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TAX AND BRAIN DRAIN: JUSTIFICATION, POLICY OPTIONS AND PROSPECT FOR LARGE DEVELOPING ECONOMIES

International migration has continued to escalate over the last three decades, creating a risk of brain drain in developing countries. This paper reviews the extent to which the use of tax instruments to address brain drain can be justified in developing economies with large populations. Furthermore, it explores and assesses tax policy options that may be undertaken to prevent the emigration of high-skilled individual, namely the Bhagwati tax proposal, exit tax, revenue sharing and tax incentives.

Five things can be concluded from the assessment of several policy choices. First, there is no stand-alone tax policy that can optimally address brain drain, in the sense of reducing the number of high-skilled individuals who emigrate. Second, most policies put more focus on the element of fairness to compensate for the “loss” caused by the home country. Third, almost every available policy requires better coordination at the international level. Fourth, all policy options require closer collaboration with immigration agencies. Finally, each policy has the potential to produce unintended consequences.

Key words: *Brain drain. – Large developing economies. – Bhagwati tax. – Exit tax. – Tax incentive.*

1. INTRODUCTION

International migration has continued to escalate over the last three decades. Globalization, ease of immigration procedures, incentives to

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attract talented individuals, and wage inequality between countries act as factors compelling high rates of migration. Nevertheless, one crucial issue lies in international migration, namely the brain drain phenomenon. Brain drain is defined as the transfer of highly skilled human resources from one country to another which disadvantages the migrants' home countries (Gibson, Mckenzie 2011, 3–5).

The brain drain phenomenon is generally experienced by developing countries in which a large proportion of their high-skilled individuals emigrates to developed countries. Limited employment opportunities and the lack of certainty in conducting business have encouraged emigration – in particular, of tertiary-educated individuals – to countries with better wages and economic conditions. Although frequently criticized as one of the causes of the stagnation of economic development in developing countries, some parties are of the opinion that high-skilled migration will lead to benefits for the home country, for instance, the prospect of high remittances, technology transfer, and encouraging investment in education.

As such, how can taxes serve as one of the instruments to prevent the brain drain phenomenon? The role of Jagdish Bhagwati, who more than 40 years ago submitted a proposal considered quite 'advanced' for the time, is crucial to the study on this matter. Bhagwati argues that the home country of high-skilled migrants is expected to receive compensation from the country where the migrants receive income, through a tax scheme to guarantee fairness. Such an idea is then linked to the U.S. citizenship-based tax system. The notion of using tax instruments to prevent brain drain does not stop there. Furthermore, some literature has reviewed various other methods, such as tax incentives to keep high-skilled individuals in the country, exit tax, revenue sharing, and the development of Bhagwati's ideas.

From the standpoint of developing countries, especially those with a large population, the brain drain phenomenon is closely related to the testing of the government's commitment to providing employment opportunities and decent livelihoods for the high-skilled individuals. On the other hand, the movement of high-skilled individuals pertains to the tax base erosion that will, in turn, result in the reduced ability to finance development. In short, the policy dilemma faced by large developing economies is even more complex, and adopting the steps taken by other countries may not prove effective.

As such, to what extent are large developing economies justified in imposing taxes to prevent brain drain? What tax policy choices are ideal for them and what are the implications? This paper will attempt to address these issues.

This paper will review the extent to which apply taxation to address brain drain, in the case of developing economies with large populations,

can be justified, i.e. have strong argumentation. There are four motives why we will chose large developing economies (LDEs) as the focus of this paper. First, from 2000 to 2010, the lower middle-income and low-income country groups saw the highest increase in tertiary-education migration, to nearly double. The greatest risk of brain drain occurs in middle-income countries, especially lower middle-income countries in which almost a third of the tertiary-educated population emigrates abroad. In contrast, in high-income countries, the emigration of the tertiary-educated population can be compensated by the immigration of the tertiary-educated persons from other high-income countries or middle- and low-income countries.

Second, largely populated countries generally face complexity in managing the quality of their human resources and ensuring job opportunities. Third, largely populated countries have a significant influence on the size of brain drain as they play an important role as labor-exporter countries.

Finally, Bhagwati himself states that in the context of developing economies, the impact of brain drain is heavily influenced by the size of the population of a country. For small developing economies, the impact of brain drain is greater. On the other hand, brain drain has no great impact on large developing economies given their large population bases. To address these questions, there must exist a legal standing and benefits for these large developing economies. Furthermore, several available policy options will be reviewed and contrasted with normative tax principles.

This paper will not provide any plenary policy recommendation, instead, will attempt to review the prospects and implications of the various policy choices from the context of large developing economies, among others, the links between exit tax and emigration, the implications of citizenship-based taxation on the principle of non-discrimination, the consistency of developing countries in maintaining the predisposition of the right to tax over source countries, global cooperation, prospects for the use of tax incentives, and so forth.

Within this paper, large developing economies refers to low-income and lower middle-income countries (based on the 2019 World Bank classification) with a large population. The research is limited to countries included in the 20 largely populated countries based on the World Population Database (2019). Of the two criteria, 10 countries are included in this research category, namely: Bangladesh, the Democratic Republic of Congo, Egypt, Ethiopia, India, Indonesia, Nigeria, Pakistan, the Philippines, and Vietnam.

This paper consists of six parts. The first part is the introduction. In the second part, the author reviews the concept, impact, magnitude of the

migration of high-skilled individuals, and its relation to brain drain. An explanation of the economic situations, demographics, human development level, labor situations, and taxation challenges in 10 large developing economies are discussed in the third part, which also addresses the question of whether there exists any justification for large developing economies to impose taxes to prevent brain drain.

The fourth part of this article will examine the justifications for large developing economies to prevent brain drain through tax instruments. This chapter will also explore and assess four tax policy options that may be undertaken to prevent the emigration of high-skilled individuals. The four options are the so-called Bhagwati tax, exit tax, tax incentives to keep working in the country, and revenue sharing. In this article, we argue that by and large there is no optimal stand-alone tax policy. This is discussed in the fifth section, which covers the relation of such policies to tax competition, trends towards citizenship taxation, non-discrimination rule, increasing relevance of the jurisdiction to enforce taxes, and so forth. The sixth part provides a conclusion.

2. INTERNATIONAL HIGH-SKILLED MIGRATION AND BRAIN DRAIN

2.1. Understanding Brain Drain

According to the United Nations (2019), it is estimated that currently more than 270 million people worldwide reside in other countries as immigrants. In an increasingly integrated economy, migration will in due course follow the mobile acceleration of investment flows, trade, and information distribution. Such a trend has turned into a global phenomenon and every government seeks to continue to monitor and sustain its respective national interests. The rising trend of international migration is accompanied by the momentum of differences in demographic structure among countries and the decline in transportation and communication costs (Ozden, Schiff 2006, 2). As such, the fulfillment of labor supply and demands that differ between countries encourages migration. Consequently, preventing migration is increasingly difficult for any country.

Broadly speaking, the availability of the labor force in developed countries was highest in around 2010. Subsequent to the peak, the age dependency ratio of these countries continued to increase. Contrary to this trend, developing countries were heading towards a large labor surplus after 2010, with a declining value of the dependency ratio (Ozden, Schiff 2006, 2). This imbalance results in the demand and supply of labor from these two groups of countries. In normative terms, free mobility

among residents will generate economic efficiency. In addition to benefiting individuals who decide to migrate, there is also additional global productivity (Wamsley, Winters 2005, 690).

Individuals experience such positive impacts too. Since the decision to migrate is based on economic motives, the welfare of individuals also improves. The impact can even extend to the families or people who depend economically on these individuals in the home country, through remittances.

However, an aspect that sometimes escapes attention is the fact that a surplus of labor force availability may not necessarily be followed by a surplus of high-skilled labor. In developing countries with a large population, the need for workers with certain skills is even greater, thus labor has a positive externality to the development of quality and skills of other workforces in general (Grubel, Scott 1966, 273). In addition to aggregate and individual positive economic impacts, there are negative impacts arising from the economic loss of the home country due to the emigration. The absence of human resources that can replace the emigrants' contribution engenders a decrease in productivity in the home country.

In the context of developing countries, this phenomenon should be avoided, i.e. when human resources with certain skills, which may not necessarily experience a surplus, lose such potentials due to migration. As stated by Bhagwati (1976, 3), this is often referred to as brain drain or lack of highly-skilled individuals due to their migration to other countries, which are predominantly more developed.

2.2. Determinant Factors

Based on the perspective of an individual as a rational being, the motives underlying one's decision to migrate to another country are similar to the movement of capital. Given the wide range in wage rates among countries, a person has a different expected income between his home and the host country. Furthermore, these individuals deduct the expected income from the host country by the migration cost. If the result is greater than the current income, there exists a rational motive for the individual to migrate: to obtain economic gain.

Goldin, Cameron, Balajaran (2012, 41) argues that other than economic motives, political and social conditions serve as factors that encourage an individual to move to another country. These are push factors minimized by the home country whereas the pull factors are optimized by the host country.

2.2.1. Push Factors

As aforementioned, low welfare acts as a stimulus for a person to emigrate from their home country. Aspects resulting in such conditions serve as the push factors underlying the decision to change the situation (Elveren 2018, 45). When an individual perceives that the situation in the home country cannot change and thus causes non-optimal well-being, the urge to move abroad becomes stronger.

In general, these aspects cover economic, social, and political factors. According to Docquier (2014, 3–5), the economic factor is triggered by a variety of circumstances, such as inadequate income levels, limited opportunities in the labor market, as well as unstable economic situations or a recession. From a social perspective, possible push factors are cultural incompatibilities with fellow citizens, discrimination, and rejection by the community. On the other hand, possible political push factors are political instability, security, and unideal governance.

For home countries, in particular, developing countries, improving push factors is not an easy task and is time-consuming. Accordingly, regulations incentivized through taxes to discourage and prevent brain drain are applied as the short-term solution. Furthermore, Roudgar (2014, 3) argued some people tend to be impatient and frustrated by unfavorable political, social and economic conditions in the home country. With the expectation that there will be no immediate and significant change, the probability of such people leaving the country will be even greater.

Taxation of brain drain, i.e. by imposing taxes on income for citizens working in host countries in which the collection process is carried out by the host country, although not the most effective solution, is considered an alternative to reducing the pressure of inevitable push factors (Brauner 2010, 45). Nevertheless, as argued by Brauner (2010, 45), this method is deemed ineffective as it requires strong coordination between the home and host countries.

2.2.2. Pull Factors

Furthermore, the realities that act as the push factor in the home country will be rationalized based on the individual's expectations of the situation in the host country. Similar to push factors, better economic opportunities, more stable social and political conditions and compatibility with the culture of the host country will serve as pull factors. In addition to these aspects, tax instruments may also serve as an alternative in incentivizing highly skilled immigrants into the country, for instance, by creating a special tax treatment regime for expatriates with certain skills or working in certain sectors (Roudgar, Richards 2015, 80).

