ian Goldin & Kenneth Reinert, *Globalization for Development: Trade, Finance, Aid, Migration, and Policy* (New York: Palgrave Macmillian & The World Bank) 2007: 172.

any level, whether it is at the grade school level or the collegiate level. When these individuals chose to leave their home countries, the educational investment provided by the government is lost¹⁰. These examples present just a few of the many negative impacts of the brain drain on the developing/sending country. These and others will be examined later in further detail.

While the brain drain can be seen in varying professional fields and sectors of society, the medical field is one of the professional fields most impacted. Additionally, Sub-Saharan Africa is one of the hardest hit regions by the brain drain. Trying to measure and analyze the impacts of the brain drain on the entire region of Sub-Saharan Africa is far too large of a project to be taken on here, so the country of Ethiopia will be used as an example to highlight some of the brain drain effects, for Ethiopia faces massive occurrences of the emigration of medical field professionals to developed countries; it is estimated that Ethiopia has lost seventy-five percent of their total stock of skilled professionals since 2000¹¹, and has less than one doctor per 10,000 people within the country¹², showing a clear lack of medical doctors within the country.

II: Theoretical / Conceptual Perspectives

The relationship between sending and receiving countries and the movement of individuals across country borders searching for better opportunities is not a recent phenomenon. Individuals have been migrating from country to country for as long as recorded history can

10 Jagdish Bhagwati and Koichi Hamada, "The Brain Drain, International Integration of Markets for Professionals and Unemployment: a Theoretical Analysis." *Journal of Development Economics*. 1 (1974) 2.

11 Tesfa-Alem Tekle. "Ethiopia among worst hit in African brain-drain" *Sudan Tribute: Plural news and views on Sudan*. November 25, 2011.

12 Edward J Mills et al. "The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis" *BMJ: British Medical Journal* 343 (2011) 8.

show. In regards to modern history, the term 'brain drain' was coined by the “British Royal Society to describe the outflow of scientists to the United States and Canada in the 1950s and early 1960s”¹³. David H. Shinn also notes that “beginning in the late 1960s, the brain drain came to be associated with the flow of skilled individuals from the developing world to Western Europe and North America”¹⁴, which is the common understanding that is widely accepted today. Included in this category of 'skilled individuals' is the medical field workers that migrate from developing countries to developed countries, which has been occurring for some time. “In the 1960s and 1970s, much of the concern about a brain drain revolved around the emigration of doctors, nurses, and teachers from developing countries”¹⁵, and not much has changed since then, as this is still a major concern of global migration movements.

The 1960s saw the beginning of academics and policy practitioners focusing on the dangers and damages done to sending countries because of the brain drain. Grubel and Scott, in 1966, were one of the earlier works exploring the brain drain phenomenon and as their work assumed perfectly competitive markets, they concluded that there may be short term negative impacts from the brain drain on sending countries, but overall the long-term impacts are positive and in turn they argued for the continuation of current migration and immigration policies encouraging individuals to leave for better opportunities¹⁶. Grubel and Scott also address the argument that highly-skilled individuals who leave their home countries could have helped in

13 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

14 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

15 Simon Commander, Mari Kangasniemi, and L. Alan Winters. “The Brain Drain: Curse or Boon? A Survey of the Literature” in *Challenges to Globalization: Analyzing the Economics*, ed. Robert E. Baldwin and L. Alan Winters, (Chicago: Chicago University Press, 2004) 240 – 241.

16 Herbert B. Grubel and Anthony D. Scott, “The International Flow of Human Capital.” *The American Economic Review*, 56 (1966) 268-274.

promoting development in their home country by stating that they “have been unable to discover economically significant instances where individuals provide social services associated with their person rather than profession for which they are not paid - including in work fostering economic development”¹⁷. However, as will be discussed later, while these individuals may not directly work on economic development projects, by remaining in their home country with their skill set, overtime they can help promote growth and development through teaching others their skills and/or providing services the citizens would not have access to otherwise. These examples of the work done by Grubel and Scott show how the brain drain was discussed academically in the 1960s but the generally accepted view then was that the positive impacts outweighed the negative impacts, from which the literature has shifted away from in recent years.

In the 1970s, the majority of the literature on the brain drain disagreed with Grubel and Scott and followed the understanding that when individuals chose to leave, there is a negative impact on the sending countries. Bhagwati and Hamada argue that “emigration does deprive those left behind of this return [to investment] and thus worsens their welfare”¹⁸ and “to the extent that the external labor market is more efficient at screening workers, the result would be the loss of the most efficient to the sending country”¹⁹. These statements show how there was a general shift away from looking at the brain drain as having overall positive impacts to overall negative impacts.

The 1960s and 1970s saw the first major debate with regards to the brain drain for there

17 Herbert B. Grubel and Anthony D. Scott, “The International Flow of Human Capital.” *The American Economic Review*, 56 (1966) 273.

18 Jagdish Bhagwati and Koichi Hamada, “The Brain Drain, International Integration of Markets for Professionals and unemployment: a Theoretical Analysis.” *Journal of Development Economics*. 1 (1974) 2.

19 Simon Commander, Mari Kangasniemi, and L. Alan Winters. “The Brain Drain: Curse or Boon? A Survey of the Literature” in *Challenges to Globalization: Analyzing the Economics*, ed. Robert E. Baldwin and L. Alan Winters, (Chicago: Chicago University Press, 2004) 244.

were two main dominant viewpoints at this time in regards to positive or negative impacts of the phenomena. These were the 'internationalist view' presented by Harry Johnston and the 'nationalist view' presented by Don Patinkin. Harry Johnston and the internationalist advocated for the free flow of individuals and the “unrestricted international migration of highly skilled individuals as a vehicle to enhance 'global efficiency’”²⁰. Don Patinkin on the other side of the debate championed the nationalist view which was “concerned with the adverse impact on national development of human capital outflow to advanced economies”²¹. These two viewpoints are still considered the two major sides of the debate on the brain-drain and the overall effects it has on both sending and receiving countries.

Most of the literature and debate remained the same from the 1960s to present day regarding the brain drain - the 1980s, 1990s and 2000s saw the continued debate between the internationalist and the nationalist viewpoints. Jumping from these early explorations to present day, there is still literature arguing for both sides of the debate, where some argue for the brain drain and others argue against it. However, the majority of the literature does accept that the brain drain's negative factors are more impactful than the positive factors, and that work should be done to counter these negative factors, especially with the increased globalization of the present modern world. Through many different international organizations, non-governmental organizations, international actors, and different states, there is a generally accepted understanding that the brain drain is hindering the growth and economic development of developing countries and for these developing countries, the overall negative impacts outweigh

20 Andres Solimano. *Globalizing talent and human capital: implications for developing countries*. Vol. 15. (Santiago de Chile: CEPAL, Economic Development Division, 2002) 7.

21 Andres Solimano. *Globalizing talent and human capital: implications for developing countries*. Vol. 15. (Santiago de Chile: CEPAL, Economic Development Division, 2002) 7.

the positive impacts.

In terms of the brain drain and the medical field, the current literature shows that there is a general understanding that the brain drain is drastically reducing the amount of highly trained medical workers in developing countries. Rupa Chandra wrote of this for the World Health Organization in 2001 in terms of the relationship between doctors of Indian origin and the United Kingdom. Chandra wrote that “there are at least 60,000 doctors of Indian origin in the United Kingdom, which is around twelve percent of the total stock of doctors in India and thirty percent of registered doctors in the United Kingdom”²². Shinn wrote in 2002 that “seventy-nine percent of 1990-1991 Ph.D. recipients in science and technology from India and 88 percent of those from China were still working in the United States by 1995”²³. These statistics from Shinn show the sheer magnitude of the brain drain phenomenon and the large quantities of individuals involved in these migration patterns.

Chandra also shows that there are incentives provided to highly skilled medical workers in developing countries to encourage them to emigrate to places such as the United States, Canada or Europe. “Some destination markets have actively encouraged inflows of specific categories of foreign health care professionals. The USA, for example, has introduced special visa schemes and changes in immigration policy to encourage inflows of nurses and technicians from India, Jamaica, and the Philippines...”²⁴. Beine et al further this idea of encouraging the flow of highly-skilled migrants by writing of the quality-selective immigration policies adopted

22 Simon Commander, Mari Kangasniemi, and L. Alan Winters. “The Brain Drain: Curse or Boon? A Survey of the Literature” in *Challenges to Globalization: Analyzing the Economics*, ed. Robert E. Baldwin and L. Alan Winters, (Chicago: Chicago University Press, 2004) 241.

23 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

24 Rupa Chanda, “Trade in Health Services”. Commission on Macroeconomics and Health Working Paper WG4: 5." Geneva: World Health Organization (2001) 159.

by host countries that appear as “international competition to attract global talent”²⁵.

