Understanding the Dynamics of Brain Drain from Afghanistan: Interplay of Education and Emigration Decision

David Vrtana[1], Najib Rahman Rahmat[2]

Abstract

This study investigates the impact of factors influencing the emigration decision of educated Afghans in Afghanistan from 2016 to 2021. The article explores the interplay between understanding the dynamics of brain drain from Afghanistan and utilizing marketing engineering as a progressive platform to optimize managerial decision-making processes in the context of the country's evolving challenges. It delves into how the emigration decisions of educated individuals affect the nation and how harnessing their skills and knowledge through brain gain can benefit marketing management strategies. This interdisciplinary approach seeks to leverage Afghanistan's diaspora as a valuable resource for addressing contemporary marketing challenges. By employing a binary logistic regression model at margins and binary logistic regression with a pool cross-sectional dataset, significant findings are revealed. The pool logistic regression analysis at its margins confirms a significant positive relationship between education and emigration. It indicates that a one-year increase in education increases the probability of emigration by 0.2%. The findings obtained through logistic regression analysis, employing multi-sampling methods, indicates that emigration decision of individuals holding master degree are significantly influenced by political instability and diaspora abroad, rather than economic factors. Similarly, individuals holding bachelor degree, in addition to political instability and family ties abroad also demonstrate a stronger association with insecurity, and female income 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: social, economic, and demographic, influencing their emigration decision. Findings have policy implications for addressing migration challenges in developing countries.

Keywords: *Afghanistan, emigration decision, education, brain drain, economic factors, socio-demographic, logistic.*

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

---

[1] Department of Economics, Faculty of Operation and Economics of Transport and Communications, University of Zilina, 010 15 Zilina, Slovakia; david.vrtana@uniza.sk

[2] Department of Economics, Faculty of Economics and Finance, University of Economics in Bratislava, Bratislava, Slovak Republic. E-mail: najib.rahmat@euba.sk

remained relatively stable since the 1960s (Özden & etal., 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., 2019). 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 the Berger (2022), the phenomenon of international migration of skilled individuals 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 (Garrote-Sanchez, 2017; Přívara, 2019a, 2019b; Přívara et al., 2020). 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).

According to United Nations High Commissioner for Refugees (UNHCR), Afghanistan hosts one of the largest refugee populations globally, with approximately 2.6 million individuals officially registered as Afghan refugees worldwide (UNHCR, 2023). The majority 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. These statistics underscore the significant humanitarian, economic, and social impact of instability in Afghanistan, prompting a need for comprehensive research and analysis to address the challenges posed by large-scale emigration and displacement.

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 & et al., 2014; Loschmann & Siegel, 2015; Glanska,

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, 2019; Jacobs & et al., 2015; Iqbal, 2018; ActionAId International, 2020). Further, a study by Clare & et al. (2021) indicates the political, economic, and environmental factors as drivers of food shortages which affect the majority, causing internal and external migration. Additionally, a group of literature focused on the demographic factors such as age, family size, province, education, and gender as factors of emigration (Loschmann, 2014; Sirkeci et al., 2017). However, a comprehensive study of factors influencing emigration decision of educated Afghans with application of quantitative methods and large sample size define the gap.

This study makes a noteworthy contribution to the existing body of literature in various aspects. Notably, the previous empirical research has not undertaken a comprehensive investigation to ascertain the exact extent of influence exerted by economic, social, and demographic factors on the emigration decisions of educated Afghans (high skill). In this regard, the present study stands out for its holistic approach, concurrently examining all three factors to thoroughly assess their combined impact on the emigration patterns of educated Afghans. Consequently, it effectively fills a significant gap in the literature by employing robust scientific quantitative methods and a representative sample, thereby advancing our understanding of brain drain dynamics influenced by economic, social, and demographic factors in a developing country.

Second, it is the first analysis to examine the main factors influencing emigration decisions of educated and high skill Afghans, using a large sample size of 73,856 Afghans across 34 provinces of Afghanistan from 2016 to 2021.

Third, this study provides distinct empirical evidence regarding the impact of higher education on the emigration decision. Thereby highlighting the pivotal role of education and brain drain from the country. Given that approximately 70% of the Afghan population resides in rural areas, in total the literacy rate according to World Bank (2021) is 37 %, while for youths aged 15–24 is 65%. Additionally, according to UNESCO Institute for Life Learning (UIL) the gender gap is still huge, the literacy rate for men stands at 55 %; for women, it's only 29.8 % (UIL, 2020).

The empirical findings of this research reveal that the emigration decisions of highly educated Afghans are influenced significantly by prevailing political instability, insecurity, and family ties with Afghan diaspora abroad. In contrast, the emigration choices of less educated Afghans are influenced by a complex interplay of various factors, broadly categorized as economic, social, and demographic considerations.

Finally, countering brain drain necessitates collaborative policies between origin and destination countries. Understanding its economic and social implications is vital for balancing global demand for skilled labor with sustainable development. Effective strategies should consider migration dynamics, especially high-skilled migration, and its link with education. This research is valuable for policymakers, academics, and international migration entities. The research is structured into sections covering literature review, methodology, result, and conclusion.

Research Question: What are the factors influencing the likelihood of educated Afghans to emigrate?

2. Literature Review

2.1. Conceptual Framework

Emigration is a complex process influenced by various factors in the source and destination countries. The "Push-Pull" and "Stay, Stay-Away" approach helps analyze

these factors. Push factors influence emigration levels and motivations, while pull factors in the destination country also influence the decision. Economic factors, such as livelihood, higher wages, income, and employment play a role in determining whether to emigrate or stay. Additionally, the influence of social and demographic factors such as instability, war, violence, climate changes, education level, and cultural values are also considerable in some contexts. However, the influence of education level and the factors influence the emigration decision of educated, remains inconclusive in the context of developing country such as Afghanistan with second largest emigrants in the world.

