

The economic and legal dimension of the migration of intellectual and human capital as a threat to national security: The role and possibilities of public administration

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Abstract: The relevance of the study is due to the fact that intellectual migration has become a reality of our days, its flows in the world are increasing every year, having a significant impact on affected countries, their economic development, global competitiveness and national security. The currently observed change in the main characteristics of migration necessitates deepening of research in this area of knowledge. The article represents an attempt to comprehend the nature and essence of today emigration of intellectual human capital both in developing and developed countries, and consequences of appropriate migration processes based on multi-aspect approach.

Keywords: *Brain drain, Emigration, Financial monitoring, Intellectual capital migration, Money laundering, National security, Stability, Politics.*

1. Introduction

The “brain drain”, or the exodus of intellectual human capital, is a major worry for emerging or impoverished nations, especially since it became an essential reality following World War II (WWII). Following the war, professionals such as engineers, physicists, and physicians from underdeveloped nations traveled to the United States and other industrialized nations in search of better educational opportunities as well as a more promising economic and social future. According to Brock and Blake (2014), the brain drain refers to the exodus of highly skilled individuals from developing nations to developed nations, specifically with the intention of settling permanently in the developed nations. Due to their ability to improve technical competence and enrich the competency culture of their home countries, highly skilled labor is seen as a valuable resource for the nations from which it originated. The industrialized world provides advantageous incentives to draw highly skilled people from the undeveloped and emerging nations in order to alleviate the scarcity of expertise in many disciplines (Byrkovych et al., 2023). Through the utilization of this invaluable human capital, the developed world creates expensive goods that it sells to underdeveloped nations.

The academic community continues to debate the issue of skilled labor migration, as Western nations continue their efforts to draw in highly qualified individuals (Avedyan et al., 2023). For instance, in 2000, the European Union made a concerted effort to recruit skilled workers. The UK, Ireland, France, and Germany implemented measures in this regard, and the European Commission completely supported them (Boeri et al., 2012). Underdeveloped or emerging nations, who already struggle with a lack of trained labor, lose their highly skilled human capital in this scenario.

Ironically, though, the issue of brain drain, or intellectual mobility, is not limited to underdeveloped nations. In 2000, Doug and colleagues examined the phenomenon of knowledge workers leaving Canada for the United States (brain drain) and entering Canada from other countries (brain gain) (Doug et al., 2000). This tendency has only gotten greater today. According to statistics collated by CBC News, tens of thousands of Canadians are leaving their country for the United States, and the number of persons leaving for the south has reached a level not seen in ten years or more (*Emigration from Canada to the U.S. hits a 10-year high*, 2024). According to the most recent UN statistics, there were around 800,000 Canadians residing in the United States as of 2020 - eight times more than the 100,000 who reside in the United Kingdom. More over 126,000 persons immigrated to the United States from Canada in 2022, up 70% from the previous year, according to recent statistics from the U.S. census (Cowen, 2024). Fig. 1 below evidently shows alarming situation.

