Impact of Population Migration Profiles on Financial Literacy: The Case of Bosnia and Herzegovina

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Abstract:

Financial literacy is becoming increasingly important in modern society, and its lack can have significant economic consequences. Global research indicates low rates of financial literacy, and population migrations additionally affect this dynamic. Migration flows in Europe have a special significance for financial literacy. The aim of this research is to determine the significance of the migration profile on financial literacy. Migration profiles such as immigrants, emigrants and residents without a migration background are analyzed, and an attempt is made to understand the connection between migration flows and financial literacy. The research was conducted on the basis of primary data collection, using the method of written (online) examination. As a form of data collection, a survey questionnaire was used, which was created on the basis of the OECD/INFE standardized questionnaire. The data was collected on a sample of 616 respondents in the first quarter of 2023. The results have showed that residents without a migration background have the highest level of financial literacy, while immigrants show the lowest level. The components of financial knowledge, behavior and attitudes and their connection with migration profiles were analyzed. The results indicate a negative impact of migration on financial literacy. Further analysis included control variables such as gender, age, education, work status and income. The model with control variables shows that immigrants (when the migration status is observed) and women (when the gender status of the respondents is observed) have lower financial literacy, while education and employment have a positive effect on it. The research highlights the importance of understanding the connection between migration and financial literacy, and the need to develop customized educational programs to improve the financial literacy of migrants. This analysis contributes to the understanding of the complex dynamics between migration and economic literacy, and can serve as a basis for future strategies to increase financial literacy in Bosnia and Herzegovina.

Keywords: Financial Literacy, Financial Knowledge, Financial Skills, Migration, Bosnia and Herzegovina

JEL classification: G53, J11

1. Introduction

Numerous studies emphasize the crucial importance of financial literacy as an essential skill in the 21st century, and investigate its continuous increase in importance due to the accelerated development of financial intermediation and various financial products. The lack of such skills can result in significant costs at the micro and macro level. Data from global surveys (Klapper et al, 2015) indicate worryingly low rates of financial literacy where only one out of three adults shows an adequate result. Variation in literacy rates between countries and groups further highlights the problem. External movements of the population contribute to this, emphasizing the influx of financially illiterate population, or the outflow of financially literate population structure. Migration flows in Europe play an important role in shaping financial literacy, with a special focus on the issue of migration as a relevant factor for understanding the low rates of financial literacy in Western and Central Europe (Vorontsova and Didenko, 2021). On the other hand, migration is a major source of income for several countries around the world. In fact, this revenue exceeds all international development funds combined (Atkinson and Messy, 2013). Also, Lacsina and Opiniano (2017) conclude that migration represents an economic decision aimed at maximizing the potential return from the acquisition of exponential income elsewhere, and that it has a positive impact on the country of origin. Its effect becomes more significant if it is about financially literate participants in migration.

Despite numerous previous researches on migration and financial literacy, the topic of combining these two aspects remains insufficiently researched (Gjestvang, 2020). This research aims to fill that gap, analyzing how migration flows affect financial literacy, especially in the context of Bosnia and Herzegovina. It is crucial to investigate whether these migration flows shape the financial literacy of the population, and how different migration groups differ in terms of financial literacy.

Therefore, based on the research gap identified above, the purpose of this research is to collect qualitative empirical data that will help policy makers and decision makers to develop strategies to increase the financial literacy of the citizens of Bosnia and Herzegovina.

The work is organized as follows. After the introduction, the second part provides a brief overview of the theoretical framework relevant to the main objective of the paper. The third part describes the research data and methodology. The fourth part, as the central segment of the paper, contains the analysis and discussion of the original empirical results. The last part contains some final remarks and conclusions.

2. Theoretical Framework And Literature Review

Researchers have increasingly recognized the importance of financial literacy in today's increasingly complex economic environment. The OECD's (2020) definition of financial literacy, which includes the awareness, knowledge, skills, attitudes and behaviors needed to make informed financial decisions, highlights this complexity. Zuhair et al. (2015) notes that different people interpret this dimensional definition differently. Van Nguyen et al. (2022) add that contemporary factors complicate the understanding of the phenomenon of financial literacy.

