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DECODING AFGHAN EMIGRATION: INFORMING EU POLICY AMID THE MIGRATION CRISIS AND BRAIN DRAIN FROM AFGHANISTAN

Najib Rahman Rahmat

University of Economics in Bratislava, Slovakia

In August 2021, the collapse of the ex-government in Afghanistan triggered a notable emigration crisis, marked by economic decline and social instability. This crisis resulted in a substantial brain drain, depleting skilled professionals and adversely affecting essential services provided by the interim government. In response to Afghanistan's emigration crisis, the EU prioritized human rights, governance, counterterrorism, humanitarian aid, and the safe travel of vulnerable Afghans to the EU as part of the emergency response plan. The EU is cautious to prevent a potential migration crisis in some EU countries, aiming to avoid a repeat of 2015. Additionally, human rights groups emphasize the need for safe evacuation, resettlement in the EU, and relaxed immigration policies for Afghans. They criticize the current EU efforts as falling short, highlighting the necessity for a more sustainable, informed policy response in the EU and Afghanistan to Afghan immigrants, refugees, and evacuees. Thus, the study's main objective is to investigate the factors influencing the emigration decisions of Afghans and also of Afghans with various education levels. In light of these findings, the study provides policy recommendations to origin and destination countries. In two steps, using a random effect logistic regression model with a panel cross-sectional dataset, significant findings emerge. The first step confirms the significant impact of economic, social, and demographic factors on the emigration decisions of Afghans. In the second step, findings for different education levels indicate that individuals with a master's degree are significantly influenced by political instability and connections with the diaspora abroad, rather than economic or demographic factors. Bachelor's degree holders, in addition to political instability and family ties abroad, show a strong association with insecurity as determinants of their emigration decisions. In contrast, other educational categories, such as the uneducated, high school graduates, and vocational school graduates, exhibit a significant correlation with all three factors - social, economic, and demographic. These findings have policy implications for addressing challenges arising from Afghanistan's brain drain at the origin and Afghan immigrants in the destination (EU).

Najib Rahman Rahmat

PhD student, Department of Economics, Faculty of Economics and Finance,
University of Economics in Bratislava, Slovakia
Research interests: international migration, labor market globalization, human capital, regional economic development

E-mail: najib.rahmat@euba.sk

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Introduction

In 2022, the global phenomenon of international migration continued to grow. According to the United Nations report, international migrants reached 281 million in 2022, which is 23% higher than in 2010 (United Nations, 2022). Interestingly, around 3.5 % of the world's population is currently residing in a foreign country—a percentage that has remained relatively stable since the 1960s (Özden et al., 2011).

While migration flows often involve individuals moving to developed countries, it is important to note that more than half of the total migration flows worldwide occur between developing nations (Sparreboom et al., 2020). It is worth noting that a substantial portion of these movements is constituted by individuals with lower and middle skill levels. When analyzing migration from the Southern (developing countries) to the Northern regions (developed countries), the prominence of high-skilled flows becomes relatively more evident.

The escalating pattern of migration, particularly skilled migration, is regarded as a notable facet of globalization. The confluence of potent labor supply pressures emanating from developing nations and augmented demand from developed countries for skilled migrants has substantiated this phenomenon. According to Berger (2022), the phenomenon of skilled individuals' international migration has a dual impact. While the demand for skilled migrants has proved advantageous for developed nations, it has also engendered a phenomenon commonly referred to as the "brain drain" effect within the countries of origin.

This effect denotes the emigration of highly skilled individuals from their homelands, leading to a depletion of the nation's human capital and yielding broader implications for its labor market, productivity, and overall economic growth. The brain drain effect poses considerable challenges for developing countries, as the loss of skilled labor can impede their capacity for innovation, technological advancement, and economic development. This predicament arises when countries invest in the education and training of individuals who subsequently migrate abroad, often in search of better opportunities and higher wages. Consequently, this phenomenon perpetuates not only the wage differential but also the cycle of brain drains, further exacerbating the challenges confronted by the countries of origin (Berger, 2022).

Among the developing countries, emigration from Afghanistan has increasingly been a regional and global issue for transit and destination countries and also for international organizations actively involved in humanitarian assistance efforts. According to a report by the International Organization for Migration (IOM), in the year 2020, Afghan nationals constituted the second largest group of refugees globally, around 2.6 million, surpassed only by Syria.

According to the United Nations High Commissioner for Refugees (UNHCR), most of these refugees, around 2.2 million, have sought refuge in neighboring Iran and Pakistan. Moreover, within Afghanistan itself, there are an additional 3.5 million internally displaced people who have been forced to flee their homes in search of safety and protection within the country's borders (UNHCR, 2023).

Afghanistan, a nation classified as a developing country, has been grappling with persistent economic and political instability ever since the Soviet Union's invasion in 1979. This protracted situation has precipitated prolonged periods of civil strife, societal instability,

and substantial outflows of individuals seeking refuge beyond the country's borders. Nonetheless, antecedent to these upheavals, Afghans were also engaged in relatively small emigration predominantly driven by economic imperatives (Marchand et al., 2014).

These statistics underscore the significant humanitarian, economic, and social impact of instability in Afghanistan, prompting a need for comprehensive research and analysis to explain the causes of large-scale emigration.

Recently, the collapse of the ex-government in August 2021 initiated a significant emigration crisis, characterized by economic decline and social instability. This led to a major brain drain, depleting skilled professionals like doctors and lawyers, negatively impacting essential services provision by the interim government.

For instance, academic professionals, including 400 professors from Kabul and 300 from Herat University, left due to interim government interference, safety concerns, and reduced salaries (BBC, 2023; Amau TV, 2023). Additionally, imposed restrictions by the interim government left 1.1 million girls unable to attend school and affected over 100,000 female university students, thus concerns about future development and the migration crisis from Afghanistan are heightened (UNESCO, 2023; Los Angeles Times, 2021).

Moreover, the successful evacuation of approximately 150,000 Afghans by the US, UK, Germany, Canada, Australia, and European Union (EU) resulted in a considerable brain drain of skilled professionals, which still continues, influencing governance dynamics in Afghanistan and migration crisis management in the region and destination countries (Kessler, 2021; BBC, 2022; Reuters, 2021; The Economic Times, 2021).

In response to Afghanistan's emigration crisis that arose post-government collapse, the EU prioritizes human rights, governance, counterterrorism, humanitarian aid, and safe travel of vulnerable Afghans to the EU. Committed to stability, the EU has contributed €1 billion since 2021 (European Council, 2023).

The European response involves urgent asylum calls and debates on refugee intake, with EU foreign ministers meeting to acknowledge the need for an emergency plan. However, they are cautious to reassure and avoid a potential migration crisis arising in some EU countries, emphasizing the need to prevent a repeat of 2015. Amid Afghan immigration concerns, human rights groups urge ensuring safe passage, resettlement, and relaxing immigration policies in the EU; however, the socioeconomic consequences of these measures are still a debatable and controversial topic in the EU.

Additionally, the International Rescue Committee (IRC) spotlights EU efforts falling short, underscoring the need for a more sustainable, informed policy response to Afghan immigrants, refugees, and evacuees (Salangi & Ali, 2023). Hence, exploring the Afghan migration nexus will provide significant insight for developing a sustainable and informed policy at the EU level as well as in Afghanistan.

Thus, this research intricately explores the causes of emigration and also the phenomenon of brain drains from Afghanistan, in consideration of economic and political instability and socio-demographic factors. Amidst an unprecedented emigration crisis, particularly affecting skilled professionals, the study seeks to untangle the nuanced factors influencing the emigration choices of Afghans and also highly educated and less educated Afghans.