Table.1 Push and Pull Factors (Stay or Stay-Away) (Bodvarsson and Berg, 2013)

Source Country	Cost of Moving	Destination Country
Push Factors	Transport cost	Pull Factors
Poverty	Danger of the voyage	High wages
Low wages	Time of travel	Employment
Unemployment	Lost income during move	Low taxes
High Taxes		Economic freedom
Overpopulation	Formal Exit Barriers	Personal freedom
Discrimination	Exit visa	Law and order
Religious Persecution	Exit tax	Religious freedom
Civil war	Prohibition	Educational opportunity
Violence	Imprisonment	
Conscription	Penalties on family	Social mobility
Social Immobility		Family reunion

Stay Factors	Formal Entry Barriers	Stay Away Factors
Family ties	Entry visa	Language barriers
Friendship	Quota	Cultural barriers
Social status	Prohibition	Discrimination
Employment	Imprisonment	Low social status
Property	Fines	Unemployment
Familiarity		Low wages
Certainty		Lack of political rights
Political Privilege		Unfamiliarity
		Uncertainty
		War and crime

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 (Sjaastad, 1962). De Haas (2014) emphasizes individual aspirations and opportunities' impact, while education in rural areas can foster migration desires. When aspirations surpass local opportunities, migration tends to persist. However, the influence of factors inspiring emigration decisions of educated individuals remains uncertain, especially in developing countries.

2.2. The Potential Impacts of Brain Drain

Brain drain is the emigration of skilled individuals, once seen as purely negative (Berger, 2022), but recent studies show both positive and negative effects based on the country of origin. To understand its impact, analyzing labor market, human capital, and macroeconomic indicators of origin countries is essential (Durana et al., 2021; Privara et al., 2018; Vavrečka et al., 2021).

2.2.1. Impact on Labor market

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 evidence shows that 'brain drain' can negatively affect non-migrant workers' outcomes and overall productivity, with wage effects varying among similarly skilled workers (Elsner, 2022; Otoiu et al., 2022; Abdelbaki, 2009; Mahoodi, 2014,). Countries with higher income levels experience negative wage impacts (Docquier & et al., 2010; Přívara & Přívarová, 2019), while low-income countries may see positive effects (Mahoodi, 2014; Antosova et al., 2022).

2.2.2. Impact on Human Capital

The multifaceted and contentious nature of brain drain's impact on the human capital of underdeveloped or less developed nations has been a subject of examination. Earlier theories, predating the 2000s, suggested that the emigration of highly skilled individuals would ultimately lead to the accumulation of human capital in their countries of origin (Gibson & et al., 2012; Přívara et al., 2019; Kő et al., 2022). This idea stemmed from the belief that the prospect of higher income abroad would incentivize education in the home country, resulting in only a select few individuals emigrating while the majority would stay and contribute to the accumulation of human capital (Böhme, 2015; Přívara, 2021; Tsou, & Chen, 2022). Moreover, studies conducted by Mountford (1997), Vidal (1998), and Beine et al. (2001) supported the notion that higher income for highly skilled emigrants in the destination country would foster increased investment and capital formation in the country of origin. Nevertheless, despite these arguments, there exists no definitive consensus on the precise impact of emigration on the human capital of the origin country (Privara, 2022a, 2022b;).

2.2.3. Macro-Economic Impacts

Human capital stands as the primary driver of economic development when viewed from a macroeconomic perspective (Riley, 2012). However, in less developed countries, underdevelopment is notably influenced by the inefficiency of human capital, particularly exacerbated by the emigration of highly educated labor force. To some extent, the detrimental effects of this occurrence can be alleviated through remittances, return migration, and foreign direct investment. Nonetheless, the conclusive overall impact of brain drain on macroeconomics remains uncertain.

Regarding fiscal implications, the government of the country of origin makes investments in the education of its population with the expectation of yielding significant human capital and future tax revenues. However, due to emigration, the country not only loses valuable human capital but also the potential tax revenues that would have been generated by these skilled individuals (Kwok & et al., 1982). Desai et al. (2009) conducted a study to investigate the fiscal consequences arising from the emigration of highly skilled individuals from India to the United States. The study findings revealed an adverse impact on fiscal revenue amounting to approximately 2.5% of India's gross national income. However, the overall net fiscal impact of emigration was determined to be less than 1% of India's gross national income.

The importance of remittances in maintaining the economic balance of origin countries is widely acknowledged. These financial transfers have the potential to stimulate

consumption, improve education standards, alleviate poverty, address foreign exchange and credit constraints, and foster investments in small-scale enterprises. As a result, remittances significantly contribute to a nation's Gross Domestic Product (GDP) and serve as a vital source of foreign exchange (Manning, 2007). Gibson and McKenzie (2015) have observed that highly skilled migrants from developing countries, including physicians, sending substantial amounts with an average annual remittance of approximately $5,000. In contrast, Dustmann and Mestres (2010) have presented evidence supporting a negative association between the level of education and the remittance amounts. This has sparked an ongoing debate concerning the relationship between the educational level of emigrants and remittance patterns.

Diasporas, as intricate interconnections established among migrants and their countries of origin, play a pivotal role in mitigating the depletion of human capital due to emigration. These networks yield both direct and indirect advantages by facilitating the circulation of intellectual resources, diffusion of knowledge, and establishment of extensive networks (Terrazas, 2010). Nevertheless, the magnitude of influence diaspora has on emigration decision of emigrants from the origin country is open for further discussion.

Return migration can result in brain gain in the country of origin by repatriating accumulated human capital. Low-skilled workers who emigrate and subsequently return with enhanced skills contribute to the advancement of the home country (Stark et al., 1998). Moreover, skilled migration can potentially lead to favorable net effects, contingent upon factors such as the duration of migration and disparities in productivity between the origin and destination nations (Docquier and Rapoport, 2012).

2.3. Country Context

2.3.1. History of Education System in Afghanistan

Afghanistan education system has undergone multiple changes (positive and negative) pertaining to various factors, including political instability, armed conflict, and ideological beliefs. Initially, the introduction of Islam in Afghanistan amidst diverse local governance replaced earlier religious beliefs like Zoroastrianism, Buddhism, and Hinduism (Habibi, 2002). This transformation led to the emergence of prominent centers of learning (Khwajamir, 2016). Till 1875, there was an absence of formal education institutions in Afghanistan, until Amir Shir Ali Khan instituted the first modern schools (Khwajamir, 2016). During King Amanullah Khan's reign (1919-1929), Afghanistan witnessed noteworthy advancements in education. Compulsory primary schooling was introduced, alongside the establishment of a dedicated Ministry of Education and an increase in the number of high schools (Smady, 2001). Moreover, efforts were made to extend schooling beyond the capital, and initiatives were undertaken to introduce education for girls. However, opposition from religious scholars resulted in temporary closures of girls' schools, eventually leading to King Amanullah Khan's exile in 1929 (Khwajamir, 2016). In 1929, under the brief rule of Habibullah Kalakany, girls' schools were shut down, and female students studying abroad were summoned back. Schools established by foreign countries, like Germany and France, also faced closures (Bamik, 2018).

