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UNRAVELING THE INFLUENCE OF INFORMATION SOURCES ON AFGHAN EMIGRATION DECISION: IMPLICATION FOR EU POLICIES TO DETER IMMIGRATION IN THE ORIGIN

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This study investigates the influence of information sources on Afghans' emigration decisions, addressing a gap in existing research. Analyzing cross-sectional panel data from 2016 to 2021 using a binary random-effects logistic regression model, the study identifies significant positive relationships between emigration and information obtained from TV, internet, and community councils. Conversely, information from radio exhibits a significant negative association. Financial and political stability also influence emigration, with political instability having a stronger impact. Notably, the diaspora's influence surpasses other factors. The findings underscore the multidimensional nature of Afghan emigration, emphasizing the pivotal role of family ties and diaspora connections. Policy implications highlight the need for comprehensive strategies, including targeted campaigns using social and broadcast media, engaging the diaspora, and addressing political and economic instability. Demographic factors also play a role but to a lesser extent. Future studies should consider recent data and conduct panel studies across developing countries for a more nuanced understanding of emigration trends.

Keywords: Afghanistan; emigration decision; information; media; panel logistic

JEL classifications: F22: International Migration; J61: Geographic Labor Mobility; O15: Human Resources; Human Development; Income Distribution; Migration; C33: Models with Panel Data.

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Introduction

In 2022, global international migration surged to 281 million, a 23% increase since 2010, as reported by the United Nations (United Nations, 2022a). Approximately 3.5% of the world's population resides in foreign countries, a stability maintained since the 1960s (Özden et al., 2011). Afghanistan, a least developed country, has become a focal point in international migration, engaging transit and destination nations and humanitarian efforts globally (UNHCR, 2023a).

The UNHCR reported in 2023 that Afghan refugees, numbering 8.2 million across 103 countries, predominantly in Pakistan and Iran, constitute the third-largest displaced population (UNHCR, 2023a). Economic considerations historically drove modest emigration from Afghanistan, intensifying after the 1979 Soviet invasion (Marchand et al., 2014). The collapse of the Afghan government in 2021 prompted over 1.6 million citizens to flee, highlighting the urgent need for comprehensive research (United Nations, 2022a; Özden et al., 2011; UNHCR, 2023a).

Existing empirical evidence on Afghanistan reveals a complex interplay of factors influencing emigration. Studies underscore the connection between the emigration crisis and recent political turbulence, social instability, and insecurity Koser & (Marsden, 2013; Loschmann et al., 2014; Galanska, 2014). Scientific research identifies climate change, land degradation, drought, and declining agricultural income as key contributors to social issues, driving both internal and external migrations (Přívara & Přívarová, 2019; Jacobs et al., 2015; Iqbal et al., 2018; Eiman Massoud Shaheer et al., 2020).

Clara et al.'s (2021) study points to political, economic, and environmental factors driving food shortages, prompting internal and external migration (Albrecht et al., 2021). Demographic factors, including age, family size, province, education, and gender, also feature in emigration literature (Loschmann et al., 2014). This paper argues that, in addition to these factors, information significantly influences Afghan emigration, addressing a notable literature gap.

In the past two decades, Afghanistan experienced notable progress in press freedom, private media growth, and internet accessibility, enhancing communication. However, since the Taliban assumed power in August 2021, the media landscape has deteriorated. A 2014 Gallup survey highlighted substantial expansion, with 80.1% public satisfaction and two-thirds accessing daily news, mainly through television (64.0%).

There's a strong interest in domestic topics, notably religion (82.1%), healthcare, and education. Radio remains popular, especially in rural areas, and internet usage increased from 12.3% in 2014 to 25% in 2022, with mobile phones playing a crucial role. News consumption links to education, and urban residents generally have better connectivity (GALLUP, 2014). Thus, investigating the impact of information sources on emigration decision of Afghans is crucial in emigration nexus.

Concurrently, global advancements in ICT have reshaped daily life, work dynamics, and mobility patterns, presenting both opportunities and challenges (Schwanen et al., 2008). Within the literature on information obtained through various ICTs and emigration, three key arguments emerge.

Firstly, numerous studies support the idea that increased accessibility to information and the utilization of ICTs enhance people's access to reliable information, facilitate more efficient

communication globally, and broaden the array of residential options for potential migrants (Dekker & Godfried, 2014; Ettema, 2010).

Secondly, Cooke (2013) challenges the notion that information obtained from ICTs drive migration, citing a negative correlation with long-term migration decline in the U.S. He suggests that use of ICTs for obtaining information might bolster residential stability, especially in remote work-enabled industries, reducing the necessity for frequent relocations (Molloy et al., 2011). Hence, he posits that extensive use of information and technology might alter traditional migration patterns negatively.

Thirdly, some scholars argue that information obtained from ICTs can have both positive and negative impacts on emigration decisions. A study by Cooke & Shuttleworth (2018) contends that use of ICTs can simultaneously hinder and enhance effects on residential mobility and migration. While existing studies establish various impacts of information obtained from various ICTs on migration decisions, a clear link between the use of internet, TV, Radio, community councils, friends, and mosques and migration outcomes in the context of least developed countries is yet to be established.

The EU faces a prolonged migration crisis, with Afghan asylum seekers and refugees presenting a significant challenge. According to Tagliapietra (2023), Afghans rank as the second-largest refugee group in Europe after Syrians. Despite this, the EU lacks a unified strategy to address the surge in Afghan refugees following the Taliban's return to power. The EU emphasizes externalization, increased support to neighbouring countries, security measures, and revisiting the Temporary Protection Directive to address the crisis swiftly (GMF, 2021).