In comparison to Chandra's writings in 2001, there have been changes to the policies and these types of incentive programs and there are now many programs and organizations that offer opposite incentives to encourage individuals to stay or return to their home countries with their medical training. These types of organizations and policies will be explored in more detail in the following section. Chandra also highlights how some countries such as India and South Africa have implemented policies to prevent their highly-trained medical workers from leaving the country after graduation from medical school²⁶. These types of incentives are still pursued today and will also be explored in further detail in the following section.

The difference in these types of incentive programs and initiatives to either encourage or to reverse the brain drain highlights another key dichotomy within the brain drain. As with every debate there are proponents of both sides of the issue. While the majority are against the brain drain and the flow of human capital from developing regions to developed regions, there are those that promote and encourage such movements. Some of the key arguments behind those that support the brain drain are the 'brain gain', the role of remittances, and freedom of choice. First, the brain gain, which has two types of definition. The first speaks to the benefit to developed countries when individuals chose to emigrate with their medical knowledge and training. By attracting many foreign students, the economies of receiving countries are able to benefit in many ways. One such way is when jobs are created “to provide for the service demands of the

25 Michel Beine, Frederic Docquier & Hillel Rapoport. “Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers.” *The Economic Journal*. 118 (2008) 631.

26 Rupa Chanda, “Trade in Health Services”. Commission on Macroeconomics and Health Working Paper WG4: 5”. Geneva: World Health Organization (2001) 159.

foreign students²⁷ as well as their families if they emigrate with them. Another understanding of the 'brain gain' is when these individuals stay after their medical training to create a strong and highly-skilled medical infrastructure within the receiving country as well as to contribute to the medical field in ways not possible in their home countries. This creates a stronger and more advanced medical field focused in one primary location, rather than smaller and weaker dispersed systems around the world.

Another key argument for the brain drain is the role of remittances. Some argue that the money that individuals make in the developed world is sent back to their families in their home countries and put into the local economy, which helps promote growth and development in the developing countries²⁸. Lastly, another key argument supporting the flow of individuals through migration is the notion of free will and choice. This is the understanding that if an individual has the capacity to leave a developing country for a better life in a developed country, there should not be policies or individuals working to prevent or hinder them²⁹. While these are only a few of the reasons some give in support of the brain drain, this paper seeks to show that the overall negative impacts outweigh these benefits and hinder economic growth and development in developing countries. Through working on reversing the brain drain, one can see positive growth and development in sending countries around the world.

27 Thomas Straubhaar, *International mobility of the highly skilled: brain gain, brain drain or brain exchange*. No. 88. HWWA Discussion Paper, 2000.

28 Yoko Niimi, Caglar Ozden, and Maurice Schiff. "Remittances and the brain drain: skilled migrants do remit less." *Annals of Economics and Statistics/Annales d'Économie et de Statistique* (2010): 123-141.

29 UNESCO. *Skilled Migration and Brain Drain*. Accessed April 29, 2013.
<http://www.unesco.org/new/en/socialand-human-sciences/themes/international-migration/projects/skilled-migration-and-brain-drain/>.

III: Overall effects of brain drain

Following the notion of two conflicting schools of thought on the brain drain as presented in the previous section, it is important to understand the overall effects of the brain drain, both on the receiving countries and the sending countries. This section seeks to explore the magnitude of the brain drain as well as these overall effects to further the notion that the negative impacts outweigh the positive impacts. Another key element to the discussion of the relationship between sending and receiving countries is that of international aid and its current role in development programs and policies.

The magnitude of the brain drain can be seen in a recent report by the United Nations Conference on Trade and Development (UNCTAD) published in November 2012. This study found that in terms of the world's forty-eight least developed countries (LDC) of the world, among people with a university level education, one in five chose to leave for employment opportunities abroad³⁰, compared to one in twenty-five people with a university level education in developed countries who chose to emigrate³¹. It is important to this discussion to note that Ethiopia is considered by the UN to be one of the forty-eight least developed countries of the world³². This UNCTAD report also showed that the rate of brain drain in these forty-eight least developed countries is as high as 18.4 percent and as high as 10 percent for other developing countries of the world³³. These statistics are important to note, because “the optimal level of

30 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 8.

31 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 8.

32 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 8.

33 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 92.

brain drain (where the net balance of positive and negative effects on the domestic home economies reaches its maximum) has been estimated at 5–10 per cent³⁴ and only five of the forty-eight least-developed countries of the world fall into this range³⁵. As the UNCTAD report shows that brain drain rates in developing countries range from ten to eighteen percent, and that rates of over ten percent increase the chances that the negative impacts of the drain will exceed the positive impacts, one can clearly see how the negative consequences are outweighing the positive in developing countries, especially those considered least-developed. This study also found that “six of the forty-eight LDCs have greater numbers of highly skilled nationals living abroad than at home” and estimated that there are presently over 2 million emigrants that fit into this category³⁶.

Developing / sending countries: Some of the negative impacts of the brain drain on developing countries include the loss of the young working class, the loss of highly-skilled professionals that would be able to contribute to the economy leaving limited infrastructure and access to services such as medical facilities, reduction of technology absorption and productivity growth in source countries, loss of investment in individual's education and cost of replacing the doctors that leave. Some of the positive impacts of the brain drain on developing countries are remittances, technology transfer, and aid inflows.

In terms of the negative impacts of the brain drain on developing countries, Alam and Hoque show how the brain drain leads to an overall decline in economic growth because of a

34 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 8.

35 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 8.

36 United Nations Conference on Trade and Development. *The Least Developed Countries Report 2012: Harnessing Remittances and Diaspora Knowledge to Build Productive Capacities*. United Nations: 2012. 9.

reduction in the labor force of sending countries leads to an “inward shift of the home country's production possibility curve... thus the productive capacity of the nation falls, which means that economic growth (real GDP) declines”³⁷. Alam and Hoque also show how the brain drain declines private investment and consumption spending since “emigrants normally take all their savings/investment when they leave the country”³⁸. Another factor negatively impacting the economy is the fact that when an individual chooses to migrate after receiving their education in a developing country, the country loses the investment that had been put into this individual. Edward Mills et al show that “Ethiopia, Kenya, Malawi, Nigeria, South Africa, Uganda, Tanzania, Zambia, and Zimbabwe have lost more than \$2 billion from training doctors who then migrated to one of the four developed countries: Australia, Canada, United Kingdom, United States”³⁹. In regards to the loss of talent and highly-trained professionals, when these individuals leave their home countries they are leaving with their knowledge and abilities that could be used to help create the internal infrastructure and access to services, but when they do not stay to help create and strengthen these services the cycle is only perpetuated as later generations will inherit insufficient facilities and in turn decide to leave as well. Additionally, Schiff and Wang argue that when individuals choose to leave, there is an overall reduction in technology absorption and productivity growth in the sending countries⁴⁰, showing yet another negative impact of the brain

37 Gazi Mahabubul Alam & Kazi Enamul Hoque. “Who gains from ‘brain and body drain’ business - developing/developed world or individuals: A comparative study between skilled and semi/unskilled emigrants.” *African Journal of Business Management*, 4:4 (April 2010) 535.

38 Gazi Mahabubul Alam & Kazi Enamul Hoque. “Who gains from ‘brain and body drain’ business - developing/developed world or individuals: A comparative study between skilled and semi/unskilled emigrants.” *African Journal of Business Management*, 4:4 (April 2010) 535.

39 Edward J Mills et al. “The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis” *BMJ: British Medical Journal* 343 (2011) 4.

40 Maurice Schiff, and Yanling Wang. "Brain Drain and Productivity Growth: Are Small States Different?" IZA Discussion Papers, No. 3378. (2008) 12.

drain.

In 2006, the World Health Organizations estimated that there was a shortage of 817,922 health workers in Africa and to correct this deficit, there needed to be an approximate one hundred and thirty percent increase in health workers⁴¹. Additionally, Naicker et al, write that in 2009, Africa had “2.3 healthcare workers per 1000 population, compared with the Americas, which have 24.8 healthcare workers per 1000 population. Only 1.3% of the world's health workers care for people who experience 25% of the global disease burden”⁴². These statistics show that there are far fewer doctors in the developing world than in the developed world, meaning that areas of the world, such as Africa, that bear the larger global disease burden are lacking the sufficient doctors and health infrastructure to tackle these burdens. Naicker et al state the problem of the brain drain quite clearly when they state that the “rate of loss often outstrips production, and production itself is often inadequate to meet the countries' needs”⁴³. These discrepancies and inequalities are only magnified by the brain drain and large flows of medical trained professionals leaving developing countries for developed countries.