The push factors can be even more intense when the persons have a network of people who can introduce and facilitate them taking advantage of opportunities in the other country. Further, positive experiences from other people who succeed in other countries will incite a person's decision to migrate. Consequently, confidence in the ability to adapt increases.

In anticipation of this, the home country also applies a pull factor strategy targeted at its citizens to minimize brain drain. Improvement of governance, the supply of public goods, and efforts to increase political stability serve as a pull strategy that is generally carried out by the home country (see especially Huntington 1996). Moreover, a special tax regime is applied as a pull effort to invite expatriates back to the country.

2.3. Brain Drain Trend

Overall, almost every country has seen an increase in emigration over time, including in the percentage of the tertiary-educated population (see Table 1). However, from 2000 to 2010, the lower middle-income and low-income groups experienced the greatest increase, nearly doubling.

Table 1. Tertiary-Educated Emigration Based on Countries' Income Group (% Total Emigration)

| Income Group Countries | Tertiary-Educated Emigration Rate | |
|------------------------|-----------------------------------|-------|
| | 2000 | 2010 |
| High-Income | 6.3% | 8.4% |
| Upper Middle-Income | 14.1% | 23.6% |
| Lower Middle-Income | 16.3% | 31.8% |
| Low-Income | 8.1% | 14.7% |

Source: Brücker, Capuano, Marfouk (2013). Education, gender and international migration: insights from a panel-dataset 1980–2010, mimeo. Data is available online at <https://www.iab.de/en/daten/iab-brain-drain-data.aspx> (accessed 8 September 2019)

The greatest risk of brain drain occurs in middle-income countries, especially lower middle-income countries in which almost a third of the tertiary-educated population emigrated abroad. In contrast, in high-income countries, the emigration of the tertiary-educated population can be compensated by the immigration of the tertiary educated persons from other high-income countries or middle- and low-income countries. This is further confirmed by OECD findings, i.e. tertiary-educated persons

commonly emigrate to OECD countries rather than to non-OECD countries (see Table 2)

Table 2. Emigration Rate of Tertiary-Educated Person Based on Country Region and Destination in 2000

| Region of Origin | Emigration Rates (% of total emigration) | |
|------------------|--|-----------------------|
| | to OECD countries | to Non-OECD countries |
| World | 4.3 | 1.3 |
| Africa | 9.7 | 1.1 |
| Asia | 3.5 | 0.9 |
| Europe | 5.6 | 2.5 |
| Latin America | 7.8 | 1.1 |
| North America | 1.2 | 0.2 |
| Oceania | 7 | 0.2 |

Source: Dumont, Spielvogel, Widmaier (2010)

This may be associated with the low prospects of the labor market in developing countries. Various studies show that the increase in the level of education in developing countries may not be in line with better employment opportunities (Guarcello *et al.* 2008). In fact, in Sub-Saharan Africa countries, the highest unemployment rate is found in university graduates (Fan, Stark 2007, 76–87).

In general, as discovered by Ordine and Rose (2011, 582–97), unemployment occurs due to the faster rate of improvement of the education level compared to industrial improvements and the development of employment opportunities that require high skills. Consequently, an imbalance occurs between the availability and requirement of labor .

2.4. Implication

The brain drain experienced by the home country may in part lead to brain waste in the host country as a person with certain abilities from the home country works in the informal sector or performs a job that does not require special skills in the host country, such as a driver, janitor, waiter, and so forth. In other words, brain drain from the home country does not necessarily lead to brain gain in the host country

To sum up, brain drain is to be avoided and anticipated by developing countries. Nevertheless, the research on the implications of

brain drain increasingly shows that the negative impacts are not as severe as formerly expected.

Brain drain should be understood as an event that may not necessarily be permanent (Stark, Helmenstein, Prskawetz 1997, 227–34). The migration of highly skilled workers abroad may be temporary, ultimately returning to their home countries with higher skills. Secondment, training, and education may give rise to migration to a more developed country, leading to “brain investment”, which has a positive long-term impact.

Furthermore, brain drain may also be followed by changes in the perception and behavior of a home country towards education and personal development. According to Beine, Docquier, Rapoport (2001, 275–289), with better opportunities abroad, the citizens of the home country will recognize that education has a high return and thus invest themselves and their family members in it. Thus, the brain drain phenomenon can trigger an implicit “brain gain” that would not be obtained without the opportunity to migrate abroad (Docquier, Rapoport 2007, 15–16). The positive impact on education and skills ultimately results in a multiplier effect, improving the overall benefits for the country.

Ultimately, the estimated impact of brain drain cannot be separated from the impact of brain gain due to the migration. Thus, the impact to be considered is the difference between the two, which may take the form of net brain drain or net brain gain.

3. LARGE DEVELOPING ECONOMIES: AN OVERVIEW

3.1. Context

In this article “developing economies” refers to the World Bank’s classification as of June 2019, concerning low-income and lower middle-income countries. The countries in the two categories are classified as developing economies since they commonly emit migrants and yet are not preferred emigration destinations for residents of other countries. Thus, in net terms, these countries have higher emigration than immigration rates. Therefore, their interest in the issue of brain drain is significantly more relevant. Furthermore, the World Bank classifies low-income and lower middle-income countries as having a gross national income (GNI) per capita amounting to less than USD 3,996 per capita in 2018 (World Bank 2018).

On another note, the term “large” refers to countries with large populations. There are three underlying reasons why the term “large” is

used in this context. First, largely populated countries generally face complexity in managing the quality of their human resources and ensuring job opportunities. Second, largely populated countries have significant influence on the size of brain drain. Finally, as stated by Bhagwati, migration of high-skilled individuals should not have much impact on large developing economies.

This paper reviews 10 large developing economies as case studies. The population data used is from the World Population Prospect, published by the United Nations Population Division. Generally speaking, these 10 countries were selected to provide an overview of the issues and situations in large developing economies and not intended to specifically establish solutions for each country. The ten countries are as follows: Bangladesh, the Democratic Republic of Congo, Egypt, Ethiopia, India, Indonesia, Nigeria, Pakistan, the Philippines, and Vietnam. The population of these 10 countries stands at 2.68 billion, i.e. 35.3% of the world's population.

3.2. Economic Situation

This section discusses the economic structure of the 10 selected large developing economies (LDE). Some of the economic indicators discussed are the performance of Gross Domestic Product (GDP), demographics and labor conditions, and the quality of human development.

3.2.1. *Gross Domestic Product*¹

Based on its economic growth, Ethiopia is the country with the highest economic growth among the 10 sample countries. Based on the sectoral contributions to the GDP, this country relies heavily on agriculture, which accounts for 30% of the GDP. In 2014 its economic growth was more than 10%. However, this figure decreased to 6.8% in 2018, dropping approximately 3% compared to the previous year. One of the factors resulting in Ethiopia's high economic growth is the state's investment in the public sector, primarily in developing social and economic infrastructure. Further, the government intervenes in the rural economy, specifically in the agricultural sector (Seid, Alemanyehu, Seid 2016, 5).

Three other countries that show satisfying economic growth performance are Bangladesh, Vietnam, and India. Bangladesh is the world's second-largest textile exporter and is slowly reducing its dependence on imports and foreign aid. Bangladesh's GDP growth is quite satisfying, experiencing an upward trend, ranging from 6% to 8% in the past five years, i.e. from 2014 to 2018.

¹ Data and information related to economic growth performance in this section (Gross Domestic Product (GDP) growth and sectoral contributions (agriculture, services, manufacturing, and mining) to GDP are sourced from the World Development Indicators – World Bank Group.

On the other hand, Vietnam's economic growth in 2018 reached 7.1%. This growth was driven by foreign investment, triggered by various policies favoring foreign investors. One of the policy mechanisms applied by the Vietnamese government is to completely open access to ownership of several domestic companies to foreign parties. The purpose of such a policy is to reduce the level of corruption and increase efficiency. However, ownership of shares in several sectors such as banking, telecommunications, aviation, and defense remains restricted (Jennings 2017). Additionally, the contribution of the manufacturing and service sectors to Vietnam's total GDP is sustainable despite the downward trend in the agriculture and mining sectors.

India, a neighboring country of Bangladesh, has an economic growth pattern that tends to be stable at around 7%. As a matter of fact, its economic growth in 2016 amounted to 8% but again declined in subsequent years. Slower post-2016 GDP growth may have stemmed from temporary disruptions in the economy. Two policies that resulted in the shock were the implementation of fiscal reform through the Goods and Services Tax (GST) and monetary reform through demonetization (World Bank 2018). Two other countries in the ASEAN Region, Indonesia and the Philippines, had stable economic growth in the range of 5% to 6% from 2014 to 2018. Pakistan also saw a similar economic growth rate even though the three countries have relatively different sectoral contribution patterns. Pakistan itself depends on the agricultural sector. In contrast, the majority of Indonesia's and the Philippines' GDP originates from the manufacturing sector.

Furthermore, the Democratic Republic of the Congo (DRC) and Nigeria tend to have a uniform pattern of economic growth. The two countries on the African continent managed to recover from the downward trend in GDP growth between 2014 and 2016. The DRC itself is a country that is highly dependent on the mining sector in its economic structure. The country's economic growth reached 6% in 2018, whereas in 2016 it stood at only 2.4%. Such a fact is inseparable from political and security conditions that have stabilized, which greatly affects economic activity (The Heritage Foundation 2019).

Nigeria managed to recover from a previously negative GDP growth, in 2016, to positive growth the following two years. A worldwide drop in oil prices, together with low foreign exchange revenue from the non-oil sector, resulted in low and decelerating economic growth in 2016, according to World Bank (2017). Egypt, another African country, has relatively low economic growth. Its GDP growth in 2014 only stood at approximately 3% and increasing to 5.3% in 2018. This is inextricably linked to the economic reform program carried out by the Egyptian government, relying on cooperation with the International Monetary Fund (IMF) since 2016 (IMF 2018).

3.2.2. Demographics and Labor

The identification of demographic and labor conditions with regard to brain drain can be traced through the age dependency ratio. In simple terms, the age dependency ratio can be defined as a comparison of the number of people who are of the non-productive age and those of the productive age.

World Bank data shows that the DRC is the country with the highest dependency ratio, 97%. This value shows that for every 100 productive age persons in the DRC, 97 residents depend on the productive age population. On the other hand, Vietnam places last, with a ratio of 44%, which that does not even amount to half of the DRC's.² Nonetheless, the dependency ratio alone is insufficient to assess a country's economic conditions as it only indicates the size of the productive age population, regardless of whether it is employed. Thus, attention should be focused on other labor-related indicators.

Table 3. Age Dependency Ratio and Unemployment Rate in Selected Large Developing Economies (2018)

| LDE Countries | Dependency Ratio (% of working age population) | Unemployment Rate (% of labor force) |
|-----------------|--|---|
| Bangladesh | 49 | 4.3 |
| DRC | 97 | 4.2 |
| Egypt | 64 | 11.4 |
| Ethiopia | 79 | 1.8 |
| India | 50 | 2.6 |
| Indonesia | 48 | 4.3 |
| Nigeria | 87 | 6.0 |
| Pakistan | 66 | 3.0 |
| The Philippines | 56 | 2.5 |
| Vietnam | 44 | 1.9 |

Source: World Bank (2019)

² The World Bank's version of the age dependency ratio is the total population under the age of 15 years and over 64 years compared to the population aged between 15 and 64 years, which is considered the working-age population. Source: <https://data.worldbank.org/indicator/SP.POP.DPND>.