Thus, understanding key factors influencing Afghan emigration is crucial for EU policymakers to develop informed integration and protection policies. Additionally, the Council of the European Union (2021) emphasizes regional stability, women's rights, and humanitarian assistance through strategies like border control, regional cooperation, and targeted information campaigns.

Further, the EU, a major humanitarian aid provider, has pledged €1 billion in response to the worsening situation in Afghanistan, focusing on humanitarian aid, basic needs, and livelihoods (Council of the European Union, 2023). Therefore, this study aims to uncover the influence of information sources on emigration from Afghanistan, contributing insights for crafting compassionate and informed policies in EU to address the migration crisis.

This paper has three key objectives:

Firstly, it addresses a significant research gap by thoroughly examining the influence of information sources (internet, TV, and Radio, community councils, and friends) on migration decisions among Afghans, distinguishing itself by simultaneously considering all sources within the origin country.

Secondly, it upholds scientific rigor, employing robust quantitative methods and a sample of 73,856 Afghans from 2016 to 2021, across 34 provinces. This ensures reliable findings regarding how information sources influence emigration decisions in Afghanistan, the world's highest emigration rate among least developed countries.

Lastly, the analysis advances our understanding of emigration dynamics, offering comprehensive reality-based policy recommendations to the EU for achieving sustainable solutions and an effective response plan to migration crisis.

The study reveals that Afghan emigration is notably influenced by information from TV, internet, and community councils, with radio exerting a significant negative impact.

Political instability outweighs economic stability, and the diaspora's influence is paramount. Countering emigration requires collaborative policies between origin and destination countries, understanding the economic and social implications for sustainable solutions and response plans.

Thus, effective strategies must consider Afghanistan's migration dynamics and its connection to information sources. Therefore, this research is valuable for policymakers, academics, and migration entities. Its structure includes sections on literature review, methodology, results and discussion, and conclusion, offering comprehensive insights in a concise format.

Research question: Which sources of information significantly influence the emigration decision of Afghan People?

Literature review and conceptual framework

Related literature

Recently, widespread of information from social media has significantly influenced migration patterns, especially rural-to-urban migration (Asia Foundation, 2021), and is expected to continue globally (Dekker et al., 2018). It serves as a vital tool in emigration decision process, providing decision-making information, reducing costs and risks, and fostering integration (Alencar, 2018; Dekker et al., 2018; Hidayati, 2019).

Migrants use it to stay informed about destinations, build support networks, and mobilize resources (De Haas, 2010). Additionally, Social media's evolution into an information source significantly impacts migration decision-making, acting as a bridge to connect individuals, reduce migration costs, and strengthen social ties (Cairncross, 1997; Haythornthwaite, 2002).

Similarly, access to internet give the opportunity to platforms like Facebook and Whatsap which play a crucial role in providing destination information and making it central to migration decisions (Brooks & Waters, 2010; Haythornthwaite, 2002; Komito, 2011; Dekker & Godfried, 2014). Information from social and broadcasting media strengthens social ties, transforming networks, and reducing migration costs (Dekker & Godfried, 2014).

It fosters both strong and weak ties through verbal exchanges and shared interests (Komito, 2011; Haythornthwaite, 2002). While potentially isolating, cohesive migrant communities aid integration, with the internet assisting young immigrants in navigating their new society (Nelly & Lemish, 2009; Aretxabala et al., 2012). Information from media, including social media, aids migrants in learning about host countries and accessing government and support services information (Hwang & Zhou, 1999).

In destination countries, various types of media, including social media, combat isolation, providing information, supporting cultural exploration, offering learning opportunities, aiding integration (McGregor & Siegel, 2012), and assisting in obtaining financial support for cultural activities (Laanpere et al., 2011).

For asylum seekers, social media facilitates cost-effective communication, circulating diverse migration-related information within networks (Dekker et al., 2016; Madianou & Miller, 2013; Dekker & Godfried, 2014; Witteborn, 2014). However, public information sharing extends beyond the intended audience (Scott, 1990; 1985), leading to "information precarity" for asylum seekers due to limited internet access and digital surveillance challenges (Leung, 2010).

Asylum seekers must critically evaluate shared information, relying on rumor validation and the quest for "trusted information" amid ambiguity and potential threats (Burrell, 2012; Hagen-Zanker & Mallett, 2016; Zijlstra & van Liempt, 2017).

Prior literature emphasizes actual migration with consideration of push and pull factors such as, employment, wages, social security, and migration costs (Ortega & Peri, 2009; Hatton & Williamson, 2005; Mayda, 2022; McKenzie & Rapoport, 2007; Banerjee, 1983; Takenaka & Pren, 2010; Toma & Vause, 2014).

However, our study uniquely centers on emigration intention, not the actual migration process. Additionally, for a comprehensive examination of the influence of information on emigration intention from broadcasting media and social networks, especially in less developed countries like Afghanistan, we included variables like information obtained from internet, television (TV), radio, community councils, friends, and mosques.

Moreover, since diaspora and networks significantly decrease migration cost and facilitate emigration (McKenzie & Rapoport, 2007; Beine & Sara, 2013; Boyd, 1989; Donato et al., 1992; Munshi, 2003), thus our study also integrates the family ties of potential emigrants abroad. Finally, despite ample research on labor market factors, income, and migration decisions, the influence of amenities on emigration from less developed countries remains understudied.