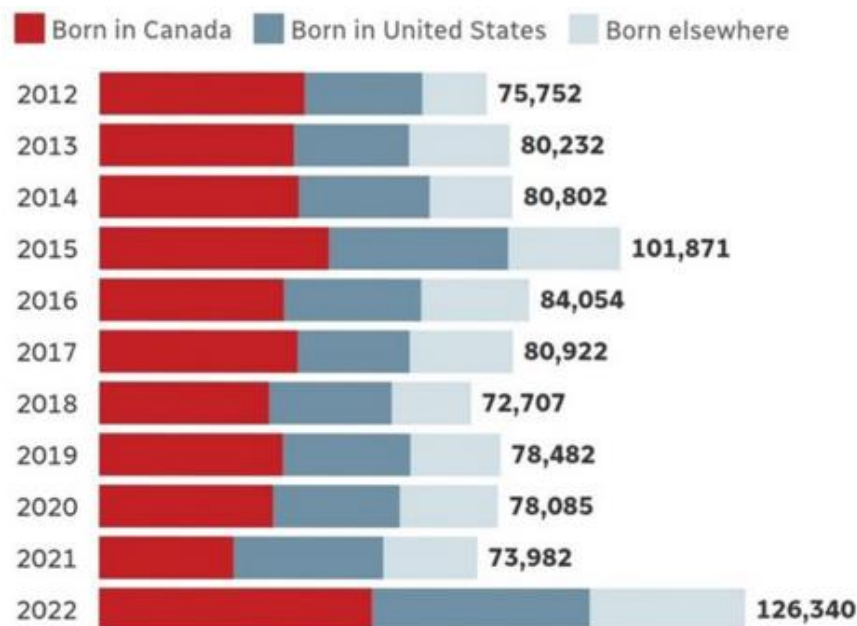


Figure 1.
Number of Canadian emigrants to the U.S., by place of birth (Cowen, 2024).

Some poll respondents believe that the only reason Canada has been able to attract bright individuals from third-world and non-democratic nations is because those individuals are yearning to leave (Tasker, 2024).

The desire for a more economical lifestyle is one of the factors driving the spike, according to real estate brokers and immigration attorneys who assist Canadians in making the shift. However, others claim to have lost trust in Canada as a result of Prime Minister Justin Trudeau's leadership and are instead seeking the American ideal, according to these agents and attorneys (Tasker, 2024).

Over the course of many migration waves to the United States, the characteristics and reasons for migration of Canadians have changed. The first wave, which started in 1867, was made up of

uneducated Canadians who spoke English and French and were lured to the US by the abundance of industrial employment. 440,000 French-speaking immigrants and 747,000 English-speaking immigrants from Canada were counted in the 1900 U.S. Census. Due to their easy access to the border, the bulk of Anglophone Canadians settled in states like Michigan, New York, Massachusetts, Illinois, and Rhode Island (Ramirez, 2001).

In the second half of the 20th century, the pattern of migrant exchange between the United States and Canada has undergone significant change, particularly with the passage of the North American Free Trade Agreement (NAFTA) in 1994. There is a noticeable "brain drain" in Canada as the immigrant population has changed to include students, highly educated professionals, and those looking to reunite with family (Semenenko et al., 2020). Compared to both native-born Americans and all other foreign-born Americans combined, immigrants from Canada often have significantly higher levels of education (Deyneha et al., 2016). A bachelor's degree or above was held by 43% of Canadian immigrants (those over 25) living in the United States in 2012; this percentage was greater than that of 28% of all foreign-born Americans and 29% of native-born Americans (Gaman et al., 2022). It is clearly brain drain for Canada and brain gain for the USA.

Thus, both developing and developed countries face the challenge of brain drain. Although root causes of intellectual capital migration in these two categories of countries are different, the trend represents an evident threat to national security for both.

2. Literature Review

Assessing the degree of scientific development of the problem, it is necessary to state that in scientific works on the problems of intellectual migration, various aspects of this process are covered (Klymenko et al., 2016). Some publications consider the problems in isolation from global changes, which requires additional research (Ostapenko et al., 2023). In other works, this process is detailed within the framework of one country or one region - as a result, a fragmentary picture of intellectual migration is formed, which prevents the readers from seeing the scale of this global phenomenon (Panasiuk et al., 2020). While there is the abundance of literature devoted to issues of international and state regulation of migration, the problem of political management of the process of intellectual migration in the context of global transformations has been studied only in certain aspects and has not received comprehensive coverage in the works of scientists.

Despite the growing number of publications on the movement of labor resources, unity in approaches to the migration of intellectuals, to the assessment of its consequences has not been achieved (Borodina et al., 2022). In the works of various authors, attention is concentrated mainly on individual important aspects of the migration of intellectuals, as well as on numerous features of this process (Isaieva et al., 2020). There is no comprehensive presentation of the process of migration of intellectuals on the scale of the world economy (Vinichuk et al., 2023). There is a lack of theoretical study of the impact of intellectual migration on the socio-economic development of the world-system as a whole.