During the reign of Zahir Shah (1933-1973), the progress of education experienced a protracted pace of development. A notable event occurred in 1946 when Kabul University was established alongside several other educational institutions. However, the educational landscape underwent significant changes during the period of Soviet occupation from 1979 to 1989, followed by the downfall of the communist regime in 1992 (Smady, 2001). Consequently, the education system became constrained, limited to regions under the control of the central government. Despite this, women in government-controlled cities experienced relative freedom and active participation in various sectors, including high-ranking government positions. On the contrary, the majority of Afghan women residing in rural areas or as refugees were deprived of educational opportunities. From 1996 to 2001,

during the Taliban regime, a strict ban on female education was enforced, resulting in the transformation of numerous educational establishments into religious madrasas (Shorish, 1998). Despite the Taliban's purported endorsement of equal education rights for all citizens under educational legislation, no effective measures were implemented to support female education.

From 2001 to 2021, with the establishment of new government in 2001, Afghanistan made notable strides in the realm of education, manifesting through an augmented enrollment of approximately 10.5 million students, encompassing 38% female representation (Ministry of Education, 2012). Notably, the country boasted a comprehensive educational landscape, comprising nearly 40 public universities and 134 privately-run universities (Ministry of Higher Education, 2023). These educational advancements were underscored by initiatives aimed at prioritizing student-centric learning methodologies, mitigating extremist ideologies, and tackling pertinent social and economic challenges (Easar et al., 2023). Additionally, Private sector played a major role in this expansion, resulting in an "explosion" of private education in Afghanistan (Ibrahimi, 2014). However, despite these achievements, the nation faced persisting challenges in the form of cultural impediments, limited resources, security risks, pervasive corruption, and unemployment opportunities for graduates. Consequently, it is imperative to sustain unrelenting efforts to ensure universal and high-quality access to education (Easar et al., 2023).

After the Taliban's takeover in 2021, hopes for a more moderate approach to women's rights such as higher education was dismissed. Girls (beyond middle school grade 6) are banned from higher education, and the education system is in crisis due to economic hardships. However, The Taliban initially promised that girls could return to school, but later reversed the decision, leading to anger and confusion (Gannon, 2022; Kugelman, 2022). The Taliban's actions risk undoing two decades of progress, reflecting setbacks from the past. Their decision not to open schools for older girls raises concerns and emphasizes the ongoing struggle for educational opportunities in Afghanistan (Kerz, 2022; Farr, 2022).

Thus, Afghanistan's education system has faced advances and challenges influenced by political transitions, conflicts, and efforts to modernize (Kerz, 2022). Political tensions among conservative religious views and sustained conflicts have particularly impacted higher education.

2.3.2. 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, 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).

Figure 1. Net Migration Trend (United Nations, 2023a)
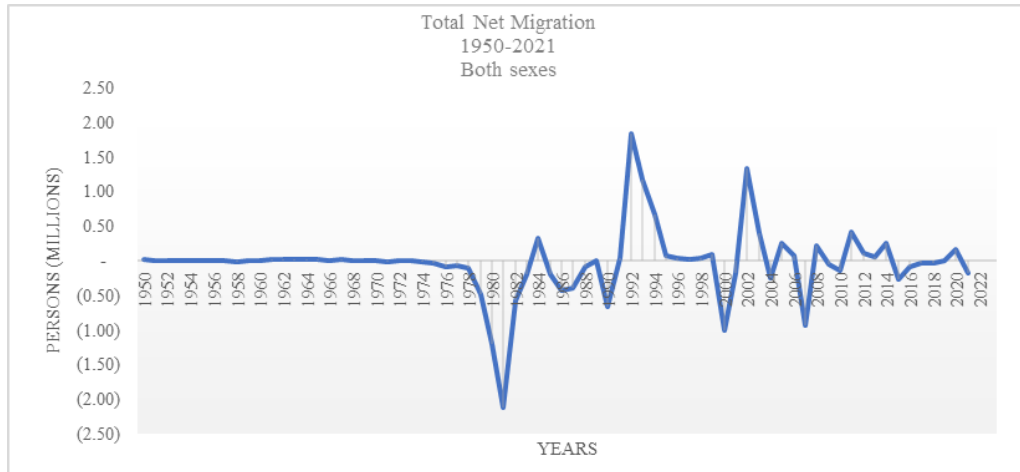
Subsequently, the second wave emerged as a consequence of the civil war that erupted among the various factions of Mujahideens subsequent to the withdrawal of Soviet troops in 1989, leading to widespread violence within the country. Mass emigration ensued when the Taliban assumed control over more than 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 (Garrote-Sanchez, 2017).

The post-9/11 War on Terror (2001-2020) resulted in heightened emigration, internal displacement, and return migration within Afghanistan. As depicted in Figure 2, 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 persons 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.

Figure 2. International Migration Stock of Afghan Migrants (United Nations, 2023b)
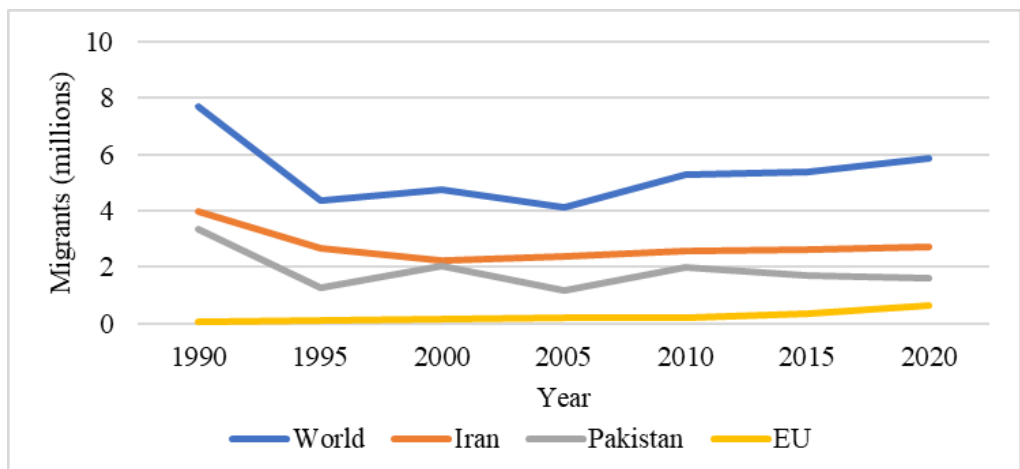
The upward trend of emigration from Afghanistan since 2017 has been influenced by insurgency intensification, ongoing peace negotiations with Taliban, the contentious 2019

election, and the US-Taliban Doha agreement. 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 (Julie Ray, 2022). Additionally, approximately 1.3 million new arrivals have been registered in neighboring countries (UNHCR, 2023c).