Accordingly, our research perceives those amenities also driving emigration intentions, thus incorporating factors like public services, insecurity, political instability, and public happiness.

Conceptual framework

The primary aim is to establish the foundation for empirical research, drawing inspiration from Manchin & Orazbayev (2018), Dustmann & Okatenko (2014), and Sjaastad (1962). This work introduces a basic model explaining the influence of factors - migration costs, social networks (information), contentment, employment, and financial prospects—on an individual's emigration decision. It explores the inclination for emigration based on the expectation of enhanced utility at the destination.

Factors like wealth, satisfaction with amenities, and emigration costs which is influenced by diaspora and origin networks, play a crucial role (McKenzie & Rapoport, 2007; Munshi & Rosenzweig, 2016; Sjaastad, 1962). Sjaastad (1962) indicates emigration costs are likely influenced by country-specific and individual characteristics, alongside the type of networks abroad.

This framework assumes that if an individual expects higher utility in the destination compared to origin, the individual intends to emigrate after accounting for cost of emigration. Using U_0 for current utility, U_d for destination utility, and c for migration costs, individual will emigrate if the following condition is satisfied.

$$U_0 - (U_d - C) \leq 0$$

For an individual to intend to migration, their current wealth (W_0) must cover expected emigration costs ($W_0 \geq C$). Additionally, the cost of emigration depends on country, individual, and the social network characteristics both in origin and destination according to Sjaastad (1962). Destination networks typically reduce costs by providing information and financial support.

While, origin networks, as discussed by Munshi and Rosenzweig (2016), can either raise or lower costs.

For example, information obtained from media can both increase awareness about the risk of emigration or motivate them to emigrate due to dissatisfaction with amenities or awareness from general instability and insecurity in the origin.

Considering unobservable factors and emigration costs influencing utility at origin and destination, we can write the above Expression as following:

$$U_0 - (U_d - C) + \mu \leq 0$$

where μ represents cumulative effects of random variables affecting utilities and costs.

Thus, we can write the probability of a weak and high intention to emigrate as follows.

Probability (Weak intention) = P($\mu \leq U_d - C - U_o$)

Probability (High intention) = P($\mu \leq U_d - C - U_o; W_o \geq C$)

The probability of high intention for emigration will also depend on higher income or wealth and budget (Manchin & Orazbayev, 2018).

Country context

Emigration waves from Afghanistan

Multiple waves of emigration from Afghanistan were triggered by factors such as political instability, armed conflict, economic adversity, and natural disasters. Fig. 1 highlights the initial wave, linked to the USSR invasion in 1979 (Ashrafi et al., 2002).

The Afghan War (1979-1989) displaced many Afghans, leading to significant refugee numbers in Pakistan (3.2 million) and Iran (3 million). About 6.7 million individuals left during this period, with approximately 4.5 million returning in the early 1990s amid a relative de-escalation of the conflict (Monsutti, 2006).

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

Following the Soviet troop withdrawal in 1989, internal conflict among Mujahideen factions led to widespread violence, triggering the second wave.

The Taliban's takeover in 1996 intensified the situation, prompting a mass migration from Afghanistan to Pakistan. As result, emigration increased from 2.6 million to 3.8 million due to the civil war, drought, and economic challenges (Garrote-Sanchez, 2017).

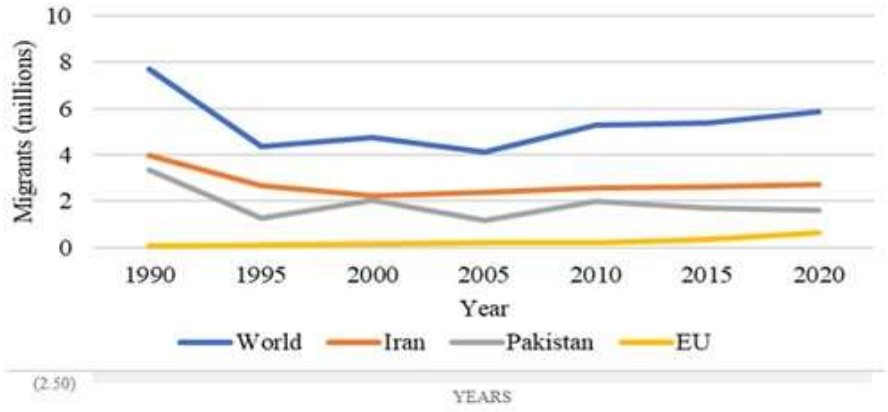

Figure 2 - International migration stock of Afghan migrants
(Source: United Nations, 2023a)

The post-9/11 War on Terror (2001-2021) caused significant population movements in Afghanistan. From 2000 to 2020, global Afghan migrants' stocks increased from 4.7 million to 5.9 million (Fig. 2). Further, internally displaced persons rose from 184,000 in 2003 to 3.4 million in 2022 (UNHCR, 2023c).

