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Crossroads of aspiration: unveiling the migration intentions among university students in North Macedonia

Katerina Shapkova Kocevska [1] Biljana Tashevska [2]
Marija Trpkova – Nestorovska [2] Suzana Makreshanska Mladenovska [2]

ABSTRACT

In our work, we analysed the migration intentions of university students from North Macedonia. We used data from a survey with 412 students from the Ss. Cyril and Methodius University in Skopje, the country's largest and oldest university. The results showed that about two-thirds of the respondents (67 per cent) intend to emigrate. To identify the determinants of the migration intentions, we used logistic regression models, where the migration intention was the dependent variable. We used different sets of socio-demographic and educational variables, the economic status of the respondents, and other factors as independent variables. Exploratory factor analysis was used to identify the following factors: Housing, environment, and public services; Social activities and community engagement; Advanced and developed society; Enhanced educational and career opportunities; Public services; Economic and social progress; and Family and social well-being. All of them, except the last one, had a statistically significant impact on the students' intentions to emigrate. Moreover, the students with more educated parents, students with higher academic performance and the students who worked had higher odds of emigrating than the students with parents with lower educational levels, students with lower academic performance and the students who didn't work while they studied, respectively. The other socio-demographic, educational and economic variables were not statistically significant.

KEYWORDS

migration, migration intentions, university students, logistic regression, North Macedonia

[1] *Ss. Cyril and Methodius University in Skopje, Iustinianus Primus Faculty of Law, Skopje, North Macedonia*

[2] *Ss. Cyril and Methodius University in Skopje, Faculty of Economics, Skopje, North Macedonia*

Correspondence:
Katerina Shapkova Kocevska, Ss. Cyril and Methodius University in Skopje, Iustinianus Primus Faculty of Law-Skopje, bul. Goce Delchev 9b, 1000 Skopje, North Macedonia

Email:
k.shapkova@pf.ukim.edu.mk

1 INTRODUCTION

The United Nations member states adopted the 2030 Agenda for Sustainable Development in 2015, as a collaborative framework to promote peace and prosperity. The Agenda has formulated 17 Sustainable Development Goals (SDGs) that cover various aspects of advancing societies and quality of life, including improving health and education, reducing inequality, promoting economic growth, eliminating poverty, addressing climate change, and conserving oceans and forests (United Nations n.d.). However, the fulfilment of the SDGs nowadays is compromised by significant challenges. The latest report on SDGs' attainment shows that almost 50% of the 140 SDGs objectives exhibit substantial deviations from the intended trajectory, either mildly or severely (UN 2023).

The 2030 Agenda for Sustainable Development recognizes the migration as a powerful driver of the sustainable development for migrants and their communities. According to the World Migration Report 2024 (McAuliffe and Oucho 2024), the total number of international migrants in 2020 was approximately 3.6% of the global population, equivalent to 281 million people. Individuals leave their home countries for different reasons, including employment, earning opportunities, family reunification, or educational pursuits. Understanding the motivations behind this movement and its implications on the origin and host countries is crucial in the context of achieving the SDGs. However, the relationship between migrations and the fulfilment of the SDGs is very complex and dynamic (Aniche 2020; Janker and Thieme 2021). On one hand, the migration can contribute to the attainment of several SDGs by enhancing economic empowerment (Noja et al. 2018), fostering social cohesion (Cheong et al. 2007; Taran et al. 2009), and promoting environmental sustainability (Millock 2015; Bildirici 2022). The migration process is beneficial for filling the gaps in the labour market, resulting in increased productivity (Drinkwater et al. 2003). From a societal standpoint, migration provides a unique chance to promote cultural variation (Esses 2018). Furthermore, migrations result in enhanced economic prospects and improved living standards for individuals, creating opportunities for increased income and enhanced career options (International Monetary Fund 2016).

On the other hand, the benefits of migration are often accompanied by challenges, such as loss of human capital and reduced productivity which can hinder economic growth and development of the origin country (Drinkwater et al. 2003; Adger et al. 2024; Abbas, Nejati and Taleghani 2024). The emigration of highly skilled and educated individuals, referred to as the brain drain process, presents significant challenges, particularly for developing countries. These countries invest limited resources in educating their young people, only to see them leave, resulting in a shortage of skilled workers and future entrepreneurs, which hampers the countries' economic progress. Consequently, global migration trends tend to create more disadvantages than advantages for developing countries (Sohaee 2023).

In this context, the migration is especially significant and relevant topic for North Macedonia, given its status as a developing country with small and open economy. According to Eurostat (2024c), over 220,000 individuals from North Macedonia, accounting for roughly 10

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per cent of the total population, have emigrated to various European countries over the past two decades. In addition, the young people aged 20 to 30 have the highest emigration rates, representing one-third of the total number of emigrants. As a result, the number of young individuals in North Macedonia has declined from approximately 480,000 in 2002, which accounted for 24 per cent of the overall population, to 330,000 individuals in 2021, i.e. around 18 per cent of the overall population (Reactor – Research in Action 2022).

This paper focuses on a specific subset of the young population in the country – university students. It aims to empirically explore the determinants of migration intentions of the students from the oldest and largest university in North Macedonia, Ss. Cyril and Methodius University in Skopje. More specifically, we use exploratory factor analysis and logistic regression to explore the effect of a set of socio-demographic determinants, including educational characteristics and economic status of the students, and potential driving factors for their emigration, as well as factors that make them decide to stay in the country. We analyse a broad set of potential factors of migration, such as housing, environment, and public services; social activities and community engagement opportunities; enhanced educational and career opportunities; family and social well-being; etc.

The rest of the paper is structured as follows. In Section 2, we provide a brief overview of the migration processes in recent years in North Macedonia, focusing on youth migration. Section 3 of the paper reviews the relevant literature on migration and migration intentions. Section 4 explains the methodological issues and the used data. Section 5 and Section 6 describe the sample's main statistics and the results of the analysis, respectively. Section 7 contains the conclusion.

