

BRAIN DRAIN IN NORTH MACEDONIA: CAUSES, CONSEQUENCES, AND REMEDIES

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Abstract: Brain drain, the emigration of educated and skilled professionals, represents a critical challenge for North Macedonia. Over the past decades, the country has witnessed significant outflows of talent, particularly among young, educated individuals, as they seek better opportunities abroad. The 2021 census showed a loss of 200,000 inhabitants, and despite the declining birth rate migration is regarded as the number one cause of this situation. This trend seriously affects the nation's economic, social, and demographic landscape. The causes of brain drain in North Macedonia stem from domestic and external factors. Domestically, the lack of adequate career opportunities, low wages in key sectors such as healthcare, education, and engineering, as well as relative differences in income, drive professionals to seek employment elsewhere. Political instability and perceptions of widespread corruption further erode confidence in the country's ability to offer a secure and rewarding future. Young people often cite nepotism and limited merit-based progression as barriers to their professional growth. On the external side, the promise of higher salaries, better living standards, and professional advancement in Western Europe or North America acts as a powerful magnet. Additionally, North Macedonia's proximity to the European Union (EU) and aspirations for EU membership make migration both easier and more desirable for its citizens. The consequences of this brain drain are multifaceted and intense. Economically, the loss of skilled workers reduces knowledge base and entrepreneurial spirit, challenges productivity and innovation, and undermines the country's potential for sustainable growth. Key sectors, especially healthcare and education, are left struggling to fill critical positions, resulting in declining public service quality. The departure of young and educated individuals exacerbates demographic challenges, including a shrinking working-age population and an increasing dependency ratio. Socially, brain drain contributes to the erosion of social cohesion and can deepen regional inequalities as rural and underdeveloped areas are disproportionately affected by emigration. To address the brain drain, the country needs a comprehensive approach to address root causes while also leveraging the potential of the diaspora. This research aims to identify and analyze the root causes and impact of brain drain in North Macedonia. It seeks to uncover the socioeconomic, political, and institutional factors and examine the demographic and developmental consequences this trend imposes on the region. Additionally, the study will evaluate the effectiveness of policies designed to address brain drain challenges, exploring how they mitigate the consequences and foster talent retention. The research is based on available data analysis, including population data, statistics and trends in population growth, unemployment and employment, education levels, and structure per industry or profession. Research on brain drain in North Macedonia highlights its significant social and economic consequences, including the loss of skilled professionals, weakened public services, and worsening demographic imbalances. These findings underscore the urgent need to address gender disparities, social instability, and inadequate career opportunities to retain talent and ensure sustainable national development. By addressing the structural and systemic issues driving brain drain, North Macedonia can transform this challenge into an opportunity for long-term growth and development.

Keywords: brain drain, emigration, North Macedonia, labor market, brain drain policies, socio-economic impact

1. INTRODUCTION

In October 2024, MIA (Macedonian Information Agency) reported that "Macedonia ranks 5th in Europe for brain drain", reflecting on the published the final audit report from the performance audit "Effectiveness of measures to prevent the drain of higher education and professional staff" (State Audit Office of North Macedonia). Similarly, IOM ranked North Macedonia among the top 20 countries in the world with the largest emigration abroad, while according to World Bank, nearly 40 percent of population with higher education has left the country. Finally, according to the Global Economy Brain Drain Index, North Macedonia is in the high fifth place (out of 41 European countries), which clearly shows that the country is facing a major loss of talent.

The term “brain drain” was coined by the British Royal Society to refer to the exodus of scientists and technologists from the United Kingdom to the United States and Canada in the 1950s and 1960s (Cervantes and Guellec, 2002). Although the term originally referred to technology workers leaving a nation, the meaning has broadened into “the departure of educated or professional people from one country, economic sector, or field for another, usually for better pay or living conditions” (Merriam-Webster, 2010).