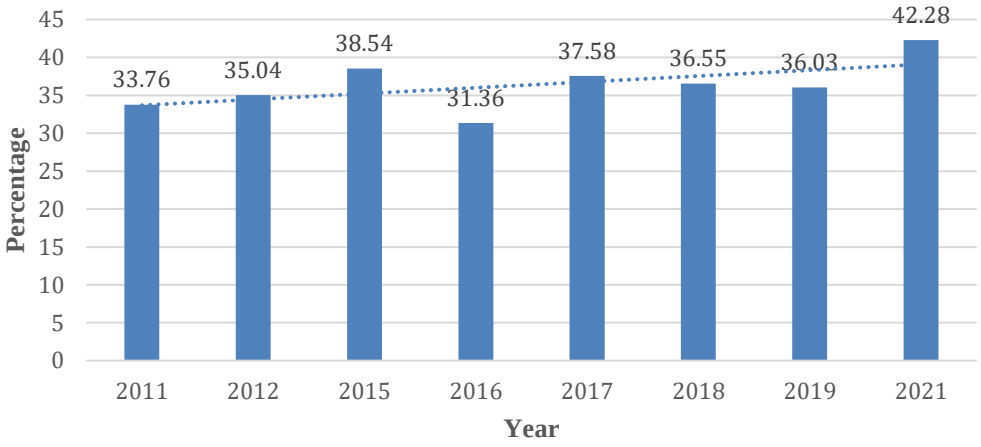

Figure 3 - Emigration intension trend
(Source: author calculation)

As shown in Fig. 3 the increase in emigration intension in 2015 is Notably due to the 2014 NATO troops withdrawal and presidential election intensified instability, fueling emigration (UNHCR, 2023b). Additionally, the upward trend in Afghan emigration since 2016 is linked to factors like intensified insurgency, ongoing Taliban peace talks, the controversial 2019 election, and the US-Taliban Doha agreement.

The Afghan government's collapse in August 2021, triggered by the US president's withdrawal announcement and failed peace talks, resulted in a notable 42.3% increase in those wanting to leave the country. Since that, approximately 1.3 million new arrivals have been registered in neighboring countries (UNHCR, 2023).

Illustrated in Fig. 4, a substantial portion of Afghans intending to emigrate is concentrated in the north-west and north-east 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.

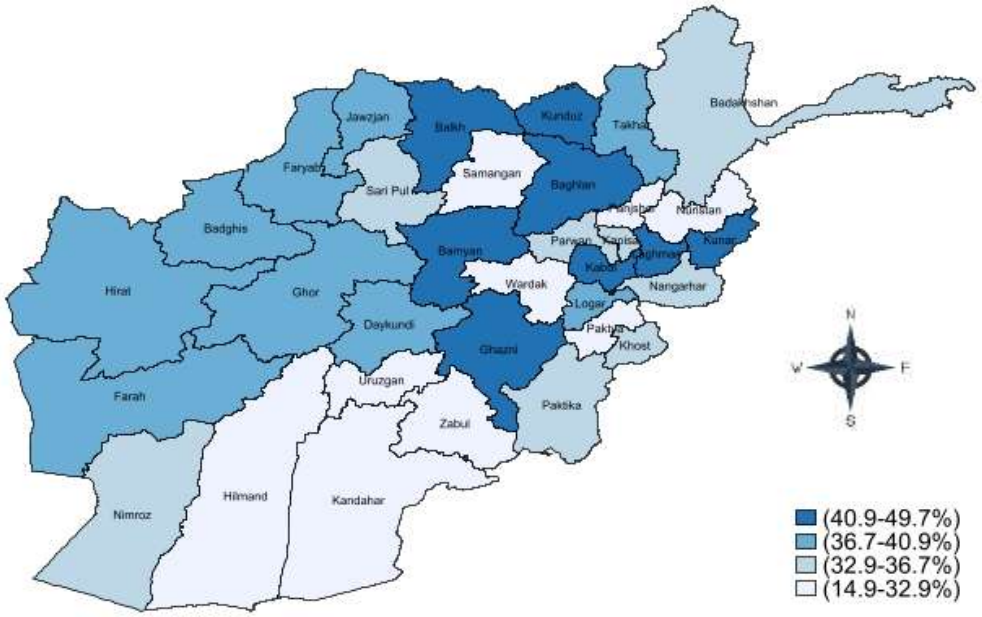

Figure 4 - Provincial level emigration intension (2011-2021)
(Source: author calculation)

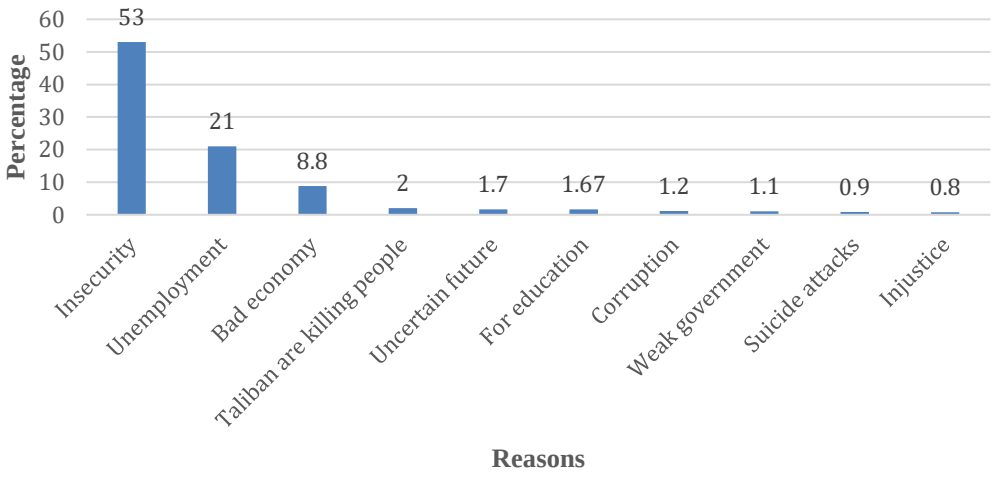

Figure 5 - Main reasons for leaving (2012-2021)
(Source: author calculation)

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 result Fig. 5 presents the top 10 reasons, with insecurity or political instability and economic conditions emerging as the foremost factors among others.