The world's population is continuously changing, especially through migration. According to McAuliffe and Triandafyllido (2021), 3.6% of the world's population are international migrants. The problem of this phenomenon lies in the lower projections for the year 2050 with 230,000 migrants (2.6% of the population), which are already far exceeded. Also, the number of migrants is increasing three times faster than population growth according to data from 2019.

Vorontsova and Didenko (2021) investigate the connection between financial literacy and economic well-being in Germany. Although the country is ranked high in terms of GDP, it has been found that there is a low level of financial literacy. This paradox suggests that high economic development does not always result in an adequate level of financial literacy of the population. They find the reason for this in a large number of immigrants who are less financially literate compared to other categories of residents. Happ and Förster (2018) examined the association between migration background and personal finance knowledge among young adults in Germany. The results confirmed previous research that suggested that young people with a migrant background usually have less financial knowledge than those without a migration background. Gjestvang (2020) investigated variations in the level of financial literacy among immigrant groups in Norway. With nearly 800,000 first-generation immigrants in Norway, this research pointed to differences in financial knowledge and behavioral outcomes among different groups. Highly educated workers and those with professional skills achieved better results, while refugees showed lower literacy. This research highlights the importance of customized education programs to better integrate immigrants into the financial system. Nurgaliyeva (2017) investigated the impact of internal migration in Kazakhstan on financial literacy and found that migration does not determine financial behavior. LIRS (n.d.) investigated the importance of financial education programs for immigrants in the United States. Diverse migration backgrounds require adaptation to take advantage of financial opportunities in the new country. Migrants often encounter linguistic, cultural and institutional barriers that make access to financial services difficult. These studies emphasize the importance of developing programs that take into account the specific needs of immigrants and facilitate their integration into the financial system.

Migration has significant benefits for both countries of destination and countries of origin, especially when migrants are educated and actively involved in the working community, which contributes to development and prosperity. According to research by the International Organization for Migration (IOM, 2022), remittances sent by migrants from destination countries directly affect socioeconomic development and have a positive effect on vulnerable communities, as is the case in Bangladesh. The survey results also show that highly skilled migrants tend to send larger amounts of money back, and an increase in financial literacy among migrants has led to an increase in the amount of remittances, increasing as much as $255 per month between 2009 and 2019. In addition, the way migrants dispose of remittances varies – skilled migrants often direct money towards savings, while less skilled ones often use remittances to pay off debts.

The low level of financial literacy among migrants and their families creates uncertainty in managing remittances and building assets. A study by Rosenberg et al. (2017) points out that in some regions, such as Sri Lanka and Nepal, they face problems where families spend remittances received on basic needs instead of using them for long-term investments and improving living conditions. The results of the research suggest that the development of financial literacy among migrants becomes crucial in order to ensure the sustainable and efficient use of remittances. Gibson et al. (2014) analyze the impact of remittances on developing countries, and emphasize the importance of proper training and development of financial literacy among migrants. In a broader context, immigration makes a significant contribution to the global economy as economic migrants and remittances provide additional income to households in home countries. These incomes reduce poverty, encourage the improvement of nutrition, health care, and increase access to education, promoting the positive development of gender equality, as pointed out by Atkinson and Messy (2013).

The relationship between migration and financial literacy is complex with many variables such as cultural barriers, language barriers and different economic contexts. Further research should shed light on this connection in order to develop effective strategies to improve migrants' financial literacy. Understanding the relationship between this phenomenon and migration can help policy makers and researchers to develop effective strategies to improve financial outcomes for both migrants and the entire population of the country.

3. Research Methodology

Taking into account the above, the basic goal is to investigate whether migration flows shape the financial literacy of the population, and how different migration groups differ in terms of financial literacy. In this regard, this research aims to provide answers to the following operational goals:

- To determine the level of financial literacy of immigrants, emigrants and residents without a migration background in BiH.
- To determine the connection between immigrants and emigrants in the BiH population with financial literacy.
- Determine the connection between gender, age, education, work-status and income structure of the population with financial literacy .

In this research, the OECD/INFE standardized questionnaire form is used in order to analyze the influence of migration profiles on financial literacy in Bosnia and Herzegovina. Given the increasing possibilities and the need for more detailed information, this form of questionnaire was chosen (Rea and Parker, 2005; Cohen et al., 2017). Although interviewing or telephone contact would have been ideal, due to high costs and time constraints, it was decided to conduct an online survey. In order to ensure valid answers, the software program *LimeSurvey was implemented* .