In social sciences, it reflects critical challenges for any country facing it, as the consequences are multifaceted. Building on the data above, North Macedonia is not an exception. In North Macedonia, the issue of brain drain was earlier known as a traditional migration: most of the citizen would have family members who would go to work and live abroad, so-called “печалбари” [ˈpɛtʃal̩bar] in the local language, with meaning of migrant workers, someone who immigrates to earn money, bread winners (“Печалбар“, Дигитален Речник / Digital Dictionary). However, in recent years, the trend has been significantly increased especially as it involves highly skilled and educated people, diverting from the traditional image of the 20-century “печалбари” that would assume lower skill levels and more labor-intensive professions.

Over the past few decades, the country has experienced significant outflows of its workforce, particularly among young, educated individuals. The combination of high unemployment, political instability, and limited career opportunities domestically drives many to seek better prospects abroad, often in Western Europe, the United States, Canada, or Australia. This phenomenon not only exacerbates population decline but also severely impacts the country's economic and social development.

The 2021 national census confirmed the severity of the situation, revealing that North Macedonia's population had shrunk by approximately 200,000 people compared to the previous census in 2002. This represents a significant loss for a small country with a population of just 1.8 million people. Migration, rather than natural demographic factors like declining birth rates, is identified as the primary driver of this population decline (Samardjiev, 2022).

According to the World Bank, North Macedonia's labor force participation rate for ages 15–64 declined by 1.3 percentage points in 2022. The country has also recorded a consistently negative net migration rate over the past two decades, with around 25% of the population living and working abroad. Many of these emigrants are young, skilled professionals from high-demand sectors such as IT, healthcare, engineering, and education.

Yet, it is very hard to ensure high data accuracy with respect to the extent of the brain drain, and the detailed demographics, and consequently to tailor appropriate policies to address this issue. This paper aims at delving into the issue aiming to explore reasons, consequences and policies to address the brain drain in North Macedonia, acknowledging the limitations in the research and the availability of statistics in support of the research.

2. METHODS

The issue of brain drain is extensive and complex and there have been many attempts to explore it. This paper will address the brain drain in North Macedonia through desk research of the primary and secondary sources, and statistic data provided by numerous organizations, including but not limited to: the World Bank, International Labor Organization (ILO), International Monetary Fund (IMF), Organization of Economic Cooperation and Development (OECD), State Statistical Office of North Macedonia, State Audit Office of North Macedonia, UNFPA, World Economic Forum, International Office of Migration (IOM), as well as other research papers, publications, and reports.

The main goal of this research is to analyze the causes, effects and potential solutions to help policymakers, institutions, and governments make informed decisions with respect to the brain drain in North Macedonia. More specifically, this research aims to:

- Understand the factors driving the emigration of skilled professionals.
- Evaluate the consequences of brain drain on both origin and destination countries.
- Propose strategies to mitigate its adverse effects and leverage its potential benefits.

To achieve the stated aims, the study focuses on the following objectives:

- To identify the root causes of brain drain
- To analyze the economic impact
- To assess social and educational effects
- To study return migration trends
- To propose strategies and policy recommendations

3. RESULTS

As the brain drain is a complex issue, the reasons prompting people to leave their countries are equally complex and multidimensional. Yet, a proper identification and understanding of the causes of brain drain is a first step towards

designing effective policies and finding solutions. Overall, the factors affecting the decisions for migration and the brain drain can be classified in the following groups:

A. Economic Factors: Low wages, high unemployment, limited job prospects, and lack of career growth are key drivers of emigration. Specifically:

- **Limited Opportunities for Youth:** Despite general employment improvements, young people struggle due to few new jobs, skill mismatches, and lack of professional pathways.
- **Labor Shortages and Outmigration:** Emigration of skilled workers has led to shortages, especially in construction and services, where low wages and lack of qualified candidates make positions hard to fill.
- **Aging Population:** As the population ages, labor gaps grow, pushing younger workers to seek better-paying and more stable markets abroad.