Based on World Bank unemployment data, Egypt is the country with the largest unemployment rate, i.e. roughly 11.4% in 2018.³ This value is significantly higher than in the DRC, where the unemployment rate is only 4.2% in 2018, even though the dependency ratio was significantly higher than in Egypt. Thus, it can be implied that employment opportunities in Egypt are relatively low compared to its sizeable productive population. A low dependency ratio along with high unemployment may lead to emigration, particularly, for individuals of productive age, regardless of their level of education and skills. The comparison between the dependency ratio and the unemployment rate can be seen in the Table 3.

Table 3 shows the dependency ratios in the ten countries. Based on the information, India, Bangladesh, Indonesia, and Vietnam have demographic advantages compared to other LDE countries where the productive age dominates the population (demographic dividend).

3.2.3. Human Development Level

The factor that determines the economic development of a country is not only its economic growth but also the quality of human resources (HR), assessable through the Human Development Index (HDI). The HDI indicator itself is an assessment of the dimensions of human development which is subsequently normalized by a geometric index, which is estimated.

The dimensions of human development estimated in the HDI are health, knowledge, and economics. The health dimension contains indicators in the form of life expectancy for a country's population. In contrast, the dimension of knowledge is estimated through the length of education and the proportion of people attending school. Furthermore, the economic dimension that shows the quality of human resources is estimated using the Gross National Income (GNI) per capita.

Based on estimates conducted by the United Nations Development Program (UNDP), none of the LDE included in this study achieved the ranking of very high or high human development country in 2017. The Philippines ranked 113th, the highest in the HDI ranking, followed by Egypt (115), Indonesia and Vietnam (116), India (130), Bangladesh (136), and Pakistan (150) which were classified as medium human development countries. The other three countries are categorized as low human development countries, namely Nigeria, Ethiopia, and the DRC, ranked 157th, 173rd, and 176th, respectively.

³ The World Bank's version of unemployment data pertains to the number of unemployed people who are actively looking for work compared to the total workforce. Source: <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>.

The HDI score is also supported by information pertaining to the portion of the population that has completed education up to the secondary level (equivalent to high school) and tertiary (equivalent to university).⁴ The Philippines has a relatively high school enrolment rate for secondary and tertiary education, around 89% and 35% respectively. In contrast, the DRC, the country with the lowest HDI, has the lowest number university graduates, only 7%.

3.3. Brain Drain: Magnitude of the Problem

This section identifies some patterns and trends causing emigration in LDE countries, with a view to establishing the right measures in formulating policy priorities related to the taxation of brain drain. These factors include migration patterns as well as economic contributions to the home country.

3.3.1. International Migration Pattern

It is recommended that developing countries with satisfactory economic development to observe the pattern of emigration by their citizens, to allow for the mapping in any country that has the potential for brain drain. One possible indicator is the classification of the level of education of emigrating citizens.

Having observed the role of human resources quality, which significantly determines the economic development of a country, we can now map patterns of population emigration from LDE countries to developed countries. This mapping can serve as an indicator of the extent of access that developed countries provide to emigrants from various developing countries, based on their level of education. Additionally, this mapping can also show the determinant factors of emigration in regard to the economic development potential of the home country.

Table 4. The Proportion of Emigrants Migrating to 20 OECD Countries by Education Level

| Home country | 2000 | | | 2010 | | |
|----------------------------|-------|--------|-------|-------|--------|-------|
| | Low | Medium | High | Low | Medium | High |
| Bangladesh | 57.9% | 11.5% | 30.6% | 43.8% | 15.2% | 40.9% |
| Congo, Democratic Republic | 38.1% | 27.1% | 34.8% | 32.8% | 28.2% | 39.0% |

⁴ The data used is sourced from the World Bank relating to school enrolment per capita level, available at: <https://data.worldbank.org/indicator/SE.SEC.ENRR> for secondary education level, and <https://data.worldbank.org/indicator/SE.TER.ENRR> for tertiary education level.

| Home country | 2000 | | | 2010 | | |
|-----------------|-------|--------|-------|-------|--------|-------|
| | Low | Medium | High | Low | Medium | High |
| Egypt | 20.1% | 23.4% | 56.5% | 14.6% | 22.8% | 62.6% |
| Ethiopia | 23.9% | 32.7% | 43.5% | 16.6% | 33.3% | 50.1% |
| India | 30.1% | 12.8% | 57.1% | 19.4% | 12.0% | 68.6% |
| Indonesia | 34.0% | 25.4% | 40.6% | 27.3% | 24.0% | 48.7% |
| Nigeria | 19.9% | 16.6% | 63.4% | 14.2% | 15.4% | 70.4% |
| Pakistan | 50.5% | 14.5% | 35.0% | 37.2% | 15.9% | 46.9% |
| The Philippines | 13.4% | 21.2% | 65.4% | 9.1% | 18.8% | 72.1% |
| Vietnam | 36.8% | 27.9% | 35.3% | 30.3% | 28.2% | 41.5% |

Source: Brücker, Capuano, Marfouk (2013). Education, gender and international migration: insights from a panel-dataset 1980–2010, mimeo.⁵

Based on data on emigration to various developed countries as shown in Table 4, the proportion of tertiary-educated emigrants to developed countries has a growing trend. On the other hand, the number of secondary-educated emigrants migrating to developed countries has a decreasing trend. This indicates the potential for brain drain that actually benefits developed countries amid their slow population growth, supported by various types of pull factors that were formerly available.

In addition to the pattern of emigration to developed countries, we need to observe which are the citizens with high levels of education that emigrate the most. This may point to the country's push factors with the potential to cause brain drain. Table 5 shows the number of emigrants from 10 LDE countries throughout the world.

Table 5. Tertiary-Educated Emigration on Selected Large Developing Economies

| Country | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2010 | |
|-------------|------|------|------|------|------|------|-------|--------|
| | | | | | | | Male | Female |
| Bangladesh | 1.8% | 1.7% | 2.0% | 1.8% | 3.1% | 4.0% | 3.6% | 3.6% |
| Congo, D.R. | 8.2% | 7.7% | 8.2% | 8.0% | 8.3% | 7.6% | 15.5% | 7.1% |
| Egypt | 7.5% | 5.9% | 7.5% | 5.4% | 4.4% | 4.1% | 3.1% | 3.9% |

⁵ Source: <https://www.iab.de/en/daten/iab-brain-drain-data.aspx> (accessed September 8, 2019).

| Country | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2010 | |
|-----------------|-------|-------|-------|-------|-------|-------|-------|--------|
| | | | | | | | Male | Female |
| Ethiopia | 1.5% | 2.1% | 4.9% | 7.1% | 8.3% | 9.2% | N/A | N/A |
| India | 2.9% | 3.2% | 2.7% | 2.8% | 3.1% | 4.2% | 4.1% | 3.1% |
| Indonesia | 3.3% | 5.6% | 8.3% | 2.6% | 1.9% | 1.3% | 2.8% | 2.2% |
| Nigeria | 2.2% | 2.1% | 4.3% | 7.7% | 9.3% | 10.1% | N/A | N/A |
| Pakistan | 2.7% | 5.4% | 6.7% | 6.5% | 9.5% | 12.0% | 6.9% | 6.0% |
| The Philippines | 9.9% | 9.5% | 10.9% | 12.5% | 12.1% | 13.2% | 9.6% | 6.2% |
| Vietnam | 16.1% | 17.1% | 26.2% | 23.9% | 25.2% | 26.3% | 10.9% | 10.1% |

Source: 1975–2000 data is from Cecily Defoort, *Tendances de long terme en migrations internationales: analyse à partir de 6 pays receveurs*, Manuscript in French, Université Catholique de Louvain. (2006); 2010 data is from Barro and Lee (2013) as quoted in Arslan (2016, 26–29).

On closer inspection, the potential for brain drain is greatest in countries in the South Asian region. Countries such as Bangladesh, India, and Pakistan have experienced a significant rise in the emigration of the population with a tertiary education level, compared to the total number of the countries' emigrants. Meanwhile, the emigration of people with a high level of knowledge decreased in the DRC and Indonesia. Other countries, such as Egypt, Ethiopia, Nigeria, the Philippines, and Vietnam have experienced moderate increases in emigration of this population. Finally, in the case of LDE countries, pull factors seem to be more significant than push factors in causing brain drain of individuals with high levels of education.

3.3.2. Remittances

Public debate generally infers that brain drain only benefits developed countries. In contrast, several parties suggest that this phenomenon could also contribute to the level of welfare of people in developing countries. One quantifiable consequence is the remittances from the diasporas.

Based on World Bank estimates in 2018, the ten LDE countries generate more than 36% of remittances from all over the world.⁶ India, the Philippines, and Egypt are three of the top countries receiving remittances, with revenues of US\$ 79 billion, US\$ 34 billion, and US\$ 29 billion respectively. However, the remittances received by India are relatively low compared to its GDP, as shown in Table 6.

⁶ Source: <https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT>.

Table 6. Comparison of International Remittances to GDP

| Country | Remittance (% GDP) |
|--------------------|--------------------|
| Bangladesh | 5.7% |
| Congo, Dem. Rep. | 3.8% |
| Egypt, Arab Rep. | 10.2% |
| Ethiopia | 0.5% |
| Indonesia | 1.1% |
| India | 2.9% |
| Nigeria | 6.1% |
| Pakistan | 6.8% |
| The Philippines | 10.2% |
| Vietnam | 6.5% |
| Total 10 Countries | 4.0% |

Source: World Bank (2019)

According to Kapur (2004, 16), remittances alone can be a relatively stable source of external financing, especially for developing countries. Moreover, conceptually, remittances may have a positive impact on the economy of the recipient country. Remittances to recipient countries in the form of international remittances can contribute to the country's long-term savings and investment. According to Solimano (2013, 15), in the short run, this may lead to positive effects on aggregate demand and output through consumption by individual recipients in the home country.

3.4. Tax Situation

This section provides a review of the tax system, on a macroeconomic scale, relating to the contribution of tax revenue. Data on tax contributions to the economy, both in the form of the tax ratio and the tax revenue structure, is sourced from the World Bank,⁷ the OECD,⁸ and other

⁷ The World Bank data used in this article is available at <https://data.worldbank.org/indicator/gc.tax.totl.gd.zs> (tax ratio), <https://data.worldbank.org/indicator/GC.TAX.GSRV.RV.ZS> (VAT revenue against total tax revenue) and <https://data.worldbank.org/indicator/GC.TAX.YPKG.RV.ZS> (corporate and individual income tax revenues against total tax revenues).

⁸ The data on the tax ratio and revenue per type of tax against total tax revenue from OECD is sourced from the OECD Global Revenue Statistics Database, which can be

national sources. Furthermore, this section reviews tax regimes relating to the system of taxation of individuals in general, expatriates residing in these countries (inward expatriates), and the citizens of those countries who emigrate abroad.