Further, the US, UK, Germany, Canada, and Australia 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 Time, 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 about 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 Taliban takeover 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 (RFE, 2022). 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 quality of education has declined, and student interest has been impacted. 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 Time, 2021).

3. Methodology

3.1. Model Specification

Drawing upon the existing body of scholarly work, the researcher of this study is employing the logistic regression framework to ascertain the impact of educational attainment on the choice of emigration. This investigation unfolds through a separated methodology. In the initial phase, a logistic marginal effect regression model is deployed, both pool and yearly disaggregated, with due consideration given to robust standard errors. Subsequently, a secondary logistic regression analysis is conducted, employing a multi-sampling approach to encompass diverse educational levels. This second phase also integrates robust standard errors, while controlling for an array of socio-economic and demographic variables.

$$P(Y = 1) = \frac{e^{(\beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k)}}{} \ldots\ldots\ldots (1)$$

In the context of the study, let P(Y=1) denote the likelihood of the event Y being 1, symbolizing its occurrence. The set $X_1, X_2, ..., X_k$ represent independent variables, whereas $\beta_0, \beta_1, ..., \beta_k$ constitutes coefficients to be estimated. Meanwhile, 'e' pertains to the mathematical base of the natural logarithm. These coefficients delineate the impact of independent variables on the event's occurrence likelihood, as stipulated by Hosmer & et al. (2013). The assessment of the likelihood of making an emigration decision is conducted through utilization of the logistic regression framework. This approach

postulates a linear relationship between the predictor variables and the response variable, as evidenced in the logarithmic odds representation.

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 X_i is formulated as follows:

$$Marginal effect_i = \beta_i \times p(y = 1 \vee X) \times \big(1 - p(y = 1|X)\big)\ldots\ldots\ldots\ldots..(2)$$

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

Finally, several specification tests such as linktest, Hosmer-Lemeshow goodness-of-fit test, and multicollinearity test called "variance inflation factor" (VIF) to ensure goodness-of-fit of the regression model are applied to check for logistic regression assumptions. Additionally, the study used logistic regression with standard robust function to address the potential heteroskedasticity. STATA 17 is used for the analysis.

Suggested Model

$$Y = \beta_0 + \beta_1 EducationLevel_i + \beta_2 X_i + \varepsilon_i \, , \, i=1,\ldots,n$$

Y represents the dependent variable, which corresponds to the emigration decision. Education level serves as the primary variable under investigation in the study, while X_i serve as controls for economic, social, and demographic factors that influence the emigration decision. Furthermore, ε_i denotes the random disturbances or errors associated with the variables. The detailed description of all variables is presented in Table 2 as follows:

Table 2. Description of Variables (Compiled by 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, & Nicola (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, & Nicola (2021)
Employment	Do you yourself do any activity that generates money?	Binary (yes=1)	-	Demirchyan & et al. (2021)
Female income	Do female members of the family contribute to this household income?	Binary (yes=1)	+	Ruyssen & Sara (2018)
Public services	How successful do you think the government has been in improving the living condition of people living in	Binary (A lot=1)	-	Acharya (2020)

	your area —a lot, a little, or not at all?			
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 & et al. (1995)
Insecurity	In your view, does any group currently pose a threat to the security of this local area?	Binary(yes=1)	+	Conte & Silvia (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)	+	Brzozowski, & Nicola (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)

3.2. 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 cross-sectional time series 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.

3.3. Descriptive Statistics

Table 3. Households Demographic Characteristics (2016-2021) (Calculated by Author in 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 Author in 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)	44.72	Medium (5001-20000)	40.29
		Vocational (14)	42.25	Large (20000+)	39.92
		Bachelore (16)	43.80		
		University degree (12 +)	38.70		
Employment		**Female income**		**Public Services**	
Yes	38.43	Yes	40.35	A lot	32.02
No	35.92	No	36.30	A little	37.87
				Not at all	41.69
Instability		**Insecurity**		**Happiness**	
Right direction	33.19	Yes	39.97	Very happy	33.71
Wrong direction	39.58	No	37.61	Somewhat happy	37.94
				Not very happy	40.34
				Not at all happy	41.00
Use of internet		**Diaspora abroad**		**Age**	
Yes	48.79	Yes	47.20	Youths (18-25)	42.67
No	35.18	No	30.70	Adults (26-40)	38.96
				Elders (40 plus)	35.45
Household size		**Rural/Urban**		**Gender**	
Small (1-5)	40.38	Urban	42.25	Male	38.75
Medium (6-10)	38.71	Rural	35.59	Female	35.41
Large (10+)	33.72				

4. Result

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. The findings are presented in the following sequence.

4.1. Diagnostic Tests Results

To validate the assumptions of the logit 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 fall 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=0.465). Moreover, the Hosmer and Lemeshow's goodness-of-fit test (Prob > chi2 = 0.2971) also confirms the adequacy of the logistic model in fitting the data. To account for potential heteroskedasticity and serial correlation, we conducted logistic regression while considering robust standard errors. The results of this analysis are presented and discussed in the subsequent section.

4.2. Discussion of the Regression Result

In Table 5, after controlling for additional variables, the logistic pooled regression analysis at the margin and yearly margins analysis were conducted. The results of the pooled logistic regression at the margins indicate a significant positive relationship between education and emigration. This implies that a one-year increase in education increases the probability of emigration by 0.2%. Likewise, the margin analysis for each year also shows a statistically significant 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 positive impact on the propensity to opt for emigration. 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.

In Table 6, the analysis of education across all five sub-samples of different educational levels reveals intriguing insights into the determinants influencing emigration decisions of educated Afghans. Particularly, individuals with a master degree (18 years) perceive political instability and family connections abroad as significant factors influencing their choice to emigrate, as presented in Model 5. In contrast, individuals with a bachelor degree (16 years), as demonstrated in Model 4, as well consider insecurity and the employment status of female family members as influential factors impacting their emigration decision. In Models 1, 2, and 3 respondents with no education, a high school education (12 years), and vocational institution graduates (14 years), not only take into account the above factors but also attach significance to economic, social, and demographic determinants when contemplating emigration. These 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, rather than economic factors. Therefore, the emigration patterns of highly educated individuals from Afghanistan are primarily contingent on the prevailing political instability rather than economic or demographic factors. This finding underscores the critical importance of social and political stability in mitigating the brain drain phenomenon from Afghanistan.