As noted earlier, the Human Development Index is used to measure and provide hierarchical rankings for the countries of the world in terms of overall human and economic development. Typically sending countries are lower on the human development index and classified as 'low human development', while receiving countries are classified as 'high human development'. In addition to the Human Development Index used to measure the development of

41 World Health Organization. *Working Together for Health*. WHO Report 2006. (Geneva: 2006) 13.

42 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-60.

43 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-62.

countries, the Failed State Index presents an analysis of the different failed states around the globe, which also helps to show the different levels of development. A failed state is understood as a state lacking stability and capacity with a government that has failed at its responsibilities to its citizens in terms of basic conditions and responsibilities⁴⁴. Typically, if a state is considered a failed state, they have low human and economic development. The failed state index uses many different criteria to measure and quantify which states are considered 'failed states', one of these key measurements is the existence of the brain drain and migration of individuals out of a country, categorized in the index as 'human flight'⁴⁵. As this paper will use the example of Ethiopia as a sending country suffering from the brain drain, it is important to note that Ethiopia scored a seven out of ten in the human flight category (where one is the best and ten is the worst score), which ranks it as the twenty-seventh worst state in terms of human flight⁴⁶. According to this index, Ethiopia ranks as the seventeenth worst failed state in the world for 2012 (out of one-hundred and seventy-seven countries measured), which ranks it as a 'critical' state, whereas the major receiving countries in the brain drain relationship, the United States, Canada, and the United Kingdom all rank as stable, with ranks of one hundred and fifty-ninth, one hundred and sixty-ninth, and one hundred and fifty-fourth respectively⁴⁷. This provides another example showing how the brain drain is negatively impacting the growth and development of countries, as the higher rate of brain drain in a country lends to a higher chance of being considered a failed

44 The Fund for Peace. *Conflict Early Warning & Assessment*. Washington DC: 2013. Accessed April 29, 2013: <http://global.fundforpeace.org/cewa>

45 Foreign Policy. *The Failed State Index 2009: FAQ & Methodology*. Washington DC: 2013. Accessed April 29, 2013: http://www.foreignpolicy.com/articles/2009/06/22/2009_failed_states_index_faq_methodology

46 Foreign Policy. *The Failed State Index: Interactive Rankings*. Washington DC: 2013. Accessed April 29, 2013: http://www.foreignpolicy.com/failed_states_index_2012_interactive

47 Foreign Policy. *The Failed State Index: Interactive Rankings*. Washington DC: 2013. Accessed April 29, 2013: http://www.foreignpolicy.com/failed_states_index_2012_interactive

state. Both the Human Development Index and the Failed State Index contribute to the case that shows how the brain drain is having an overall negative impact on the development of a country.

In terms of the positive impacts of the brain drain on developing countries, many argue that the remittances sent back to home countries compensates for the individuals who have left. The World Bank shows how large remittances are in the overall global economy and how they contribute positively to developing countries when it writes that, “recorded remittances sent home to developing countries by international migrants are expected to reach \$167 billion in 2005. Unrecorded remittances through formal and informal channels are estimated to be at least half as large as recorded flows, making remittances the largest source of external financing in developing countries”⁴⁸. Additionally, the World Bank shows how remittances contribute positively to developing countries as “remittances substantially reduce the incidence of poverty and help support household consumption in response to adverse effects”⁴⁹. However, as will be presented later, Niimi, Ozden and Schiff show how remittances decrease with a migrant's level of education⁵⁰ and therefore may not be as large of a factor in the brain drain as originally hypothesized. Burns and Mohapatra show how sending countries benefit from the technology transfer from migrants and diasporas back to their home country. They found that the diaspora of migrants “contributes to technology transfers and adoption by strengthening trade and investment linkages”⁵¹. Additionally, as previously stated, the outflow of highly trained medical

48 World Bank. *Global Economic Prospects: Economic Implications of Remittances and Migration 2006*, Washington DC: World Bank (2006).

49 World Bank. *Global Economic Prospects: Economic Implications of Remittances and Migration 2006*, Washington DC: World Bank (2006).

50 Yoko Niimi, Caglar Ozden, and Maurice Schiff. "Remittances and the brain drain: skilled migrants do remit less." *Annals of Economics and Statistics/Annales d'Économie et de Statistique* (2010): 135.

51 Andrew Burns and Sanket Mohapatra. *International migration and technological progress*. Migration and Development Brief 4: Development Prospects Group, Migration and Remittances Team (2008) 3.

workers out of developing countries leaves a void of empty doctors and medical infrastructure, which is in turn filled by international aid dollars and international medical workers. While these flows are unsustainable and do not help in the overall economic growth and development of the country, some may argue that the influx of international aid dollars and medical workers can help local economies and bring attention to these locations that may otherwise stay in the shadows. These examples of positive and negative impacts are just a sampling of the many different affects that the brain drain relationship has on sending, developing countries.

Developed / receiving countries: On the other end of the brain drain relationship is the effects that the brain drain has on developed countries. Typically, the brain drain leads to positive benefits to the developed countries. These benefits include the gain of talented work force to further strengthen their healthcare systems, the financial benefits, and the benefits of 'free' training. The developed countries are essentially receiving the best and the brightest of the medical professionals from the developing countries, which positively impacts the healthcare infrastructure and systems of the receiving countries. Naicker et al state that there are “substantial financial benefits to the economies of developed countries”⁵² in the brain-drain relationship for they are essentially receiving individuals at zero cost to their health training facilities and universities as they are not spending resources to train and educate these individuals. Naicker et al estimate that the cost of training a UK doctor is approximately £200,000 to £250,000⁵³, which is money that is not used or needed if the UK is able to attract international talent trained and educated at the expense of the individual's home country. Shinn

52 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-62.

53 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-62.

further this argument by demonstrating how the negative impact that the loss of trained professionals has on developing countries is a direct benefit to developed countries. Shinn states that “the cost of training, for example, a non-specialized doctor in a developing country is about \$60,000 and for a paramedical specialist about \$12,000. When these individuals emigrate from the continent, wealthier nations usually reap the benefits of training provided by poorer nations”⁵⁴. While the training of these professionals results in a net loss for the developing countries when individuals chose to emigrate, it leads to an overall net gain for the receiving, developed country. In 2002 it was estimated that the United States has saved \$26 billion dollars, which is the equivalent of 130,000 physicians, through their recruitment of internationally trained physicians⁵⁵, rather than training domestic citizens. One negative aspect of the brain drain on the developed countries is that when they recruit and retain medical workers from developing countries they are weakening the medical infrastructure of these developing countries and in turn send large amounts of international aid to these countries to help build health infrastructure. Instead of sending these large sums of aid money, they could rather decrease the number of doctors they actively recruit, thus leaving more in developing countries to help build health infrastructure that traditionally international aid dollars would be funding. The role of international aid and its relationship in the brain drain will be examined in further detail later in subsequent sections.

Push and Pull factors: Historically there are two important factors that encourage or influence individuals to migrate. These are known as push and pull factors. The push factors are

54 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

55 Ashenafi Gedamu. "Causes and consequences of brain-drain – How long should Africa tolerate this?" Hesse: State University of Kassel, Germany (2002) 2.

elements within a sending country that encourage or influence an individual to leave. The push factors include but are not limited to, unfavorable socio-economic environment, unfavorable political environment, poor human rights practice, political and/or judicial backwardness, intolerance of political dissent, lack of freedom, civil conflict and/or war, illegal regime changes, government favoritism based on ethnic affiliations, weak economy, high unemployment, low salaries and wages, poor working conditions, lack of advancement, lack of research funds, and poor living conditions⁵⁶. There are many pull factors as well, which refer to the factors in receiving countries that influence an individual's intention to leave. The pull factors are typically the reverse of the push factors, and include better working condition, better wages and salaries, political stability, ability to utilize one's full skill set, well-structured training programs, and facilities, better opportunities for their families and children, and future possibilities of growth and advancement, both in terms of career and personal life⁵⁷. Other pull factors include national policies and international agreements as well as visa programs⁵⁸ that target and encourage the migration of highly-trained professionals from developing countries to developed countries.

56 Tesafaye Semela. "Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia". *Asian Social Science*. 7:1 (2011) 5. and Sadananda Sahoo, "Brain Drain and Scientific Diaspora: Prospects and Implications Back Home" in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 174.

57 Tesafaye Semela. "Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia". *Asian Social Science*. 7:1 (2011) 5. and Sadananda Sahoo, "Brain Drain and Scientific Diaspora: Prospects and Implications Back Home" in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 174.

58 Saraladevi Naicker et al. "Shortage of Healthcare Workers in Developing Countries – Africa". *Ethnicity & Disease*. (2009) 19: S1-62.