B. Political and Institutional Issues: Corruption, inefficient governance, and lack of political stability can erode trust in national institutions, prompting people to seek opportunities in more stable environments.

With respect to the above, it becomes obvious that the economic and political factors are prevailing, at least in case of North Macedonia. According to research, corruption has been identified as (number) one reason for brain drain, “along with limited career opportunities and distrust at the systemic level, motivates individuals to seek a better life abroad. The normalization of corruption and a lack of motivation to effect change further contribute to the emigration of highly skilled individuals.” (Jovcheska, ETICO, UNDP, 2024). According to Jovcheska, corruption is pervasive at both institutional and societal levels, leading to: limited career opportunities, systemic distrust and lack of motivation for change.

Another survey yielded similar responses regarding the reasons for leaving the country: Bribery, corruption, politics, dissatisfaction from education, health, rule of law, pollution, finances. (Fakulteti.mk, Survey, 2024). Ultimately, corruption not only drives professionals abroad but also deters foreign investments, further limiting domestic job growth and economic opportunity.

C. Education and Skills Mismatch: Often, education systems fail to align with market needs, leaving individuals with qualifications but no relevant employment opportunities at home.

D. Quality of Life and Social Services: Inadequate healthcare, education, and infrastructure contribute to dissatisfaction, especially among young people and professionals, encouraging them to migrate to countries with better public services and living standards.

E. Global Opportunities and Pull Factors: Countries in need of skilled labor often actively recruit talent through higher salaries, scholarships, and better research or career opportunities, creating a strong pull factor.

A survey conducted by **Fakulteti.mk (2024)** highlights additional factors contributing to brain drain, including dissatisfaction with education, healthcare, the rule of law, finances, and environmental conditions. These issues collectively create an unfavorable quality of life that motivates emigration. These interconnected socioeconomic challenges not only push skilled individuals to emigrate but also make it difficult for governments to reverse the trend without significant systemic reforms.

Emigration from North Macedonia is most common among young people (ages 20–30) and entire families, with youth making up nearly 50% of emigrants. Men and women emigrate in roughly equal numbers. Employment patterns show that men from the Western Balkans often work in construction and manufacturing, while women are employed in cleaning, sales, personal care, and healthcare roles (OECD, 2022).

According to the State Statistical Office, 52% of emigrants have secondary education, and 20% hold tertiary degrees. With over 70% having at least secondary education, this points to both a youth drain and a brain drain.

While the overall unemployment rate in North Macedonia declined slightly to 14.4% (World Bank, 2023), youth unemployment remains alarmingly high at 31.8%, which is more than double the EU average. Young people are particularly prone to emigration due to a combination of economic and social factors:

- **High Youth Unemployment:** In North Macedonia, young individuals are two to three times more likely to be unemployed, leaving them with limited prospects for stable employment and financial independence.
- **Family Reunification:** Many young people, particularly those aged 19 or younger, leave to join their families who have already emigrated.
- **Education Opportunities Abroad:** A substantial portion of young emigrants consists of individuals in their early to mid-20s who have completed their upper secondary education (typically at 18 or 19 years of age). Many of these students do not return after completing their studies, as they find opportunities to stay and work in their host countries.

The loss of young people is particularly concerning because they represent the most productive and innovative segment of the population. The combination of high youth unemployment and labor shortages creates a vicious cycle: young, skilled individuals see no reason to stay when opportunities are better abroad, while domestic

industries suffer from workforce deficits that hinder economic development. Their emigration deprives North Macedonia of both immediate and future contributions to the economy and society.

In addition to young individuals, entire families are increasingly emigrating, often in structured or phased patterns. The main patterns observed include: staggered migration (one spouse leaves first), whole-family emigration regardless of job status, young couples without children. These family migration patterns highlight the collective nature of the decision to leave. Rather than individuals emigrating alone, families often prioritize the overall well-being of their members, seeking a better future for themselves and especially for their children.