3.4.1. Bangladesh

Bangladesh's tax ratio was recorded at 8.8% in 2016. According to World Bank (2019), in terms of the tax structure that same year, 25.2% of the total tax revenue was raised from income tax, while 32.3% of the total tax revenue was from VAT. Regarding taxation on individual income, the Bangladesh government taxes the worldwide income of residents, i.e. if a resident receives income outside the territory of Bangladesh, it will still be subject to taxation. On the other side, non-resident individuals are liable to tax on income received in Bangladesh regardless of where the income is generated. The tax rate ranges from 0% to 30%, with six income brackets.

A person is deemed a resident if residing in Bangladesh for 182 days or more in the fiscal year concerned. Furthermore, a person will also be considered a Bangladeshi resident if he resides for 90 days or more for the year in which the income concerned is generated if the person has previously stayed for more than 365 days in the span of four years prior to the fiscal year concerned.

Income from expatriates working on foreign aid projects established under an agreement between the Government of Bangladesh and a foreign government is exempt from taxation. Additionally, the government provides deduction for expatriates working in the field of technology. Following Ahmed (2019, 12), foreign technicians working in companies registered in Bangladesh and located in special economic zones, or the Bangladesh Hi-Tech Park area, involved in the procurement of goods and services, will receive 50% income tax relief for period of three years. No specific tax regime exists for non-resident Bangladeshi nationals.

3.4.2. Congo, Democratic Republic of (DRC)

The DRC's tax ratio in 2016 stood at 7.6%. This state tax revenue is supported by VAT, which reached 32.7% of the total tax revenue that same year. Furthermore, personal and corporate income tax revenues amounted to 15.8% and 14.5% of the total tax revenue, respectively (OECD 2018). For individual income tax, the DRC government taxes the "territorial" income of residents. In other words, if a DRC resident earns income outside the DRC territory, their income is not subject to tax. The

accessed via: <https://stats.oecd.org/Index.aspx?DataSetCode=REV>. The codes used are 1000 for Corporate Income Tax, 1100 for OP Income Tax, and 5110 for VAT.

tax rate ranges from 0% to 40%, with ten income brackets. A person is deemed as a resident if they reside in the DRC for more than six months during the given fiscal year.

Due to taxation on individuals' territorial income, expatriates are subject to the generally applicable employee income tax. Other remunerations paid to expatriates are subject to a special tax called the Exceptional Tax on Expatriate Remunerations. According to Kating (2019, 8), this special tax is imposed on employers. No specific tax regime exists for non-resident Congolese nationals.

3.4.3. Egypt

Egypt's tax ratio in 2016 was recorded at 15.2%. The personal income tax revenue accounted for 10.8% of the total tax revenue. Furthermore, VAT revenue raised 18.1% to the total tax revenue. The tax revenue was dominated by corporate income tax, which accounted for 31.9% of the total tax revenue (OECD 2018).

Regarding taxation on individual income, the Egyptian government taxes the "worldwide" income of residents. The tax rate ranges from 0% to 22.5%, with five income brackets. A person is classified as a resident if they reside in Egypt for more than 183 days during the given fiscal year and have permanent residence in Egypt. Furthermore, a person of Egyptian nationality who is domiciled abroad, but still earns income from Egypt, is also be considered a resident and subject to individual income tax by the Egyptian tax authority. There is no special tax treatment for expatriates. In other words, foreign nationals will receive the same treatment as Egyptian citizens. No specific tax regime exists for non-resident Egyptian nationals. (Hamzaoui 2019, 8).

3.4.4. Ethiopia

Ethiopia's tax ratio in 2017 stood at 7.6%. Corporate and individual income tax accounted for 29.7% of the tax revenue that year, with VAT contributing 33.3% (World Bank 2019).

In terms of taxation on individual income, the Ethiopian government taxes the "territorial" income of residents. The tax rate ranges from 0% to 35%, with seven income brackets. A person is classified as a resident if they reside in Ethiopia for more than 183 days during the given fiscal year. The income of foreign professionals recruited to transfer knowledge related to investment in exports is entitled to a tax exemption for a maximum of five years, under directives issued by the Minister (Lencho 2019, 10). No specific tax regime exists for non-resident Ethiopian nationals.

3.4.5. *India*

India's tax ratio in 2017 was 11.2%. In that year, India's corporate and personal income tax contributed 44.2% to the total tax revenue. Furthermore, the share of VAT revenue in the total tax revenues reached 31.5%. (World Bank 2019)

Regarding taxation on individual income, the Indian government taxes the "worldwide" income of residents. The tax rate ranges from 0% to 30%, with four income brackets. A person is classified as a resident if they reside in India for a minimum of 182 days during the fiscal year. Further, individuals residing in India for 60 days in the given fiscal year, with a record of staying at least 365 days within the four years prior to the given fiscal year will also be classified as residents.

Income paid to expatriates working in India is treated as income sourced in India and taxed according to the applicable provisions in India. Costs of living and travel expenses and remuneration may be granted tax breaks. Tax relief for remuneration given to foreign employees working in foreign companies is highly dependent on certain conditions, including not exceeding the domicile period within India and not making claims for tax deductions that may reduce the tax payable on income (Shah 2019, 10). No specific tax regime exists for non-residents of Indian nationals.

3.4.6. *Indonesia*

Indonesia's tax ratio in 2017 was 11.5%. According to the Ministry of Finance of Indonesia (2019), the share of tax revenue in the total revenue was 10.1% for personal income tax; 19.2% for corporate income tax; and 39.6% for VAT for the year.

In terms of taxation on individual income, the Indonesian government taxes the "worldwide" income of residents. The tax rate ranges from 5% to 30%, with four income brackets. A person will be classified as a resident if they reside, possess a work visa, a work contract, have a business and other activities in Indonesia for more than 183 days in the given fiscal year.

The tax authority can make adjustments to the amount of income earned by a foreign employee under the guidelines for salaries/wages of foreign nationals, if the income is not supported by proper documents. Also, expatriates' income is deemed as taxable income in Indonesia. This can occur if the expatriate is seconded to a local company by a foreign company where the local company subsequently relocates the expatriate's income in the form of payments (for example, management, technical, or other service costs) to a foreign company (Koo 2019, 8). No specific tax regime exists for non-resident Indonesian nationals.

3.4.7. Nigeria

Nigeria's tax ratio is classified as very low and based on the country's tax authority data, tax revenues only stood at 3.4% and 4.8%, in 2016 and 2017 respectively. However, these figures were up compared to the 2013 tax revenue of 1.5% of the total GDP. Furthermore, in 2013 the VAT only amounted to 0.1% of GDP, i.e. around 9.5% of the total tax revenue, while more than 80% of tax revenue was contributed by corporate income tax.⁹

As for individual income taxation, the Nigerian government taxes the “worldwide” income of residents. The tax rate ranges from 7% to 24%, with six income brackets. A person is classified as a resident if residing in Nigeria, staying for more than 183 days in a period of 12 months or serving as a Nigerian diplomatic agent outside Nigeria. There is no special expatriate tax regime nor special tax treatment for non-resident Nigerian nationals (Odimma 2019, 8).

3.4.8. Pakistan

Pakistan's tax ratio for the fiscal year 2017, namely from July 2016 to June 2017, was 12.5% (World Bank 2019, 1). Based on data from local tax authorities, the structure of tax revenue in the same fiscal year was supported by indirect tax revenue which contributed more than 60% of the total tax revenue. The revenue from VAT, which is an indirect tax, amounted to 39.9% of the total tax revenue. Furthermore, the direct tax revenue or income tax revenue amounted to 39.9% of the total tax revenue.¹⁰

Regarding taxation on individual income, the Pakistani government taxes the “worldwide” income of residents. The tax rate ranges from 0% to 29%, with eight income brackets. A person is classified as a resident if they stay in the country at least 183 days in the given fiscal year. Furthermore, civil servants assigned abroad are considered residents.

The income of expatriates with resident status but sourced from outside Pakistan are entitled to a tax exemption if their domicile period in Pakistan does not exceed three years. Nonetheless, the tax relief does not apply if the expatriate's income is sourced from companies established in Pakistan or if the income from overseas is brought in or received by expatriates within Pakistan. As demonstrated elsewhere (Koo, Bukhari 2019, 12), foreign income from expatriates returning to their home countries is exempted for four years after the year they left Pakistan. No specific tax regime exists for non-resident Pakistani nationals.

⁹ Source: IMF Government Finance Statistics, available at: <https://data.imf.org/?sk=FA66D646-6438-4A65-85E5-C6C4116C4416>.

¹⁰ Source: Federal Board of Revenue of Pakistan available at: <http://www.sbp.org.pk/ecodata/tax.pdf>.

3.4.9. The Philippines

The Philippines' tax ratio in 2017 was 17.5%. In 2017, the structure of this state tax revenue was sustained by corporate income tax with its share amounting to 24.5% of the total tax revenue. Furthermore, the individual income tax and VAT contributed 14.1% and 13.2% of the total tax revenue, respectively (OECD 2019).

In connection with taxation on individual income, the Philippines government taxes the “worldwide” income of residents. The tax rate ranges from 0% to 35%, with six brackets based on income. A person is subject to individual income tax if they hold citizenship or are an alien individual. Additionally, all citizens are categorized as residents except in cases where they meet the criteria for non-residents.

Citizens and foreigners employed at regional headquarters, regional operations headquarters, foreign banking units, and oil service contractors or subcontractors located in the Philippines are subject to a 15% final tax on gross income. Foreigners who are considered as alien individuals are deemed equal to citizens. Furthermore, there is an immigration tax for individuals who enter the Philippines and stay for more than 60 days (Ocampoo 2019, 12). Currently, no specific tax regime exists for non-resident Philippine nationals, however, until the end of the 1980s the Philippines taxed its citizens on all of their income (see Pomp 1985).

3.4.10. Vietnam

Vietnam's tax ratio is relatively high. In 2015, tax revenues reached 18% of total GDP revenues. The highest share of tax revenue that year was from VAT, which accounted for 33.3% of the total tax revenue, i.e. approximately 6% of the GDP. Corporate income tax and the individual income tax revenues accounted for 25% and 7% of the total tax revenue, respectively (IMF 2018, 33).

As for individual income taxation, the Vietnamese government taxes the “worldwide” income of residents. The tax rate ranges from 5% to 35%, with seven income brackets. A person shall be deemed a resident if they stay for 183 days or more in the given fiscal year, starting from the date of arrival. Otherwise, a person whose residence is registered as a permanent home or a rental house with proof of a particular contract is also classified as a resident.

Non-residents are taxed at a flat rate of 20% on employment income sourced from the territory of Vietnam, without any tax deductions. As reported by Grunkorn, Do, Nguyen (2019, 7–8), however, a 50% tax deduction is granted to foreign experts working on the Official Development Assistance (ODA) projects. No specific tax regime exists for non-resident Vietnamese nationals.