IV: Example: Ethiopia & the medical field

To further this discussion beyond theoretical perspectives and conceptual ideals, it is important to examine the brain drain through an actual country example and exploration of that country's role in the brain drain. Ethiopia provides a prime example of a sending country in the brain drain that is negatively impacted by the loss of doctors and trained medical professionals to the developed world. A brief exploration of Ethiopia will be presented to show how Ethiopia fits into the larger global market economy and how it is classified as a developing or sending country.

Economically speaking, Ethiopia is predominantly reliant on agriculture with approximately eighty percent of the population living in rural settings, and only twelve percent of gross domestic product (GDP) coming from the industrial sector⁵⁹. Ethiopia's gross national product (GNP) per capita is only 361 USD, well below the sub-Saharan African average of 480 USD⁶⁰, and Ethiopia's gross national income per capita purchasing power parity adjusted (GNI per capita PPP), is only \$1,017⁶¹. Additionally, the life expectancy in Ethiopia in 2011 was only fifty-nine years old⁶². As previously indicated in terms of the 2013 United Human Development Index, Ethiopia was labeled as 'low human development' and ranked 173 out of 186 countries⁶³, showing it is one of the lower ranking countries globally. Additionally, as previously noted,

59 Economy Watch Ethiopia: Economic Statistics and Indicators 2010. Accessed April 29, 2013:
<http://www.economywatch.com/economic-statistics/country/Ethiopia/>

60 Tesafaye Semela. "Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia". *Asian Social Science*. 7:1 (2011) 4.

61 World Bank. *World Databank: World Development Indicators*. 2013. Accessed April 29, 2013
<http://databank.worldbank.org/data/views/reports/tableview.aspx>

62 World Bank. *World Databank: World Development Indicators*. 2013. Accessed April 29, 2013:
<http://databank.worldbank.org/data/views/reports/tableview.aspx>

63 UNDP, *Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World*. (New York: UNDP) 2013: 144 – 147.

Ethiopia is considered by the UN to be one of the forty-eight least developed countries of the world, and is ranked as the seventeenth worst state in the world in terms of the Failed State Index. These indicators all show how Ethiopia is classified as a developing country and sending country in the brain drain relationship.

Tesfaye Semela examines the flow of Ethiopian academics both in terms of external migration and internal migration and explores why Ethiopia is one of the hardest hit countries by the brain drain within Africa. Semela notes that the staff shortage in terms of academic teachers and professors at the collegiate level will lead to hindering the growth of the academic system in Ethiopia and prevent further growth and expansion of the system⁶⁴. This is also the concern with medical professionals and within the Ethiopian economy as a whole, for if the majority of educated and highly-skilled individuals chose to migrate out of Ethiopia there remains a vacuum in a sense, and no further growth and development can be made as the majority of those who would be able to contribute to the system and create a strong foundation for future generations to build on have chosen to emigrate.

Many different scholars have concluded that the brain drain phenomenon is a relatively recent phenomenon in Ethiopia, is directly related to the government of Ethiopia, and was not of major concern towards the Ethiopia economy until after the 1970s. The military junta known as Derg, ruled from 1974 to 1987⁶⁵, and during this time the government's main internal confrontations were against young intellectuals opposing their rule, whom the government

64 Tesafaye Semela. "Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia". *Asian Social Science*. 7:1 (2011) 4.

65 Aregawi Berhe. *A Political History of the Tigray People's Liberation Front (1975-1991): Revolt, Ideology and Mobilisation in Ethiopia*. (Amsterdam: 2008), 153.

targeted for opposing the “establishing of the new socialist Ethiopia”⁶⁶. Extending through this time, it is estimated that between 1968 to 1996, thirty-five percent of those who went abroad for their collegiate education did not return⁶⁷. The long and extended internal conflict has led to the constant flow of individuals out of Ethiopia to find opportunities and a peaceful life elsewhere. As past generations of individuals chose to leave Ethiopia, health infrastructure continued to remain at minimal standard, encouraging future generations to emigrate as well for better opportunities, essentially creating a cycle of emigration and a continued lack of health infrastructure building within Ethiopia to this day. This brief overview of the historical context of Ethiopia and the lasting impacts it has had on the country, begins to set the stage for understanding why so many individuals chose to leave for their education or career and not return. Based on the examples given of push and pull factors and understanding the political history and context as well as the economic status of Ethiopia, one can see that the factors of political instability, political crises, poor living and working conditions, lack of opportunities for growth, and weak economy affect the outflow of highly-skilled professionals from Ethiopia.

One of the major findings of Semela is in regards to the structure of the academic system in Ethiopia and what the brain drain does to the academic institutions within a sending country. He found that “with the exodus of experienced and skilled academics, particularly of those from science and technology has left the universities not only with less qualified staff, largely composed of graduate assistants, but also without institutional leaders and mentors to the young

66 Tesafaye Semela. “Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia”. *Asian Social Science*. 7:1 (2011) 5.

67 Tesafaye Semela. “Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia”. *Asian Social Science*. 7:1 (2011) 5.

and inexperienced”⁶⁸. This is true for all industries affected by the brain drain, for the brain drain removes those who would be able to help build the infrastructure of the system and create better universities or better medical centers for future students and doctors to use and improve upon. While Semela is specifically focused on higher education and the effect of the brain drain on its institutions, it is evident that the flow of individuals to developed countries leaves a lacking system in the sending countries and leaves an incomplete infrastructure for future generations to rely on, in turn perpetuating the cycle and forcing those seeking better education and opportunities to leave their country to find it. When a void is created by the migration of workers from their home countries to developed countries, foreign and international workers are brought in to fill this void. In turn this perpetuates the 'dependency theory' relationship of developing countries relying on developed countries to provide aid and assistance, rather than strengthening the internal health infrastructure within developing countries to be self-sustainable and reliant on their own medical talent and workers.

Shinn states that “there are more African-born scientists and engineers working in the United States than there are in Africa”⁶⁹. Shinn also references two important contributors to brain drain research and states that “Dr. Meera Sethi, the International Organization for Migration representative in Ethiopia, noted that Africa lost a third of its professionals to the developed countries between 1960 and 1987”⁷⁰ and that “Dr. Dejene Aredo of the Addis Ababa University faculty of business and economics estimates that 20,000 professionals leave Africa

68 Tesafaye Semela. “Vulnerability to Brain-Drain among Academics in Institutions of Higher Learning in Ethiopia”. *Asian Social Science*. 7:1 (2011) 5.

69 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

70 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

annually”⁷¹. Shinn furthers his exploration of medical professionals in Ethiopia when he states that, “Dr. Yohannes Kebede, public health specialist at the Ministry of Health, explained at the 38th Annual Medical Conference earlier this year that Ethiopia trained 2,491 general practitioners between 1988 and 2001. He estimated that one-third have already left the country seeking better employment opportunities in North America, Europe and South Africa. He listed 1,366 physicians working throughout Ethiopia in 2001. This works out to about one physician for 47,000 persons”⁷². A 2011 newspaper article in the Sudan Tribute, stated that “according to a recent study presented at the National Symposium on Ethiopian Diasporas, Ethiopia lost 75% of its skilled professionals during the past 10 years”⁷³ to international migration and the brain drain. This statistic is furthered by Yifru Berhan who found that between 1976 and 2006, “73.2% of Ethiopian medical doctors left the public sector mainly due to attractive remuneration in overseas countries and local NGOs/private sectors”⁷⁴ which has resulted in “more than 80% of public hospitals outside Addis Ababa found [to be] ill-equipped with the most important element, physicians”⁷⁵. Berhan states that “push factors may not invariably correlate with remuneration”⁷⁶ and seeks for changes to be made to policies of international migration of health professionals from Ethiopia to developed countries to encourage individuals to stay and help build a health

71 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

72 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

73 Tesfa-Alem Tekle. "Ethiopia among worst hit in African brain-drain" *Sudan Tribute: Plural news and views on Sudan*. November 25, 2011.

74 Yifru Berhan. "Medical doctors profile in Ethiopia: production, attrition and retention. In memory of 100-years Ethiopian modern medicine & the new Ethiopian millennium." *Ethiopian medical journal*: 46 (2008): 1.

75 Yifru Berhan. "Medical doctors profile in Ethiopia: production, attrition and retention. In memory of 100-years Ethiopian modern medicine & the new Ethiopian millennium." *Ethiopian medical journal*: 46 (2008): 1.

76 Yifru Berhan. "Medical doctors profile in Ethiopia: production, attrition and retention. In memory of 100-years Ethiopian modern medicine & the new Ethiopian millennium." *Ethiopian medical journal*: 46 (2008): 1.

system before the majority of the local talent has left and Ethiopia suffers even more due to this lack of health infrastructure. Berhan and others have a valid argument, for the number of individuals leaving Ethiopia for Canada, the United States, and the United Kingdom has drastically increased from 1970 to 2000⁷⁷ - see Appendix A for a breakdown of these numbers year over year. These numbers show the magnitude of the problem and help to conceptualize the scale within which this phenomenon is functioning and how important it is to prevent the brain drain from continuing, both globally and in Ethiopia.