In the early part of the 20th century, a large number of European scientists and other professionals emigrated to the United States, a phenomenon known as "intellectual migration" (Shavarskyi et al., 2022). The notions "brain drain", "brain gain", and "brain circulation" have been more popular in recent decades due to academic and policy disputes surrounding these topics (Solomitsky et al., 2020). By expanding on the fundamental ideas of intellectual capital, intellectual nodes, intellectual gateways, and intellectual peripheries and their significance for an individual's social and spatial mobilities, as well as for tying internal and international migration together, Li et al. (2021) provide context for the framework.

Even though they now make up less than 4% of the global population, over three-quarters of foreign migrants are in the working age range of 20 to 64 (Kovaliv et al., 2023). As more than 30% of international students in OECD countries stayed after receiving their degrees with various types of permit in 2019, international students (6.36 million in 2020) and degree holders (39 million in OECD countries) have formed the pipeline of highly educated/skilled migrants (OECD, 2022) (Litvinova et al.,

2020). The scientists among them are three times more internationally mobile than the non-scientists, claim Czaika and Orazbayev (2018). One-fifth of all college-educated migrants in OECD nations came from China, India, and the Philippines alone, even though the percentage of mobile scientists received by North America, Northern, and Western Europe fell from over 67% in the 1970s to below 60% in the 2000s (Bailey and Mulder, 2017). Meanwhile, from fewer than 9.8 million two decades ago to more than 11.6 million in 2019 are skilled migrants traveling from the Global North to the Global South (OECD, 2023).

A collection of intellectual nodes at the institutional level and intellectual gateways and intellectual peripheries at the regional level result from intellectual migration as a geographical phenomena (Zayats et al., 2024). To be more precise, an intellectual gateway is a region that has a greater number of high-quality intellectual nodes, an intellectual periphery is a region that has fewer intellectual nodes, and an intellectual node is a knowledge-based institution such as an academic/research institution or a major employer of skilled workers (Li et al., 2021). These three ideas, which directly link society and the knowledge economy, show how policies that redistribute intellectual infrastructure development in space and promote agglomeration economics can influence the nature of the knowledge economy (Novak et al., 2022). These concepts add a multi-level spatial component to the analytical framework of intellectual mobility. It involves a maze-like network of nodes and linkages that produce and distribute knowledge (Kubiniy et al., 2021). Intellectual hubs serve as self-reinforcing knowledge bases at the institutional level by attracting highly trained personnel and students from higher education (Arivazhagan et al., 2023). When the knowledge sector employs recent graduates from nearby colleges, intellectual hubs are strengthened (Boeri et al., 2012).

In the meanwhile, the issues of regional development and intellectual security in society have received very little attention in the literature (Zilinska et al., 2022). In the field of economic and management research, there are still many “quaestio unexplored” issues related to intellectual security in general and the influence of globalization on the sustainability of intellectual security in particular (Mishra et al., 2022). Meanwhile, a society’s intellectual potential’s quantitative and qualitative features define its level of intellectual security (Koser, 2016). It is a complicated idea that has to be viewed from a variety of social, political, cultural, and theological perspectives in the modern era.

The pull-push forces hypothesis is the most frequently applied in theoretical foundations (37.4%) among the several ideas that have been put out to explain the reasons behind elite movement (Skovronska et al., 2023). According to the findings, the main influences on elite migration were increased wealth and the pull and push factors of the destination nations, the country of origin’s repellent forces, global trends, and individual and family variables (Vakili and Mobini, 2023). Nevertheless, a type of paradigm change is being seen in the movement of intellectual capital; in particular, the concept of “digital nomads” and the geopolitical aspects of migration are becoming more and more important.

3. Methods

The study was conducted using dialectical and system analysis methods. The comparative political method, system approach, and institutional analysis were also used in the study.

The theoretical basis of the research includes political economy, institutionalism, world-system analysis, macrosociology, and the theory of the knowledge economy.