These findings will tremendously help to explore the emigration nexus of Afghans for effective policy response of the EU and Afghan government to the recent migration crisis. Using strong statistical methods and looking at a large group of people, it highlights how

economic, social, and demographic factors influence the emigration patterns of Afghans with different levels of education. Additionally, its insights are invaluable for policymakers, academics, and humanitarian assistance and migration entities, underlining the imperative for collaborative measures between origin (Afghanistan) and destination countries (EU).

This collaboration aims to suggest policy recommendations, mitigating its socio-economic consequences and fostering a comprehensive response to the Afghan immigration crisis in both Afghanistan and the EU. The research is structured into sections covering literature review, methodology, results, discussion, and conclusion.

Research questions:

What are the factors driving emigration from Afghanistan?

What are the factors influencing the likelihood of highly educated Afghans to emigrate?

What kind of collaborative policies in Afghanistan and EU countries can mitigate socio-economic consequences of emigration from Afghanistan and address the Afghan migration crisis?

Literature review

Conceptual framework

Migration, a complex process shaped by factors in origin and destination countries, is analyzed through the "push-pull" and "stay, stay-away" approaches (Bodvarsson & Berg, 2013). Push factors influence emigration motivations, while destination factors also play a role. Economic considerations - livelihood, wages, and employment - are crucial, alongside social factors like instability and education. The impact of these factors on the emigration decisions of highly educated and less educated Afghans, the world's second-largest source of emigrants, remains inconclusive.

Additionally, the aspiration theory is gaining attention in migration and development research. It goes beyond rational choice, considering subjective desires and social influences in decision-making (Appadurai, 2004).

Higher education is often linked to increased migration likelihood, as it enhances perceived benefits in destination countries, emphasizes individual aspirations and opportunities' impact, and education in rural areas can fostergration desires (Sjaastad, 1962; De Haas, 2014).

When aspirations surpass local opportunities, migration tends to persist. However, the influence of factors inspiring the emigration decisions of educated and less educated individuals remains uncertain, especially in developing countries.

The potential impacts of brain drain on origin and destination

Brain drain is the emigration of skilled individuals, once considered purely negative (Berger, 2022), but recent studies show both positive and negative effects on the labor market and macroeconomics of the origin and destination countries. Examining the influence of emigration of highly skilled individuals on the labor market of their home country is a descriptive and theoretical pursuit.

However, few empirical studies show that 'brain drain' can negatively affect non-migrant workers' outcomes and overall productivity, with wage effects varying among similarly skilled workers (Elsner, 2022; Abdelbaki, 2009; Mahoodi, 2014).

Countries with higher income levels experience negative wage impacts (Docquier & Rapoport, 2012), while low-income countries may see positive effects (Mahoodi, 2014). From a destination perspective, the impact and integration of immigrants into, for instance, EU labor markets constitute a controversial policy discourse.

Nicolescu & Dragan (2020) conducted a study scrutinizing the influence of specific factors, namely age, educational attainment, and investment, on the integration of non-EU immigrants into the EU labor market and their subsequent employment. The findings revealed that non-EU immigrants, particularly those with tertiary education and aged between 18 and 64 years, exerted a substantial influence on employment outcomes. Consequently, the customization of ongoing educational and training integration policies is imperative, albeit accompanied by associated costs. Therefore, this study aims to provide significant insights on the various categories of Afghan immigrants and the factors behind their emigration decisions. will help the EU and Afghan policy development entities to be well aware of the causes, motivation, and individual characteristics of Afghan migrants.

The macro-level impact of immigrants on destination and origin countries varies based on heterogeneous characteristics of these countries. The impact of brain drains on human capital in developing nations is complex. Earlier theories anticipated the accumulation of human capital in countries of origin due to emigration of highly skilled individuals (Gibson & McKenzi, 2012).

However, the precise impact remains inconclusive. Human capital inefficiency, exacerbated by emigration, contributes to underdevelopment in developing countries. Mitigation strategies include remittances, return migration, and foreign direct investment, but their overall impact on the macroeconomics of the origin country is uncertain.

Fiscally, emigration leads to the loss of human capital and potential tax revenues (Kwok & Hayne, 1982). While remittances play a crucial role in economic balance, with evidence of a debate on the association between emigrants' educational levels and remittance patterns (Dustmann & Mestres, 2010). Further, diasporas mitigate human capital depletion, but the extent of their influence on emigration decisions of the origin country is debated (Terrazas, 2010).

Additionally, return migration contributes to brain gain in origin, particularly with skilled individuals (Stark et al., 1998). Moreover, skilled migration can have favorable net effects depending on migration duration and productivity disparities between the origin and destination nations (Docquier & Rapoport, 2012).

Thus, exploring the Afghan migration nexus will help both the origin and destination countries to develop a policy based on which the costs and benefits are accurately considered.

Fleischmann & Jaap (2010) explored the effects in their study, scrutinizing unemployment across more than 100 origin countries and 13 European destinations. The results revealed that immigrant unemployment is more prevalent in places with a high national unemployment rate. On the contrary, countries boasting a surplus of low-status jobs, a surge in immigration, and a higher GDP per capita witness lower immigrant unemployment. Interestingly, the impact of integration policies and welfare programs in destination countries appears to be minimal. Moreover, immigrants hailing from politically and economically stable and Western European nations face comparatively lower risks of unemployment.

Hence, this study aims to present ample evidence on diverse groups of Afghan migrants, highlighting their skills and education.

This information will enable the EU to formulate a policy response that thoroughly the characteristics of Afghan immigrants, as well as the economic structure and capacity of member countries.

Further, Skilled and highly educated immigrants can significantly shape economic development and reduce economic inequality in their destination. According to a 2021 study by Guzi et al. (2020), immigration played a crucial role in decreasing inequality across 25 EU countries between 2003 and 2017.

This aligns with theoretical expectations, emphasizing the positive impact of skilled migration on inequality reduction. The policy implication underscores the importance of strategically attracting skilled immigrants to address labor market needs and alleviate economic disparities.

However, the scale of migration remains a key factor influencing macroeconomic outcomes. Therefore, this research attempts to deliver substantial evidence pertaining to distinct groups of Afghan migrants, delineating their skill sets and educational backgrounds. The objective is to assist the EU in devising a policy response that comprehensively integrates the nuanced characteristics of Afghan immigrants while also considering the economic structure, labor market, and individual countries' characteristics of member states.

In summary, the skilled migration involves a spectrum of positive and negative consequences for both origin and destination countries. Effective strategies and nuanced policy approaches are essential to leverage the benefits while tackling challenges.

Country context

Evolution of education system in Afghanistan

The evolution of Afghanistan's education system reflects a positive and negative forces, shaped by political instability, armed conflict, and ideological shifts. The introduction of Islam supplanted earlier beliefs, fostering the emergence of significant learning centers (Khwajamir, 2016).

Formal education began in 1875 under Amir Shir Ali Khan, marking a transformative step (Khwajamir, 2016). The reign of King Amanullah Khan (1919-1929) brought advancements, including compulsory primary schooling and increased high schools, but opposition led to temporary closures of girls' schools and the king's exile (Samady, 2001; Khwajamir, 2016).

Habibullah Kalakany's brief rule in 1929 saw closures of girls' schools and recalls of female students abroad, with foreign-established schools facing shutdowns (Bamik, 2018). King Zahir Shah's reign (1933-1973) marked a gradual advancement in education with the founding of Kabul University in 1946 (Samady, 2001). But the Soviet regime from 1979 to 1989 and the subsequent regime change in 1992 constrained education to government-controlled areas, with disparate opportunities for women.