V: Incentives to reverse brain drain

The exploration of the available literature shows that there is a general overall negative understanding of the brain drain in terms of hindering economic growth and development in developing countries. One of the keys to ending these negative outcomes and in turn promoting growth and development in sending countries is incentive programs that seek to reverse the brain drain. There are many organizations and programs currently working to provide incentives to encourage individuals to stay or return to their home countries with their medical training and knowledge. There are also multiple programs in place that seek to prevent developed countries from recruiting medical workers from developing countries as well. The types of programs working on reversing the brain drain vary from local small scale projects, global projects, government programs, international organization programs, and non-governmental organization programs. This section will present a brief exploration of these different types of programs to

77 World Bank Data Base: Global Bilateral Migration. Accessed May 4, 2013.

<http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=global-bilateral-migration>

gain a better understanding of their overall impacts on reversing the brain drain and if, in turn, there has been growth and development in traditionally sending countries through these policies and programs.

One local, small-scale example of individuals working to reverse the brain drain can be found in the African country of Mali, where the work of Ogobara Doumbo with the Malaria Research and Training Center (MRTC) has successfully implemented local education programs and since 1995 has trained five generations of physicians to help combat malaria and bring “top-quality medical research and practices to villages”⁷⁸. Doumbo cofounded MRTC in 1992 with the support of the United States National Institutes of Health (NIH) and worked with traditional village healers to work together on combating malaria by either traditional means or Western medicine⁷⁹. His work has also contributed to the World Health Organization and national policies on malaria prevention, for the data collected in his clinic in Mali showed that chloroquine, the standard antimalarial drug of the time was not effective and helped change WHO guidelines in 2006 in the treatment of malaria⁸⁰. The examples of Doumbo's work demonstrates how local programs of education and retainment can contribute to both the betterment of the local communities as well as the global battle against diseases. Doumbo suggests some key factors that have enabled him to retain young talented individuals rather than losing them to the brain drain. He credits, “careful selection of staff from among the medical students, a mentor for each graduate student going abroad, and workshops on subjects such as grant writing so they can find funding for research on their return”⁸¹. Through the use of these factors, Duombo and the MRTC

78 David A. Taylor. “Mali Researcher Shows How to Reverse Brain Drain”. *Science Magazine*, 332: (2011) 1498.

79 David A. Taylor. “Mali Researcher Shows How to Reverse Brain Drain”. *Science Magazine*, 332: (2011) 1498.

80 David A. Taylor. “Mali Researcher Shows How to Reverse Brain Drain”. *Science Magazine*, 332: (2011) 1499.

81 David A. Taylor. “Mali Researcher Shows How to Reverse Brain Drain”. *Science Magazine*, 332: (2011) 1499.

have been able to reverse some of the brain drain and keep highly trained individuals from leaving and in turn contribute to both the health of their own local communities and the overall global health agenda. Through recognizing and adopting these factors, Duombo and the MRTC have in a sense created their own small scale incentive program that encourages individuals to stay or to return upon completion of their education abroad. Duombo and the MRTC show that small scale programs can be implemented to help halt the brain drain and retain local talent, and through the continued building of these programs, more and more generations of trained professionals will chose to stay, thereby continuing to substantially strengthen the local system over time.

Another local, in-country specific program that has had success in aiding the development and growth of the health-infrastructure within an impoverished section of society, can be found in Canada. While Canada is a developed country and as previously stated, high on the Human Development Index, it does suffer from disparities between access to and availability of health-care and services between the urban settings and the rural, indigenous populations⁸². Canada has instituted an incentive program for doctors and nurses within Canada to encourage them to practice in these remote areas to provide medical services and help create a health infrastructure. These incentive programs are done through a educational loan relief program, whereas if a Canadian doctor or nurse serves for some years in an impoverished and underdeveloped region of Canada, they will receive assistance in paying back their student loans by receiving loan relief assistance up to a certain amount⁸³. This example highlights how a

82 Schmidt. Postmedia News: Vancouver Sun. "Medical students promised debt relief for practicing in rural areas" Accessed: April 29, 2013. <http://www2.canada.com/vancouversun/news/archives/story.html?id=7a8d8cee-0fae-42ad-8d95-f8a4681b5a5f&p=1>. March 23, 2011.

83 Government of Canada. "Canada Budget 2011. Chapter 4.2: Supporting Families and Communities". Accessed: April 29, 2013. <http://www.budget.gc.ca/2011/plan/chap4b-eng.html>. June 6, 2011.

country can work on in-country programs to help encourage medical workers to serve the underdeveloped regions of the country. Additionally, it could be used as a model for developing countries and developed countries to implement, where through working together, developed countries or international organizations could help developing countries pay back loans or supplement salaries if students chose to stay in their home country and practice medicine, rather than emigrate to a more developed country with better existing health-infrastructure.

Sadananda Sahoo highlights an example of a global scale incentive program that is working to reverse the brain drain. He notes the works of the International Organization for Migration (IOM) and its selective return migration policies. The “IOM helps African countries identify priority skill needs and then matches those needs with qualified nationals living outside the country”⁸⁴. In terms of the success of these IOM programs Sahoo notes the findings of Dr. Meera Sethi who found that “between 1983 and 1995, IOM helped to return to Africa, 2,565 of the most urgently needed professionals. IOM has undertaken a project in cooperation with the government of Kenya to return Kenyan professionals to assist with its development program. Known as Migration for Development in Kenya, some 320 professionals have already returned”⁸⁵. These examples show how the International Organization for Migration is working to reverse the brain drain and encourage individuals to return to their home countries to help promote the growth of their local economies.

Africa Recruit is an example of an organization working throughout the continent to both

84 Sadananda Sahoo, “Brain Drain and Scientific Diaspora: Prospects and Implications Back Home” in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 182.

85 Sadananda Sahoo, “Brain Drain and Scientific Diaspora: Prospects and Implications Back Home” in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 182 – 183.

reverse the brain drain and to support the remittance flows from those who do migrate. Their website states that “AfricaRecruit raises global awareness about the need for human resource development in Africa by addressing the continent’s brain drain, advocates for policies that help to develop and enhance Africa’s human resource capacity, formulates and implements practical programmes that help to improve Africa’s human resource capacity”⁸⁶. This is done through the use of online recruiting tools, such as job postings and career guidance information for recent university graduates, as well as a forum of best practices. These recruiting tools are designed to attract the African diaspora with jobs available in their home communities to return to the continent. According to the Global Health Partnership, AfricaRecruit “advocates the return of migrants to offer their skills and assist in capacity building through working in Africa on a temporary, interim, consultancy or permanent basis”⁸⁷. This organization is similar to the International Organization for Migration as both work to match skilled workers with available jobs to provide employment for local African citizens rather than relying on international recruitment tools or international organizations sending expatriates to fill these job positions. “To date, Africa Recruit has successfully undertaken and completed several educational, promotional and technical assistance projects in pursuit of its mission”⁸⁸, showing its active involvement and contributions to the reversal of the brain drain.

The World Health Organization Global Code of Practice on the International Recruitment of Health Professionals was established in 2010 with four main objectives. These objectives are:

86 Africa Recruit. *Building Robust and Enduring Productive Capacity in Africa: Overview*. Accessed April 29, 2013. <http://www.africarecruit.com/Overview.htm>.

87 Nigel, Crisp. *Global Health Partnerships - The UK contribution to Health in developing countries*. 2007: 126.

88 Africa Recruit. “Who we are” April 2008. Accessed April 29, 2013:

<http://www.africarecruit.com/downloads/About%20AfricaRecruit%20April%2008.pdf>

- “(1) to establish and promote voluntary principles and practices for the ethical international recruitment of health personnel, taking into account the rights, obligations and expectations of source countries, destination countries and migrant health personnel;
- (2) to serve as a reference for Member States in establishing or improving the legal and institutional framework required for the international recruitment of health personnel;
- (3) to provide guidance that may be used where appropriate in the formulation and implementation of bilateral agreements and other international legal instruments
- (4) to facilitate and promote international discussion and advance cooperation on matters related to the ethical international recruitment of health personnel as part of strengthening health systems, with a particular focus on the situation of developing countries”⁸⁹

These objectives and measures are put in place to prevent the developed countries from actively recruiting and 'poaching' highly-skilled medical workers from the developing world and therefore draining the local resources. The idea is that by preventing the active recruitment of these individuals through enticement policies and immigration policies, individuals will not be so easily swayed to leave their home countries for the developed world. The WHO Global Code of Practice on the International Recruitment of Health Professionals seeks to create ethical recruitment policies so that the health care systems of developing countries are not threatened and destroyed by the brain drain and the active flow of skilled medical workers to the developed world. This code shows an international relationship and active cooperation to prevent the further damaging effects of the brain drain by encouraging developed countries to end their detrimental recruiting policies and programs.