4. Results

In 2020, a comprehensive evaluation of 17 research was conducted with the intention of examining the scope and mode of elite migration’s influence on the advancement of home nations, as well as the prospects and obstacles for governance in this domain (Gaievska et al., 2023). The findings revealed the variables and factors influencing the three primary concerns at the heart of migration and development: a) brain drain and development; b) the financial flows that accompany elite movement; and c) the role of immigrant elite communities in development (Gavkalova et al., 2022). The findings also demonstrated

the complexity and multifaceted nature of the possible effects of elite mobility on development, requiring policymakers to take a multifaceted approach (Gupta et al., 2024). Depending on the nation and its economic and social tendencies, the effects of elite migration may be favorable or unfavorable and may present possibilities or challenges for the advancement of the economy, society, and humankind (Khosravi et al., 2020).

The intellectual migration (IM) framework, which includes every key idea at several levels, is shown in Fig. 2. It emphasizes that several levels of elements are covered by the IM framework, ranging from macro global and national to regional, institutional, and micro individual/agency level, with certain ideas that are interrelated (Kondur et al. 2024). Important analytical ideas missing from previous migration conceptualizations are present in the IM framework.

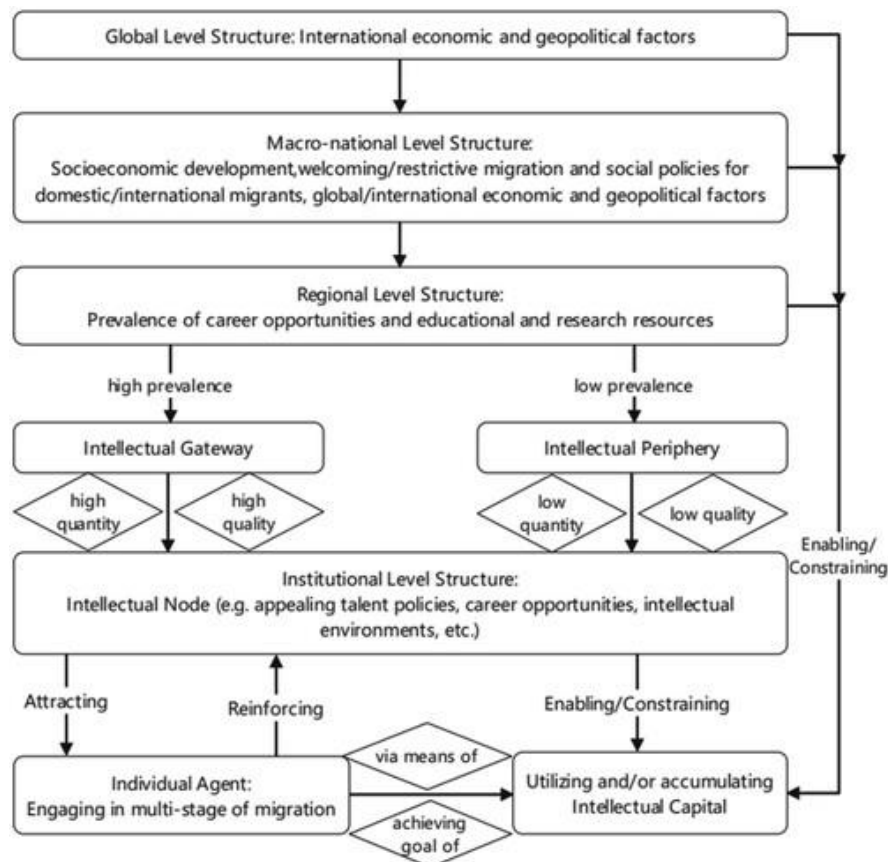


Figure 2.
Intellectual migration framework (Li et al., 2023).

According to Li et al. (2023), intellectual migration is the process of gaining, collecting, and/or using intellectual capital for upward social and economic mobilities in space. Intellectual capital is a multifaceted notion that incorporates several types of capital, such as human, social, cultural, and symbolic capital, at the person or agency level (Kalyayev et al., 2019). These capitals interact and reinforce one another when migrants consciously participate in them, such that a growth in one form might spur growth in the others, increasing their total influence beyond their sum (Tan et al., 2023).