The Taliban's rule (1996-2001) imposed a strict ban on female education, transforming schools into religious madrasas, despite purported endorsements of equal education rights (Shorish, 1998). Unfortunately, effective measures supporting female education were lacking during this period.

From 2001 to 2021, Afghanistan experienced notable advances in education, with 10.5 million students, including 38% females, enrolled due to government initiatives (MoE, 2012).

The educational landscape boasted 40 public and 134 private universities (MoHE, 2023), fueled by private sector contributions (Ibrahimi, 2014).

Despite progress, challenges persisted, including cultural barriers, limited resources, security threats, corruption, and graduate unemployment (Easar et al., 2023). Post-2021 government collapse, hopes for women's education were dashed. Girls beyond grade 6 were banned from higher education, exacerbating an economic crisis.

The Taliban initially promised girls' return to school but later reversed it, causing frustration (Gannon, 2022; Kugelman, 2022). The interim government's actions risk undoing two decades of progress, particularly in higher education (Farr, 2022).

Thus, political transitions and conflicts influenced Afghanistan's education system. Despite progress, challenges persist, especially in rural areas, with a 37% overall literacy rate, while for youths aged 15–24 it is 65% (World Bank, 2021). Therefore, sustained efforts are crucial for universal and high-quality education access (Easar et al., 2023).

Emigration waves from Afghanistan

Afghanistan has undergone multiple waves of emigration pertaining to various factors, including political instability, armed conflict, economic adversity, and natural calamities. As shown in Figure 1 of the appendix, the initial wave can be identified by the presence of sociopolitical factors, particularly the onset of a war, which was initiated by the invasion of the USSR in 1979 (Ashrafi & Moghissi, 2002).

The Soviet-Afghan War (1979-1989) resulted in the displacement of numerous Afghans, prompting a considerable number to seek refuge in neighboring countries, such as Pakistan (3.2 million) and Iran (3 million). Roughly 6.7 million individuals departed the country during this period; however, around 4.5 million individuals returned in the early 1990s following a relative de-escalation of the conflict (Monsutti, 2006).

Subsequently, the second wave emerged because of the civil war that erupted among the various factions of Mujahideen subsequent to the withdrawal of Soviet troops in 1989, leading to widespread violence within the country. Mass emigration ensued when the Taliban assumed control over more than 95% of Afghanistan's territory in 1996 and implemented stringent societal regulations and restrictions. The civil war, drought, and economic challenges further compelled Afghans to seek improved opportunities elsewhere. Emigration during this period witnessed an increase from 2.6 million to 3.8 million, with many individuals fleeing to Pakistan.

The post-9/11 War on Terror (2001-2020) resulted in heightened emigration, internal displacement, and return migration within Afghanistan. As depicted in Fig. 2 of the appendix, the stock of international Afghan migrants grew from 4.7 million in 2000 to 5.9 million in 2020, with a noticeable decline in the early 2000s.

However, during this timeframe, approximately 5.3 million Afghan refugees repatriated through the UNHCR's Voluntary Repatriation program, which has been decreasing since 2016 (UNHCR, 2023a). Similarly, the number of internally displaced surged from 184,000 in 2003 to 3.4 million in 2022 (UNHCR, 2023b). Emigration waves were triggered by escalating armed conflict and political instability in 2007 and 2014, culminating in the government's collapse in 2021. Notably, the announcement of North Atlantic Treaty Organization (NATO) troop withdrawal in 2014 and the presidential election intensified the instability and increased emigration.

In figure 3 of the appendix, the upward trend of emigration from Afghanistan since 2011 has been influenced by insurgency intensification, ongoing peace negotiations with the Taliban, the contentious 2019 election, and the US-Taliban Doha agreement. According to the survey by Gallup, the collapse of the Afghan government in August 2021, following the US president's withdrawal announcement and failed peace talks, led to a remarkable 53% increase in individuals wanting to leave the country. Additionally, approximately 1.3 million new arrivals have been registered in neighboring countries (UNHCR, 2023c).

Further, the NATO alliance successfully evacuated around 150,000 Afghan individuals from Afghanistan, which led to a substantial exodus of highly skilled personnel, encompassing diverse professionals from government officials to legal practitioners. Analysts postulate that this brain drain may adversely affect the government's capacity to govern proficiently (Kessler, 2021; BBC, 2022; Reuters, 2021; The Economic Times, 2021), while one million Afghans migrated to Iran and 300,000 to Pakistan (Goldbaum & Akbary, 2022; Gul, 2021).

After the collapse, an average of 12,000 Afghan individuals left daily (Augustova & Karimi, 2021). However, neighboring countries intensified deportation efforts, with Iran forcefully repatriating around 18,665 Afghan nationals from 15 to 30 of December 2022 (IOM, 2022). This complex situation has resulted in a significant regional migration crisis.

The collapse of government caused a brain drain in Afghanistan, depleting skilled professionals like doctors, engineers, and lawyers. This hampers basic services, worsens the economic crisis, and affects girls' education.

For example, according to reports by BBC (2023) and Amu TV (2023), following the Taliban's takeover of Afghanistan, a significant number of academic professionals have left the country, including over 400 professors from Kabul universities and more than 300 from Herat University. The interference of the Taliban in academia, safety concerns, and reduced salaries have driven this exodus, resulting in a shortage of skilled faculty members. The decline in education quality has negatively impacted student interest. The Taliban's strict restrictions on education, especially for females, have left 1.1 million girls unable to attend school, and over 100,000 female university students are affected (UNESCO, 2023). This loss of talented individuals is causing a brain drain and raising concerns about the country's future development and progress (Los Angeles Times, 2021).

The extant empirical evidence pertaining to Afghanistan exhibits a predominant presence of diverse factors exerting an influence on the choice to emigrate. Several studies have revealed that, taking into account the socio-political milieu of Afghanistan, the crisis of emigration is intricately intertwined with the recent surge in political turbulence, social instability, and insecurity (Koser & Marsden, 2014; Loschmann & Siegel, 2015; Galanska, 2014).

Nevertheless, a plethora of scientific research has established climate change, land degradation, drought, and declining agricultural income as major contributors to social problems, resulting in both internal and external migrations (Privara & Privarova, 2019; Jacobs et al., 2015; Iqbal et al., 2018).

Additionally, a group of literature focused on the demographic factors such as age, family size, province, education, and gender as factors of emigration (Loschmann et al., 2014). Utilizing the survey in this study, approximately 27,401 individuals were asked to indicate the primary reason for their desire to leave their country. As a result, Figure 4 of the appendix presents the top 10 reasons, with insecurity or political instability and economic conditions emerging as the foremost factors among others.

Fig. 5 of the appendix reveals a significant concentration of Afghans intending to emigrate in the northwest and northeast regions. While the precise cause of this trend remains unclear, the provincial map effectively delineates the geographical pattern in the emigration intentions of the Afghan population.

Furthermore, this extensive survey queried approximately 17,220 individuals about their preferred destination country in the event of deciding to emigrate. According to figure 6 of the appendix, the majority expressed a preference for Iran, Europe, and Turkey, respectively. Notably, Iran and Turkey serve as the primary routes for Afghan emigrants heading to Europe.

Immigration to the EU

As of mid-2023, global displacement has reached 108.4 million, encompassing 35.3 million refugees and 62.5 million internally displaced, according to UNHCR (2023). Noteworthy is the EU's refugee share, exceeding 20%, primarily influenced by the conflict in Ukraine. The year 2021 witnessed 2.26 million individuals immigrating to the EU, with 1.12 million emigrating, resulting in a net immigration of 1.14 million. Migration played a crucial role in preventing a half-million reduction in the EU population in 2019. However, population decline occurred in 2020 and 2021 due to factors such as reduced births, increased deaths, and a decline in net migration, as reported by the European Commission (2023).