89 World Health Organization. *WHO Global Code of Practice on the International Recruitment of Health Personnel*. Sixty-Third World Health Assembly (May 2010) 2-3.

Additionally, in contrast to prior recruitment programs actively seeking to recruit workers from developing countries there are now many developed countries that are actively trying to reverse these negative recruitment policies. One of these programs was introduced by the UK Department of Health in 2006, which sought to withdraw the visa category of 'permit-free training' for international medical graduates, meaning that any post available in the UK would only be made available to international medical graduates if there was not a UK or European applicant⁹⁰. Another example of a program that is working towards reversing the negative effects of the brain drain on developing countries is the United Kingdom's 'Commonwealth Secretariat's Code of Practice for the International Recruitment of Health Workers' which was written in 2003. The purpose of this code was to demonstrate that while the UK will not prevent the flow of health-care workers from developing to developed countries in search of better opportunities, they will examine different types of compensation, reparation and restitution to the sending countries, such as programs of reciprocity "through the transfer of technology, skills, and technical and financial assistance"⁹¹, and through training programs to "enable those who return to do so with enriched value"⁹².

While many countries have pursued unethical recruitment policies in the past there are also those countries that focus their policies on encouraging the return of those that have left, targeting the diaspora communities. "A few countries have developed policies to encourage the return of their educated nationals with some success, especially if they are experiencing rapid

90 Saraladevi Naicker et al. "Shortage of Healthcare Workers in Developing Countries – Africa". *Ethnicity & Disease*. (2009) 19: S1-61.

91 Commonwealth Secretariat. "Commonwealth code of practice for the international recruitment of health workers." *London: Commonwealth Secretariat* (2003) 5.

92 Commonwealth Secretariat. "Commonwealth code of practice for the international recruitment of health workers." *London: Commonwealth Secretariat* (2003) 5.

economic growth fueled by foreign investors seeking employees with international experience. China and India fit this profile, having been able to attract overseas nationals back to the native labour market⁹³. The internal growth and development within China and India have drawn the attention of migrants working abroad and have encouraged them to return to their home countries as they now see the possibility of a successful career and future in their home communities. These policies are similar to those pursued by Africa Recruit and the International Organization for Migration that actively work to attract migrants back to their home countries to help build local infrastructure and aid in growth and development of the local economies. These policies also show how growth and development within sending countries draws the attention of those that have left and leads them to consider a return to their home countries.

The World Health Organization has recognized the need for more health care workers in developing countries to help aid in overall growth and development and help combat those most affected by the global burden of disease. The WHO established the Kampala Declaration and Agenda for Global Action in 2008 that highlighted twelve key components to tackle the crisis of global health in terms of access and treatment for disease. All twelve of these points address the issue of the brain drain in terms of unequal distribution of health care workers, the international recruitment of medical workers by developed countries, and ways to affectively end this relationship and cycle⁹⁴. The international community has also adopted the Millennium Development Goals as targets for global growth and development in developing countries with a target date of 2015. Chen et al have estimated that for these goals to be successfully achieved by

93 Christine Kuptsch, and Eng Fong Pang. *Competing for global talent*. International Labour Organization (2006) 8.

94 World Health Organization. "The Kampala declaration and agenda for global action." *World Health Organization* (Geneva: 2008): 11.

2015 in sub-Saharan Africa, there needs to be an increase of 1 million additional health workers⁹⁵. This shows that there needs to be a drastic increase of medical workers and the influx of these highly-trained professionals will help aid in the overall growth and development of these developing countries, again demonstrating how the loss of these individuals is having detrimental affects on development.

As Naicker et al present there are a few different strategies that should be implemented by both the developing countries and the developed countries to aid in the prevention of further brain drain. These examples can be viewed as different types of 'best practices' or policy recommendations for countries to adopt and apply. In terms of developed countries, they suggest that developed countries should train more medical professionals to meet their needs rather than rely on international recruitment, end active international recruitment programs, increase aid and assistance to developing countries, and consider sending compensation to the countries of origin of those that emigrate⁹⁶. In terms of developing countries, Naicker et al suggest they recruit and train by targeting those unlikely to migrate, create and encourage role models within the country and field, provide appropriate training, require return to home countries if one receives their education abroad, and an increase in the number of individuals trained⁹⁷. They also suggest that developing countries retain medical workers by providing incentives such as higher wages, tax breaks, career advancement opportunities, improved quality of life, and better facilities, in addition to regaining those that have emigrated by implementing return incentives and better in-

95 Lincoln Chen et al. "Human resources for health: overcoming the crisis." *The Lancet* 364:9449 (2004): 1984.

96 Saraladevi Naicker et al. "Shortage of Healthcare Workers in Developing Countries – Africa". *Ethnicity & Disease*. (2009) 19: S1-63.

97 Saraladevi Naicker et al. "Shortage of Healthcare Workers in Developing Countries – Africa". *Ethnicity & Disease*. (2009) 19: S1-63.

country training and education programs⁹⁸. The problem with these suggestions is they rely too heavily on assuming there is already infrastructure in place to support these programs and individuals. They do not provide recommendations for how these programs would be funded or created if they are not already established. These improvements to developing, sending countries will only be possible with an active involvement of the international community to help get these programs off the ground and running, by providing support and funding at the beginning before ensuring the programs can exist sustainably on their own. An example of such, is the relationship between the University of Bristol and the Tropical Health and Education Trust, which hosts annual educational programs and trainings for students in Uganda⁹⁹, which provides developed country training and education to developing countries without removing the individuals from their home countries or encouraging them to migrate.

In addition to these examples of existing policies and programs, there is literature that speaks to the reversal of the brain drain and the means by which this could be established. Research by Alam and Hoque suggests that there needs to be an intervention by the international donor community to reverse the brain drain to prevent the furthering of the detrimental affects it is presently having on developing countries¹⁰⁰. Dustmann et al suggest that through the reversal of the brain drain there will be an increase in the growth and development within developing countries for the knowledge that these highly trained individuals have will be put to use within

98 Saraladevi Naicker et al. "Shortage of Healthcare Workers in Developing Countries – Africa". *Ethnicity & Disease*. (2009) 19: S1-63.

99 Saraladevi Naicker et al. "Shortage of Healthcare Workers in Developing Countries – Africa". *Ethnicity & Disease*. (2009) 19: S1-63.

100 Gazi Mahabubul Alam & Kazi Enamul Hoque. "Who gains from 'brain and body drain' business - developing/developed world or individuals: A comparative study between skilled and semi/unskilled emigrants". *African Journal of Business Management*, 4:4 (April 2010) 535.

their home countries and help aid in infrastructure building and enhancements¹⁰¹. Sahoo writes that “countries that wish to encourage the return of professionals need to offer special incentives if they hope to achieve any success. A similar program for professionals and scholars might include payment of relocation expenses, free or subsidized housing, tax relief, loans and salary supplements for the first few years”¹⁰². Gedamu suggests his own ideas on how developing countries can actively encourage individuals to stay by suggesting that developing countries could withhold the academic degree and accreditation until the individuals have returned and served their own community or by taxing individuals who were trained in sending countries but then choose to emigrate¹⁰³. The Report of the Regional Conference on Brain Drain and Capacity Building in Africa noted in 2000 that the use of distance and virtual classrooms could be used to help spread knowledge and learning from the developed world into the developing world¹⁰⁴ at a fraction of the cost, and suggests that instead of individuals leaving for developed country universities, these universities could move to the developing countries¹⁰⁵.

Naicker et al further these discussions by providing their own measures to prevent the brain drain. They present the case for what they call 'more radical options' of financial compensation and restrictions on freedom to migrate¹⁰⁶. In terms of financial compensation they

101 Christian Dustmann Itzhak Fadlon, & Yoram Weiss. “Return Migration, Human Capital Accumulation and the Brain Drain”. *Journal of Development Economics*, 95 (2011) 58-67.

102 Sadananda Sahoo, “Brain Drain and Scientific Diaspora: Prospects and Implications Back Home” in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 183.

103 Ashenafi Gedamu. “Causes and consequences of brain-drain – How long should Africa tolerate this?” Hesse: State University of Kassel, Germany (2002) 3.

104 United Nations Economic Commission for Africa. *Report of the Regional Conference on Brain Drain and Capacity Building in Africa*. Addis Ababa: February 2000.