In the nations that make up the Organization for Economic Cooperation and Development (OECD), which includes the United States, the United Kingdom, France, and Germany, there has been a noticeable trend of talent mobility, according to Kerr et al. (2016); 85% of the entire migration rate at

that time was made up of highly qualified people who are drawn to these countries, particularly from non-OECD nations.

Iran faces difficulties in the professional affairs of specialists, including the migration of many specialists abroad to improve their educational and professional conditions. Iran is a developing country with a young population, many of whom are studying or recent university graduates (Azadi et al., 2020). This academic exodus tendency, sometimes referred to as “elite migration” or, less optimistically, “brain drain”, has accelerated recently. Iran’s immigration yearbook figures show that the number of Iranian students studying overseas has been rising, rising from 19,000 in 2003 to 56,000 in 2018 (Iran Migration Observatory, 2020).

A fresh wave of Iranian flight has been spurred by the rise of the ultra-conservative cleric Ebrahim Raisi to the presidency, as well as the economic and social upheaval that followed his excesses and ineptitude (Zharovska et al., 2023). As more Iranians come to the conclusion that the Islamic Republic has turned their nation into a scorched earth and leave in search of safety, stability, and opportunity abroad, emigration from Iran is increasing once more (Ziabari, 2023).

However, as Canadian case shows, citizens’ dissatisfaction with country’s politics influence migration of intellectual capital even in developed countries. “I hate the politics here” (Tasker, 2024) – one of the narratives in today Canadian discourse.

Former Canadian foreign affairs minister Marc Garneau claims that under Prime Minister Justin Trudeau, who he condemns as an unprepared leader who puts politics first and makes bold promises without following through, Canada has lost its reputation in the world.

In turn, migration of intellectual capital has different albeit threatening consequences for national security of affected countries (Gupta et al., 2021). While in developing countries one of the consequences is decrease in ‘educational security’ (since brain drain negatively affects not only development of national economy but also on effectiveness and competitiveness of educational system), in developed countries emigration of intellectual capital leads to negative change in the economic structure, reducing the share of ‘knowledge-based’ industries, thus deteriorating relative competitive advantage of the country.

5. Discussion

As was previously noted, brain drain is the exodus of intellect and expertise from one nation to another and is regarded as a barrier to the social and economic advancement of that country. Aytac and Aydin (2019) assert that the brain leak is not limited to the skills lost as a result of migration, and that recent graduates’ aspirations to work or study overseas also contribute to the brain drain’s beginning. Boyle and Kitchin (2014) claim that brain drain occurs when a smart, competent, and youthful population feels that their home country’s growth trajectory is failing and they decide to move in search of better opportunities.

According to a study by Heidari Sourshajani et al. (2021), the main factors motivating elites to migrate abroad were improved welfare and social security, job satisfaction, freedom of speech, high research credits and facilities, lack of onerous rules for them, following the law, and the country’s communication infrastructure.

Returning to the Canada example discussed in the Introduction section, it is important to highlight that Canada has developed a reputation over the last ten years as a hub for emerging IT talent. In particular, the Toronto/Kitchener/Waterloo corridor is a great destination for aspiring IT professionals to receive top-notch training and education (Kryshtanovych et al., 2022). The issue is that Canada struggles to retain skilled IT workers. The phenomenon known as “brain drain” refers to workers who complete their education in Canada before moving abroad to find job (mostly in the US). About 0.7% of Canada’s population leaves the country for the US each year. Many of those individuals are competent workers looking for better-paying positions (Kussainov et al., 2023). Students in the IT field receive their education in Canada, where educational standards are excellent, fees are cheap, and government subsidies are frequently available (Nekhai et al., 2024). They leave Canada after completing

their schooling to take lucrative jobs with IT businesses in the United States. Although the Bay Area (Silicon Valley) is a well-liked travel destination, high-paying jobs are available around the country. The two primary drivers are financial gain and brand awareness (Ortina et al., 2023). Most of the well-known IT companies that recent graduates aspire to work for have their headquarters in the US. Additionally, Canadian IT professionals make a lot less money than their American colleagues. The average IT worker in Canada makes \$100,000 CDN, or \$74,000 USD. Even while that is more money than the typical Canadian makes, it is still far less than what they might make in America using their same talents. Pay is nearly twice as high in the Bay Area (145k USD), New York (133k USD), and Seattle (138k USD). Even employees in less well-known American IT centers like Washington (123k USD), Chicago (114k USD), or Denver (117k USD) make a lot more money than Canadians. Employee relocation is highly incentivized financially (*A primer on the Canada tech brain drain and how to address it*, 2023).