Moreover, as per the European Commission's data for 2022, the EU approved nearly 3.7 million initial residence permits, surpassing both the 2.9 million from 2021 and the pre-pandemic figures of 3.0 million in 2019. The noteworthy surge was particularly prominent in asylum-related permits (57%) and education-related permits (33%), with additional increases observed in work (18%), family (26%), and other categories (21%). Furthermore, citizens of Ukraine, India, and Morocco claimed the top positions on the list, respectively, and Afghanistan secured the 9th position (European Commission, 2023).

Employment of immigrants in the EU

As per the European Commission's findings for 2022, the EU workforce comprised 9.93 million individuals who were not EU citizens, constituting 5.1% of the total population aged, amounting to 193.5 million individuals. In terms of employment rates within the working-age population, there was a disparity, with EU citizens showing a higher rate of 77.1% in 2022, while non-EU citizens had a slightly lower rate of 61.9%.

Furthermore, certain sectors witnessed an over-representation of non-EU citizens in 2022, particularly in accommodation and construction, whereas they were under-represented in public administration, education, health, and professional activities within the EU labor market.

Afghan immigrants at EU

Following the Taliban's takeover in Afghanistan in 2021, EU member states conducted the evacuation of 22,000 associates by August, prioritizing vulnerable groups as part of EU commitment (European Commission, 2021).

Simultaneously, a significant majority of Afghans departed the country, crossing borders irregularly into neighboring countries or the EU. According to Frontex (the European Border and Coast Guard Agency), Afghans accounted for 11% of irregular EU border crossings by nationality in 2022 (Frontex, 2022).

As presented in figure 10 of the appendix, in 2022, first-time asylum applications in the EU surged to 878,195, marking a 38% increase from 2021 and a 52% rise from pre-COVID 2019. Afghans constituted 15.7% of total applicants in 2021 and 13% in 2022, ranking as the second-largest asylum-seeking group after Syria. Afghan applications witnessed a 34.7% increase from 2021 and a substantial 157% rise from 2020.

Methodology

Model specification

This research builds upon established scholarly work, employing a panel logistic regression framework to explore the impact of factors influencing emigration decisions. Since our outcome variable is binary, the logistic model is the most appropriate one (Bonney, 1987).

The data used in this research is a repeated annual survey with part panel and part cross-sectional. Therefore, considering the data, the study follows a three-step methodology. between fixed and random effect regression models. In the second phase, a panel binary logistic model is.

Finally, we implement a logistic marginal effect regression model to further analyze the data.

$$P(Y=1) = e^{(\beta 0+\beta 1X1+\cdots+\beta kXk)} \Big/ (1+\ e^{(\beta 0+\beta 1X1+\cdots+\beta kXk)} \text{ ……. (Logistics)}$$

In the logistic model, P(Y=1) signifies the likelihood of event Y=1. The independent variables, X_1 to X_k, have estimated coefficients from 0 to k. 'e' represents the natural logarithm. These coefficients, per Hosmer & et al. (2013), depict the impact on event likelihood. Logistic regression assesses emigration decision probability via a linear relationship.

Additionally, marginal effects pertain to changes in the probability of a binary outcome contingent upon variations in independent variables, all the while maintaining the constancy of other variables (Hosmer et al., 2013). The quantification of the marginal impact of the variable denoted as is formulated as follows:

$$Marginal\ effect_{it} = \beta_i \times p(y=1|X) \times (1-p(y=1|X)) \text{….. (Marginal Effect)}$$

Where $p(y=1|X)$ is the predicted probability of the binary outcome based on the values of the independent variables.

Ultimately, a series of specification tests, including the link test, Hosmer-Lemeshow goodness-of-fit test, and a multicollinearity examination referred to as the "variance inflation factor" (VIF), are implemented to verify the adequacy of the regression model and scrutinize logistic regression assumptions. Furthermore, potential heteroskedasticity. using STATA 17.

Suggested econometric model

$$Y_{it} = \beta_0 + \beta_1 EducationLevel_{it} + \beta_2 X_{it} + \beta_3 \gamma + \beta_3 \delta + \varepsilon_{it} \text{ , i=1,…, n}$$

Y represents the dependent variable across individual i and t period, which corresponds to the emigration decision. Education level serves as the primary variable under investigation

in the study, while X_{it} serve as controls for economic, social, and demographic factors that influence the emigration decision.

To control for time invariant fixed effect and time variant factors we also add $\beta_3\gamma$ and $\beta_3\delta$. Furthermore, ε_{it} denotes the random disturbances or errors associated with the variables. The detailed description of all variables is presented in Tab. 2 of the appendix.

Data

In this research, the Survey of Afghan People, conducted by the Asia Foundation, was utilized. The Asia Foundation is an international nonprofit development organization. The data represents all provinces, ethnic groups, and genders residing in Afghanistan, and the survey captures public opinion and perceptions of Afghan individuals regarding economic, political, and social matters. Data has been collected on an annual basis from 2006 to 2021.

The survey sample was randomly selected using a multistage, systematic sampling approach, resulting in a total of 148,196 observations (Asia Foundation, 2021).

For this paper, repeated panel cross-sectional data from 2016 to 2021 will be employed, excluding the year 2020 due to the unavailability of data caused by the COVID-19 pandemic. This time period was chosen based on the data's relevance to our variable of interest, comprising a total of 73,856 observations across the country. The limitation of data for some variables in the years 2017 and 2016, specifically “insecurity and income” might decrease the number of observations after regression.

Results

The purpose of the regression analysis was to investigate the impact of factors influencing the emigration decision of educated Afghans from 2016 to 2021. Since the dependent variable in this study is binary, ensuring dependable and consistent regression outcomes is the priority. Thus, the present study employed various model specifications and diagnostic tests. Subsequently, a logistic regression model at margins and a multi-sample logistic regression with robust standard error were employed. in the following sequence.

Diagnostic test results

To validate the assumptions of the panel logistic regression model, such as the absence of perfect multicollinearity among the independent variables, we employed the VIF (Variance Inflation Factor) test. The findings indicate a mean VIF of 1.10, which falls within the acceptable range below the lower threshold of 5.

Furthermore, the linktest results for proper model specification indicate that the model is correctly specified (hatsq=0.137). Moreover, the Hosmer & Lemeshow’s goodness-of-fit test (Prob > chi2 = 0.9571) also confirms the adequacy of the logistic model in fitting the data.

Additionally, to ensure that the model has no first-order autocorrelation, we also applied the Wooldridge test for autocorrelation in panel data. The result accepts the H0: no first-order autocorrelation. Besides, the paper also applied the Hausman test, the result of which suggested random effect regression models.

Finally, to address possible unevenness in the data and repeated patterns, we performed panel logistic regression at margins while using strong standard errors.

The subsequent section presents and discusses the results of this analysis.

In Tab. 5 of the appendix, after controlling for additional variables, the logistic random effect regression analysis at the margin and yearly margins analysis was conducted. The result of the panel random effect logistic regression at the margins indicates a significant positive relationship between education and emigration. implies that on average, a one-year increase in education increases the probability of emigration by 1.2%. Likewise, the marginal analysis for each year also shows a statistically significant direct relationship between education and emigration, except for the year 2017.