2 MIGRATION IN NORTH MACEDONIA

North Macedonia is a small country with a long-standing history of emigration. The contemporary emigration process began in the post-World War II period

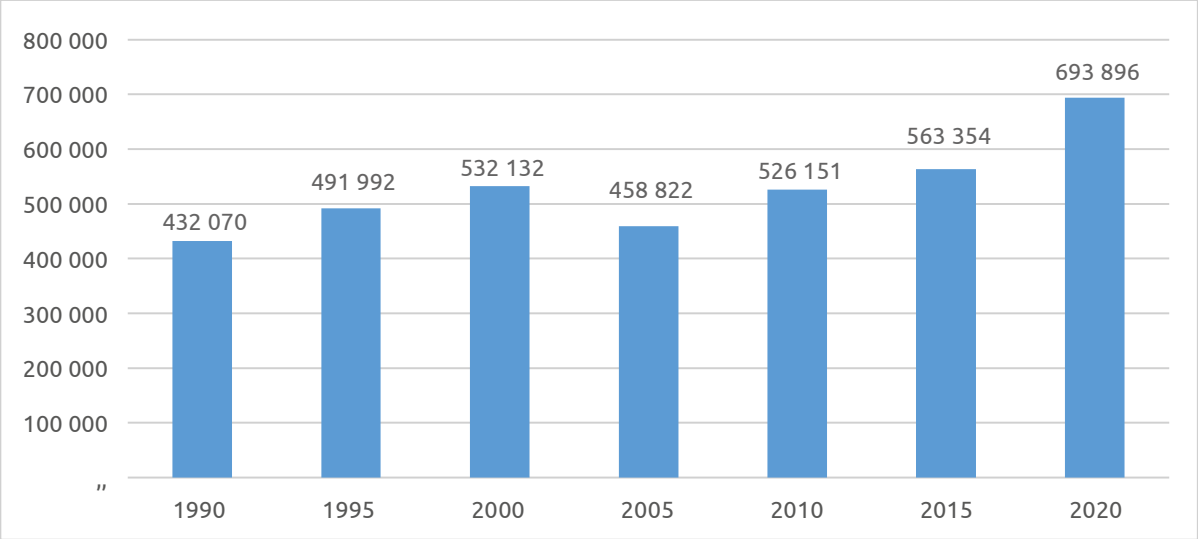

Figure 1 International migrant stock, North Macedonia 1990–2020.
Source: UN DESA 2020.

and has been on the rise ever since. In the past few decades, particularly during the 1990s, the country witnessed a fresh wave of emigration due to systemic transition challenges. This trend was further amplified after 2009 when visa liberalization agreements with the European Union enhanced the mobility of Macedonian citizens. As a result, according to UN migration data, the total number of citizens of North Macedonia residing abroad increased from 432,000 in 1990 to nearly 700,000 by 2020, representing almost a third of the nation's domestic population.

In just three decades after the country declared its independence in 1991, more than 260 thousand nationals, or 14.2% of the total resident population emigrated from their homeland. The UN gration trends. According to the State Statistical Office of the Republic of North Macedonia (2024), only 12,766 citizens of North Macedonia moved from the country from 2008 to 2022. On the other hand, international data sources (UN DESA, EUROSTAT, etc.) provide more accurate and much larger figures on the country's migration process. For example, according to the Eurostat (2024a), 117,868 citizens of North Macedonia immigrated to the European countries over the analysed period 2008–2022.[1] However, these data are also incomplete as it does not include the number of immigrants in all European countries and omits the data for several countries where Macedonians migrate to a large extent, such as Germany, Malta, Belgium, the United Kingdom, and others.

Table 1 Annual number of immigrants from North Macedonia in European countries

	2008	2010	2012	2014	2016	2018	2020	2022
North Macedonia	6864	3920	6527	7053	8718	10750	9636	9949

Source: Eurostat 2024a.

World Migration Report 2020 placed North Macedonia within the top 20 nations globally for the highest emigration rates (Ritchie and Spooner 2022). Regarding the geographic distribution of emigrants, one-third have relocated to countries within Europe, i.e. Germany, Italy, Switzerland, Austria, and Slovenia are the most common European destinations for migrants from North Macedonia. The remaining two-thirds have moved to countries outside of Europe, mainly to Australia, the United States, and Canada (IOM 2022).

Even though it represents a traditional migration area, the country lacks a comprehensive migration database regarding its historical and modern mi-

Therefore, a slightly more realistic picture of the country's migration patterns can be obtained by examining the data on residence permits granted to Macedonian citizens over the same timeframe. According to Eurostat (2024b), over the analysed period 2008–2022, European countries granted 261,122 first residence permits to Macedonian citizens. In 2022, 29,630 Macedonian citizens received a residence permit in one of the European countries. Germany was the leading country, issuing nearly half of these permits (12,670), followed by Croatia (3,570), Italy (2,532), Slovenia

[1] EU 27 member states including United Kingdom, Norway, Switzerland and Turkey.

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(2,478) and Switzerland (1,874). Of the total number of permits issued in 2022, about 60% were valid for 12 months or more. Regarding the purpose, while education accounted for 4% of the permits, most permits were for family (43%) or employment purposes (37%).

Next, we analyse the age structure of the emigrants to show the emigration of young people aged 20 to 24 (the same age as the students who are the focus of our research). In this context, Figure 2 illustrates the age distribution of the immigrants from North Macedonia in European countries in 2022. Most individuals emigrating from the country in this period are young individuals, specifically those aged 20 to 24, who are typically of university age.

In 2022, a significant 17% of all the individuals who emigrated from North Macedonia to European countries were in the age group of 20 to 24 year-olds, and together with the individuals aged 25 to 29, represented one-third of the total number of emigrants. Moreover, the number of people aged 20 to 24 who leave the country has been continuously

Table 2 Annual number of initial residence permits granted to Macedonian citizens from European countries

	2008	2010	2012	2014	2016	2018	2020	2022
North Macedonia	20979	13195	11232	11611	16165	26377	16601	29630

Source: Eurostat 2024b.

According to the UN International Organization for Migration (IOM 2022), the primary motivations driving people to leave North Macedonia are the socio-economic factors. These factors include high unemployment rate, particularly long-term and youth unemployment; low wages and bad living conditions; low valuation of specific jobs and limited career growth; established migration trends and diaspora networks that ease the transition; and finally, recipient countries' welcoming migration policies. All these factors contribute to high emigration rates, especially related to skilled workers and well-educated

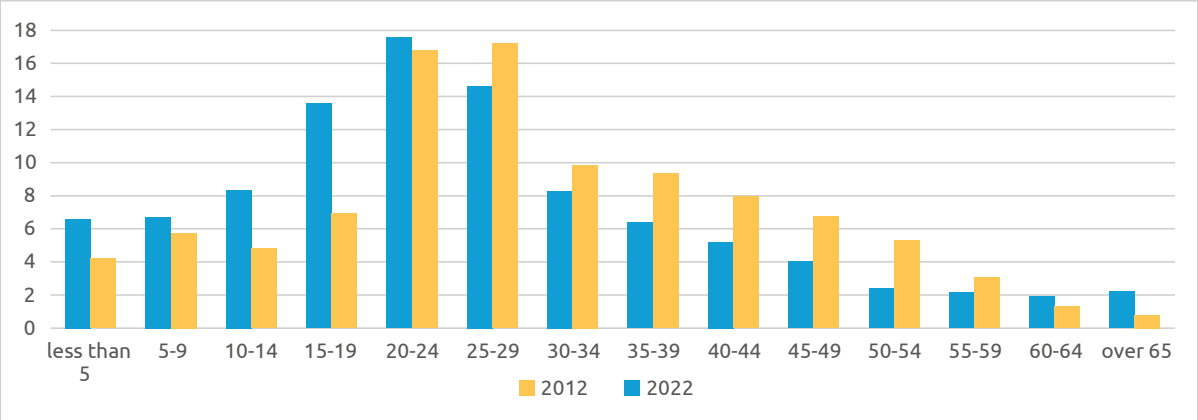

Figure 2 Age group distribution of immigrants from North Macedonia in European countries.
Source: Authors' calculation based on data Eurostat 2024a.