4. JUSTIFYING TAX TO ADDRESS BRAIN DRAIN AND POLICY OPTIONS

4.1. Justification to Use Tax Instruments

Based on research related to the economic situation, demographics, human development levels, and the tax system in 10 LDEs, there exist at least four preliminary conclusions, in addition to the high-skilled migration patterns.

First, the 10 LDEs in this article have relatively varied economic developments. This is demonstrated by the growth and structure of their GDPs. However, other than having generally low per capita income, the contribution of the traditional sector is great and mostly from the agriculture sector. There are socio-political factors that distort the economy as well. Second, the level of human development generally features a fairly low human development index (2018). Specifically, for the education sector, variations in the level of education in the ten countries are still relatively low if observed based on the number of human resources with tertiary education level. Another interesting aspect is the tendency that the level of education correlates with the familial economic background. A person who comes from a wealthier family tends to have the ability to undertake tertiary education (Darvas, Gao, Bawany 2017, 25).

Third, given the large population, more significantly, the challenge faced by large developing economies is to ensure the availability of jobs. Interestingly, four out of the 10 countries examined in this article are in (or heading in the direction of) the demographic dividend phase, where the size of productive-age population will be greater than the non-productive-age population. The demographic dividend can certainly be utilized to increase the economic thrust if and only if employment is sufficiently available, otherwise unemployment is likely to escalate. Another noteworthy phenomenon is the rise of the educated unemployment – the labor force that does not have jobs but has tertiary education.

Fourth, the performance of tax revenue in these countries is for the most part relatively weak. This is indicated by the tax ratio, which ranges from less than 5% (Nigeria) to more than 15% (the Philippines and Vietnam). Gaspar, Jaramillo, Wingender (2016, 30) estimates that a tax ratio of 15% is the tipping point for growth stability.

The challenges faced by these countries generally stem from the informal economy, illicit financial flow, corruption in the tax sector, as well as tax revenues that are dominated by corporate income tax and certain sectors. Their performance is insufficient, especially for individual taxation. Individual income tax treatment for migrants generally refers to

the concept of residence, i.e. taxing income sourced from within and outside the country. Broadly speaking, citizens who are not categorized as residents (who reside and earn income abroad) are not taxed.

All the above-mentioned conditions are factors to be considered in discussing whether using tax instruments to prevent brain drain can be justified. Again, what we refer to as justification in this paper is the reasoning or argumentation, not merely the terms to have personal or economic attachment, in the context of international taxation.

4.1.1. Brain Drain or Brain Gain?

The debate about the costs and benefits of high-skilled migration is not something new. Although this phenomenon is often deemed as a loss for developing countries, because emigration makes it difficult for developing countries to achieve economic growth, there is also contrary opinion.

Emigration opportunities may serve as a solution to the availability of jobs. The economy of developing countries, which is quite dominated by the traditional sector, has resulted in employment for labor force with a higher education background. The data in Table 5 shows that emigrants from the 10 LDEs in this article are dominated by emigrants with tertiary education levels.

This strongly indicates the existence of labor opportunity and a relatively higher wages level for workers with tertiary education in developed countries, specifically the OECD. A similar pattern also exists in the case of unskilled labor. Employment opportunities abroad indirectly support developing countries in reducing unemployment, increasing foreign exchange, and reducing the possibility of social unrest. This seems to be the case in Indonesia which routinely sends low-skilled labor to Malaysia, Hong Kong, and Saudi Arabia.

Another strong argument pertains to emigration activities related to remittances. Remittances sent by high-skilled migrants are considered able to address liquidity problems, reduce poverty, catalyze technological adaptation, and stimulate investment in education. However, (Docquier, Rapoport 2011, 27) found that the effect of remittance is strongly influenced by the amount remitted by emigrants and the impact of its distribution in the home country. On a side note, the remittances received by 10 LDEs in this article amounted to USD 228.6 billion in 2018, which is far greater than the global value of official development assistance (ODA), which stood at only USD 162.8 billion.¹¹

¹¹ Global position in 2017. On a side note, net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance

In sum, why should high-skilled migration be taxed if it benefits the home country?

4.1.2. Motivation to Emigrate

Individual motivation to emigrate from developing countries is basically influenced by push and pull factors, as well as tax and non-tax motives. Empirical studies on the causes of emigration have shown various patterns, for instance, the high level of emigration of medical personnel from Africa is largely driven by pull factors, such as better salaries and livelihoods, while the dominant push factor is solely caused by the risk of contraction of HIV.

Interestingly, there is little argument that tax is one of the push factors for emigration decisions for high-skilled individuals. As reported in Kauppinen, Ropponen (2018), there are only a few empirical studies on this matter. On the one hand, this confirms that taxes are indifferent towards an individual's migration to another country. On the other hand, non-tax related matters are more likely to have the most significant impacts.

In terms of pull factors, we should be aware that developed countries strive – driven by the aging population problem and intended to boost the domestic economy – to attract new talents from around the world to migrate to their countries.

Avi-Yonah (2015, 45–56) presents a noteworthy argument: efforts to reduce tax burdens are presently possible if capital mobility is followed by the transfer of resident status, especially in the increasingly transparent tax landscape due to the automatic exchange of information cooperation. However, both elements – incentives and tax planning – are more relevant in non-tax compliance practices of high net-worth individuals (HNWI) and not in the context of brain drain.

The next question is can taxation be justified, if the tax factor is indeed a less-dominant factor in the decision to emigrate. Should the causal factors of the emigration be addressed instead?

With respect to public finance, fiscal instruments – taxes among others – have tasks that include allocation, distribution, and stabilization. In terms of their role in allocating the most efficient resources, taxes are

Committee (DAC), by multilateral institutions, and by non-DAC countries, to promote economic development and welfare in countries and territories on the DAC list of ODA recipients. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent). Sources: Development Assistance Committee of the OECD, Geographical Distribution of Financial Flows to Developing Countries, Development Co-operation Report, and the International Development Statistics database, available at <https://data.worldbank.org/indicator/DT.ODA.ODAT.CD>.

intended to change the behavior of economic agents, among others, creating disincentives for high skilled individuals to emigrate.

4.1.3. Tax Burden and Redistribution

In a closed economic system, skilled and unskilled individuals are subject to domestic income taxes. In the context of ensuring income redistribution and preventing inequality, the individual income tax system will generally be designed progressively. This implies that a person with a higher income or a higher ability to pay will face a higher tax burden (vertical equity). It is worthy of note that the income received by a person is affected by skills and educational background, among other factors. The higher a person's education, the greater the possibility for them to obtain a position with relatively satisfactory returns/wages. Hence, the returns obtained by skilled individuals are in general far better than those by unskilled individuals.

On the other hand, in an open economy where individuals can migrate (particularly if perfect individual mobility exists), a skilled individual can choose a country where their income and welfare will be much better. In such cases, the tax system is ultimately unable to redistribute income fairly.

In turn, the tax system – which is intended to create fairness – will result in a higher tax burden for a high-skilled individual who remains in the home country. A higher tax burden and the opportunity to emigrate will encourage domestic high-skilled individuals to emigrate and result in a revenue loss (see, for example, Bhagwati and Hamada 1982). The state is ultimately pressured to restrict emigration by reducing the tax burden on high-skilled individuals (with a higher ability to pay). Consequently, this leads to a less egalitarian or unfair tax system. Further, the loss of the tax base (due to emigration) and the need for significant development funds will simultaneously increase the tax burden for individuals “left behind” in the home country.

It is true that individual mobility across-country can lead to a more efficient provision of public goods and services. However, this also limits the country's ability to distribute income fairly as hypothesized by Tiebout (1956, 417) in the context of sub-national taxes. Additionally, Wilson (2011, 75) also reports that immobile residents bear the burden of taxation due to the high emigration rate of high-skilled individuals. Hence, a tax on brain drain can ensure that the redistribution of income from high-skilled emigrants to lower-income residents, while providing the government with the ability to tax high-income residents. This justifies taxation to reduce the emigration of high-skilled individuals.

4.1.4. Political Perspective

Emigration could also have an impact on the disconnection between a citizen's political rights and obligations. Basically, taxation must always be accompanied by representation. This implies that the compulsory payment must be limited by the laws established by the people's representatives. The taxation with representation jargon, in this case, appears as a condition for political allegiance.

Whereas in the context of emigration, an individual who emigrates does not generally change their citizenship status, i.e. still intends to remain connected with the home country, such an individual commonly maintains their rights as citizens, for instance, obtaining services and protection from embassies, participating in general elections, etc. However, with his relatively long emigration and the possibility of becoming a tax resident in another country, the obligation to pay taxes in the home country no longer exists, but political rights from the home country still exist.¹² Bhagwati (1987, 53) refers to this situation as “no taxation with representation.”

This opinion should be a matter of concern by now, specifically with the current pattern of global migration. Conflicts in several regions and the rise of international refugees, demand for talented migrants from population-aging countries, and increasingly loose immigration regulations may lead to the majority of citizens of a country residing in other countries or a country accommodating a substantial number of immigrants. In such an event, the rights and obligations of the population in a country become increasingly asymmetrical.¹³ Thus, the tax for emigrants is justifiable.

4.1.5. Efficiency and Revenue Adequacy

Free individual mobility encourages the government of a country to compete for residents and provide optimal budget allocations. Individual choices are assumed to be rational, i.e. choosing a country or jurisdiction considered to be the best in providing public goods. On the other hand, governments in various countries will adjust facilities according to public references (local public goods). In other words, the absence of instruments that limit the mobility of human resources ultimately engenders efficiency.

¹² At the same time, high-skilled emigrants also experience taxation without representation in the host country, where paying taxes generally does not generate any political rights.

¹³ The situation can also be reviewed in the fiscal contract model. As the framework of reciprocal relations between the state and the people (the state provides public goods and services and the public pays taxes accordingly) the fiscal contract in the context of an open economy with individual migration has not been addressed by many scholars.

Nevertheless, one question is how a country can finance the provision of quality public goods when facing a brain drain, i.e. the loss of high-skilled individuals, which discourages efforts to boost the economy, as well as revenue mobilization? In the context of sub-national taxes, the measure would be revenue sharing or transfer allocation scheme. However, such a scheme is generally not available in the national or supra-national tax framework.

Hence, the revenue from taxing high-skilled emigrants incentivize developing countries to compete in welfare-improving tax and expenditure. These funds can be used by governments in developing countries to allocate spending to areas that may reduce the motivation to emigrate, e.g. education, industrial parks, safety. However, this argument needs to focus on the connection or link between the revenue from brain-drain tax and its use to prevent emigration.

Further, the poor performance of tax revenue in large developing economies indicates that developing economies require all available options to mobilize revenues and assess tax gaps. Specifically, individual income taxation has not played an important role in the structure of tax revenue, especially when compared to contributions from corporate income tax, VAT/GST, and revenue from extractive industries.

This is mainly influenced by the fact that the majority of individual taxpayers in developing countries have wages below the per capita income or the threshold for allowance. This figure is completely different from the structure of tax revenue in developed countries where individual income tax plays a significant role thus making the tax revenue more sustainable and not susceptible to business or sectoral conditions.