Additionally, political instability, insecurity, the efficiency of public services, and unhappiness within the country emerged as pivotal determinants for a considerable proportion of Afghan individuals contemplating emigration. Furthermore, our findings revealed that having family or relatives residing abroad (diaspora) and obtaining information via the internet exhibited a significantly strong positive impact on the propensity to opt for emigration compared to other factors.

Moreover, the analysis unveiled significant insights into the relationship between demographic variables and emigration intentions. Specifically, higher age and belonging to larger households exhibited a substantial negative correlation with emigration; however, it is weak compared to other factors.

Unraveling the influence of the social, economic, and demographical factors on different educational levels, Table 6 of the appendix reveals intriguing insights into the determinants influencing emigration decisions of educated Afghans. Particularly, individuals with a master's degree (18 years plus education) perceive political instability and family connections abroad as significant factors influencing their choice to emigrate, as presented in Model 5.

This means that political instability and links with family abroad (diaspora) increase the probability of an individual with higher education by 74% and 87%, respectively. In contrast, individuals with a bachelor's degree (16 years), as demonstrated in Model 4, consider insecurity in addition to political instability and family links abroad as influential factors impacting their emigration decision. This means that insecurity, political instability, and links with family abroad (diaspora) increase the probability of an individual holding a bachelor's degree by 38%, 24%, and 70%, respectively.

Furthermore, individuals with vocational institute degrees (14 years of education) consider economic factors such as income, employment, and internet use, along with political instability and family links abroad, as influential in their decision to emigrate. Among them, the influence of family links abroad (diaspora) is the strongest, with a 50% probability. In model 2, the decision of individuals with high school degrees (12 years of education) is influenced by all factors with higher probabilities.

While the decision of individuals with no formal education in model 1 is also influenced by all factors except economic factors and public services. So, in Models 1, 2, and 3, people with no education, high school graduates, and vocational school graduates think about political instability and family connections abroad, but they also care about economic, social, and demographic factors when deciding to move to another country.

Discussion

In August 2021, the collapse of the ex-government in Afghanistan triggered a notable emigration crisis, marked by economic decline and social instability. This crisis resulted in a

substantial brain drain, depleting skilled professionals and adversely affecting essential services provided by the interim government.

In response to Afghanistan's emigration crisis, the EU prioritized human rights, governance, counterterrorism, humanitarian aid, and the safe travel of vulnerable Afghans to the EU as part of the emergency response plan. The EU is cautious to prevent a potential migration crisis in some EU countries, aiming to avoid a repeat of 2015. Additionally, human rights groups safe evacuation, resettlement in the EU, and relaxed immigration policies for Afghans. They criticized the current EU efforts as falling short, highlighting the necessity for a more sustainable, informed policy response in the EU and Afghanistan to Afghan immigrants, refugees, and evacuees.

Thus, the study's main objective was to investigate the factors influencing the emigration decisions of Afghans and Afghans with various education levels. Additionally, the study's aim was to provide policy recommendations to origin and destination countries in light of the findings of the study.

The findings suggest that with increasing levels of education, social factors such as political instability, insecurity, and family ties abroad assume a substantial role in the emigration decision-making process. Therefore, the emigration patterns of highly educated individuals from Afghanistan are primarily contingent on the prevailing political instability and family links abroad rather than economic or demographic factors.

This finding is similar to Bein et al. (2011) and Lam (2022); however, the difference in approach, geographical location, and data is obvious. This insight underscores the need for targeted interventions and support mechanisms for individuals with advanced education. Additionally, from the perspective of the origin country, mitigating the brain drain requires understanding the magnitude and significant influence of family or relatives residing abroad (diaspora) and political stability and security. Thus, for both origin and destination countries, recognizing the role of diaspora connections and political stability is crucial for formulating cooperative policies that acknowledge and leverage the role of these factors (Bein et al., 2011; Lam, 2022).

The emigration patterns of less educated and uneducated Afghans are influenced by various factors, including political instability, economic conditions, public services, happiness levels, internet usage, diaspora connections abroad, and demographic factors. Notably, among all levels of education, political instability and family ties abroad strongly impact the emigration patterns of Afghans. Therefore, it is crucial to comprehend these nuances to tailor policies in both origin and destination countries that address the diverse needs and considerations of individuals with varying educational backgrounds (Simpson, 2022).

According to our findings, assigning greater importance and prioritizing policy interventions related to political stability, as well as leveraging the diaspora abroad, could significantly reduce the emigration intentions of Afghans.

Furthermore, the current refugee crisis serves as a compelling reminder, highlighting the need for concerted efforts to address pressing challenges. These challenges include stalled asylum reform, divergent asylum systems among EU member states leading to additional cross-border pre-screening, forced migration triggered by various factors, and political instability in origin countries, hindering the possibility of returns. Hence, it is imperative to align and coordinate immigration policies with the economic and social capacities of the country of origin.

Additionally, the EU institutions and member states initially made commendable commitments to aiding Afghans in accessing protection pathways to Europe post the 2021 government collapse; these efforts have fallen short nearly two years later. Promised resettlement schemes, especially in refugee resettlement, have lagged, and Afghan refugees still grapple with challenges like pushbacks, barriers to fair asylum procedures, and prolonged stays in undignified arrival centers.

Therefore, based on our research, a lasting approach to Afghan immigration that matches EU values should focus on improving education, boosting political stability, and using connections with Afghan communities abroad. Furthermore, for a comprehensive strategy involving both origin and destination nations, EU humanitarian aid should be directed to enhancing access to public services, creating economic opportunities, and promoting social cohesion.

Ultimately, aligning these efforts with EU values of inclusivity, stability, and socio-economic development can contribute to a more comprehensive and sustainable approach to the Afghan immigration crisis. The research findings bear implications relevant for public policy, academics, and international donor organizations seeking to address challenges associated with emigration from Afghanistan. To enhance the robustness of future studies, incorporating recent data for 2022 and 2023 and considering additional pull factors will provide a more nuanced assessment of emigration trends.

Finally, it is important to note that these results are based on the specified, data, and the variables included in the analysis. Further research is needed to gain a more comprehensive understanding of the factors influencing emigration decisions in Afghanistan.

Conclusion

This study aimed to investigate the factors influencing the emigration decisions of Afghans and of Afghans with various education levels. Additionally, the study's aim was to provide policy recommendations to origin and destination countries considering the findings of the study. Previous studies have primarily focused on social, demographic, and partly economic factors, neglecting the factors influencing brain drain from Afghanistan.

Therefore, this study aimed to bridge this gap by examining both the factors influencing the immigration decisions of Afghans and of educated Afghans. To get the answer, data from 2016 to 2021 using a panel logistic regression model in three steps was analyzed.

First, the Hausman test is utilized, and its result suggested random effect regression models as an appropriate model. Second, a random effect binary logistic model as pool, yearly, and various degrees of education was employed while incorporating robust standard errors and considering a range of socioeconomic and demographic variables. Finally, we implemented a logistic marginal effect regression model to further analyze and explain the marginal changes in the probabilities of dependent variables. We also conducted diagnostic tests to confirm the reliability of the model.

The pooled marginal logistic regression analysis revealed a significant positive relationship between education and emigration. Education increases the probability of emigration by 2%. Likewise, the margin analysis for each year also shows a statistically significant relationship between education and emigration, except for the year 2017.

Additionally, the result revealed that various social factors influence emigration decisions, including political instability, insecurity, public services, unhappiness, diaspora

abroad, and internet use as a source of information. Demographically, older age and larger household size correlate negatively with emigration.