Today, brain drain along with radicalism is another concern. Specifically, a World Bank research based on documents that were stolen by the Islamic State reveals no connection between radicalization and either poverty or educational attainment (Burke, 2016). Those who want to be suicide bombers tend to be among the wealthiest and most educated recruits to Islamic extremist groups. Richer nations were shown to be more likely to provide Isis with foreign recruits, and neither poverty nor inequality was a factor in participation in violent extremism.

It is still unofficially unknown how many Muslim women from the West joined ISIS. In addition, authorities in several European nations, the US, Australia, and Canada are consistently reporting new instances of women being detained at airports on suspicion of attempting to enter Syria or indicating on social media that they would be willing to make the hijra (Erelle and Potter, 2015). The profiles of Western female migrants exhibited a notable degree of variation, according to research conducted by the Institute for Strategic Dialogue. Because of this, it is hard to compile a comprehensive list of women who may be radicalized by ISIS on the basis of their age, geography, nationality, family history, or religion (Peresin, 2018). Although even younger females have attempted to fly to Syria, the majority of these girls and young women are between the ages of 16 and 24. Though the number of converts is also rising, most of them are immigrants who are Muslims, typically from the second or third generation (Popovych et al., 2023). A large number of girls and young women have good prospects for education and life in the West and come from well-established, moderate, and non-radicalized families. Examples of this include Aqsa Mahmood (also known as Umm Layth), the privately educated and trained radiologist from the UK, and other girls who have dropped out of school, are students, or are already well-educated and purportedly possess a certain level of intellectual independence (Press Association, 2014).

The trend of digital nomadism is yet another noteworthy occurrence. Companies claim that, in particular, they are severely lacking in young talent in Portugal as graduates travel abroad in search of better employment opportunities (Tymbaliuk et al., 2023). Portugal's largest publicly listed lender is in need of engineers, mathematicians, and digital marketers to assist in expanding its online banking infrastructure; yet, the nation has not had enough young talent in the last ten years due to a brain drain brought on by the country's sovereign debt crisis (Vorobei et al., 2021). According to Business Roundtable Portugal, a consortium of the largest private enterprises in the nation, about 40% of the country's graduates depart each year in quest of better employment and living circumstances abroad (Lima and Almeida, 2023).

The irony is that, despite its recent successes in luring foreign residents to the nation, the Portuguese government's policies may have made hiring more difficult (Yermachenko et al., 2023). The country's mild climate and alluring coastline, together with a flat tax of 20% for non-habitual inhabitants, have attracted rich retirees and distant workers, driving up home costs and discouraging recent graduates from settling there (Zalyubovskii et al., 2024). In an attempt to lower real estate prices, the tax credit that was granted for ten years to those who had not resided in the nation for five years was recently eliminated.

Portugal's situation is exceptional, but it should serve as a cautionary lesson for other European countries that are struggling to hold onto young people in the face of rising living expenses (Melyk et al., 2022). The cost of residential housing has risen in the largest cities on the continent in recent months, a trend that has been made worse in many areas by the migration of remote workers and wealthy-attraction government initiatives.

According to employers, there is a significant shortage of entry-level candidates at this point. In remarks to Bloomberg recently, Vasco de Mello, the chairman of the Jose de Mello Group, a family-owned holding company that manages the largest network of private hospitals in Portugal, referred to the current state of affairs as “demographic hell”. Meanwhile, Antonio Amorim, the CEO of Corticeira Amorim SA, the largest cork producer globally, cautioned during a conference earlier this year in Lisbon that businesses would have to relocate if the youth drain persists (Lima and Almeida, 2023). Startling data is provided by Portugal's National Statistics Institute (see Figure 3).