In short, to continuously improve the performance of their tax revenues, developing countries must increase the contribution of individual income tax. Considering that high-skilled emigrants generally have an income exceeding per capita income or the basic exemption threshold, the efforts to tax their income can be justifiable.

4.1.6. Who Provides the Benefits

One of the philosophical grounds for the state to collect taxes is the benefits principle. The next question is what is the role of the home country for skilled emigrants? Questions and criticisms pertaining to this matter have long been discussed. In general, this position departs from the fact that better income and life (and sometimes better tertiary education) are provided by the host country. If such is the case, what is the role of the emigrant country?

The debate must also be supported by the availability of data, but the criticism is not groundless. Allegations that developing countries are

generally not able to provide optimal public goods for the welfare of the society are evidenced by various indicators, in particular, the low government spending on education, health, and infrastructure (Fan, Rao 2003).

However, as suggested by Darvas, Gao, Bawany (2017, 25), it is noteworthy that in general, the level of education of individuals in developing countries is closely related to the economic condition of their families. This implies that the level of income and wealth obtained by families from high-skilled migrants is, in essence, guaranteed by the home country. The guarantee of benefits originates from the protection of property rights, access to financial markets, and political stability. In this context, the home country also contributes positively. From the perspective of the benefit principle, the home and host country are equally justified to impose taxes.

4.1.7. Taxing Rents

According to Bhagwati (1979, 22), another strong argument in taxing skilled emigrants is the fact that the emigrant has windfall gains.

4.1.8. Conclusion

The seven aspects reviewed in the issue of the migration of educated workers to other countries, lead to the conclusion that taxation can be justified. Five of the seven aspects indicate stronger argumentation in favor of taxation, namely the issues of emigration motivation, tax burden and redistribution, political perspective, efficiency and revenue adequacy, and taxing windfall gain. On the other hand, two aspects show the weakness of the argument for taxation, specifically from the benefit theorem and the fact that the emigration of educated workers also gives rise to net gains.

4.2. Tax Policy Options

With (relatively) strong justifications for brain-drain taxation, what policy options are ideal for LDEs? Four policy options, namely the Bhagwati tax proposal, exit tax, tax incentives, and revenue sharing will be reviewed.

4.2.1. The Bhagwati Tax Proposal

The Bhagwati tax proposal refers to the contribution of renowned economist Jagdish Bhagwati, in reviewing the negative effects of brain drain and proposing the main ideas, along with various modifications, fiscal instruments considered ideal for addressing brain drain. This

proposal was made in 1972 and has since evolved, but instead of changing, the basic idea continues to be supplemented, especially in the face of criticisms and information arising in academic debates. Some literature frequently refers to the proposals submitted by Bhagwati as the brain-drain tax because the idea and model are specifically reconstructed to address brain drain.

Bhagwati initially proposed of a tax collected by the host country on immigrants from developing countries. The applicable rate was 15% (surtax) of the emigrant's income. The idea is that the tax collected by the home country's tax authority (in the context of the U.S., IRS) subsequently be transferred to the home country to compensate developing countries for the incurred losses.

This idea was further developed a year later, in cooperation with Dellalfar. With the support of data, they proposed a new rate which is considered more ideal, i.e. 10% for the adjusted taxable income of emigrants from less developed countries. This tax would also be collected for a maximum of 10 years after a person emigrates. The rate-based simulation showed that the potential tax revenue of the developing countries was substantial and far greater than the amount of foreign aid provided by the U.S. in 1971. In the paper, they put forward a more valid argument for brain-drain taxation, which is based on the principle of fairness. Through the fairness jargon, the brain-drain tax aims to compensate developing countries for the lagging and loss of human resources, and if possible, to decrease brain drain.¹⁴ Bhagwati and Dellalfar (1973, 94–96) argue that the tax could be levied by the host country's tax authority or international organizations such as the United Nations. They also proposed to collect the tax with the assistance of the UN and the tax would be distributed to developing countries, with the exception of those that are corrupt and dictatorial.

Until the end of the 1970s, Bhagwati continued to complete his proposal through some scientific work ranging from emphasizing tax administration cooperation through bilateral agreements, underlining the differences between his proposal and revenue sharing schemes, reviewing political aspects, and strengthening the justification of brain-drain tax. Interestingly, Bhagwati (1979, 24–27) also argues that the adoption of the U.S. global tax system that adheres to citizenship-based taxation best enables the implementation of the proposal. In other words, the proposal refers to the U.S. method that deems its citizens as residents regardless of where they are. By using citizenship as a taxation nexus, the connection between the skilled migration and the home country is maintained until

¹⁴ Bhagwati's proposal is criticized as it is considered to add more burden to the emigrants. However, the emigrants are in a better situation as the increase in wages will be greater than the losses.

the change of citizenship status. Thus, a country that recognizes an individual's citizenship maintains its taxation rights.

In fact, almost no countries in the world tax their citizens on their worldwide income. Currently, the U.S. can be considered the only country that has succeeded in enforcing an extraterritorial tax system. Other countries that have attempted the same measure, such as Eritrea (see DSP-Groep BV 2017) and the Philippines (see Pomp 1985), have failed due to weak hegemony and the requirement of support from other countries. This implies that the success of the Bhagwati tax proposal is highly dependent on international cooperation (bilateral or multilateral). In short, taxation of income received by citizens abroad clearly requires assistance and support from the host country, both in terms of collection and exchange of information. Without coordination and exchange of information, the implementation of taxation on foreign-sourced income will be difficult (Keen, Lighthart 2004; Gadzo, Klemencic 2017).

Other criticisms are inseparable from the third-generation research on brain drain in the 1990s. With more accurate migration-related data, many academics have begun to doubt the existence of brain drain and instead showed the gain from high-skilled emigrants. Consequently, there is no moral argument regarding efforts to prevent migration including the absence of justification of brain-drain tax. However, according to Brauner (2010), the Bhagwati tax proposal is substantially driven by fairness, specifically from an economic standpoint and not from an ethical or moral argument. As such, this criticism can be considered not departing from the same perspective.

Although considered to reflect the principle of ability to pay, the Bhagwati tax proposal was also criticized for creating income inequality between skilled and unskilled individuals in the home country. This is caused by the impact of wage improvements for skilled individuals in the country. Consequently, the government's success in addressing unemployment and managing the availability of individual (labor) for certain sectors may be subject to disruptions (McCulloch, Yellen 1975, 249–64).

The Bhagwati tax proposal faces challenges in terms of administration as well. First, it creates compliance costs for individual taxpayers, as well as barriers to working overseas, as mentioned by Desai, Kapur, Mchale (2004, 681). As a matter of fact, developing countries still encounter challenges in taxing individual income. As an illustration, in Indonesia, the contribution from individual income tax other than withholding tax for employees only amounted to less than 1% of the total tax revenue during the 2013–2018 period. Second, the compliance of workers from developing countries working in host countries will be more difficult to ensure as it is far more difficult for them to return to the

home country due to their (financial) ability. This is different from workers from developed countries or at least upper-middle-income countries.

The assessment of the impact on revenue requires an estimation and complete data. In the absence of complete information, the Bhagwati tax proposal may not lead to definite revenues with the double-elimination tax mechanism through exemption and foreign tax credit. Interestingly, a study conducted by Desai, Kapur, and McHale (2004, 683) on the simulation of the application of this tax for India shows that the potential revenue from the Bhagwati tax is substantial. Overall, we have to consider its implications for citizenship changes, especially considering that the only way to be “free” of the tax burden from the home country is the change of citizenship.

4.2.2. *Exit Tax*

Unlike the Bhagwati tax, the exit tax aims to directly target the core issue of brain drain, which is to prevent losses from the migration of high-skilled individuals to other countries. The exit tax is a tax imposed to create disincentives for the decision of a person or a company to become a resident of another country. According to Larking (2005, 115–62), prior to the change into another country’s resident, taxation is imposed on the taxpayer’s assets deemed to be disposed of and resulting in a gain. Exit tax is frequently equated to departure tax (immediate exit tax) which is “... *a prepayment of individual income tax levied on resident individuals leaving the country.*”

Nonetheless, the exit tax is broader than a departure tax scheme. According to de Broe (2002, 19–78), in addition to being imposed on a person or a company leaving a jurisdiction to become a resident of another country, the exit tax also includes extended tax liabilities as well as recaptures previously enjoyed benefits. However, the extended tax liability is, in reality, more inclined to the application of citizenship-based taxation, which is often discussed together with the Bhagwati tax proposal.

Several countries have implemented the exit tax in their domestic tax provisions. In terms of design, the exit taxes can be divided into two categories, general (all taxpayers’ assets are considered) and limited (only a few assets are considered). For instance, Canada imposes a general immediate exit tax which is intended for long-term residents. The tax base is calculated on assets that do not continue to remain in the Canadian tax net and are deemed disposed of before the migration. On the other hand, Chand (2013) specifies that the Netherlands applies a limited exit tax for long-term residents who have substantial shareholdings in companies.

Although considered as one of the instruments to protect the taxation rights of a country as it provides disincentives for emigration, the exit tax is not free of criticism. The main criticism against the exit tax lies mainly in the nature of its imposition, which is applied before an emigrant becomes a resident of another country and earns income there (ex-ante). There can still be options to defer payments from deemed disposal assets. However, considering that an individual who will emigrate from developing economies only has limited income and assets, their decision is barely affected by the presence or absence of the exit tax.

Moreover, the exit tax assumes that emigrants will earn a far better income than what they are paid for from deemed disposal assets. However, the emigrants may or may not obtain good returns in the host country (for instance brain-waste cases). Furthermore, exit tax does not adhere to the principle of ability to pay, as the emigrant has yet to obtain additional economic capabilities.¹⁵ The exit tax is thus considered an inefficient and inequitable policy (Bhagwati, Dellalfer 1973, 94–101).

Challenges also arise from non-economic aspects. The exit tax is considered an instrument that may violate human rights as it prevents a person's mobility to attain a decent living.¹⁶ In the context of the European Union, the exit tax is also frequently debated, in particular, in relation to the Treaty on the Functioning of the European Union (TFEU).

Finally, the administrative feasibility of exit tax collection in developing economies also faces challenges, especially in terms of immigration control and asset appraisal. In developing countries, the obligation to obtain a tax identification number does not apply in general and has no connection to immigration documents. Presumably, this also explains why the exit tax instrument is rarely applied in developing countries.

4.2.3. Tax Incentives

Some countries currently take the opposite measure, i.e. they provide tax incentives, to stop talented and skilled individuals from remaining in a jurisdiction and becoming residents in other countries. This incentive is expected to prevent waves of brain drain. Every country offers varied trial and error programs to obtain an effective design (Agunias, Newland 2012).

For instance, in 2019 Poland plans to abolish taxes for young skilled workers, to prevent them from immigrating to other EU countries.

¹⁵ The ability to pay is itself one component of the equity principle. See Pistone *et al.* (2019).