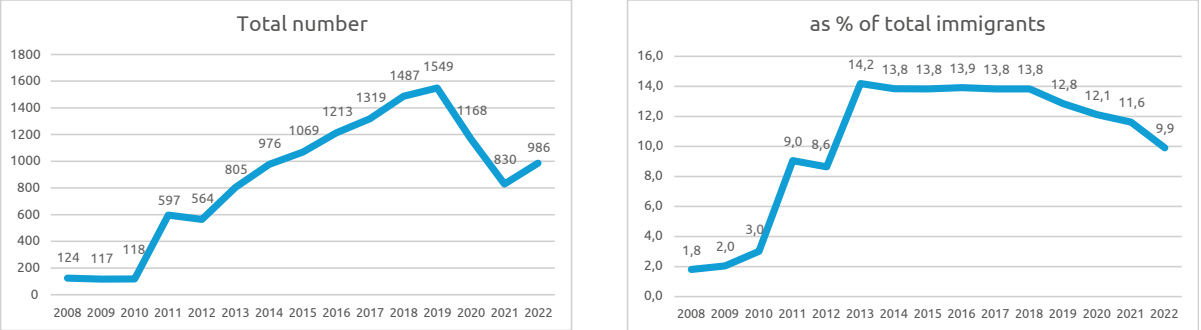

Figure 3 Immigrants aged 20 to 24 from North Macedonia to European countries.
Source: Authors' calculation based on data Eurostat 2024a.

increasing, from 124 in 2008 to 1,549 in 2019, thereby increasing their share in the total number of the emigrants, from 1.8% to 12.8%, respectively. However, the COVID-19 crisis from 2020 slightly reversed the trend of young people leaving the country, resulting in smaller numbers of emigrants aged 20 to 24, i.e. 830 and 986 in 2021 and 2022, respectively.

3 LITERATURE REVIEW

The determinants of migration can be observed on micro, meso and macro levels (King et al. 2016). The micro-approach to migration focuses on individualistic decision-making, encompassing various sociology and economics theories to explain the reasons behind migration (Schmitter-Heisler 2000). Micro factors relate to the personal characteristics of the individual and personal attitudes towards migration. Meso factors include factors that are closely related to the individual, but not under his/her control, such as the social networks or communication technologies (Castelli 2018). Different economic, political, social and environmental circumstances that influence migratory patterns, such as presence of violence and conflict, human rights violations, institutions, economic opportunities, poverty and development, migration governance and policies, environmental change etc., are considered macro factors (Kuhnt 2019).

The significance and impact of different migratory factors are explained through various, frequently conflicting theoretical frameworks. One of the leading theories in this area is the rational choice theory, which posits that migration processes can be attributed to an individual's behaviour (Coleman 1990; Opp 1999; Voss and Abraham 2000) and that the sum of the individual decisions leads to results on a macro level (Schelling 1978), i.e. generate collective social behaviour (Kalerante et al. 2022: 45). This theory has foundations in microeconomic theories and relies on the subjective expected utility model (Esser 1999). It integrates the benefits maximization assumption (Todaro 1976), or household income maximization concept (Stark 1991). The aim is to understand the economic and social behaviour of the individuals. According to this framework, individuals opt for different alternatives, while being restricted by different constraints and opportunity structures (Haug 2008: 586). When making decisions, they employ the cost-effectiveness principle to assess the relevance of their choices. At the micro level, three broad sets of

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determinants of mobility can be identified: demographic, socio-economic, and psychological factors (King et al. 2016).

An alternative theory, the social networks theory (Boyd 1989; Massey et al. 1987), includes households, families, kinship networks, and social networks as structures in individual decision-making (Faist 1997; Haug 2000). Informal networks help migrants to finance their travel, to find a job or accommodation, and to cross the borders easily (Böcker 1994; Haug 2008). According to this framework, the social and cultural factors, in addition to economic factors, affect an individual's decision to migrate. Moreover, demographic characteristics, such as the family size, age, or gender of the individual, also influence the expectations, intentions, motives, and incentives to migrate (Harbison 1981).

The macro-level approach towards migration has a longer tradition of describing the reasons for and the spatial and temporal structures of labour mobility. Pioneers of this approach are considered Lewis (1954), Kindleberger (1967), Frank (1969), Wallerstein (1974), etc. From a neoclassical macro perspective, what drives the international migration are the geographical discrepancies between the labour supply and the labour demand between different countries (Massey et al. 1993: 433). In countries with low equilibrium market wage, labour supply is abundant relative to the capital, while in countries with high equilibrium wages, labour supply is scarce relative to capital. The differences in the wages motivate workers to move from the countries with lower wages to the countries with higher wages. According to this theory, the disappearance of wage differentials between countries will discourage migration and movement of labour. The neoclassical macro theory aims to explain international movements of population as labour migration resulting from differences in economic development (Lewis 1954; Ranis and Fei 1961; Harris and Todaro 1970).

In addition to the theoretical relevance, the examination of migration drivers has generated considerable interest in empirical research. A significant portion of empirical research focuses specifically on comprehending the youth's motivations, intentions, and migration patterns. From a European perspective, youth mobility has been assessed in a large body of research (King 2002; King and Ruiz-Gelices 2003; Balaz, Williams and Kollár 2004; Findlay et al. 2006). More recent research analyses the difference between the intentions, motivations, intensity, and self–assessment of migration motivations between the youth from the old and the new European Union (EU) member states (Sandu and Tufis 2018). Herz et al. (2018) analyse the factors for youth migration on different levels (individual, family, social networks, and macro structures), while Van Mol (2016) focuses only on the individual and contextual factors of migration aspiration of youth from the EU. There is also considerable research on the difference between migration intentions among youth in urban versus rural areas (Garasky 2002; Thissen et al. 2010; Stockdale 2006; Bednaríkova, Bavorova and Ponkina 2016).

Over the past two decades, numerous publications have been published on migration intentions of a particular subgroup of young people: university students. Most of them target students at a national level (Cairns and Smyth 2011; Ciarniene and Kumpikaite 2011; Alberts and Hazen 2005) or a sub-national level (Bednaríkova, Bavorova and

Ponkina 2016; Lu, Zong and Schissel 2009). Some papers examine the migration intentions of students with a specific background, such as medical students (Dohlman et al. 2019; Suciu et al. 2017; Nguyen et al. 2008; Santric-Milicevic et al. 2014; Krajewski-Siuda et al. 2012), engineering students (Wazir et al. 2017; Gherheș, Dragomir and Cernicova-Buca 2020) or students in economics (Plopeanu et al. 2018). In addition, the literature review discovers an interest in the transition from temporary to permanent migration (Finn 2003; Hawthorne 2005; Ziguras and Law 2006). Also, some studies try to identify the intentions and plans for permanent migration (Khoo, Hugo and McDonald 2008).