105 United Nations Economic Commission for Africa. *Report of the Regional Conference on Brain Drain and Capacity Building in Africa*. Addis Ababa: February 2000.

106 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-62.

argue that “there is a compelling case for direct financial compensation for those developing countries whose health professionals have migrated to developed countries”¹⁰⁷, which would include the compensation of the cost of the individual's education and medical training as well as compensation for the loss of the individual in terms of what he or she could have contributed to his or her home economy in terms of teacher, role model and services¹⁰⁸. Mills et al show how drastic the brain drain is in overall monetary terms of loss of investment by the developing countries and gain on investment by developed countries, furthering this argument that financial compensation may be a valid and fair alternative. Mills et al found in their study that the combined loss of investment to the six sending countries they explored (Ethiopia, Kenya, Malawi, South Africa, Uganda, Tanzania, Zambia and Zimbabwe) was \$2 billion, whereas the benefit to the four receiving countries they explored (Australia, Canada, United Kingdom, and United States) was \$4.55 billion¹⁰⁹. This large discrepancy in cost and benefit strengthens the argument that perhaps developed countries should reimburse the developing countries for these costs, so that money can be reinvested into sending country economies and strengthen health-infrastructure. In terms of Naicker et al's other suggestion of restrictions on freedom of movement, this would be hard to enforce and monitor in the global world of today, as well as controversial in terms of the protection of human rights and freedom. These examples show a small sampling of the current available literature on the need to reverse the brain drain, as well as some examples or suggestions as to the means to do this.

107 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-62.

108 Saraladevi Naicker et al. “Shortage of Healthcare Workers in Developing Countries – Africa”. *Ethnicity & Disease*. (2009) 19: S1-62.

109 Edward J Mills et al. “The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis” *BMJ: British Medical Journal* 343 (2011) 4.

VI: Incentives and International Aid

Building on what was presented in previous sections about international aid in the realm of development, the role of international aid could be incorporated into the types of incentive programs designed to help reverse the brain drain. The brain drain creates a “viscous cycle whereby professionals depart the country due in part to limited research opportunities and then those who leave, contribute to the problem by reducing the number of scholars who are able to conduct research”¹¹⁰. Sahoo writes that, “only after African economies become much stronger and the political situation improves substantially will it be possible to think in terms of significant numbers of returnees to the continent”¹¹¹. How can these countries become stronger politically and economically if the majority of those with the means to make a difference have left? It all comes back to the same point, development of developing countries to create better economic, social, political settings where individuals do not want or need to leave to find better opportunities. However, by not working on stopping the brain drain immediately and rather waiting for things to improve so that individuals will return, it only allows for more and more highly-skilled professionals to leave the country and take their knowledge with them rather than putting it back into the local economy to help build development. How can there be better education systems in these developing countries if the majority of the highly trained teachers and educators chose to leave? How can there be functional and life-saving medical centers if the majority of doctors and nurses are leaving? How can there be democratic, equality based

110 Sadananda Sahoo, “Brain Drain and Scientific Diaspora: Prospects and Implications Back Home” in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 174.

111 Sadananda Sahoo, “Brain Drain and Scientific Diaspora: Prospects and Implications Back Home” in *Nationalizing Crises: The Political Economy of Public Policy in Contemporary India*. ed. Bhabani Shankar Nayak (New Delhi: Atlantic Publishers, 2007) 182.

governments if the majority of politically trained individuals are leaving? Perhaps, the answer lies in incentive programs that aim to encourage individuals to return or to stay in their home countries. These types of incentive programs could supplement or replace the traditional flows of international aid money and recreate the system of foreign, international assistance programs.

There are a handful of alternatives that typical aid dollars could be used for in the fight against the brain drain. Instead of developed countries sending large sums of dollars, these countries could send back doctors that originated in developing countries, a sort of 'doctors not dollars' program. Of course, individuals cannot be forced to return to their home countries but they could be incentivized by utilizing the means discussed above, such as the use of international aid money to supplement the salaries of these individuals instead of just being funneled into non-sustainable development projects. If these dollars were used initially to help cover the salaries of these local doctors, over time the internal medical infrastructure will be drastically improved and grants and research programs will be founded in developing countries, which in turn will lead to more funds and the ability to pay doctors, their salaries with these funds, eventually not needing the international aid dollars. This could be one way to tamper off international flows of aid money. As previously noted, when doctors leave the developing world, expensive foreign and international doctors are sent in by international organizations to fill these vacant spots, if these high salaries were instead offered to local individuals, they may not be so enticed to leave in the first place.

Another alternative to the current international aid model is to increase the amount of aid being sent, an alternative championed by Jeffrey Sachs. Jeffrey Sachs argues that the current international aid model is not working and among many other changes, there should be an

increase in the amount of aid sent to developing countries¹¹². Following this notion of more aid and recalling the cost and benefit analysis presented by Mills et al where sending countries drastically lose on their investment in education and receiving countries gain on investment when doctors migrate to their borders, perhaps an increase of international aid to help close this cost-benefit gap could be a solution. Mills et al showed that the six sending countries they researched lost \$2 billion and the four receiving countries saved \$4 billion in terms of investment in educating these individuals¹¹³. International aid could be increased from receiving countries to sending countries to compensate for this discrepancy and reimburse the sending countries' investment. However, this solution does not solve the problem of a lack of an internal health-infrastructure in sending countries, but perhaps the increase in aid could be targeted to build better facilities and create more opportunities that would eventually be incentive for individuals to stay rather than emigrate and continue to contribute to the brain drain.

VII: Counter arguments and refutation

As presented in the second section, there are many who are not against the brain drain and rather believe that it is not as big of problem as it is made out to be. This school of thought calls on the remittances and resources of the receiving countries as their main arguments for why the brain drain is not a bad phenomenon. Proponents for the migration of highly-skilled individuals from developing countries to developed countries argue that these individuals are

112 Jeffrey Sachs. *The end of poverty: economic possibilities for our time*. (New York: Penguin 2006). 336

113 Edward J Mills et al. "The financial cost of doctors emigrating from sub-Saharan Africa: human capital analysis" *BMJ: British Medical Journal* 343 (2011) 4.

helping promote economic growth and development in their home economies by sending remittances back to their friends and families. However, Niimi, Ozden, and Schiff show through a comprehensive exploration and examination of remittance flows that “the claim that the negative impact of the brain drain on migrants' countries of origin is mitigated by the fact that the more educated migrants remit more to their families back home than less educated ones is not supported by the evidence”¹¹⁴. They show that overall, remittances decline with a migrants' level of education; the more educated an individual is the less he or she remits¹¹⁵. Therefore in the case of doctors and highly trained medical professionals, the remittances would be very low, as generally these individuals are highly educated individuals. From Niimi, Ozden and Schiff's findings one can infer that sending countries typically prefer the migration of unskilled workers versus highly-skilled workers for two main reasons, first less skilled migrants remit more which is subsequently invested into the local economy, and second, the loss of unskilled labor does not remove skilled labor, such as doctors and nurses from the economy.

Another important finding that Niimi, Ozden, and Schiff present is in the case of highly skilled migrants, who rather than sending funds back to their families, chose to save their money so that they can eventually bring their families with them overseas to the receiving country¹¹⁶. Typically, those able to seek education overseas or a tertiary education in their home country and later migrate abroad, come from wealthier families to begin with, so when a member of one of these wealthier families goes abroad and then sends for his or her family, the sending country is

114 Yoko Niimi, Caglar Ozden, and Maurice Schiff. "Remittances and the brain drain: skilled migrants do remit less." *Annals of Economics and Statistics/Annales d'Économie et de Statistique* (2010): 135.

115 Yoko Niimi, Caglar Ozden, and Maurice Schiff. "Remittances and the brain drain: skilled migrants do remit less." *Annals of Economics and Statistics/Annales d'Économie et de Statistique* (2010): 135.

116 Yoko Niimi, Caglar Ozden, and Maurice Schiff. "Remittances and the brain drain: skilled migrants do remit less." *Annals of Economics and Statistics/Annales d'Économie et de Statistique* (2010): 124.

losing an entire family of individuals who could potentially contribute to the economy in terms of growth and development more than those of lower economic status would be able to. Therefore, this migration of an entire family negatively impacts the overall growth and development of the sending economies. These reasons present some of the arguments against remittances, and show how, overall, remittances are not a well-founded and understood counter argument or benefit to sending countries within the brain drain dynamic. Niimi, Obzen and Schiff argue that the acceptance that remittances do not offset the negative impacts of the brain drain should help contribute to the “urgency of finding (non-distortive) ways to reinforce skilled migrants' links with their country of origin”¹¹⁷.