It is important to note that these results are based on the specified time period 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.

Table 5. Marginal Effects Regression Result (Pool and Yearly) (Calculated by Author in STATA)

No	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Pool Margins	2016	2017	2018	2019	2021
Education	0.0028*** (0.0005)	0.00438*** (0.00113)	0.00094 (0.00135)	0.00367** (0.00106)	0.00216** (0.00096)	0.00276*** (0.00095)
Income (USD)	-0.0000396** 0.0000175	0.000018 (0.00002)	0.000014 (0.000023)	-0.00003 (0.00003)	-0.00008** (0.00003)	-0.00001 (0.00002)
Employment	0.018341*** (0.006171)	-0.01494 (0.01149)	-0.017981 (0.01413)	-0.00288 (0.01133)	0.03009** (0.01030)	0.01657 (0.01052)
Female Income	0.0348*** (0.0073)	0.00727 (0.01323)	0.008337 (0.016442)	0.02839** (0.01329)	0.02938** (0.01218)	0.04157*** (0.01276)
Public Services[3]	-0.0472*** (0.0085)	nil	-0.04274** (0.019960)	-0.08108*** (0.01712)	-0.0322** (0.01324)	-0.04133** (0.01473)
Instability	0.05813*** (0.00614)	0.03593*** (0.01179)	0.0617*** (0.0141)	0.06541*** (0.01111)	0.0579*** (0.0098)	0.03004** (0.01139)
Insecurity[4]	0.03127*** (0.00588)	nil	nil	0.00434 (0.01113)	0.0214** (0.0099)	0.051*** (0.009)
Unhappiness	0.0762 *** (0.0139)	0.08418*** (0.02465)	-0.02079 (0.0339)	0.06407** (0.02782)	0.06282* (0.02626)	0.084*** (0.020)
Internet Use	0.07824*** (0.00770)	0.04641*** (0.01763)	0.00716 (0.02146)	0.0957*** (0.0144)	0.0537*** (0.0146)	0.0693*** (0.0118)
Diaspora	0.12159*** (0.00564)	0.19748*** (0.01002)	0.1229*** (0.0132)	0.12067*** (0.0103)	0.0957*** (0.0096)	0.1504*** (0.0094)
Age	-0.00192***	-0.00240***	-0.0016***	-0.00215**	-0.00167***	-0.0022***

[3] The data on "public services" for the year 2016 is not collected.

[4] The data on "insecurity" for the year 2016 and 2017 is not collected.

	(0.00023)	(0.00045)	(0.0005)	(0.00043)	(0.0004)	(0.0004)
Household Size	-0.00491***	-0.00396***	-0.0033**	-0.00370***	-0.0060***	-0.004***
	(0.00072)	(0.00147)	(0.0015)	(0.00135)	(0.0012)	(0.0012)
Urban Dummy	0.02116***	-0.02567***	-0.01681	-0.02041	0.0058	0.0508***
	(0.00676)	(0.01252)	(0.01642)	(0.01316)	(0.0120)	(0.01064)
Observations	28,726	7,012	5,372	8,320	10,321	10,085

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6. Multi-sample Logit Regression Result (Calculated by Author in STATA)

No	(1)	(2)	(3)	(4)	(5)
VARIABLES	Uneducated	High School	Vocational	Bachelor	Master
Income (USD)	-3.30e-05	-0.000497**	-0.000601**	-0.000143	0.000349
	(0.000124)	(0.000193)	(0.000259)	(0.000157)	(0.000301)
Employment	0.0241	0.132**	0.330***	0.125	0.0752
	(0.0412)	(0.0658)	(0.122)	(0.142)	(0.195)
Female income	0.0940*	0.211***	0.0779	0.375***	0.179
	(0.0533)	(0.0795)	(0.106)	(0.115)	(0.230)
Public services	-0.0747	-0.373***	-0.158	-0.120	-0.322
	(0.0564)	(0.0940)	(0.140)	(0.157)	(0.242)
Instability	0.194***	0.284***	0.318***	0.214*	0.711***
	(0.0414)	(0.0664)	(0.106)	(0.116)	(0.201)
Insecurity	0.0898**	0.197***	0.151	0.313***	0.300
	(0.0394)	(0.0638)	(0.103)	(0.111)	(0.183)
Unhappiness	0.280***	0.783***	0.0301	0.0647	0.505
	(0.0839)	(0.178)	(0.374)	(0.347)	(0.374)
Internet use	0.405***	0.386***	0.213**	0.124	-0.193
	(0.0746)	(0.0670)	(0.104)	(0.113)	(0.276)
Diaspora	0.532***	0.504***	0.484***	0.561***	0.844***
	(0.0392)	(0.0624)	(0.0999)	(0.109)	(0.189)
Age	-0.00695***	-0.00887***	-0.00882*	-0.00689	0.00981
	(0.00151)	(0.00275)	(0.00461)	(0.00529)	(0.00712)
Household Size	-0.0286***	-0.0157**	-0.0115	-0.00539	-0.0239
	(0.00508)	(0.00756)	(0.0124)	(0.0111)	(0.0239)

Urban Dummy	0.0875*	0.0467	-0.0514	0.131	-0.172
	(0.0479)	(0.0679)	(0.111)	(0.117)	(0.252)
Constant	-0.422***	-0.486***	-0.656**	-0.694**	-1.655***
	(0.112)	(0.176)	(0.295)	(0.323)	(0.508)
Observations	12,168	4,535	1,736	1,439	563

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Conclusion

This study aimed to investigate the influence of education on emigration decisions in Afghanistan from 2016 to 2021. 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 the factors influencing brain drain and emigration decisions of educated Afghans. To get the answer, data from 2016 to 2021 were analyzed using a binary logistic regression model in two steps. First logistic regression model at margins as pool and also for each year adjusted with robust standard error is analyzed. Second, logistic regression for various degrees of education as multi-sampling method, adjusted with robust standard error, and controlled for various socio-demographic factors is applied. Additionally, diagnostic tests were conducted to ensure the model's reliability.