The findings obtained through regression analysis, employing various levels of education, indicated that the emigration decisions of individuals with a master's degree are significantly influenced by political instability and diaspora abroad rather than an economic factor.rs. Similarly, individuals holding a bachelor's degree demonstrate a stronger association with political instability, diaspora, and insecurity as determinants of their emigration decisions. In contrast, other educational categories, such as the uneducated, high school graduates, and vocational school graduates, exhibit a noteworthy correlation with all three factors, such as social, economic, and demographic.

Therefore, mitigating the negative impact of brain drain involves understanding the impact of diaspora and political stability for an effective policy response by both origin and destination countries. In the case of less educated Afghan emigration, policy response from humanitarian assistance should be shifted to a range of development programs, giving priority to socio-economic stability, political stability, education, and harnessing the influence of diaspora and social networks.

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Appendixes

Table 1 - Push and pull factors (stay or stay-away)
(Source: Bodvarsson & Van der Berg, 2013)

Source country	Cost of moving	Destination country
Push factors Poverty Low wages Unemployment High taxes Overpopulation Discrimination Religious persecution Civil war Violence Conscription Social immobility	Transport cost Danger of the voyage Time of travel Lost income during move Formal exit barriers Exit visa Exit tax Prohibition Imprisonment Penalties on family	*Pull factors* High wages Employment Low taxes Economic freedom Personal freedom Law and order Religious freedom Educational opportunity Social mobility Family reunion
Stay factors	Formal entry barriers	Stay away factors
Family ties Friendship Social status Employment Property Familiarity Certainty Political privilege	Entry visa Quota Prohibition Imprisonment Fines	Language barriers Cultural barriers Discrimination Low social status Unemployment Low wages Lack of political rights Unfamiliarity Uncertainty War and crime

Table 2 - Description of variables
(compiled by the author)

Variables	Questions	Type	Expected sign	Relevant literature
Emigration intension	If given opportunity, would you leave Afghanistan and live somewhere else?	Binary (yes=1)		Brzozowski & Coniglio, 2021
Education	What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa?	Continuous	-	Acharya, 2020
Income	Can you estimate your average monthly household income on one of the following categories (AFN)?	Continuous	-	Brzozowski & Coniglio, 2021
Employment	Do you yourself do any activity that generates money?	Binary (yes=1)	-	Demirchyan et al., 2021
Public services	How successful do you think the government has been in improving the living condition of people living in your area —a lot, a little, or not at all?	Binary (A lot=1)	-	Acharya, 2020
Instability	Generally speaking, do you think things in Afghanistan today are going in the right direction, or do you think they are going in the wrong direction?	Binary (Wrong direction=1)	+	Campos & Lien, 1995
Insecurity	In your view, does any group currently pose a threat to the security of this local area?	Binary (yes=1)	+	Conte & Migali, 2019
Unhappiness	In general, in your life, would you say you are very happy, somewhat happy, not very happy or not at all happy?	Binary (not happy=1)	+	Brzozowsk & Coniglio, 2021
Internet Use	Do you or do you not use any of the following for obtaining information? … The internet	Binary (yes=1)	-	Winkler, 2017
Diaspora	Do you have a family member or close relative that lives abroad?	Binary (yes=1)	+	Bellak et al., 2014
Age	How old were you on your last birthday? / How old are you?	Continuous	-	Zhao & Hai, 2019
Household size	How many people live here at this address?	Continuous	-	Acharya, 2020
Urban	CSO Geographic Code	Binary (Urban=1)	+	Acharya, 2020

Table 3 - Households demographic characteristics (2016-2021)
(calculated by the author using STATA)

Category	No. of Respondents	Percentage	Category	No. of Respondents	Percentage
Gender			Rural/Urban		
Male	37380	50.61	Urban	16737	22.66
Female	36476	49.39	Rural	57119	77.34
Region			Ethnicity		
Central/Kabul	14849	20.11	Pashtun	28587	38.71
East	8640	11.70	Tajik	25739	34.85
Southeast	5435	7.36	Hazara	8251	11.17
Southwest	9973	13.50	Uzbek	5422	7.34
West	7867	10.65	Others	5857	7.93
Northeast	11478	15.54			
Central/Hazarjat	3901	5.28			
Northwest	11713	15.86			
Education			Age		
No formal education	36860	49.91	Young (18-25)	20375	27.59
Primary school (1-6)	11656	15.78	Adults (26-59)	49292	66.74
Secondary School (7-9)	5417	7.33	Old (60 plus)	4189	5.67
High School (10-12)	13490	18.27			
University degree (12 +)	6188	8.38			
Marital Status			Household size		
Married	59843	81.03	Small (1-5)	8257	11.18
Single	12329	16.69	Medium (6-10)	39003	52.81
Widow/divorced	1684	2.28	Large (10+)	26596	36.01
Total	73856	100 %	Total	73856	100 %

Table 4 - Percentage of individual who leaves the country by category (2016-2021)
(calculated by the author using STATA)

Category	% of "yes"	Category	% of "yes"	Category	% of "yes"
Emigration decision		Education		Income	
Yes	38.97	No formal education	34.77	Low (0-5000)	41.02
No	61.03	High school (12)	46.72	Medium (5001-20000)	40.29
		Vocational (14)	45.40		39.92
		Bachelor (16)	46.46	Large (20000+)	
		Master Degree (16 +)	34.08		
Employment		Public Services		Instability	
Yes	38.43	A lot	32.02	Right direction	33.19
No	35.92	A little	37.87	Wrong direction	39.58
		Not at all	41.69		
Insecurity		Happiness		Use of internet	
Yes	39.97	Very happy	33.71	Yes	48.79
No	37.61	Somewhat happy	37.94	No	35.18
		Not very happy	40.34		
		Not at all happy	41.00		
Diaspora abroad		Age		Household size	
Yes	47.20	Youths (18-25)	42.67	Small (1-5)	40.38
No	30.70	Adults (26-40)	38.96	Medium (6-10)	38.71
		Elders (40 plus)	35.45	Large (10+)	33.72
Rural/Urban		Gender			
Urban	42.25	Male	38.75		
Rural	35.59	Female	35.41		

Table 5 - Random effects logistic at margin and yearly regression result
(calculated by the author using STATA)

No	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Pool	2016	2017	2018	2019	2021
Education	0.01298*** (.00245)	0.00438*** (0.00113)	0.00094 (0.00135)	0.00367*** (0.00106)	0.00216** (0.00096)	0.00276*** (0.00095)
Income (USD)	-0.00017** 0.00007	0.000018 (0.00002)	0.000014 (0.000023)	-0.00003 (0.00003)	-0.00008** (0.00003)	-0.00001 (0.00002)
Employment	0.05770** (0.02601)	-0.01494 (0.01149)	-0.017981 (0.01413)	-0.00288 (0.01133)	0.03009*** (0.01030)	0.01657 (0.01052)
Public Services	-0.19743*** (0.03655)	nil[1]	-0.04274** (0.019960)	-0.08108*** (0.01712)	-0.0322** (0.01324)	-0.04133** (0.01473)
Instability	0.24949*** (0.02656)	0.03593*** (0.01179)	0.0617*** (0.0141)	0.06541*** (0.01111)	0.0579*** (0.0098)	0.03004*** (0.01139)
Insecurity	0.13811*** (0.02534)	nil[2]	nil	0.00434 (0.01113)	0.0214** (0.0099)	0.051*** (0.009)
Unhappiness	0.32227*** (0.06103)	0.08418*** (0.02465)	-0.02079 (0.0339)	0.06407** (0.02782)	0.06282** (0.02626)	0.084*** (0.020)
Internet Use	0.34211*** (0.0334)	0.04641*** (0.01763)	0.00716 (0.02146)	0.0957*** (0.0144)	0.0537*** (0.0146)	0.0693*** (0.0118)
Diaspora	0.52934*** (0.02532)	0.19748*** (0.01002)	0.1229*** (0.0132)	0.12067*** (0.0103)	0.0957*** (0.0096)	0.1504*** (0.0094)
Age	-0.00819*** (0.0010)	-0.00240 *** (0.00045)	-0.0016 *** (0.0005)	-0.00215*** (0.00043)	-0.00167*** (0.0004)	-0.0022*** (0.0004)
Household Size	-0.0216 *** (0.0030)	-0.00396*** (0.00147)	-0.0033** (0.0015)	-0.00370*** (0.00135)	-0.0060*** (0.0012)	-0.004*** (0.0012)
Urban Dummy	0.08276 *** (0.02906)	-0.02567 ** (0.01252)	-0.01681 (0.01642)	-0.02041 (0.01316)	0.0058 (0.0120)	0.0508*** (0.01064)
Observations	28,842	7,012	5,372	8,320	10,321	10,085