Macedonians emigrating for better opportunities predominantly choose destinations that offer economic stability, employment opportunities, and higher living standards. These destinations can be categorized into European countries, traditional overseas migration hubs, and emerging non-European destinations. Most common European destinations for citizens of North Macedonia are Germany, Switzerland, Italy, Austria and Slovenia. As for countries outside the continent, the data confirms that there is still great interest in emigrating to Australia, the United States and Canada. At the same time, interest in emigrating to other receiving countries (Qatar and the United Arab Emirates, among others) is growing. (Migration in North Macedonia: A Country Profile 2021, IOM)

The destinations identified above align with trends observed in the Macedonian diaspora. Although there is no precise data on the number of Macedonians in each country, established diaspora communities play a key role in facilitating migration. The presence of family members or cultural associations in countries like Germany, Australia, and the United States creates strong pull factors by offering social support, housing assistance, and access to job opportunities. (IOM).

Migration and the brain drain has led to significant economic and social consequences for the home country:

Economic Consequences:

- **Labor Shortages:** Sectors like healthcare, education, and tech lack skilled workers
- **Lower Tax Revenues:** Emigration reduces contributions to social and tax systems, straining public budgets.
- **Reliance on Remittances:** While helpful short-term, remittances can't replace the long-term loss of skilled labor.

Social Consequences:

- **Brain Waste:** Migrants are often underemployed abroad, wasting their skills.
- **Weakened Institutions:** Loss of professionals harms essential services like healthcare and education.
- **Family Separation:** Migration splits families, affecting mental health and social cohesion.

Accurately assessing the scale of emigration from North Macedonia is hindered by gaps in data and the complexities of migration patterns. Eurostat often lacks complete records for key destinations like Germany and the UK, underreporting short-term and informal migration (Balkan Insight, 2016). Additionally, over 65,000 Macedonians have acquired Bulgarian passports to gain EU access (Euractiv, 2020). These individuals are counted as Bulgarian nationals, further distorting emigration statistics. As a result, the true scale of brain drain is underestimated, complicating policy responses and diaspora engagement efforts.

4. DISCUSSIONS

The Government of North Macedonia, with support from domestic and international partners, is pursuing policies to prevent further brain drain and promote brain gain.

In 2012, the **Center for Research and Policy Making (CRPM)** published *Developing Brain Gain Policies in Macedonia*, identifying key areas for reform—migration policy, education, and employment legislation. Interviews with skilled returnees emphasized the need for stronger institutions, depoliticized administration, better infrastructure, affordable loans, and lower communication and travel costs.

The **IOM Strategy for North Macedonia (2022–2025)** focuses on tackling root causes of emigration through data collection, policy development, and targeted socio-economic programs, aiming to transform brain drain into brain gain.

An **IMF working paper (2022)** notes that income gaps with Western Europe will remain a strong pull factor. It recommends policies to encourage diaspora return, such as easing business startup barriers, aligning regulations with the EU, and improving skills recognition.

In practice, the Government offers **scholarships for top universities abroad**, requiring recipients to return and contribute locally. Additionally, programs like **Fulbright, Erasmus, and Ron Brown** help strengthen the future workforce by supporting academic and professional development abroad.

To address brain drain, policymakers must develop a comprehensive strategy focused on prevention, reversal, and long-term solutions. Key policy approaches include:

- **Prevention Strategies:**

- Economic Development: Create jobs, increase wages, and attract investment to provide local employment opportunities for skilled workers.
- Education Reform: Align education and vocational training with market needs to ensure that graduates have relevant skills for the domestic job market.
- Improved Working Conditions: Enhance professional environments, research opportunities, and job satisfaction, particularly in sectors prone to emigration, such as science and healthcare.
- Strengthen Governance: Reduce corruption, improve political stability, and foster trust in institutions to create a more favorable environment for residents.
- **Reversal and Return Incentives:**
 - Implement programs to attract emigrants back to their home country, such as offering financial incentives, tax breaks, or career advancement opportunities for returnees.
 - Foster partnerships between the diaspora and home institutions to encourage knowledge transfer and collaboration.
- **Long-Term Remedies:**
 - Diaspora Engagement: Recognize the potential of the diaspora to contribute to national development through investments, skills sharing, and entrepreneurship.
 - Innovation and Entrepreneurship Promotion: Support startups, research initiatives, and technology hubs to create local opportunities that retain talent.
 - Improved Quality of Life: Invest in healthcare, education, infrastructure, and housing to enhance living standards and reduce emigration pressures.

5. CONCLUSIONS

The groups leaving North Macedonia include a mix of young people and entire families, all driven by overlapping factors like unemployment, better education opportunities, family reunification, and improved quality of life abroad. The loss of young talent and family units not only accelerates population decline but also creates skill shortages, undermining economic development and exacerbating demographic imbalances. To reverse this trend, it is crucial to ask: What are the reasons for brain drain, and How can North Macedonia create opportunities that give young people and families a reason to stay, invest, and build their futures domestically?

The brain drain from North Macedonia reflects both historical migration patterns and evolving global opportunities. European countries like Germany, Switzerland, and Austria remain the most attractive due to their proximity, economic prospects, and labor needs. Meanwhile, Australia, the United States, and Canada appeal to those seeking long-term stability and higher living standards. Emerging destinations like Qatar and the UAE offer short-term financial opportunities, contributing to new migration trends.

Brain drain is often driven by a combination of economic, institutional, and social factors that compel individuals, particularly the skilled and educated, to emigrate in search of better opportunities. In the context of North Macedonia, several interconnected causes stand out, as supported by recent data and expert analysis. By identifying the root causes of brain drain, analyzing its demographic, economic, and social impacts, and designing targeted policies, countries like North Macedonia can work toward retaining their talent, attracting returnees, and leveraging their diaspora for national development. A multi-faceted approach that prioritizes economic growth, institutional stability, and improved living conditions will be essential to mitigating the long-term effects of brain drain.

The lack of comprehensive data from Eurostat and the use of Bulgarian passports for migration significantly obscure the true scale of emigration from North Macedonia. While official numbers suggest a high level of migration to European countries, the actual figures are likely much higher.

To address brain drain effectively, policymakers must:

1. Improve Data Collection: Collaborate with international organizations and receiving countries to fill statistical gaps.
2. Account for Alternative Citizenship Pathways: Recognize the role of Bulgarian passports in migration trends and find ways to engage with Macedonian emigrants abroad, regardless of their official nationality.
3. Develop Evidence-Based Policies: Use enhanced data to design targeted policies that address the causes of emigration and create opportunities for citizens to remain in or return to North Macedonia.

Ultimately, understanding the true scope of brain drain is critical to reversing its effects and fostering national development. The causes of brain drain in North Macedonia—high youth unemployment, labor shortages, corruption, systemic distrust, and dissatisfaction with education, healthcare, and governance—are deeply interlinked. To address these challenges effectively, policymakers must adopt a multi-dimensional approach that includes:

- Combating Corruption: Strengthen rule of law, enforce anti-corruption measures, and create transparent systems for public administration and employment.
- Improving Employment Opportunities: Invest in sectors with high potential for job creation, particularly for young people, while addressing skills mismatches through education and vocational training reform.
- Enhancing Quality of Life: Prioritize improvements in healthcare, education, environmental sustainability, and overall governance to make staying in the country more attractive.
- Restoring Trust: Foster public confidence in institutions by ensuring fairness, accountability, and meritocracy in employment and governance.

Ultimately, the policies set the stage for a long-term goal achievement, but their implementation necessitates collaboration among stakeholders, continuity and consistency, as the decades-long issue cannot be resolved overnight.

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