The students' intentions of migration have been examined in several empirical studies in the countries from South-Eastern Europe. Particular interest is invested in understanding the migration intentions of medical students. The studies have shown that a high proportion of medical students consider working abroad, with a higher proportion of more than 80% in Serbia and Romania (Santric-Milicevic et al. 2014; Suciu et al. 2017). Dominant motive for emigration is opportunity to earn higher wages and access better working conditions. In these countries, the migration intentions are higher compared to other countries from South-Eastern or Central Europe. For instance, in Poland, 26–36% of medical students plan to emigrate (Krajewski-Siuda et al. 2012), while in Croatia, 35% want to emigrate due to better quality of life, healthcare organization, professional challenges, and job search (Kolčić et al. 2014). In addition, a number of studies examine the intentions of a student population or youth in general. For example, in Albania, 70% of students see university as a step to residing abroad after graduation, with 49% not intending to return, causing devastating consequences for the Albanian economy and society (Gëdeshi and King 2018; King and Gëdeshi 2020). In Bosnia and Herzegovina, high emigration intentions of youth population can be explained with the higher dissatisfaction with public services and corruption (Begović et al. 2020). Several types of statistical methods were used to analyse the migration intentions of students. These techniques include sequential logistic regression (Santric-Milicevic et al. 2014), multivariate logistic regression (Krajewski-Siuda et al. 2012; Kolčić et al. 2014), probit regression (Alili, King and Gëdeshi 2022), analysis of the variance (Begović et al. 2020), and analysis of qualitative data from focus groups or interviews (Gëdeshi and King 2018).

A study on youth migration in North Macedonia (Topuzovska Latkovikj et al. 2019) reveals that the main reasons for migration include better living standards, salaries, employment opportunities, and education. Several papers have been published on migration intentions of university students in the country. Dragović, Drakulovska-Chukalevska and Dragović (2017) analysed migration intentions of first- and second-year students of the Faculty of Philosophy in Skopje in the academic 2014–2015 year by using logit regression. They also used logistic regression model and confirmed that family size, age, emigration experience and readiness to move for longer period increased the readiness to emigrate. Alili, King and Gëdeshi (2022) used survey data from 2022 about the migration intentions of students from private and public universities in the field of economics,

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medicine, technology and languages. Using multinomial logistic regression, they found that older undergraduate students, students who did not plan to continue studies and students with prior migration history were more inclined to emigrate. Parker et al. (2022) implemented qualitative analysis based on several focus-group interviews to understand students' reasons to emigrate from North Macedonia. They identified three sub-themes as factors for emigration: lack of professional opportunities, institutional system and cultural tightness. On the other hand, they confirmed community, culture and social responsibility as sub-themes or factors for staying. All these studies confirm high intentions of Macedonian student to emigrate abroad (above 55%). Moreover, the results suggest that the family size; previous personal and family emigration experience and academic record are important factors that influence the decision to move abroad.

We decided to use a different approach in our research, starting with more complex questionnaire that, besides the usual demographics, tries to delve more into the subtle issues of living conditions, motives for emigration and motives for staying. We applied exploratory factor analysis, which, to our best knowledge, has not been used in previous studies on student migration in North Macedonia to identify the underlying factors that potentially influence the migration intention. Exploratory factor analysis provides latent constructs that summarize the essence of the underlying data, with theoretical meaning, making the applied logistic regression model easier to interpret in a practical sense compared to using raw variables or dummies.

4 METHODOLOGY

4.1 SAMPLE

Our target population were students enrolled in first, second and third cycle of studies at the Ss. Cyril and Methodius University in Skopje. The latest available data for the academic 2022/2023 show that the total number of students was 21,386 (State Statistical Office of the Republic of North Macedonia 2023). We conducted an online survey during the period June – July 2024. The questionnaire was distributed through official student organizations. The survey was anonymous and confidential and was completed by 412 students (most of them enrolled in the first cycle) from all the university's faculties and various study fields (natural sciences, social sciences, technical sciences, medicine, humanities, arts). Most of the students studied technical sciences (mostly information technologies), medicine, and economics.

4.2 QUESTIONNAIRE

To investigate the migration intentions of students and the drivers of those intentions, we developed a questionnaire based on previous studies that have explored the migration intentions of students or young people from the region (Alili, King and Gëdeshi 2022; Soldo, Spahić and Hasić 2021; Gherhes et al. 2020). Our goal was to examine the socio-demographic characteristics of the students intending to leave North Macedonia, their preparedness to leave, the push and pull factors for emigrating, and what factors could influence them to stay in their home country. The intent was to assess what individual characteristics,

personal motivations and ambitions and other factors (such as family ties and contextual conditions – educational, health-related, political, social) significantly influence the intention to migrate, which comprised the dependent variable in the model.

The questionnaire consisted of 50 questions, divided into five sections: 1) Socio-demographic and educational characteristics of students, including their economic status (age, gender, faculty, work status, parent's education level, family income etc.); 2) Students' intentions to migrate to another country; travel history; destination country; undertaken activities related to their potential migration etc.; 3) Living conditions (housing, environment, education, healthcare, social life, recreation, etc.); 4) Motives for emigration (quality education, employment opportunities, public services, family ties etc.); 5) Motives for staying home (improved economic conditions, family and social well-being, higher certainty for EU accession). All questions were multiple choice, allowing for the performing of a quantitative analysis. Likert scale with 5 points was used in section 3 (living conditions) and section 4 (motives for emigration), while Likert scale with 3 points was used in section 5 (motives for remaining in the country). The analysis was performed using the IBM SPSS Statistics 25 software package.

4.3 EMPIRICAL MODEL

For data analysis of the potential determinants of migration intention exploratory factor analysis, reliability analysis and logistic regression have been applied. Exploratory factor analysis is commonly used in social sciences to measure constructs that are known as latent variables that cannot be measured directly. Such latent variables should be discovered under the three sets of questions in the survey regarding the living conditions, motives for emigration and staying in the native country. This technique was used because we tried to explore the underlying structure of the data without the previous notion of the number or the nature of the factors. In contrast, confirmatory factor analysis tests predefined factor structure based on theoretical expectations, and it is recommended for hypothesis testing of the structures of the latent variables and their relationships to each other (Tinsley and Tinsley 1987). It also confirms whether the data fits a specified factor model.

When several variables are measured, there could be clusters of large correlations between subsets of variables, indicating that those variables could measure aspects of same underlying dimensions known as factors or latent variables (Field 2005). The mathematical representation of a factor has the following form:

$$Factor_i = b_1 Variable_1 + b_2 Variable_2 + \ldots + b_n Variable_n + \varepsilon_i$$

Where b_i represents the factor loadings, and the ε_i represent the residuals.