The second main argument against the reversal of the brain drain is the argument that receiving countries will be wasting resources training and educating individuals who will not be staying in their countries but rather taking this knowledge back to their home countries. This argument is given when individuals from sending countries seek an education in a developed country but then upon completion of this education, return to their home country. To counter this argument, one must only look at the resources currently 'wasted' when developed countries send aid money, supplies and trained medical professionals abroad to developing economies to help encourage growth and development. As Shinn shows in his research, due to the large amount of highly-skilled professionals that leave developing countries, there are approximately “100,000 expatriates from the West at an annual cost of \$4 billion are employed to make up for the loss of professionals from sub-Saharan Africa”¹¹⁸. This expatriate labor force is more expensive than the

117 Yoko Niimi, Caglar Ozden, and Maurice Schiff. "Remittances and the brain drain: skilled migrants do remit less." *Annals of Economics and Statistics/Annales d'Économie et de Statistique* (2010): 135.

118 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

cost to employ those they replaced, and the majority of these additional expenses are funded by foreign aid dollars¹¹⁹, which could be reallocated much more effectively, or even drastically reduced if highly-skilled individuals were encouraged or incentivized to stay. As presented in previous sections, rather than sending large sums of aid money, medical supplies, or temporary medical professionals, these resources could rather be used to help fund the development of educational institutions or medical facilities, or pay for the salaries of local doctors in developing countries to aid in overall growth and development.

These are only two of the main reasons for those arguing in favor of the brain drain. While there are many who present arguments in favor of the brain drain and do not seek to reverse the process, the detrimental effects of the brain drain far surpass the positive effects and therefore one cannot sit idly by while this phenomenon continues. This leads to the next and final section, policy implications.

VIII: Policy Implications

From the exploration of the available literature and through the incentive programs and initiatives as presented here, there are some overall policy implications that can be implemented towards reversing the brain drain. A collection of the various 'best practices' from some of the existing incentive programs and initiatives in place to reverse the brain drain can be established and suggested for implementation on a global level, either by an overseeing international organization or by individual countries. Key to the successful implementation of such programs

119 David H. Shinn. "Reversing the brain drain in Ethiopia." A paper presented to the *Ethiopian North American Health Professionals Association*. (Nov. 23, 2002).

is the international cooperation of sending and receiving countries, for if sending countries are implementing programs to encourage individuals to stay or return, receiving countries cannot be pursuing their own types of incentive programs to recruit or encourage individuals to migrate. These two types of programs are not mutually sustainable and if the goal is to reverse the brain drain, traditional receiving countries must reduce and limit their programs of recruitment and policies of encouraging migration of highly-educated and skilled individuals from developing countries.

The key findings that are common to many of the programs and policies presented here as current initiatives working to reverse the brain drain is the notion of capacity building and infrastructure building within developing countries and the active role of the international community to prevent the recruitment of highly-skilled medical workers from the developing world to the developed world. The programs that have seen the most success have been those that work both locally and internationally to provide incentives for individuals to stay or return to their home countries, as well as work on reversing the current detrimental international recruitment policies. The notion of success is defined in this exploration as the reversal of the brain drain effects that are hindering growth and development in developing countries and therefore promoting growth and development in both human and economic terms.

In essence, if one takes into account the push and pull factors previously examined, one can see a clear picture of what individuals desire in their lives in terms of opportunities, living conditions, political leadership, etc. To effectively reverse the brain drain, perhaps the simplest answer is to analyze both the push and pull factors and create environments that reflect the situations of developed countries that 'pull' individuals towards them and work on removing,

eliminating and changing the policies and the 'push' factors that encourage individuals to leave. While this is perhaps too broad to be considered a policy recommendation and is in turn the role of international development studies and programs, maybe this is the simplest and straight forward answer that is needed. For growth and development to occur in developing countries to make the environment mirror the pull factors, the brain drain must be reversed for one cannot build this health infrastructure and facilities without a strong workforce behind it. Essentially, altering the push factors to mirror the pull factors at the core means that developing countries need to establish good governance, create institutions and facilities to promote greater education and research, offer higher wages and better living conditions, and creates establishments of further growth both on ones career and in ones personal life. To do this, the international community must get involved to actively end international recruitment policies and programs and to provide the initial assistance, whether through funding or human capital, to help build and create this health infrastructure in developing countries. Through these developments, over time more and more medical workers from developing countries will be encouraged to stay as the opportunities and living conditions that were once pulling them away from their home countries will now be present in their home countries encouraging them to stay and further develop this infrastructure. These policies should be adopted by sending countries, receiving countries, and international organizations for only through cooperation by all players involved can the brain drain be tackled and start to be reversed, leading to the eventual growth and development of health-infrastructure and health systems within developing countries.

Conclusion

This paper sought to examine the relationship between developing and developed countries in the brain drain to gain a better understanding of the phenomenon. An examination of the literature dating back to the 1960s and an analysis of present data and available empirical evidence shows that predominantly the brain drain is seen as having an overall negative impact on the growth and development of developing countries around the globe. With this sort of understanding and findings one can only deduce that there needs to be significant work done on both the local and global scale to halt this detrimental process and work towards reversing the brain drain. There are many organizations and countries that are actively working on this sort of reversal, however it is clearly not enough as the brain drain continues to negatively impact the economies of developing countries. Through the different explorations of these types of incentive programs and policies to reverse the brain drain, one can clearly see and gauge where programs have been successful and where programs have failed. In a way, one can create a 'best practices' from these different existing programs and policies to suggest overall policy recommendations for a global adoption and implementation of these types of policies and programs. Perhaps through the implementation of these programs the world will see a drastic reduction of the global brain drain and in turn growth and development within developing countries as they are able to retain their highly-skilled and trained professionals to positively contribute and reinvest in their local, home economies to build sustainable infrastructure.

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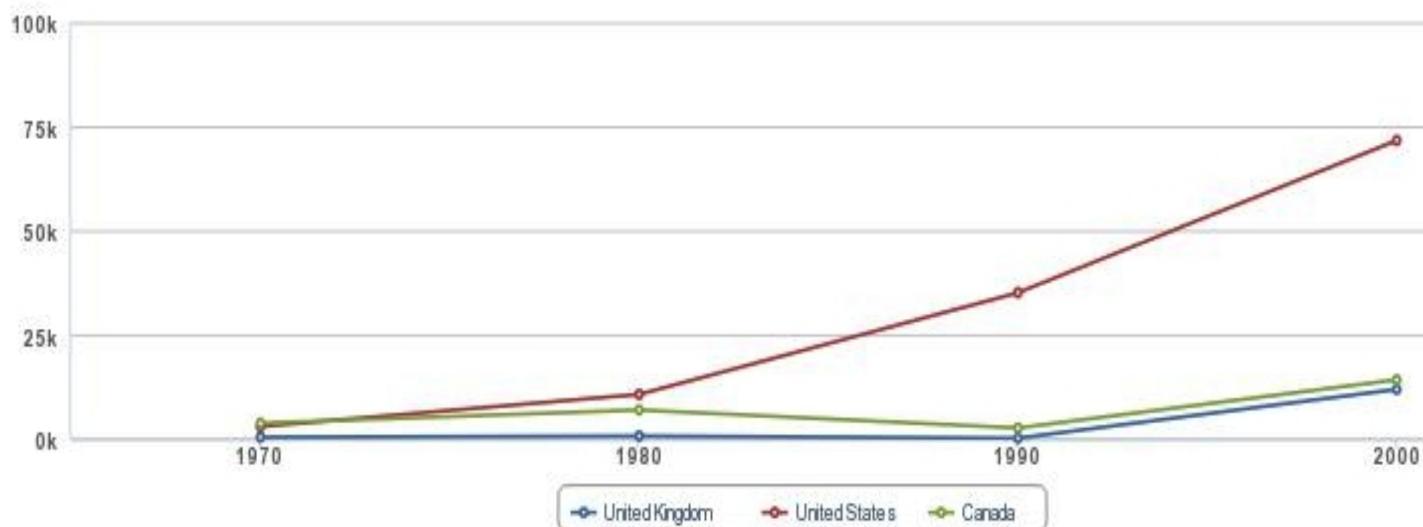
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Appendices:

Appendix A:

Global Bilateral Migration – Men and Women leaving Ethiopia for the United Kingdom, United States and Canada between 1970 and 2000



Source: World Bank Data Base: Global Bilateral Migration

Available: <http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=global-bilateral-migration>

Chart of data points in graph

| | 1970 | 1980 | 1990 | 2000 |
|-----------------------|------|-------|-------|-------|
| United Kingdom | 276 | 556 | 42 | 11796 |
| United States | 2847 | 10583 | 34983 | 71578 |
| Canada | 3671 | 6828 | 2503 | 14075 |