Sources of information in Afghanistan

Over the past 20 years, Afghanistan made strides in press freedom, private media growth, and internet access, as per a 2014 Gallup survey GALLUP, 2014. The Survey finds that around 80.1% of the population accessed news on a daily basis, primarily through television (64.0%). Domestic topics, especially religion (82.1%), garnered interest. Despite progress, media deteriorated post-Taliban takeover in August 2021.

Additionally, Internet usage rose from 12.3% in 2014 to 25% in 2022, with mobile phones playing a crucial role. According to the data of the Asia Foundation in this research the main sources of information among Afghan population is TV, radio, and friends as presented in Fig. 6.

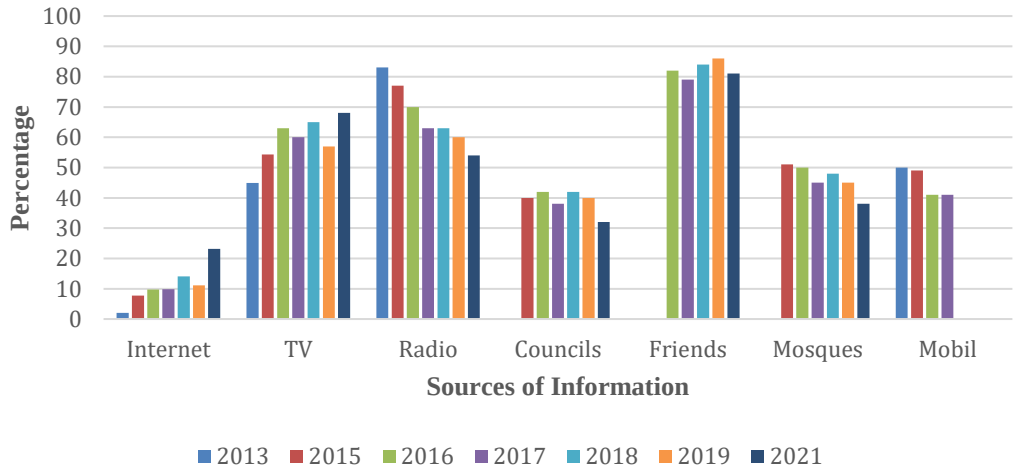

Figure 6 - Percentage of individuals or households by source of information
(Source: author calculation)

Interestingly, in this survey those who use TV as sources of information, majority of them which is 37 %, are following the daily news. The daily news always covers social, political, and economic updates of the country and abroad.

The influence of information obtained from TV on emigration decision of Afghan can be either positive or negative.

Furthermore, data from 2006 and 2007 reveals a consistent majority of radio listeners tuning in to stations like Arman FM, BBC, VOA, and Radio Free Europe for obtaining information. The programs on these channels encompass discussion on social, political, and economic issues in Afghanistan and globally.

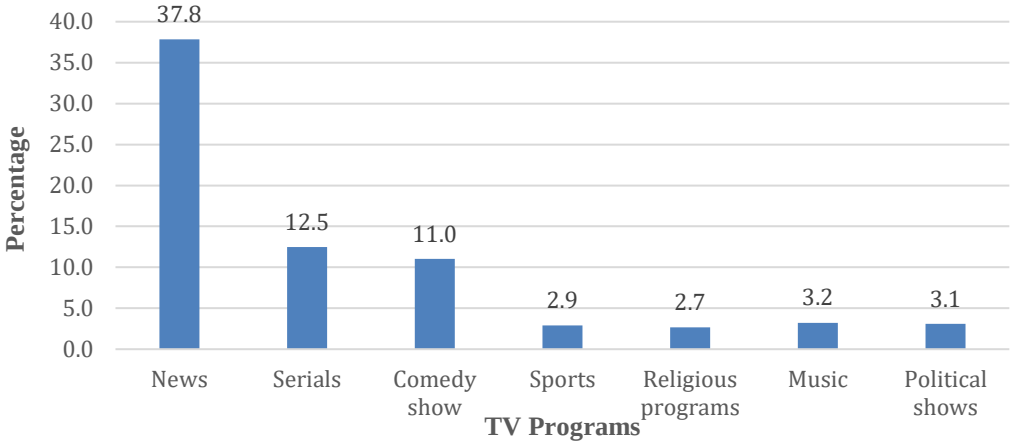

Table 7 - Types of information obtained from TV
(Source: author calculation)

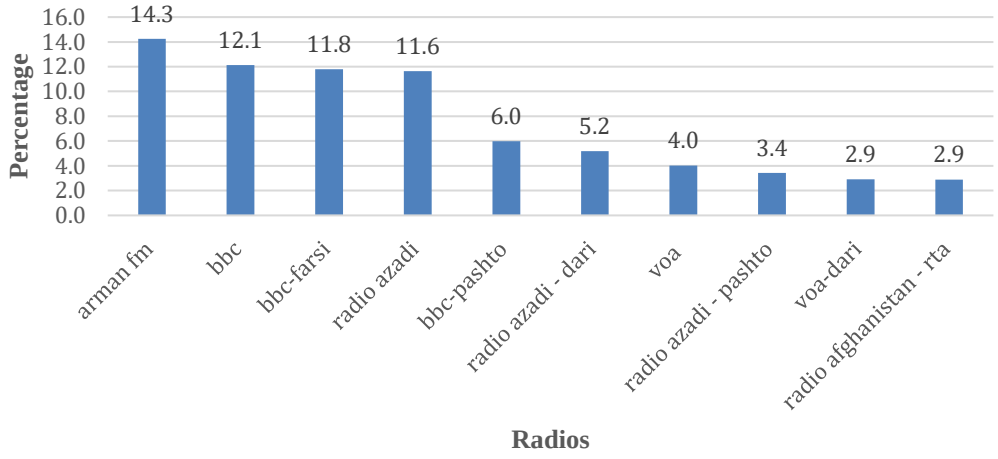

Figure 8- Radio listeners (2006-2007)
(Source: author calculation)

According to the Data Reportal (2023) in the beginning of 2023, Afghanistan recorded 7.67 million internet users, reflecting an 18.4% internet penetration rate. Social media users numbered 3.15 million, constituting 7.6% of the population.