For factor extraction, the chosen method is maximum likelihood. This method is advantageous because it provides precise estimates, evaluates model fit comprehensively and handles complex factor structures. It is more reliable with large sample size (survey provided with 412 observations) since it produces stable estimates and accurate fit indices. Factor rotation is also applied to enhance the clarity and interpretability of the factor structure in the data.

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Varimax rotation is preferred to simplify the factor structure and interpret factors as distinct and independent.

Exploratory factor analysis is followed by reliability analysis to ensure a consistent and dependable measurement instrument. It ensures that the collected data are accurate and trustworthy, paramount to credential research outcomes. It uses Cronbach's Alpha as a statistical measure to assess the internal consistency of a set of questions in a survey. The formula incorporates the mean inter-item correlation and number of items (questions):

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2}\right)$$

where k is the number of items, $\sum \sigma_i^2$ is the sum of variances of each item and σ_t^2 is the variance of the total score. According to George and Mallery (2003), Cronbach's Alpha of 0.7 or higher is acceptable, while values higher than 0.6 are deemed questionable. Values under 0.5 are not acceptable.

The last part of the analysis is the logistic regression – a multiple regression model with an outcome variable that is a categorical dichotomy and predictor variables that are continuous and categorical (Field 2005). The logistic regression model can be represented as:

$$logit(p) = log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_n x_n$$

where p is the probability of the outcome being 1, and the β coefficients represent the change in the log odds of the outcome for a one-unit change in the predictor variable. The estimated logistic regression models should confirm the statically significant determinants of young people's migration intentions.

5 SAMPLE CHARACTERISTICS AND DESCRIPTIVE ANALYSIS

The total of 412 students from Ss Cyril and Methodius University in Skopje completed the questionnaire. The socio-demographic characteristics of the respondents are provided in Table 3. Approximately two-thirds of the respondents were female, and one-third male. This almost entirely reflects the distribution of the enrolled undergraduate students at the university. The dominant number were undergraduates (94%), so the analysis captures mostly the attitudes of undergraduate students. Most of the respondents were between the age of 19 and 22 (73.5%). Even though diverse faculties were included, almost a third (28%) of the respondents were students of the Faculty of Computer Sciences and Engineering, followed by the Faculty of Economics, Faculty of Medicine, Faculty of Philosophy and the Faculty of Law. Most lived in an urban area, mainly in the Skopje region (42%), followed by the Pelagonia and Vardar regions. Around 40% of the respondents had parents with secondary education, around a third had both parents with a university degree, and one quarter had one parent with a university degree. Considering their financial situation, almost half of the students (46%) reported having a monthly average family income between 40,000 and 80,000 denars, and the other two quarters below 40,000 and above 80,000 denars equally. Interestingly, only 14% perceived their family income to be sufficient for a comfortable life, while 13% considered they did not have enough for basic needs.

Table 3 Socio-demographic characteristics of the respondents

		Frequency (no.)	Percentage (%) *
Age	19–20	139	33.8
	21–22	163	39.7
	23–24	68	16.5
	25 and more	41	10.0
Gender	Male	142	34.7
	Female	265	64.8
	Prefers not to answer	2	0.5
Place of residence	Urban	354	86.8
	Rural	54	13.2
Region of origin	Skopje	172	41.8
	North-East	27	6.6
	East	40	9.7
	South-East	19	4.6
	Vardar	42	10.2
	Pelagonia	48	11.7
	South-West	40	9.7
	Polog	23	5.6
Faculty	Computer Science and Engineering	116	28.2
	Economics	65	15.8
	Medicine	60	14.6
	Philosophy	48	11.7
	Law	45	10.9
	Other	78	18.9
Study cycle	First	386	94.1
	Second	18	4.4
	Third	6	1.5
Average grade	6–7	30	7.3
	7–8	149	36.3
	8–9	124	30.2
	9–10	107	26.1
Highest level of education of parents	Both with higher education	124	30.2
	One with higher education	109	26.5
	Both with secondary education	162	39.4
	Other	16	3.9
Work status	Full time	46	11.2
	Part time	22	5.3
	Freelancer	111	26.9
	Not employed	233	56.6
Average monthly family income	Less than 40,000 denars	100	25.3
	40,000 – 80,000 denars	184	46.5
	80,000 – 160,000 denars	86	21.7
	Above 160,000 denars	26	6.6
Perception on monthly family income	Enough for a comfortable life	57	14.0
	Enough for a decent life	155	38.0
	Enough for a humble life	143	35.0
	Not enough for subsistence	53	13.0

Note: Percentage of valid number of answers.

Source: Authors' calculations.

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Table 4 depicts the travelling history of students and their migration intentions, which has been the central focus of our research. A staggering 67% of students reported that they intended to leave the country. This is quite a higher percentage than what Alili, King and Gëdeshi (2022) found – 55.6% of students, but lower than Ivanovska, Mojsovski andKacarska (2019) which contained estimations for a more specific study field – science, technology and engineering (approximately 80%). Gender is not found to be a decisive factor in the migration aspirations of students. A large proportion of undergraduate students (68%) and master students (67%) are interested in migrating, whereas none of the PhD students reported intending to leave the country.

Table 4 Migration intention of students

	Frequency (no)	Percentage (%)
How many of your close family members or friends live abroad?		
None	34	8.3
One or two	94	22.8
Three or more	284	68.9
In the last five years, have you stayed abroad for longer than a month, not considering touristic travels?		
Yes	91	22.1
No	320	77.9
Do you intend to emigrate from the country?		
Yes	273	66.6
No	137	33.4
If you intend to migrate, that would be		
Temporary	65	15.8
Permanently	116	28.2
I am not sure	162	39.3
I don't intend to migrate	69	16.7
The main reason for emigrating		
Education	79	19.2
Employment	207	50.4
Family reasons	24	5.8
I am not sure	46	11.2
I don't intend to migrate	55	13.4
If you intend to migrate, when would that be?		
Within the next six months	13	3.2
Within the next year or two	95	23.1
Within the next five to ten years	178	43.3
I am not sure	60	14.6
I don't intend to migrate	65	15.8
What country would be your preferred destination?		
Germany	48	11.8
Switzerland	50	12.3
Italy	28	6.9
Slovenia	20	4.9
Another EU country	84	20.6
Great Britain	16	3.9
USA or Canada	25	6.1
Australia or New Zealand	12	2.9
Other	72	17.6
I don't intend to migrate	53	13.0

Note: Percentage of valid number of answers.

Source: Authors' calculations.

Notably, all PhD respondents work full-time, so their employment could be a contributing factor. On the contrary, 59% of the first-cycle students do not work but are dedicated solely to studying. Around a quarter of respondents work as freelancers, which makes it easier to move abroad and still keep their job. As expected, 85% of students with very low perceived monthly income have migration intention, whereas such intentions are expressed by 56% of the students with high perceived family income.