The marginal logistic pooled regression analysis revealed a significant positive relationship between education and emigration. Education increases the probability of emigration by 0.2%. 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 source of information. Demographically, older age and larger households size correlate negatively with emigration.

The findings obtained through logistic regression analysis, employing multi-sampling methods, indicate that individuals with a master degree are significantly influenced by political instability and diaspora abroad, rather than economic factors, when making decisions related to emigration. Similarly, individuals holding a bachelor degree demonstrate a stronger association with political instability, diaspora, insecurity, and female income 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: social, economic, and demographic, influencing their decision-making process in regard to emigration.

In conclusion, emigration of highly educated Afghans from Afghanistan is mainly influenced by political instability and family ties or diaspora abroad. While, emigration of less educated Afghans from Afghanistan can be described as a multidimensional phenomenon, mainly influenced economic, social, and demographic factors. The research findings have implications that are expected to be relevant for public policy, academics, and international donor organizations aiming to address the challenges associated with emigration from developing countries like Afghanistan. To further enhance the robustness of future studies, using recent data for 2022 and 2023, and conducting a panel study of developing countries will help more to explain emigration trend.

References

Abdelbaki, H. H. (2009). Estimation of the economic impact of brain drain on the labor expelling country. International Business & Economics Research Journal, 8(12).

Acharya, S. D. (2020). Determinants of Outmigration: A Micro-econometric Analysis. Economic Journal of Development Issues, 81-100.

Albrecht, C., Rude, B., & Stitteneder, T. (2021). Afghanistan's free fall–return of the Taliban and flight as a last resort. In CESifo Forum (Vol. 22, No. 06, pp. 47-56). München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der Universität München.

Amau-TV. (2023). Afghanistan: Herat University hit hard by mass exodus of lecturers. https://amu.tv/26345/

Antosova, I., Hazuchova, N., & Stavkova, J. (2022). Competitiveness of Individuals in the Labour Market During the Pandemic. Journal of Competitiveness, 14(3), 24–40. https://doi.org/10.7441/joc.2022.03.02

Appadurai, A. (2004). The capacity to aspire: Culture and the terms of recognition. Culture and public action, 59, 62-63.

Ashrafi, A., & Moghissi, H. (2002). Afghans in Iran: Asylum fatigue overshadows Islamic brotherhood. Global Dialogue, 4(4), 89.

Asia Foundation. (2021). Afghanistan in 2019 A Survey of Afghan People. Kabul, Afghanistan.

Augustová, K., & Karimi, H. (2021). Migration from Afghanistan under the Taliban: Implications and Strategies in the Neighbourhood and Europe. Friedrich Ebert Stiftung.

Bamik, H. (2018). Afghanistan's cultural norms and girls' education: Access and challenges. International Journal for Innovative Research in Multidisciplinary Field, 4(11), 83-93.

BBC. (2023a). Afghanistan: How many people has the UK resettled?. BBC. https://www.bbc.com/news/uk-58245684

BBC. (2023b). More than half of Kabul University Teachers Left the Country. https://www.bbc.com/persian/articles/c9e385j5707o

Beine, M., Docquier, F., & Rapoport, H. (2001). Brain drain and economic growth: theory and evidence. Journal of development economics, 64(1), 275-289.

Bellak, C., Leibrecht, M., & Liebensteiner, M. (2014). Short-term labour migration from the Republic of Armenia to the Russian Federation. Journal of Development Studies, 50(3), 349-367.

Berger, S. (2022). Brain Drain, Brain Gain and Its Net Effect. KNOMAD 46.

Bodvarsson, Ö. B., & Van den Berg, H. (2013). The economics of immigration. New York, NY: Springer New York.

Böhme, M. H. (2015). Migration and educational aspirations–Another channel of brain gain?. IZA Journal of Migration, 4(1), 1-24.

Brzozowski, J., & Coniglio, N. (2021). International migration and the (un) happiness push: Evidence from Polish longitudinal data. International Migration Review, 55(4), 1089-1120.

Campos, J. E. L., & Lien, D. (1995). Political instability and illegal immigration. Journal of population economics, 8(1), 23-33.

Conte, A., & Migali, S. (2019). The role of conflict and organized violence in international forced migration. Demographic Research, 41, 393-424.

De Haas, H. (2014). Migration theory: Quo vadis?. International Migration Institute Working Paper Series, Working Paper 100: 1–39. Oxford: International Migration Institute.

Demirchyan, A., Armenian, H. K., Paturyan, Y. J., & Khachadourian, V. (2021). Predictors of permanent emigration in a long-term cohort of Spitak earthquake survivors in Armenia. International Journal of Disaster Risk Reduction, 61, 102337.

Desai, M. A., Kapur, D., McHale, J., & Rogers, K. (2009). The fiscal impact of high-skilled emigration: Flows of Indians to the US. Journal of Development Economics, 88(1), 32-44.

Docquier, F., & Rapoport, H. (2012). Globalization, brain drain, and development. Journal of economic literature, 50(3), 681-730.

Docquier, F., Özden, Ç., & Peri, G. (2010). The wage effects of immigration and emigration (No. w16646). National Bureau of Economic Research.

Durana, P., Michalkova, L., Privara, A., Marousek, J., & Tumpach, M. (2021). Does the life cycle affect earnings management and bankruptcy? Oeconomia Copernicana, 12(2), 425–461. https://doi.org/10.24136/oc.2021.015

Dustmann, C., & Mestres, J. (2010). Remittances and temporary migration. Journal of Development Economics, 92(1), 62-70.

Easar, F., Azizi, H., Rahmani, K., Moradi, M., Taieb, R., & Faqiryar, W. N. (2023). Education in Afghanistan since 2001: Evolutions and Rollbacks. MISC.

Elsner, B. (2022). Does emigration increase the wages of non-emigrants in sending countries. IZA World of Labor.