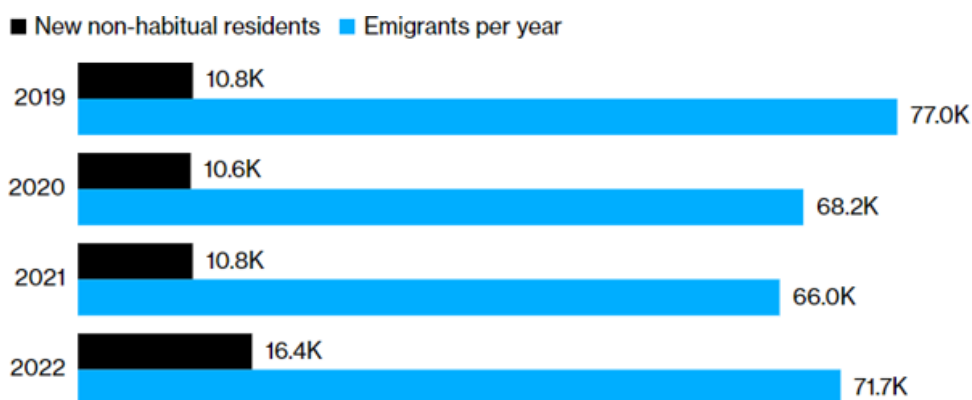


Figure 3. Dynamics of the number of new non-habitual residents and emigrants in Portugal per year, 2019-2022 (Lima and Almeida, 2023).

According to figures provided by the Emigration Observatory in Lisbon, Portugal has the seventh highest emigration rate in the world as a percentage of population, with around 25% of its people residing outside. Rui Pena Pires, who heads the organization, thinks that a person with qualifications is two or three times more likely to leave Portugal than someone without any abilities (Lelyk et al., 2022). According to him, the UK, Ireland, Belgium, and other northern European nations attract the majority of skilled laborers (Lima and Almeida, 2023).

The last implication of brain drain for national security is deterioration is the size and structure of election base, since not only the number of voters reduces but also the part of voters who have strong educational base and abilities to make well thought-out decisions diminishes (Shamne et al., 2019). The political and legal consequences of this can represent a crucial threat to national security already within short-term (one electoral term) perspective.

In these all above-mentioned conditions, representing motley landscape of intellectual human capital migration, the natural question arises – what national public administration bodies can do to rectify the situation.

Naturally, there cannot be universal ‘recipes’, and policies for each individual country will differ depending on a plenty of determining factors (Panasiuk et al., 2021). However, for any case, increase investments into certain areas of the economy, broad application of public-private partnership and multiple-helix models, stabilizing and optimizing political landscape, ‘smartization’ of infrastructure, gentrification of appropriate areas, encouraging startups and entrepreneurship, facilitating employee participation in profits and property through tax or other incentives, clusters creation strategies seem to be ‘must-to-provide’ mechanisms. Cooperation of universities and coopetition also represent promising tools.

6. Conclusions

Placing the employee and citizen at the center of the value creation is the only way today in fighting brain drain and its negative consequences for national economies and national security. Moreover, rather than setting large-scale goals, the achievement of which is difficult to observe, it is expedient to pay much attention to prevention of brain drain in communities.

In instance, recent research of rapidly developing metropolitan areas throughout the US reveals that gentrification benefits original residents of a neighborhood more than previously believed (Romei, 2019). Rather of making the situation of those who leave worse off, the trend raises college enrollment and lowers the likelihood that many people who stay - including the most disadvantaged - will live in poverty.

Innovation clusters including government agencies, businesses, and academic institutions might be a useful tactic to stop brain drain and encourage regional growth.

Moreover, political participation intensification can be ensured in the best way also on local levels, and local political stability and optimization is capable of mitigating dissatisfaction with national-level politics, thus also contributing to reducing emigration of intellectual human capital.

Any programs aimed at reducing the rate of intellectual human capital emigration should be built on the principles of a differentiated, customized and targeted (community-based) approach to intellectual migrants, effective monitoring, and an effective “feedback” system in the implementation of decisions.

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