Additionally, the country had 26.95 million active cellular mobile connections, reaching 64.7% of the total population (Data Reportal, 2023). Our data used in this research indicates a 23 % of the internet penetration among the Afghan population in 2021.

The data indicates that majority of the Afghans use internet for following the daily news, social media, and communication as shown in the Fig. 9.

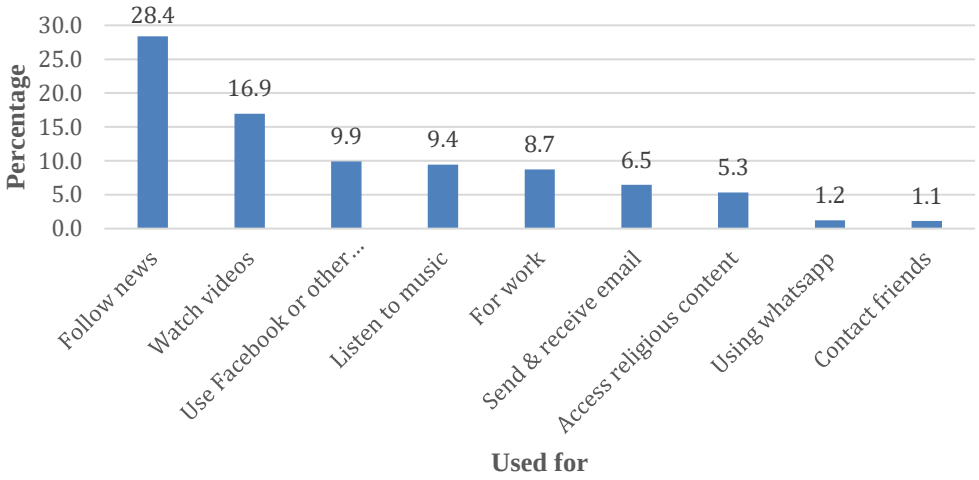

Figure 9 - Reasons for using internet (2013-2021)
(Source: author calculation)

Methodology

Empirical model

Based on existing scholarly research, this study utilizes a panel logistic regression framework to understand how information sources affect emigration decisions. The research employs a three-phase methodology. Initially, the Hausman test determines whether to use fixed or random effect regression models.

In the second phase, panel binary logistic model while incorporating robust standard errors and also accounting for various socio-economic and demographic variables is applied. Subsequently, a logistic marginal effect regression model is applied.

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

In the context of the study, let P(Y=1) denote the likelihood of the event Y being 1, symbolizing its occurrence. The set X1, X2, ..., Xk represent independent variables, whereas β0, β1, ..., βk 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 (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.

The quantification of the marginal impact of the variable denoted as X_i is formulated as follows:

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

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

$$Y_{it} = \beta_0 + \beta_1 InformationSources_{it} + \beta_2 X_{it} + \varepsilon_{it}\ ,\ \text{i=1,…,n}$$

Y represents the dependent variable, which corresponds to the emigration decision. Information sources serves as the primary variables under investigation in the study, while X_i serve as controls for economic, social, and demographic factors that influence the emigration decision.

Furthermore, ε_{it} denotes the random disturbances or errors associated with the variables and i represent the individuals characteristics at t time period. The detailed description of all variables is presented in Tab. 1 as follows:

Table 1 - Description of variables
(Source: 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 & Coniglio, 2021
Internet use	Do you use any of the following for obtaining information? … The internet	Binary (yes=1)	-	Winkler, 2017
TV use	Do you use any of the following for obtaining information? … TV	Binary (yes=1)	+/_	Cooke & Shuttleworth, 2018
Radio use	Do you use any of the following for obtaining information? … Radio	Binary (yes=1)	+/_	
Community councils	Do you use any of the following for obtaining information? Community councils	Binary (yes=1)	+/_	
Friends	Do you use any of the following for obtaining information? Friends	Binary (yes=1)	+/_	
Mosques	Do you use any of the following for obtaining information? Mosques	Binary (yes=1)	+/_	
Financial stability	Compared to one years ago, would you say that / Financial situation of your household situation for your household has gotten better, remained the same or gotten worse with respect to the following?	Binary (better=1)	+/_	Adams & Richard, 1993

Variables	Questions	Type	Expected sign	Relevant literature
Employment	Do you yourself do any activity that generates money?	Binary (yes=1)	-	Demirchyan et al., 2021
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	How often do you fear for your own personal safety or security or for that of your family these days? Always, often, sometimes, rarely, or never?	Binary (Always=1)	+	Conte & Migali, 2019
Public services	Compared to two years ago, would you say that situation for your household has gotten better, remained the same or gotten worse with respect to the following? School teaching (teacher &curriculum)	Binary (better=1)	-	Acharya, 2020
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 & Coniglio, 2021
Education	What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa?	Continuous	-	Acharya, 2020
Diaspora	Do you have a family member or close relative that lives abroad?	Binary (yes=1)	+	Bellak et al., 2014
Age	How old are you?	Continuous	-	Zhao & Hai, 2019
Male	Gender	Binary(male=1)	+	Adams & Richard, 2011
Household size	How many people live here at this address?	Continuous	-	Acharya, 2020
Urban	CSO Geographic Code	Binary (Urban=1)	+	