The massive emigration from North Macedonia is reflected in the fact that almost 70% of the respondents have three or more close family members or friends living in another country. The larger the number of one's close people who have emigrated, the more interested the students are in trying their luck abroad. However, most of them have not spent a long time abroad. A larger share would emigrate permanently than temporarily; however, almost half of those who intend to do so are still not sure, and the same share wants to move within the next five to ten years, which is considerably far in the future to be taken as a strong determination. The most quoted main reason (by half of respondents) for emigration is the search for employment abroad, followed by continuing education. The European countries are most attractive for students, as more than half of those who intend to migrate would choose a European country as their migration destination, mainly Germany, Switzerland, or another EU country.

Figure 4 presents the activities students have undertaken to realize or get closer to realizing their migration plan. However, only a small fraction has applied for education or a job, or have already been admitted/employed (only 8%). There are also 6.2% that do not require any permits due to possessing dual citizenship. However, the students have primarily been getting information about possibilities and conditions in their aspirational country, but on the other hand, almost half have not undertaken any of the mentioned concrete steps.

6 RESULTS AND DISCUSSION

The questionnaire comprised the total of 50 questions, out of which 30 were grouped in three categories 1: living conditions, 2 – motives for emigration and 3 – motives for staying. Each category contained ten questions, and separate

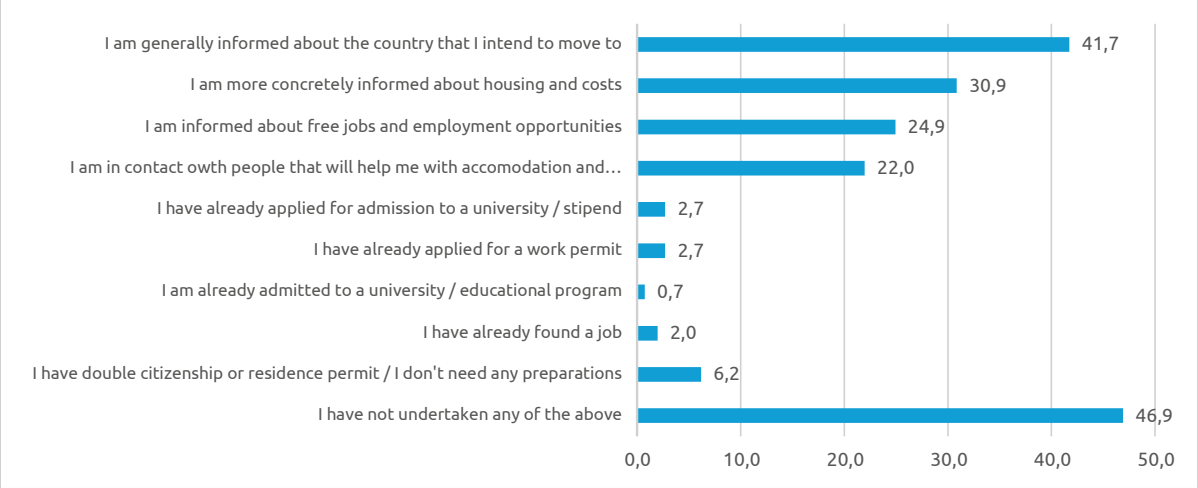

Figure 4 Undertaken activities related to the potential migration (in percentage of respondents)

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exploratory factor analysis was performed for each group. The results from the exploratory factor analysis for the three groups of questions are presented in the following tables.

Exploratory factor analysis of the first group of questions revealed two factors related to living conditions. Initial eigenvalues were used to determine the number of factors to retain, or factors with eigenvalues greater than 1, based on Kaiser criterion, for all three groups of questions (living conditions, motives for emigration and motives for staying). Regarding the variance explained after the rotation of factors, 27.07% were distributed to the first factor, 18.17% for the second factor, or the cumulative value of 45.24%. The variable "Availability of public transport" was excluded due to a low factor loading (<0.4). The Kaiser-Meyer-Olkin (KMO) (Kaiser 1970) value was 0.85, indicating adequate sampling, and Bartlett's Test of Sphericity ($p<0.01$) confirmed that relationships between variables existed, justifying factor analysis. The first factor, "Housing, environment, and public services," and the second, "Social activities and community engagement," both had Cronbach's Alpha values above 0.6, ensuring reliability (DeVellis 1991), and confirmed that the used scale for variables measuring consistently reflected the construct that it was measuring (Field 2005). These factors can be used as new variables in subsequent regression models.

Table 5 Exploratory factor analysis and reliability analysis for group 1 – living conditions

Rotated component matrix		
Variables	**Factor 1**	**Factor 2**
Possibility of resolving the housing issue for young people	0.41	
Quality of air, water, and the environment as a whole	0.53	
Availability of sports and cultural activities and events		0.58
Opportunity to meet new people and make friends		0.79
Possibility of volunteering and contributing to better conditions in the local community		0.60
Quality of the education system	0.64	
Quality of the healthcare system	0.76	
Quality of institutions and functionality of the system as a whole	0.74	
Quality of life, overall	0.60	

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.85	
Bartlett's Test of Sphericity	Approx. x^2	1050.26
	p	0.00

Reliability analysis		
Cronbach's Alpha	**Factor 1**	**Factor 2**
	0.81	0.71

Note: Extraction Method: Maximum Likelihood; Rotation Method: Varimax with Kaiser Normalization.
Source: Authors' calculations.

Table 6 Exploratory factor analysis and reliability analysis for group 2 – motives for emigration

Rotated component matrix		
Variables	**Factor 1**	**Factor 2**
I would move abroad to gain access to higher-quality education (better universities, formal and informal study programs, and specializations)		0.53
I would move abroad to obtain better employment opportunities, professional advancement, and career development		0.97
I would move abroad to gain access to better public services and a higher-quality public sector	0.53	
I would move abroad because I want to live in a society with a richer cultural and social life	0.63	
I would move abroad to gain new experiences and learn about different cultures	0.52	
I would move abroad because I want to live in an environment where I do not feel discriminated against and where my rights are not violated	0.66	
I would move abroad because I want to live in a less corrupt society	0.64	
I would move abroad because I want to live in a stable society without interethnic and political tensions	0.67	
I would move abroad to live closer to my relatives and/or friends abroad	0.29	
I would move abroad because I believe it would allow me to contribute more to my family		0.37

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.87	
Bartlett's Test of Sphericity	Approx. x^2	1441.84
	p	0.00

Reliability analysis		
Cronbach's Alpha	**Factor 1**	**Factor 2**
	0.84	0.74

Note: Extraction Method: Maximum Likelihood; Rotation Method: Varimax with Kaiser Normalization.
Source: Authors' calculations.