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[1] The data on “public services” for the year 2016 is not collected
[2] The data on “insecurity” for the year 2016 and 2017 is not collected

Table 6 - Sub-sample random effect logistic regression at margin
(calculated by the author using STATA)

No	(1)	(2)	(3)	(4)	(5)
Variables	Uneducated	High School	Vocational	Bachelor	Master
Income (USD)	-0. 000046	-0.000507**	-0.000501**	-0.000153	0.000379
	(0.000124)	(0.000203)	(0.000279)	(0.000227)	(0.000351)
Employment	0.00493	0.12**	0.3130***	0.09825	0.06152
	(0.0412)	(0.0658)	(0.1122)	(0.17542)	(0.18695)
Public services	-0.0747	-0.36563***	-0.1528	-0.1285	-0.25122
	(0.0564)	(0.09740)	(0.14022)	(0.1957)	(0.2492)
Instability	0.194***	0.2849***	0.31825***	0.24187*	0.74971***
	(0.0414)	(0.06964)	(0.10598)	(0.1416)	(0.2041)
Insecurity	0.0998**	0.2057***	0.1451	0.3821**	0.21730
	(0.0394)	(0.06538)	(0.103)	(0.1611)	(0.1823)
Unhappiness	0.2740***	0.7836***	0.0201	0.08647	0.49105
	(0.0839)	(0.1878)	(0.374)	(0.4247)	(0.3794)
Internet use	0.405***	0.40086***	0.2123**	0.1424	-0.2243
	(0.0746)	(0.07270)	(0.10487)	(0.1413)	(0.2760)
Diaspora	0.532***	0.5204***	0.4984***	0.7061***	0.8734***
	(0.0392)	(0.06924)	(0.0999)	(0.1909)	(0.1890)
Age	-0.00695***	-0.00987***	-0.00982**	-0.00689	0.010981
	(0.00151)	(0.00285)	(0.00461)	(0.00529)	(0.00712)
Household Size	-0.0286***	-0.0167**	-0.01315	-0.00839	-0.03039
	(0.00508)	(0.00786)	(0.0124)	(0.0131)	(0.02439)
Urban Dummy	0.0750	0.0467	-0.0514	0.1631	-0.13172
	(0.0479)	(0.0699)	(0.111)	(0.1417)	(0.23952)
Observations	12,216	4,551	1,743	1,443	560

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

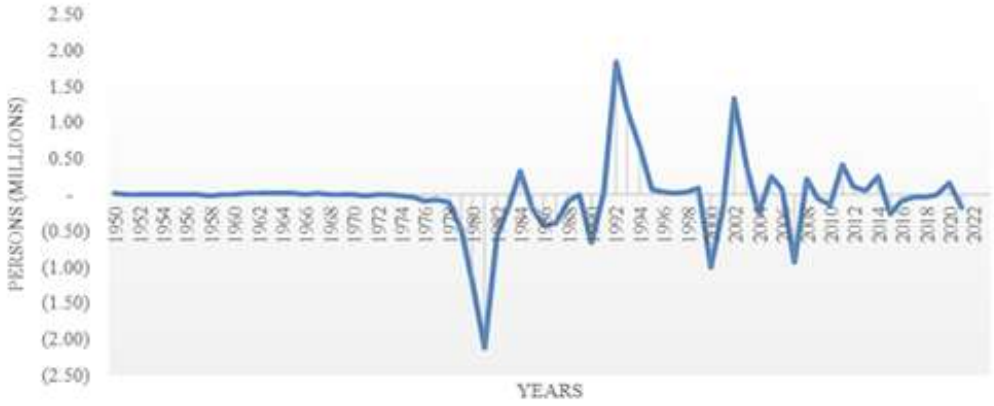

Figure 1 - Net migration trend
(Source: United Nations, 2023a)

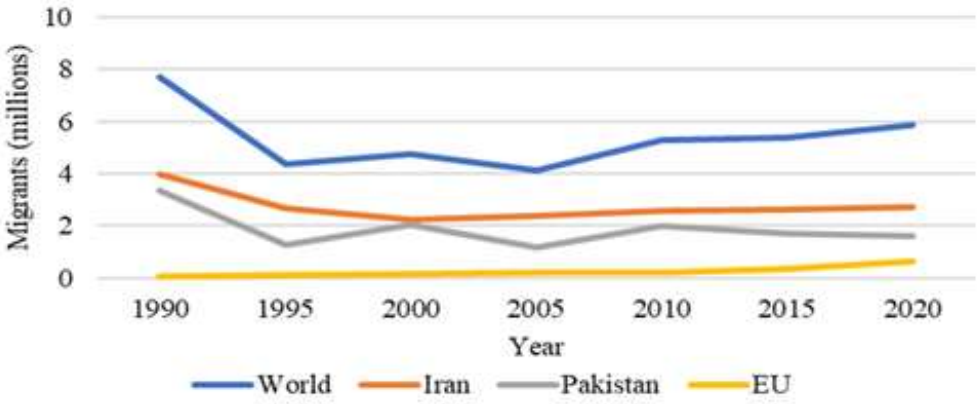

Figure 2 - International migration stock of Afghan migrants
(Source: United Nations, 2023b)

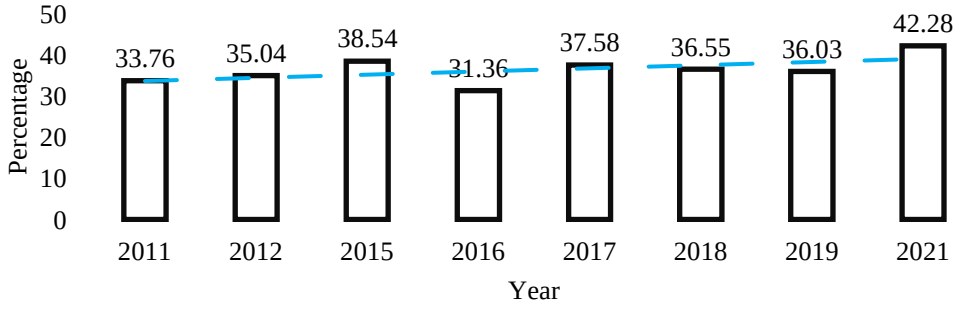

Figure 3 - Emigration intension trend
(Source: author calculation)