Farr, G. (2022). Female Education in Afghanistan After the Return of the Taliban. E-International Relations. https://www.e-ir.info/2022/04/23/female-education-in-afghanistan-after-the-return-of-the-taliban/

Galanska, N. (2014). Forced Migration As A Consequence Of Armed Conflict - A Case Study Of Afghanistan. 15th International Scientific Conference on International Relations - Contemporary Issues of World Economics and Politics. https://www.webofscience.com/wos/woscc/full-record/WOS:000363790100019

Gannon, K. (2022). Taliban break promise on higher education for Afghan girls. AP News 24. https://apnews.com/article/afghanistan-education-kabul-talibandcdc0ba6768213009f69cc6e284d7f52

Garrote-Sanchez, D. (2017). International Labor Mobility National: Experience and Evidence for Afghanistan at macro level". World Bank Project on "Afghanistan: Managed International Labor Mobility as Contribution to Economic Development and Growth". World Bank Washington DC. http://documents.worldbank.org/curated/en/536541530196136716/pdf/International-Labor-Mobility-of- Nationals-Experience-and-Evidence-for-Afghanistan-at-the-Macro-Level.pdf

Gibson, J., & McKenzie, D. (2012). The economic consequences of 'brain drain'of the best and brightest: Microeconomic evidence from five countries. The Economic Journal, 122(560), 339-375.

Goldbaum, C., & Akbary, Y. (2022). Over a million flee as Afghanistan's economy collapses. The New York Times.

Gul, A. (2021). More than 300,000 Afghans Flee to Pakistan Since Taliban Takeover of Afghanistan. VOA. https://www.voanews.com/a/more-than300-000-afghans-flee-to-pakistan-since-taliban-takeover-of-afghanistan-/6357777.html

Habibî, A. (2002). Tarih-i Afganistan ba'd az İslâm. İran: Entisharat-e Afsoon.

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). Applied logistic regression. John Wiley & Sons. http://online.kottakkalfarookcollege.edu.in:8001/jspui/bitstream/123456789/3052/1/The%20Economics%20Of%20Immigration.pdf

Ibrahimi, N. (2014). Bureaucratic policies and patronage politics: Prospects and challenges of private higher education in Afghanistan. Briefing Paper.

IOM. (2022). Movement in and out of Afghanistan". UN Migration. https://www.iom.int/sites/g/files/tmzbdl486/files/documents/2023-01/afg-movements-in-and-out-01-15-dec-2022-v3.pdf

Iqbal, M. W., Donjadee, S., Kwanyuen, B., & Liu, S. Y. (2018). Farmers' perceptions of and adaptations to drought in Herat Province, Afghanistan. Journal of Mountain Science, 15(8), 1741-1756.

Jacobs, M. J., Schloeder, C. A., & Tanimoto, P. D. (2015). Dryland agriculture and rangeland restoration priorities in Afghanistan. Journal of Arid Land, 7, 391-402.

Kerz, J. D. (2022). EFSAS ARTICLE-The Securitization of Education in.

Kessler, G. (2021). The Afghan Evacuation and the War by the Numbers. The Washington Post. Retrieved 04 27, 2023. https://www.washingtonpost.com/politics/2021/09/02/afghan-evacuation-war-by-numbers/

Khwajamir, M. (2016). History and problems of education in Afghanistan. In SHS Web of Conferences (Vol. 26, p. 01124). EDP Sciences.

Kő, A., Mitev, A., Kovács, T., Fehér, P. & Szabó, Z. (2022). Digital Agility, Digital Competitiveness, and Innovative Performance of SMEs. Journal of Competitiveness, 14(4), 78–96. https://doi.org/10.7441/joc.2022.04.05

Kone, Z. L., & Özden, Ç. (2017). 20 Brain drain, gain and circulation. Handbook of Globalisation and Development, 349.

Koser, K., & Marsden, P. (2013). Migration and Displacement Impacts of Afghan Transitions in 2014: Implications for Australia. Migration Research Program Occasional Paper Series, 3.

Kugelman, M. (2022). The Taliban Hard-Liners Are Winning. Foreign Policy.

https://foreignpolicy.com/2022/03/31/afghanistan-taliban-hard-liners-girls-education-pressfreedom/

Kwok, V., & Leland, H. (1982). An economic model of the brain drain. The American Economic Review, 72(1), 91-100.

Los Angeles Time. (2021). We're losing the best': Afghanistan faces a massive brain drain as its people flee. https://www.latimes.com/world-nation/story/2021-08-27/afghanistan-brain-drain-taliban-takeover

Loschmann, C., & Siegel, M. (2015). Revisiting the motivations behind remittance behavior: Evidence of debt-financed migration from Afghanistan. Migration Letters, 12(1), 38-49.

Loschmann, C., Kuschminder, K., & Siegel, M. (2014). The root causes of movement: Exploring the determinants of Irregular Migration from Afghanistan. A LONG WAY TO GO, 77.

Mahoodi, A. (2014). The Economic Impacts of Brain Drain in Iran". Tehran: Islamic Azad University.

Manning, C. (2007). Brain drain and brain gain: A survey of issues, outcomes and policies in the least developed countries (LDCs). Study prepared for UNCTAD as a background paper for The Least Developed Countries Report.

Marchand, K., Siegel, M., Kuschminder, K., Majidi, N., Vanore, M., & Buil, C. (2014). Afghanistan Migration Profile. International Organization for Migration.

Ministry of Education. (2012). Policy Guidelines for Community-Based Education. Afghanistan. https://planipolis.iiep.unesco.org/sites/default/files/ressources/afghanistan_policy_guidlines_community_based_education.pdf

Ministry of Higher Education. (2023). List of public and private educational institutions. https://mohe.gov.af/en/general-list-private-universities-and-institutes-higher-education

Monsutti, A. (2006). Afghan transnational networks: Looking beyond repatriation.

Mountford, A. (1997). Can a brain drain be good for growth in the source economy?. Journal of development economics, 53(2), 287-303.

Otoiu, A., Titan, E., Paraschiv, D. M., Dinu, V., & Manea, D. I. (2022). Analysing Labour-Based Estimates of Automation and Their Implications. A Comparative Approach from an Economic Competitiveness Perspective. Journal of Competitiveness, 14(3), 133–152. https://doi.org/10.7441/joc.2022.03.08

Özden, Ç., Parsons, C. R., Schiff, M., & Walmsley, T. L. (2011). Where on earth is everybody? The evolution of global bilateral migration 1960–2000. The World Bank Economic Review, 25(1), 12-56.