Table 6 shows the exploratory factor analysis' results for the second group of questions on emigration motives. Regarding the variance explained after the rotation of factors, 25.35% was distributed to the first factor, 20.27% for the second factor, or the cumulative value of 45.61%. The Kaiser-Meyer-Olkin (KMO) value of 0.87 indicates reliable factors, and Bartlett's Test of Sphericity ($p<0.01$) confirms the analysis is appropriate. Two factors were identified: the first, "Advanced and developed society," reflects societal aspects like a strong public sector, rich cultural life, low level of corruption and discrimination and an absence of political and ethnic conflicts. The second, "Enhanced educational and career opportunities," focuses on education and professional growth. Both factors are reliable, with Cronbach's Alpha values of 0.84 and 0.74, respectively, supporting their use in further analysis.

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Table 7 Exploratory factor analysis and reliability analysis for group 3 – motives for staying

Rotated component matrix			
Variables	**Factor 1**	**Factor 2**	**Factor 3**
Improving student standards and greater benefits for students		0.56	
Suitable employment, high salary, and good working conditions		0.54	
Starting a family			0.45
Taking care of parents and close family members			0.72
Social life and relationships with friends			0.40
Improving the quality and access to public services	0.80		
Modernizing road infrastructure and public transportation	0.48		
Improving living standards and economic conditions in the country		0.45	
Desire to personally contribute to improving the situation in the country		0.42	

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.79	
Bartlett's Test of Sphericity	Approx. x^2	564.41
	p	0.00

Reliability analysis			
Cronbach's Alpha	**Factor 1**	**Factor 2**	**Factor 3**
	0.63	0.62	0.56

Note: Extraction Method: Maximum Likelihood; Rotation Method: Varimax with Kaiser Normalization.
Source: Authors' calculations.

The third group of questions explores motives for staying in the native country, revealing three factors. Regarding the variance explained after the rotation of factors, 13.29% was distributed to the first factor, 12.57% for the second factor, 11.22% for the third factor or the cumulative value of 37.08%. The KMO statistic of 0.79 and significant Bartlett's Test confirmed the reliability of the analysis. Nine of ten questions were used, with "Increased confidence in EU accession" excluded as it formed a separate factor. The first factor, named "Public services," relates to services, transportation, and infrastructure. The second, "Economic and social progress," covers living standards, employment, and economic conditions. The third, "Family and social well-being," concerns family and social interactions. Factors 1 and 2 have acceptable reliability (Cronbach's Alpha of 0.63 and 0.62), while Factor 3 (0.56) should be used cautiously in further analysis.

Table 8 presents the results of logistic regressions with the binary dependent variable, "Do you intend to emigrate?" (yes/no). Continuous variables were derived from exploratory factor analysis, while categorical variables included age, gender, residence, university department, academic performance, parents' education, employment status, income, income adequacy, number of close people abroad, and foreign stays in the last five years. Various logistic regression models were estimated, due to brevity,

Table 8 Estimated logistic regressions

Variables	Logistic regression odds ratios			
	(1)	(2)	(3)	(4)
Housing, environment, and public services	0.75**	0.76**	0.71**	0.70**
Social activities and community engagement	0.76*	0.74**	0.79	0.76*
Advanced and developed society	2.40***	2.01***	2.39***	2.43***
Enhanced educational and career opportunities	2.91***	2.53***	3.14***	3.07***
Public services	0.77*		0.78*	0.78*
Economic and social progress	0.55***		0.54***	0.54***
Family and social well-being	0.80*		0.83	0.83
Parents education level (0 – both parents finished secondary education)			***	***
Parents education level (1 – one parent is university graduate)			4.75**	5.19**
Parents education level (2 – both parents are university graduates)			9.61***	10.22***
Parents education level (3 – other)			9.01***	10.15***
Current average academic performance (0 – from 6 to 7)			*	*
Current average academic performance (1 – from 7 to 8)			1.27	1.40
Current average academic performance (2 – from 8 to 9)			1.77	1.83*
Current average academic performance (2 – from 9 to 10)			2.80***	2.97***
Working status besides studies (0 – doesn't work)				
Working status besides studies (1 – works occasionally)				1.89
Working status besides studies (2 – part time work)				2.26*
Working status besides studies (0 – full time work)				2.04
Constant	2.52***	2.36***	0.25**	0.12**
Observations	392	396	389	389
Omnibus test of model coefficients (*p – value*)	0.00	0.00	0.00	0.00
Cox and Snell R^2	0.29	0.25	0.33	0.33
Nagelkerke R^2	0.40	0.34	0.45	0.46
Hosmer and Lemeshow test (*p – value*)	0.62	0.94	0.33	0.83

Note: *, **, *** indicate significance at 0.1, 0.05 and 0.01, respectively.

Source: Authors' calculations.

the results presented in Table 8 refer only to variables that are statistically significant.

The presented coefficients refer to the odds ratio Exp(b), showing how the odds of the outcome change with a one-unit increase in the predictor, holding all else constant. Before interpreting the odds ratio, model fit is assessed. The Omnibus Test checks if any predictors significantly relate to the outcome, with $p = 0$ for all models, rejecting the null hypothesis that coefficients are zero and that that at least one predictor significantly affects the outcome.

Cox and Snell R^2 values (Cox and Snell 1989) (0.25–0.33) indicate that 25–33% of the outcome variance is explained,

suggesting moderate explanatory power and that other model fit metrics should be considered. Nagelkerke R^2 values (Nagelkerke 1991) (0.34–0.46) indicates a better fit, with 0.46 showing a reasonably good model fit. The Hosmer-Lemeshow test (1989) confirms a good fit for all models, as the null hypothesis is accepted.

We interpret the significant results from the regression model (4) as follows: The latent variables or factors confirmed by the exploratory factor analysis, which are novelty in our research, prove to be statistically significant. These findings significantly contribute to identifying new underlying factors that have the most prominent impact on the migration intention in North Macedonia. Those factors are an advanced and developed society and enhanced educational and career opportunities, which increase the chances of migration by almost three times, compared to other factors such as housing, environment, and public services, social activities and community engagement, public services and economic and social progress, which also have influence on the migration intention, yet with much less intensity. This conforms with the notion from the descriptive analytics that students in North Macedonia value mostly the numerous and diversified opportunities for education and professional growth and development and the advantages of the modern and developed societies when making one of the most important decisions in their life, to emigrate or stay in the country. On the other hand, students who are more satisfied with the living conditions in the country are less likely to consider moving abroad. Improving the quality of life appears to draw students to think about remaining in the country, i.e. improvements in national public services lower migration intentions.

Education plays a key role in students' decision to migrate. It is very important to point out that students with highly educated parents are significantly more likely to emigrate (for instance, if both parents have university degrees, the odds increase to 10.22 times). These findings were not confirmed in previous studies and are a valuable contribution to understanding the key motives behind emigration. The influence of highly educated parents can be explained by higher educational expectations, where they tend to emphasize the importance of pursuing higher academic and professional achievements. These parents are usually more informed about global opportunities and encourage their children to seek professional and educational opportunities abroad. They also tend to have higher incomes, which makes it easier for them to provide financial resources to support international education. Educated parents have a global mindset and they are used to international exposure through their own careers, which makes them more familiar and comfortable with the idea of their children studying and working abroad.