¹⁶ See Article 13 (2) of the Universal Declaration of Human Rights: "Everyone has the right to leave any country, including his own, and to return to his country." (<https://www.un.org/en/universal-declaration-human-rights/>)

This income tax revocation incentive is available for residents under the age of 26 who earn less than USD 22,207 (which is above the average wage of Polish residents). One argument for granting this facility is inseparable from the fact that around 1.7 million Polish residents have left the country in the past 15 years.

In the Southeast Asian region, Malaysia has launched the Malaysian Returning Expert Program. The Malaysian Government provides benefits for Malaysian professionals working abroad for at least three years, namely the option of a flat tax rate of 15% on employment income for a period of five consecutive years, tax exemption for all personal effects brought into Malaysia, as well as tax/duties exemption for up to a maximum of MYR 150,000 when purchasing a car.¹⁷ This program is considered quite effective in targeting those who have the option of working abroad (Del Carpio *et al.* 2016). From 2011 to 2018 this incentive was given to approximately 5,024 individuals.

In addition to the incentives provided to citizens, developing countries are also working on a strategy known as reverse brain drain, i.e. the movement of high-skilled individuals from developed countries to developing countries (Gupte, Jadhav 2014, 83–87). As suggested by Cavallini *et al.* (2018, 5), these efforts may encourage competition among countries to attract high-skilled individuals to obtain positive economic and social impacts.

The idea of a tax incentive instrument is frequently discussed as a complementary policy for the implementation of the Bhagwati tax proposal. On a side note, the application of the Bhagwati tax is prone to non-compliance by emigrants abroad. The monitoring, incomplete data, and administrative weaknesses of tax authorities in developing countries are factors that influence such non-compliance, regardless of the penalty feature when the high-skilled migrants return to the home country. Penalties may lead to concerns as they encourage people to remain abroad. To avoid this, Wilson (2008, 2385–91) suggests that tax incentives, for example tax reduction, can in fact be given to compliant taxpayers when they return to the home country.

From the perspective of the tax administration, the provision of tax incentives as a method to address brain drain is clearly more feasible than the other three policy options that require cooperation and/or changes in the international tax system (revenue sharing and Bhagwati tax) as well as reliable assets wealth profiling data (exit tax). The degree of difficulty in applying these incentives is determined by the evidence or documentation by the applicant regarding their eligibility, to the terms

¹⁷ For details on the program visit: <https://www.talentcorp.com.my/initiatives/returning-expert-programme>

and criteria proposed in the regulations, for example, if the incentives are granted to emigrants with a certain income or who work in certain sectors.

The use of tax incentive instruments is very likely to undermine the equity principle. These incentives may compromise the sense of fairness for citizens domiciled in the country, in particular, high-skilled individuals. A progressive individual income tax will only target educated human resources who generally earn a high income and are “proven” loyal and do not have, or are yet to have, the intention to work abroad. Consequently, this may decrease the trust of loyal high-skilled individuals and encourage their non-compliance or “provoke” them to find ways to obtain the same incentives.

The main criticism against the use of incentives instruments to address brain drain lies in its effectiveness. First, according to Beretta (2017), the competition of providing expatriates with facilities has increased. Today, more and more countries are offering special regimes for expatriates with certain criteria, by mitigating the implementation of their worldwide system, flat tax, etc. Assuming economic rationale, tax incentives provided by developing countries must at least provide a better situation for high-skilled individuals compared to the expected return, plus the additional incentives offered in developed countries.

Second, it seems that the motive for migrating abroad for young workers is not only better income, but also lifestyle and experience, as stated by Heckert (2015) and in the World Youth Report. Thus, the incentives provided to prevent or re-invite emigrants are less efficient, especially for young professionals.

4.2.4. Revenue Sharing

Revenue sharing is one of the policy options proposed by Desai *et al.* (2004), in addition to the exit tax and the Bhagwati tax proposal (global tax system). Bhagwati (1979, 28) states that the scheme may take the form of compensations paid by a developed country to a developing country disadvantaged by the brain drain or brain gains by a developed country from a developing country, notwithstanding the presence or absence of losses in the developing country.

Broadly speaking, revenue sharing schemes can be found in literature on fiscal decentralization, where there is an allocation of revenue from the center to regional governments or between regional governments. Considering that there are currently no international (supranational) organizations responsible for the fiscal area, namely an International Tax Organization, the notion of revenue sharing seems to be more difficult to implement. However, with pressure from the competition for high-skilled individuals and restrictions on migration from developing countries, there

exists a “coercion” to engage in bilateral tax-sharing agreements, as stated by Desai, Kapur, McHale (2004, 684).

5. PROSPECT FOR LARGE DEVELOPING ECONOMIES: SOME COMMENTS

Instead of formulating a final form and practical guidance from various policy options – in particular, for example regarding the implementation of the Bhagwati tax proposal that resembles citizenship taxation – this section explores several points that can help address the prospects of taxes in reducing brain drain in LDE. The points in this section are intended to stimulate further research.

5.1. The Bhagwati Tax Proposal and Non-Discrimination Rule

Bhagwati’s proposal that was developed towards citizenship-based taxation opens the possibility of violations of the non-discrimination principle. In taxation, non-discrimination emphasizes the need for the same tax treatments in the same situations, as well as the justifications for different tax treatments in different situations. In the context of taxation, according to Holmes (2007, 400), the term discrimination is defined as a less favorable tax treatment of a particular tax subject compared to other tax subjects under the same conditions.

In the international tax system, the non-discrimination principle also acts as the most prominent forewarning and is stipulated in Article 24 of the OECD Model, which stipulates the avoidance of discrimination in specific conditions.¹⁸

With regard to Article 24, it is necessary to distinguish acceptable different treatment (legitimate distinction) and unacceptable treatment (unjustified discrimination). Examples of different acceptable treatment regulated in the tax provisions of many countries are differences in the imposition of taxes that rely on the taxpayer’s ability to pay (ability to pay principle), i.e. as reflected in progressive rates. Different treatments become unacceptable if the objectives are at least based on economic considerations. In short, as argued by Adonnino (1993, 22), such treatment is applied arbitrarily.

The question is: to what extent can differences in citizenship justify different tax treatment?

On further inspection, discrimination in the context of Article 24 of the OECD Model may be defined as: (i) unequal treatment for the same (comparable) cases, or (ii) the same treatment for dissimilar (incomparable)

¹⁸ OECD Commentary on Article 24, Paragraph 2.

cases.¹⁹ In this context, the OECD expressly states that every country that carries out any tax treaty is prohibited from discriminating against the resident status in another contracting state, based on the status of nationality, in applying the tax treaty.²⁰

This is stated in Article 24 paragraph (1) of the OECD Model: “Nationals of a Contracting State shall not be subjected in the other Contracting State to any taxation or any requirement connected therewith, which is other or more burdensome than the taxation and connected requirements to which nationals of that other State in the same circumstances, in particular with respect to residence, are or may be subjected. This provision shall, notwithstanding the provisions of Article 1, also apply to persons who are not residents of one or both of the Contracting States.”

Through Bhagwati’s tax proposal, the use of citizenship-based taxation has the potential to violate the principle of non-discrimination. As the scheme provides different (dissimilar) tax treatment under the same conditions, namely where non-resident citizens and non-residents are treated differently, i.e. one home country has the taxing rights while the other does not.

5.2. Exit Tax Is Only Appropriate for Emigration Driven by Tax Motives

The experiences of various countries related to exit taxes provide an important lesson, i.e. even though the exit tax prevents the transfer of resident status for individuals, its application serves as an anti-avoidance provision (Kubicova 2016). Put differently, it acts as an instrument to prevent changes in resident status triggered by tax motives, either in the context of avoiding capital gains tax or an effort to seek lower tax burdens in other jurisdictions.

Such a statement can be proven by the implementation of the exit tax provision as one of the six measures initiated by the European Union in the Anti-Tax Avoidance Directive (ATAD). Unfortunately, none of the ten LDEs reviewed as case studies in this article apply an exit tax. However, lessons from similar developing countries, such as South Africa, have shown that the exit tax is intended to prevent emigration encouraged by tax motivation (Mazansky 2010).

From the perspective of large developing economies, the application of an exit tax would be more relevant if associated with high-net-worth individuals. This proposal is further driven by the notion that with the

¹⁹ According to IBFD (2005, 124), discrimination is defined as “In international tax context discriminations most often takes of the form of different treatment of taxpayers whose situations are comparable except in respect of characteristics such as nationality.”

²⁰ Nationality is defined as citizenship status for individuals or, for companies, the place where it is established.

non-optimal tax system and governance, changes in HNWI's resident status in developing countries may be motivated not only by tax factors but also related to efforts to cover up illicit financial flow, corruption in the political sector, and transnational crime (Buchanan, McLaughlin 2017, 8–9).

5.3. Bhagwati's Tax Proposal Without Earmarked Budget is Ineffective

The issue of brain drain alone cannot be completely resolved with citizenship-based taxation rights, embodied in the Bhagwati tax proposal. Citizenship tax can only address the prevention of potential revenue forgone from the tax base (citizens) that emigrate, but it is not necessarily effective in preventing emigration (loss of human resources). In essence, citizenship tax does not create a disincentive for high-skilled individual to emigrate, since the decision to emigrate may not be compelled by the tax factor in the home country as a push factor, implying that they can enjoy a high income in the host country while still contributing to the home country through taxes

Moreover, considering that brain drain is a loss for the home country, due to the loss of skilled human resources beneficial to economic development, revenue from citizens who become residents of other countries can only reduce the impact of brain drain if it is directly dedicated to improving the labor market, education, and R&D in the home country. Without an earmarked budget scheme, home countries can find themselves in a situation that resembles the “flypaper effect” (Crowley, Hoffer 2018). In the absence of an earmarked budget, the Bhagwati tax proposal cannot restore the pre-conditions of brain drain, but only serves as a “tool” to increase individual tax income revenue at the global level.

In non-benevolent or corrupt and authoritarian governments, revenue without an earmarked budget can also encourage inappropriate behavior. In reality, this discourages the government to invest in the provision of quality public goods, while concurrently “transferring” the government's responsibility to another country and encouraging emigration to transfer the “burden” of public goods provision, by allowing a maximum flow of emigration, thus (prospective) high-skilled citizens may (attend school and) earn income. In return, the government obtains tax revenue from the emigrants.

5.4. Prospects of Global Acceptability of the Bhagwati Tax Proposal

There are at least three things to consider regarding the prospects of implementing the Bhagwati tax. First, with the increasingly relevant concept of citizenship-based taxation, there will be potential for asymmetrical taxation rights in the future. Disputes and debates on

international tax fora related to personal and economic connecting factors may re-emerge.²¹

The fiscal preferences and tax sovereignty of each country seems to be too strong to simply “succumb” in order to address the brain drain issue. As such, middle-ground solutions are required, for instance, the abandonment of the principles of residence and citizenship, which would be replaced by time-tests that better reflect increased individual mobility (Beretta 2019, 107–10).