Data

In this study, we utilized data from the Survey of Afghan People by the Asia Foundation, an international nonprofit organization (Asia Foundation, 2021). The survey encompasses all provinces, ethnicities, and genders in Afghanistan, capturing public opinions on economic, political, and social matters. Data was collected annually from 2006 to 2021 through a multistage, systematic sampling approach, resulting in 148,196 observations. For this paper, we focus on repeated cross-sectional panal data from 2016 to 2021, excluding 2020 due to data unavailability from the COVID-19 pandemic.

This relevant time frame comprises 73,856 observations across the country.

Descriptive statistics

Table 2 - Households demographic characteristics (2016-2021)
(Source: compiled by author)

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 %

Result

The regression analysis aimed to explore how information from diverse broadcasting and social networks influenced Afghan emigration decisions between 2016 and 2021. Given the binary nature of the dependent variable, ensuring reliable regression outcomes was paramount.

To achieve this, the study utilized different model specifications and diagnostic tests. Consequently, a panel random effect logistic regression model with margins and robust standard errors was applied. The results are presented sequentially.

Diagnostic tests results

To ensure the validity of the logit regression model assumptions, such as the absence of perfect multicollinearity, we employed the VIF test, revealing a mean VIF of 1.29, well below the acceptable threshold of 5. Additionally, Linktest results confirm proper model specification (hatsq=0.673).

The Hosmer and Lemeshow's goodness-of-fit test (Prob > chi2 = 0.6742) affirms the logistic model's adequacy. Further, addressing potential issues of heteroskedasticity and serial correlation, logistic regression considered robust standard errors.

Finally, applying the Hausman test to choose between fixed and random effects, the null hypothesis wasn't rejected (Prob > chi2 = 0.6429), warranting the use of a random effects model. Results are detailed in the appendices.

Table 3 - Percentage of individual who intend to emigrate by each category (2016-2021)
(Source: compiled by author)

Category	% Emigrate	Category	% Emigrate	Category	% Emigrate
Emigration decision		Info-Internet		Info-TV	
Yes	38.97	Yes	50.10	Yes	42.79
No	61.03	No	37.18	No	32.18
Info-Radio		Info-Community councils		Info-Friends	
Yes	37.79	Yes	39.79	Yes	39.79
No	41.18	No	38.18	No	38.18
Info-Mosques		Financial stability		Employment	
Yes	39.79	Better	35	Yes	38.43
No	38.18	Same	38	No	35.92
		Worse	42		
Political Stability		Insecurity		Public services	
Wrong direction	41.30	Always	44.09	Better	37.14
Right direction	34.54	Often	39.34	Same	39.35
		Sometimes	38.95	Worse	39.55
		Rarely	35.43		
Unhappy		Diaspora		Education	
Very happy	33.71	Yes	47.20	No formal education	34.77
Somewhat happy	37.94	No	30.70	High school (12)	44.72
Not very happy	40.34			Vocational (14)	42.25
Not at all happy	41.00			Bachelor (16)	43.80
				University degree (12 +)	38.70
Age		Gender		Household size	
Youths (18-25)	42.67	Male	38.75	Small (1-5)	40.38
Adults (26-40)	38.96	Female	35.41	Medium (6-10)	38.71
Elders (40 plus)	35.45			Large (10+)	33.72
Urban					
Urban	42.25				
Rural	35.59				

Discussion of the regression result

In Tab. 4, after controlling for additional variables, panel random-effects logistic regression analyses were conducted marginally. Model 4's results reveal a significant positive impact of information from the internet, TV, and community councils. Conversely, radio information displays a significant negative association with emigration. On average, a one-unit increase in individuals or households obtaining information from the internet, TV, and community councils corresponds to a 5.6%, 5.3%, and 0.8% increase in the average probability of emigrating, respectively.

This suggests that those exposed to information from TV, internet, and community councils are more inclined to emigrate. Hence, these findings support the idea that accessing information through various sources of information enhances people's access to reliable

information, facilitates efficient communication, and broadens potential migrants' residential options (Dekker & Godfried, 2014; Ettema, 2010).

Table 4 - Marginal effects regression from panel random effect logistic model
(Source: compiled by author)