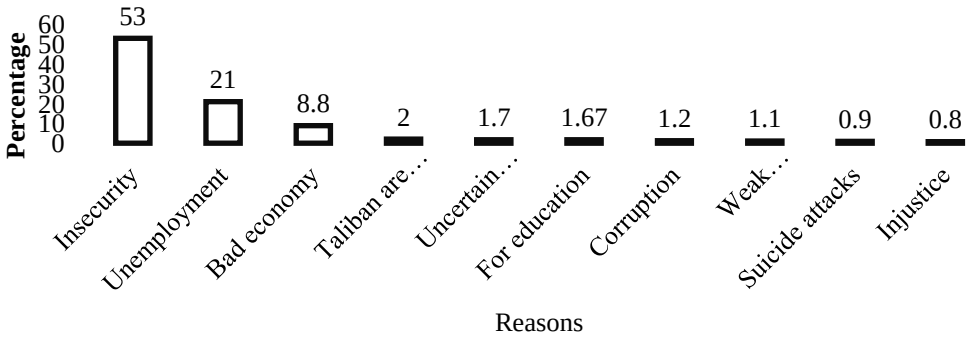

Figure 4 - Main reasons for leaving (2012-2021)
(Source: author calculation)

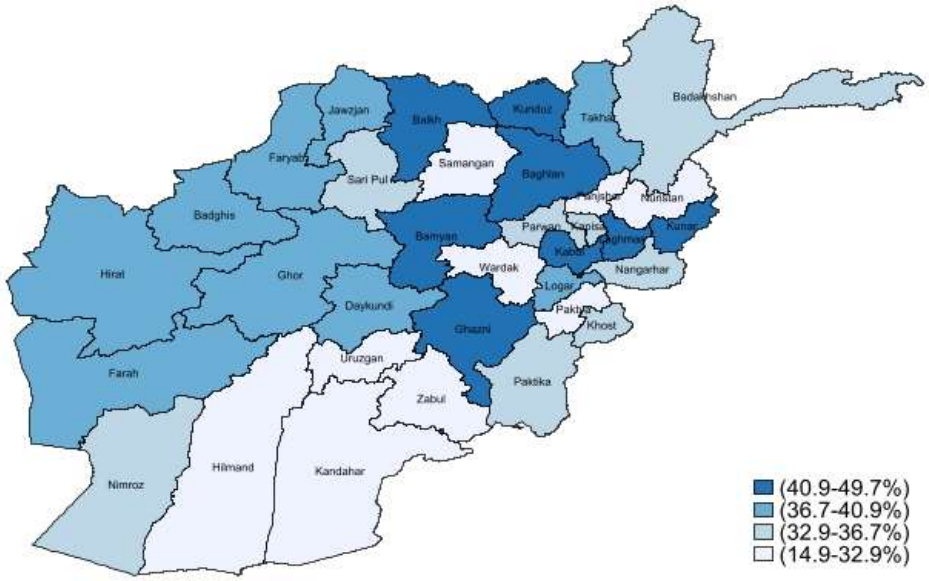

Figure 5 - Provincial level emigration intension (2011-2021)
(Source: author calculation)

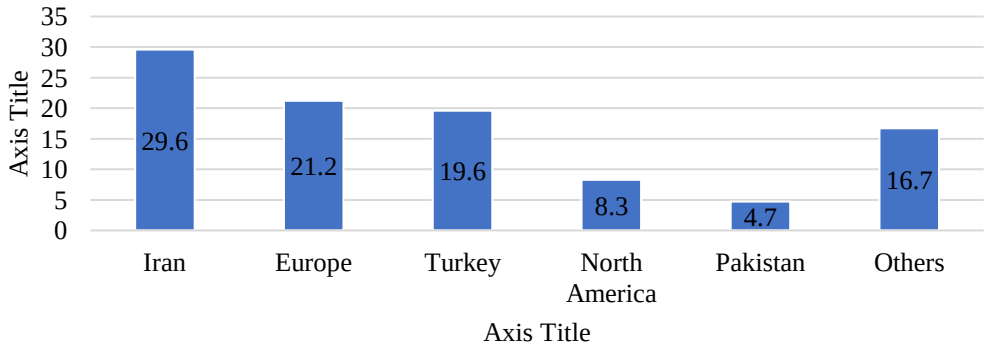

Figure 6 - Destination choice of Afghan emigrants
(Source: author calculation)

Figure 7 - All valid residence permits at the end of 2021 by reason
(Source: European Commission, 2023)

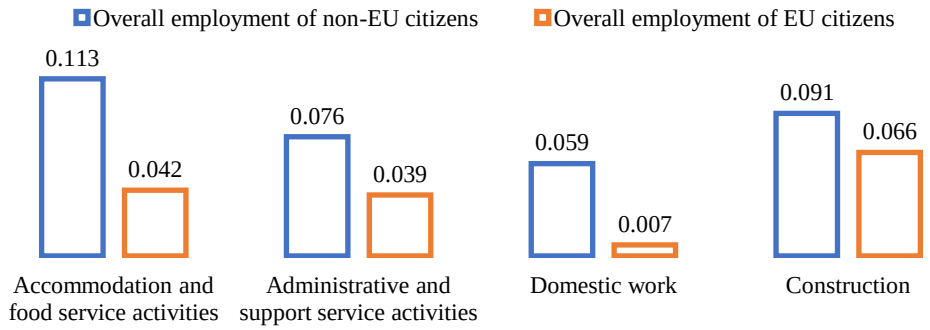

Figure 8 - Over representation of immigrants by sectors
(Source: European Commission, 2023)

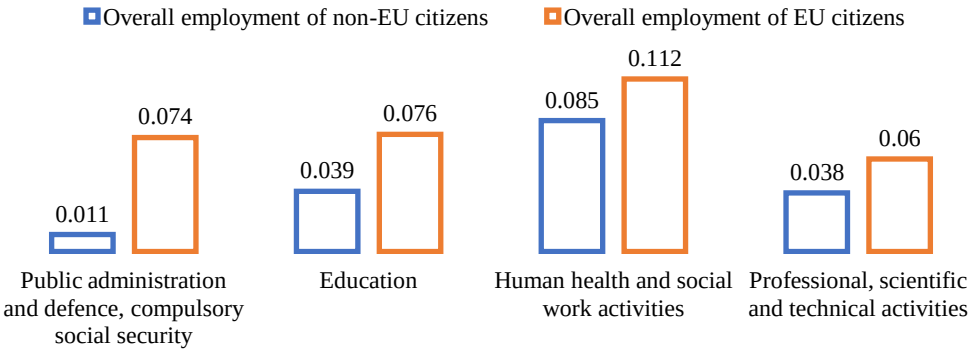

Figure 9 - Under representation of immigrants by sectors
(Source: European Commission, 2023)

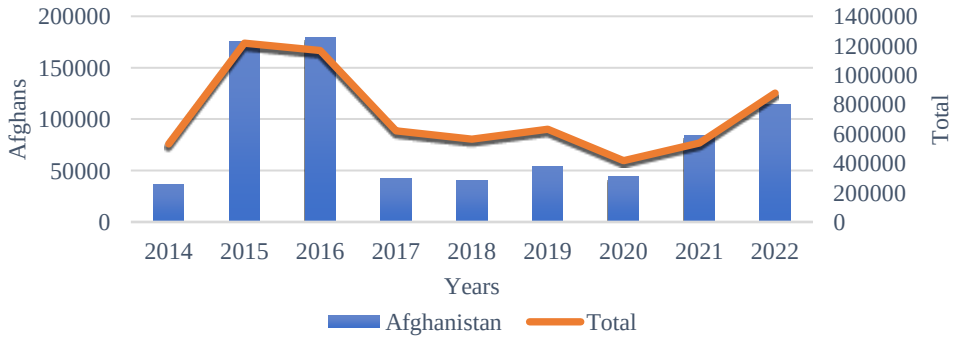

Figure 10 - First-time asylum applications in the EU
(Source: Eurostat, 2023)