Second, there is a concern that with the transition to citizenship-based taxation, each country will compete to discourage the change of citizenship status (for home countries) or offer the change of citizenship status (for the host country).²² The former presumption is most likely true, while the latter is not necessarily the case. The migration policy and citizenship status of a country will be increasingly relevant in regard to a culture of openness and will be influenced by national security issues (Adamson 2006, 165–99). Thus, any matter that may “disrupt” the national security agenda is subject to long and careful consideration.

Third, the prospect of successful implementation of the Bhagwati tax will depend on how the proposal is linked to the world’s main concerns. Accordingly, the brain drain issue and the Bhagwati tax proposal must be linked to a new development agenda (Brauner 2010), in which case, large developing economies, along with BRICS countries (Brazil, Russia, India, China, and South Africa), may play an important role in advocacy at the global level (Pistone, Brauner 2015, 385–92).

5.5. Citizenship-based Taxation Tests the Consistency of Developing Countries Concerning Favor Towards the Source Country

The Bhagwati tax proposal is heading towards taxation in favor of the citizen’s country (highlighting personal attachment) whereas to date,

²¹ This primarily relates to dual residents. Article 4 paragraph (1) of the OECD and UN Model does not define resident taxpayers. Provisions concerning such a matter are stipulated in the domestic provisions of the two countries establishing the tax treaty. As such, what determines whether a tax subject is a resident taxpayer in the countries that enters into the treaties is based on the domestic provisions of the two countries. If the tax subject is a resident taxpayer in both countries (dual resident), Article 4 paragraph (2) and (3) provide guidance to address the dual resident issue through a tie-breaker rule that aims to prevent double taxation, hence the tax subject may only be a resident taxpayer in one country. Subsequently, the tie-breaker rule determines the residency status of an individual through the tests of a permanent home, vital interest, habitual abode, nationality, and through Mutual Agreement Procedure (MAP). See Schwarzenhofer (2005, 20) for further reference.

²² Presently, many countries have offered citizenship by investment, as practiced by Cyprus, Malta, Moldova in Europe, and Dominica, Grenada and St. Lucia in the Caribbean.

most of the capital importing countries – which are developing countries – tend to be proponents of the source country (highlighting economic attachment). On various occasions, developing countries often voice their demands for a fairer (greater) allocation of taxation rights to the source country as well as “accusations” against the OECD Model (Pistone, Brauner 2015, 480). The siding results from the differences between the OECD Model and the UN Model – as a representation of developing countries.

The demand of developing countries, as importers of capital, for greater taxing rights for the source country stands on the argument that active economic activities are, in essence, carried out in the source country (sometimes referred to as the market jurisdiction). Conversely, the taxing rights of the resident country, as the location of the capital owners, should be limited.

In the context of the Bhagwati tax, the position of developing countries (labor exporters) may differ. Are the arguments for granting taxation rights to developing countries also valid and in favor of the same principles when developed countries (capital exporters) claim their rights? This question is worth exploring and can lead us to other intense discussions, such as whether the host country (a developed country) will demand a withholding tax mechanism or not.

5.6. Revenue Sharing and Demand for an International Tax Organization

Revenue sharing is essentially made possible through the presence of global organizations in the tax sector. In 2015, at the UN Third International Conference on Financing for Development, held in Addis Ababa, Ethiopia, there was a discussion and plan to establish an International Tax Organization (ITO).²³ G77 developing countries were initially eager to permanently transform the UN Committee of Experts on International Cooperation in Tax Matters (UN Tax Committee) into the ITO, as a global tax system formulation mechanism that no longer requires that the OECD play a role. This idea was challenged by developed countries. In the end, the forum only agreed to strengthen the UN Tax Committee’s capacity, and not to its transformation.

In some literature, the ITO is expected to perform several functions, for instance, monitoring trends and statistics concerning the tax situation on a regular basis, acting as an international tax forum, providing advice and solutions to global tax problems, and supervising information exchange cooperation (Tanzi 2016). Although interesting, the notion of

²³ In this conference, 193 countries agreed to improve the performance of state revenue mobilization. These efforts are called for to finance 17 Sustainable Development Goals (SDG’s) 2016–2030 agenda, as a further commitment of MDG’s.

the ITO conflicts with tax sovereignty. The tax sovereignty is intended to maximize the welfare of the population, guarantee income redistribution, oriented towards national interests, side with the community, and guarantee democratic values (Dagan 2013).

Clearly, ITO would reduce the freedom of each country to design its tax system in accordance with its national orientation. Such an opinion is not fully acceptable. As a matter of fact, the ITO is believed to be able to guarantee tax sovereignty (Dietsch 2015). After all, the tax sovereignty of every country has been eroded without the ITO. The sovereignty of countries in designing corporate income tax policies has diminished. As pointed by IMF (2014, 13), governments are now unable to formulate tax policies in a “closed” environment, but consider the measures currently undertaken by other countries and how they may impact the economy. The ITO guarantees tax sovereignty to the same degree in all countries.

The idea of the ITO is increasingly relevant to the fact that tax non-compliance and fair allocation of taxation, caused by increased labor and capital mobility amid various tax systems of different countries, has become a global issue. Securing the tax base from erosion can now be categorized as one of the global public goods, not unlike environmental sustainability, the stability of international financial markets, global security, and others (Kaul *et al.* 2016). The ITO is an expected solution to the tragedy of commons, which in this case refers to fair share tax (Tanzi 2016, 256–59).

5.7. The Relevance of Substantive and Enforcement Jurisdiction

When Bhagwati submitted his proposal more than 40 years ago, the idea of supporting tax collection by the host country seemed utopian. In the course of time, the discussions regarding the development of international taxation, specifically in the context of the digital economy, underline the increasing relevance that the role of jurisdictions in collecting taxes that they are not entitled to.

Hellerstein (2003) proposes a new concept in terms of tax jurisdiction, with two jurisdiction categories, based on their power to tax, namely the substantive jurisdiction, related to the power of a state to impose a tax on the subject matter of an exaction; and the enforcement jurisdiction, related to the power of a state to compel collection of the tax over which it has substantive tax jurisdiction.²⁴

²⁴ As quoted by Hellerstein (2003): “*Substantive jurisdiction to tax includes such questions as whether a state has the power to impose a tax on the income that a non-resident earns from sources within the state, or to impose a tax on goods or services purchased outside but consumed within a state. ... Enforcement jurisdiction includes such questions as whether a state has power to enforce the collection of a tax on income earned by a non-resident from sources within the state, or whether a state has power to enforce*”

This classification can be applied both in terms of income tax and consumption/value added tax and has four possible scenarios, namely (i) the substantive and enforcement jurisdictions are both available; (ii) the substantive jurisdiction is available but the enforcement jurisdiction is not; (iii) the substantive jurisdiction is not available, but the enforcement jurisdiction is; (iv) neither the substantive nor the enforcement jurisdiction is available. Problems arise if the combination does not occur symmetrically (both are available/not available).

In other words, the policy design of substantive and enforcement jurisdiction allocation should be one of the points to be formulated, especially in the context of the Bhagwati tax proposal. Furthermore, we should be aware that the principle of sovereignty prevents a country from claiming taxes in areas outside the country without strong taxation rights. Fortunately, at the international level, assistance in tax collection has been made possible by the 2003 revision of the OECD Model.²⁵

5.8. Promoting Tax Incentives as a Quick Response

Within the framework of tax competition, the tax incentive instrument is the best and most rational way for developing countries to help ensure their involvement in the global arena. Compared to Bhagwati's proposal, tax incentives are a relatively risk-free domestic instrument as opposed to the international tax system (for example, treaty override potentials).

Moreover, concerns about the massive development of tax incentives, which may lead to harmful tax practices frequently mentioned in the Base Erosion and Profit Shifting (BEPS) Project Action Plan 5, are groundless. Tax incentives related to the migration of residents are connected to substantial economic activity (OECD 2019). Notably, in the context of brain drain, the generally debated income is the salaries of employees that are part of active economic activities.

As such, to what extent can tax incentives be effective in addressing the issue of brain drain? The answer is unclear, given that in the context of brain drain, the motive is not always the tax factor in the home country. Nonetheless, efforts to design incentives that can exceed quantified returns and non-economic factors (lifestyle, ease of bureaucracy, etc.) are worth trying. To be more effective, as suggested by Del Caprio *et al.* (2016), it would be best if the tax incentives were embodied and combined with other non-tax incentives.

the collection of a tax on goods or services purchased by an in-state consumer from a remote vendor."

²⁵ See Article 27 and Commentary of the OECD Model Tax Convention regarding Assistance in the Collection of Taxes.

Tax incentives can also be designed to create an ecosystem that keeps high-skilled individuals in the home country, for example, cost-based tax incentives (e.g. for R&D activities, training costs for certain skills) or profit-based incentives (tax holiday for labor-intensive sectors). These incentives would encourage technological development, improve the quality of human resources, and ensure employment for certain skills.

6. CONCLUSION

Considering the situation in large developing economies regarding international migration, the use of tax instruments in addressing the brain drain, although weak, is justifiable, especially considering the fact that they also enjoy benefits from high-skilled emigration, ranging from high remittance rates, reduced unemployment, prevention of social unrest, and a large tertiary-educated population in their countries. There are at least five things that can be concluded from the assessment of the four policy choices.

First, there is no stand-alone tax policy that can optimally address brain drain, in the sense of reducing the number of high-skilled individuals who emigrate. An exit tax may serve as the best possible policy, however, considering that the majority of individuals from large developing economies do not yet have sufficient wealth and income, the imposition of an exit tax shortly before departure abroad will not have much effect. Moreover, the exit tax is more appropriate if associated with the issue of preventing tax noncompliance, such as tax avoidance and tax evasion.

Second, most policies focus more on the element of fairness to compensate for the “loss” caused by the host country. This is found in Bhagwati’s tax proposal and revenue sharing, which prioritizes a “guarantee” of revenue for the home country. For large developing economies, this guarantee of revenue is certainly useful, but without an earmarked budget scheme to improve the economic situation and job opportunity, such a guarantee may encourage misallocation, and therefore the root causes of brain drain would remain.

Third, almost every available policy requires better coordination at the international level. Potential non-discrimination principle and dual resident violations (the Bhagwati tax proposal) and dependence on the existence of international tax organizations (revenue sharing) undermine human rights since they discourage migration (exit tax). In this context, tax incentives seem to be the most rational policy. One thing is certain, the role and voice of large developing economies are called for (though they may not necessarily be influential) in order to raise the issue of resolving brain drain in international forums.

Fourth, all policy options require closer collaboration with immigration agencies. All taxable events, as well as the enforcement of

these policies, require clearer information on the immigrants' home country, duration, time of return, migrants' economic capacity, and background. At the present, the capacity of the tax administration, especially the cooperation in information access among tax authorities and immigration authorities in developing countries may be suboptimal.

Fifth, each policy has the potential to produce unintended consequences. For instance, there is competition for nationality status and a wave of tax incentive competitions for highly-talented individuals. These two things will ultimately be unable to constrain migration rates.

In conclusion, notwithstanding the fact that the available options are quite promising, there is no ideal policy. In the end, the problems raised in this paper are expected to stimulate future research.

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