Models	(1)	(2)	(3)	(4)	(5)
VARIABLES	dy/dx	dy/dx	dy/dx	dy/dx	Panel-logit
Info-Internet	0.10164*** (0.00514)	0.10028*** (0.00517)	0.0819*** (0.00516)	0.05672*** (0.00554)	0.2506*** (024597)
Info-TV	0.07859*** 0.0000175	0.07842*** (0.00002)	0.06407*** (0.00393)	0.05317 *** (0.00412)	0.23496*** (0.01832)
Info-Radio	-0.02387*** (0.00379)	-0.02245*** (0.00382)	-0.02076*** (0.00379)	-0.01482*** (0.00390)	-0. 06551*** (0.01726)
Info-Community councils	0.00886** (0.00438)	0.00747* (0.00441)	0.00850* (0.00436)	0.00862* (0.0044)	0.03812* (0.01964)
Info-Friends	0.00098 (0.00511)	-0.00168 (0.00512)	-0.00653 (0.00506)	-0.00676 (0.00511)	-0.02987 (0.02260)
Info-Mosques	0.007003 (0.00428)	0.00241 (0.00444)	0.00328 (0.00439)	-0.00018 (0.00457)	-0.00081 (0.0202)
Financial stability		-0.04609*** (0.00480)	-0.02461*** (0.00489)	-0.02354*** (0.00493)	-0.10406*** (0.02181)
Employment		-0.01322*** (0.00403)	-0.01265*** (0.0339)	-0.000098 (0.00529)	-0.00043 (0.02338)
Political instability			0.05195*** (0.00391)	0.04997*** (0.00395)	0.22083*** (0.01756)
Insecurity			0.00193 (0.00409)	0.00157 (0.00413)	0.00696 (0.01826)
Public services			-0.02398 *** (0.0046)	-0.0229*** (0.00474)	-0.10123*** (0.02097)
Unhappy			0.05630** (0.00869)	0.05973*** (0.00879)	0.26398*** (0.03891)
Diaspora			0.14225*** (0.00355)	0.13937*** (0.00360)	0.61590*** (0.01668)
Education				0.00360*** (0.00038)	0.01591*** (0.00172)
Age				-0.00184*** (0.00015)	-0.00816*** (0.00067)
Male				0.01796*** (0.00575)	0.07938*** (0.02544)
HHS				-0.00475*** (0.00046)	-0.02099*** (0.00204)
Urban				-0.003007*** (0.00462)	-0.01329 (0.02041)
Constant					-0.57959*** (-0.06286)
Observations	69,459	69,411	69,201	67,837	67,837

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

Therefore, funding educational initiatives through these channels is crucial for influencing public opinion and preventing mass emigration.

Simultaneously, information acquired from the radio reduces the average probability of emigration by 1.4%. This suggests the potential of radio information in mitigating emigration intentions among the Afghan population. Policymakers can leverage radio as a means of disseminating information to educate people on the benefits of staying home.

Economic stability, reflected by financial stability and unemployment, has varied impacts on emigration likelihood. While financial stability reduces it by 2.3%, unemployment lacks significance. Additionally, political instability increases emigration probability by 5%. Further, efficient public services and contentment decrease emigration by 2.2%, while unhappiness and having family abroad increase it by 6% and 13%, respectively. The findings emphasize political stability's stronger influence compared to economic factors on Afghan emigration decisions.

Thus, policy measures to enhance political and economic stability can be a useful instrument to curve the emigration out-flow from Afghanistan. Notably, having family abroad strongly influences emigration decisions, highlighting the crucial role of the Afghan diaspora in deterring further emigration. Recognizing this, policies fostering diaspora interaction become vital for deterring future waves of immigration from Afghanistan.

On the demographic factors, the findings reveal that an additional year of education raises emigration probability by 0.3%, while an extra year of age reduces it by 0.1%. Being male increases it by 1.7%, and an additional family member decreases it by 0.4%.

This underscores the impact of demographic factors on Afghan emigration, albeit smaller compared to TV, internet, diaspora, and political-economic stability. Thus, policymakers should consider magnitudes of education, age, gender, and household size when formulating effective emigration prevention or optimal emigration-related policies.

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.

Conclusion

This research investigated how information from different sources influenced Afghan emigration decisions. Past studies often overlooked the impact of diverse information sources on emigration intentions from Afghanistan. To address this gap, our study examined the information sources utilized by Afghans and their influence on emigration decisions. Cross-sectional panel data spanning from 2016 to 2021 underwent analysis using a binary random-effect panel logistic regression model with robust standard errors. Furthermore, diagnostic tests were conducted to ensure the model's reliability.

The outcome of the marginal random effect logistic regression analysis indicated a notable positive correlation with information sourced from TV, internet, and community councils. Furthermore, the relationship with information obtained from radio was found to be significant but negative. Additionally, the results demonstrate that the impact of information from TV and internet is more substantial compared to other sources.

Consequently, launching targeted campaigns through social media and broadcast platforms will aid in disseminating information about illegal emigration, its adverse consequences, and act as a deterrent.

Furthermore, the findings indicate that economic stability and political instability significantly influence Afghan emigration decisions. Notably, political instability exerts a stronger influence than economic stability.

Additionally, the impact of information obtained from TV and internet appears to be of similar magnitude to political instability. Therefore, implementing policies to enhance political and economic stability at both national and international levels can create an environment that discourages emigration.

Surprisingly, the impact of family or relatives abroad (diaspora) is found to be the most significant among other factors. Thus, involvement with the diaspora community and implementing awareness programs about the potential opportunities and risks of illegal emigration could sway the emigration choices of Afghans.

Furthermore, demographic factors also play a role in influencing the emigration decisions of the Afghan population, although their magnitudes are smaller compared to the impact of TV, internet, diaspora, and political and economic stability factors.

In conclusion, the emigration of Afghans from Afghanistan is a multifaceted phenomenon. Primarily, it is influenced by factors such as family ties or diaspora abroad. Subsequently, other factors, including dissatisfaction, political instability, information sourced from the internet and TV, economic and financial stability, public services, and demographic considerations, play respective roles.

The research results offer valuable insights for policy implications, aiding the development of comprehensive strategies to discourage emigration from Afghanistan. To strengthen future studies, utilizing recent data for 2022 and 2023 and conducting a panel study across developing countries will enhance our understanding of emigration trends.

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