Přívara, A. (2019a). Citizenship-for-sale schemes in Bulgaria, Cyprus, and Malta. Migration Letters, 16, 245–254. https://doi.org/10.33182/ml.v16i2.735

Přívara, A. (2019b). Explaining emigration patterns in Estonia, Lithuania, Slovenia and Slovakia. Geografický Časopis - Geographical Journal, 71(2). https://doi.org/10.31577/geogrcas.2019.71.2.09

Přívara, A. (2021). Labour market efficiency and emigration in Slovakia and EU neighbouring countries. Economic Research-Ekonomska Istraživanja, 34(1), 1850–1869. https://doi.org/10.1080/1331677X.2020.1858131

Privara, A. (2022a). Competitiveness of Germany and the Labour Market: A Migration Perspective. Journal of Competitiveness, 14(2), 116–134. https://doi.org/10.7441/joc.2022.02.07

Privara, A. (2022b). Economic growth and labour market in the European Union: Lessons from COVID-19. Oeconomia Copernicana, 13(2), 355–377. https://doi.org/10.24136/oc.2022.011

Přívara, A., & Přívarová, M. (2019). Nexus between climate change, displacement and conflict: Afghanistan case. Sustainability, 11(20), 5586.

Přívara, A., Rievajová, E., & Barbulescu, A. (2020). Attracting High Skilled Individuals in the EU: The Finnish Experience. Migration Letters, 17(2), 369–377. https://doi.org/10.33182/ml.v17i2.927

Privara, A., Rievajová, E., & Dziura, B. (2018). Unemployment Aspects of Regional Development (The Cases of the Czech and Slovak Republics). Advanced Science Letters, 24(9), 6320–6322. https://doi.org/10.1166/asl.2018.13042

Privara, A., Rievajová, E., & Yüceşahin, M. M. (2019). Labour Market Disadvantages Faced by Migrant Workers from Czech Republic, Hungary, and Slovakia in Britain. Migration Letters, 16(4), 585–594. https://doi.org/10.33182/ml.v16i4.720

Radio Free Europe. (2022). Brain Drained: Exodus Of Professionals Since Taliban Takeover Leaves Afghanistan Starting From Scratch Again. https://www.rferl.org/a/afghanistan-taliban-brain-drain-workforce-anniversary/31983884.html

Reuters. (2021). Factbox: Evacuations from Afghanistan by Country. Retrieved 05 27, 2022, from https://www.reuters.com/world/evacuations-afghanistan-by-country-2021-08-26/

Riley, G. (2012). Economic Growth-The Role of Human & Social Capital." Competition & Innovation.

Ruyssen, I., & Salomone, S. (2018). Female migration: A way out of discrimination?. Journal of Development Economics, 130, 224-241.

Samady, S. R. (2001). Modern education in Afghanistan. Prospects, 31(4), 587-602.

Shorish-Shamley, Z. (1998). Report from Women's Alliance for Peace and Human Rights in Afghanistan.

Sirkeci, I., Cohen, J. H., & Přívara, A. (2017). Towards a Migration Letters Index: the most influential works and authors in Migration Studies. Migration Letters, 14(3), 397-424.

Sjaastad, L. A. (1962). The costs and returns of human migration. Journal of political Economy, 70(5, Part 2), 80-93.

Sparreboom, T., Mertens, J., & Berger, S. (2020). The labour market impact of immigration in three sub-Saharan African economies. Journal of International Migration and Integration, 21(4), 1225-1248.

Spink, P. (2020). Climate Change Drives Migration In Conflict-Ridden Afghanistan. ActionAId Internationl.

Stark, O., Helmenstein, C., & Prskawetz, A. (1998). Human capital depletion, human capital formation, and migration: a blessing or a "curse"?. Economics Letters, 60(3), 363-367.

Terrazas, A. (2010). Diaspora investment in developing and emerging country capital markets: Patterns and prospects. Migration policy institute.

The Economic Time. (2021). Afghanistan brain-drain complicates Taliban rule experts. https://economictimes.indiatimes.com/news/international/world-news/afghanistan-brain-drain-complicates-taliban-rule-experts/articleshow/85871093.cms

Tsou, H. T., & Chen, J. S. (2022). An Examination of the Effect of Knowledge Utilization on Service Innovation: The Moderating Roles of Performance-Orientation Culture and Competitiveness Culture. Journal of Competitiveness, 14(4), 44–60. https://doi.org/10.7441/joc.2022.04.03

UIL. (2020). Literacy rate in Afghanistan increased to 43 per cent. https://uil.unesco.org/interview-literacy-rate-afghanistan-increased-43-cent

UNESCO. (2023). Let girls and women in Afghanistan learn. https://www.unesco.org/en/articles/let-girls-and-women-afghanistan-learn

UNHCR (2023c). Regional Bureau for Asia and Pacific. External Update: Afghanistan Situation #23. UNHCR. https://reporting.unhcr.org/document/4216.

UNHCR. (2023). The Un Refugee Agency. Afghanistan. https://www.unhcr.org/countries/afghanistan#:~:text=Afghans%20make%20up%20one%20of,for%20refuge%20within%20the%20country.

UNHCR. (2023a). Operational Data Portal. Afghanistan. https://data.unhcr.org/en/situations/afghanistan/location/7535

UNHCR. (2023b). Refugee Data Finder.. https://www.unhcr.org/refugee-statistics/download/?url=82LTtq.

United Nations. (2022). UNDATA. International migration stocks. http://data.un.org/datamartinfo.aspx

United Nations. (2022). World migration report 2022. International Organization for Migration. https://publications.iom.int/books/world-migration-report-2022

United Nations. (2023). Total net migration. Data portal (2023a). Accessed 05,15, 2023. https://population.un.org/dataportal/data/indicators/65/locations/4/start/1950/end/2023/line/line timeplot

United Nations. (2023b). International Migration Stocks. https://www.un.org/development/desa/pd/content/international-migrant-stock.

Vavrečka, V., Zaušková, A., Přívara, A., Civelek, M., & Gajdka, K. (2021). The Propensity of SMEs Regarding the Usage of Technology Enabled Marketing Channels: Evidence from the Czech, Slovak and Hungarian SMEs. Transformations in Business & Economics, 20(2), 223–240.

Vidal, J. P. (1998). The effect of emigration on human capital formation. Journal of population economics, 11(4), 589-600.

Winkler, H. (2017). How does the internet affect migration decisions?. Applied Economics Letters, 24(16), 1194-1198.

World Bank. Databank. (2021). Literacy rate, adult total (% of people ages 15 and above) – Afghanistan. https://data.worldbank.org/indicator/SE.ADT.LITR.ZS?locations=AF

Zhao, J., & Zhong, H. (2019). A demographic factor as a determinant of migration: what is the effect of sibship size on migration decisions?. Journal of Demographic Economics, 85(4), 321-345.