Also, the odds of intention to migrate increase for students with very high academic performance (students averaging 8–9 and 9–10 having around 2 and 3 times the odds, respectively, compared to lower-performing students). High-performing students are more likely to be aware of the superior educational opportunities and career options available in developed countries and they aspire to work in industries with advanced infrastructure and plenty of opportunities to show their knowledge and talent. Some of them may also feel driven to compete on the global stage.

These students are also more likely to have access to information about opportunities abroad, application processes and benefits of migrating.

Additionally, part-time student workers are two times more likely to consider migration compared to non-working students. Working students already have practical work experience and are more likely to be thinking about the long-term career growth and see migration as a way to access better professional networks, industries, or markets that align with their ambitions.

7 CONCLUSION

The research in this paper is inspired by the persistent problem that North Macedonia has been facing with youth emigration in recent years, especially when it comes to highly educated youth. The paper contributes to the academic debate on the driving factors of student migration intentions, which has significant implications for small and developing economies, such as the Macedonian. The findings could also be relevant in a regional context, as students' migration decisions may follow similar patterns and be driven by similar factors in other Western Balkan countries.

The results from our conducted survey showed that around two thirds of Macedonian students considered moving abroad. This worrisome result is in line with previous studies that also found a relatively high willingness to live and work abroad among Macedonian students (Topuzovska Latkovikj et al. 2019; Dragović, Drakulovska-Chukalevska and Dragović 2017; Alili, King and Gëdeshi 2022). However, compared to them, we applied exploratory factor analysis to further investigate the impact of living conditions, the motives for emigration abroad, as well as the motives for staying home.

The results from the logistic regression showed that socio-demographic factors, such as gender, age or place of origin, and the field of study were not statistically significant. However, the latent variables capturing the living conditions, and the motives for leaving and staying, play an important role in shaping students' intentions to migrate. Students who are more satisfied with the living conditions are less likely to consider moving abroad. Improving the quality of life, for example by improving national public services, is also suggested to be lowering migration intentions. The numerous and diversified opportunities for education and professional development are also crucial for students when making the life-defining decision of whether to emigrate or stay in the country.

The most important consideration that arises from our results is that education background plays a key role in students' decision to migrate. Students with highly educated parents are significantly more likely to intend to emigrate. Even more importantly, students with high academic performance are also more inclined to migrate. This is a worrisome finding that outlines the brain drain problem that country faces, with detrimental impact on labor market, productivity and economic growth. Therefore, understanding migration intentions and their determinants might be of particular interest to policymakers in designing empirically supported strategies and measures to address the migration and brain drain problem. Investments in enhancing the quality of the education in the country are highly important to reduce the need for students to migrate in search of better educational opportunities abroad. Collaboration with renowned

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foreign universities (developing joint study programmes) can help retain talented young people home and attract international students. In addition, the policies that would encourage students who have already migrated to continue their studies abroad to return home after their studies are crucial. These can include incentives such as grants for startups, facilitating the process for recognition of foreign qualifications etc. Other policies aimed at improving the institutional quality, government effectiveness, quality of public services, and most importantly healthcare, are also beneficial for retaining students and reverse migration.

The main limitation of our study is the selected sample that only included students from the oldest and largest university of Ss. Cyril and Methodius. To make the sample nationally representative, students from other universities are to be included in further research. It is also noteworthy that, although our results indicate that two thirds of the respondents intend to migrate, almost half of them have not undertaken any concrete steps regarding leaving the country. Therefore, in addition to migration intentions, further studies focused on real preparedness (willingness) of students for moving abroad, would be beneficial.

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Data Availability Statement

Data are available from the authors upon request.

Coauthor contributions

Katerina Shapkova Kocevska: Conceptualization, Investigation, Methodology, Writing – Original Draft. **Biljana Tashevska:** Conceptualization, Investigation, Formal Analysis, Writing – Original Draft. **Marija Trpkova – Nestorovska:** Conceptualization, Data Curation, Formal Analysis, Methodology, Writing – Original Draft. **Suzana Makreshanska Mladenovska:** Conceptualization, Investigation, Writing – Original Draft.

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Raskršće aspiracija: istraživanje migracionih namera studenata u Severnoj Makedoniji

PROŠIRENI SAŽETAK

Veza između migracija i ostvarivanja ciljeva održivog razvoja je složena i odvija se kroz različite mehanizme, uključujući ekonomsko osnaživanje, društvenu koheziju i ekološku održivost. S obzirom na to da je Severna Makedonija mala i otvorena ekonomija sa dugom istorijom emigracija, a da mladi čine otprilike trećinu svih emigranata, neophodno je istražiti faktore koji utiču na odluku mladih da napuste zemlju.

U radu su analizirane migracione namere studenata u Severnoj Makedoniji. Sprovedeno je anketno istraživanje koje je obuhvatilo 50 pitanja i 412 studenata Univerziteta Sv. Ćirila i Metodija u Skoplju. Ova obrazovna institucija predstavlja najveći i najistaknutiji univerzitet u zemlji. Rezultati ankete su pokazali da oko dve trećine ispitanika (67%) namerava da emigrira. Kako bi se identifikovale determinante migracionih namera, primenjeni su modeli logističke regresije, pri čemu su migracione namere bile zavisna varijabla. Korišćene su sociodemografske varijable (starost, pol, mesto stanovanja, broj bliskih osoba koje žive u inostranstvu i prethodni boravak u inostranstvu), obrazovne varijable (smer studija, trenutni prosečni uspeh, nivo obrazovanja roditelja), ekonomski status (radni status pored studija, prosečna mesečna primanja, percepcija adekvatnosti prihoda) i dodatnih sedam faktora identifikovanih eksploratornom faktorskom analizom kao nezavisne varijable.

Rezultati su pokazali da prethodno identifikovani faktori, poput stanovanja, životne sredine i javnih usluga, društvenih aktivnosti i angažovanja u zajednici, razvijenosti društva, poboljšanih obrazovnih i karijernih mogućnosti, javnih usluga i ekonomskog i društvenog napretka, imaju statistički značajan uticaj na migracione namere makedonskih studenata. Pored toga, nivo obrazovanja roditelja, trenutni akademski uspeh i radni status takođe značajno utiču na ove namere. Studenti sa obrazovanijim roditeljima, boljim akademskim uspehom i oni koji rade imaju veće šanse da emigriraju u poređenju sa studentima čiji roditelji imaju niži nivo obrazovanja, koji postižu slabiji akademski uspeh i ne rade tokom studija. Ostale sociodemografske karakteristike, obrazovanje i ekonomski status nisu se pokazali statistički značajnim. Rad se završava preporukama za politike usmerene na ublažavanje negativnih efekata migracija i promovisanje održivog razvoja zemlje.

KLJUČNE REČI

migracije, migracione namere, studenti, logistička regresija, Severna Makedonija

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