Considering the nature of the research and the target population, the survey questionnaire was created in different languages in order to somewhat neutralize language barriers. The time frame of the research was defined from the first quarter of 2023, when the questionnaire was released to the public, until it closed on March 30, 2023. Adult individuals who are legally capable of making decisions and signing contracts in Bosnia and Herzegovina were selected for the sample.

The questionnaire consists of 3 parts that include different components of financial literacy: financial knowledge, behavior and attitudes (OECD/INFE, 2011; 2015; 2018). Within financial knowledge, the concepts of time value of money, interest rates, inflation and diversification are explored. In the part of financial behavior, respondents react to eight different financial situations, while their financial attitudes are analyzed through a Likert scale. The total number of points that participants can achieve is 21.

Migration profiles only indicate population movement trends and cannot be quantified. Also, the socio-economic aspects of the respondents are measured with an ordinal scale that shows the order of the categories, but does not indicate the size of the differences between them.

In the process of conducting the research, the sample was carefully formed with an emphasis on flexibility within the country, taking into account OECD/INFE guidelines. Data were collected from 616 respondents, which represents a response rate of 62%. On the achieved a sample of 616 participants and according to data A 99% confidence interval is given by World Bank (2022), and the margin errors of 5.2% according to Question Pro (2023) calculator sample. According to once from criteria formation sample (Sharma, 2020; Ganti, 2023) in the framework social empirical, each category population is based on minimum number of the respondents who implies 30 units.

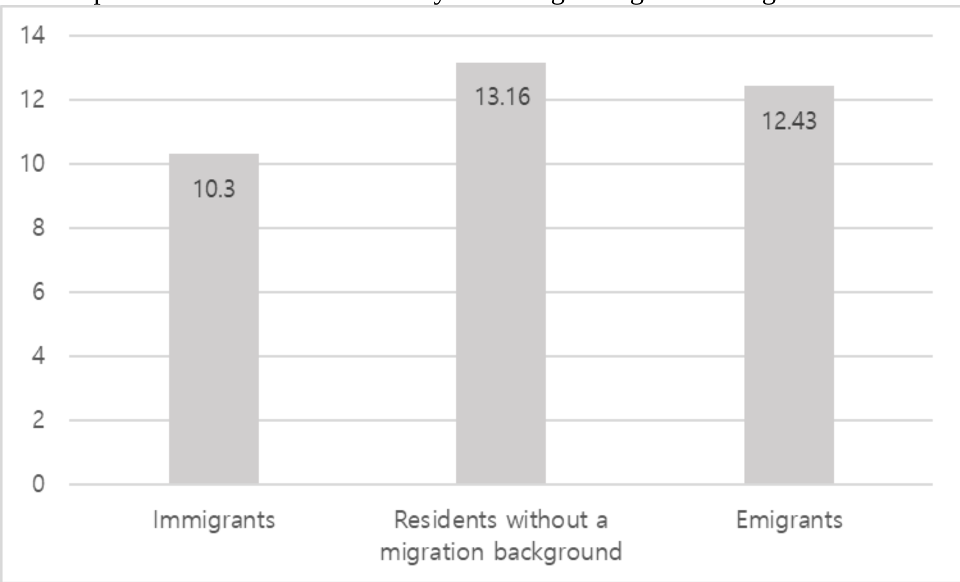
The analysis migration profile consists of six questions. Although there is no current data on migration trends in B&H, data are collected in a survey questionnaire. Based on answers, identified are three categories: immigrants, emigrants, and citizens without intention abandonment countries.

It is important to note limitations on occasion collection data as what are larger percentage employees and highly educated participants cause of nature implementation tests. Analysis of these results will enable better understanding the influence migration profile on financial literacy in B&H and their potential role in the wider socioeconomic trends countries. Examination causal connections observed variables and analysis their influence was exerted robust regression analysis through statistical the GRETL tool.

4. Results of Empirical Research and Discussion

By segmenting respondents according to migration categories, their achievements in financial literacy can be clearly seen. The population without a migration background has the highest level of financial literacy with an average of 13.16 points, followed by emigrants with 12.43 points. It is concluded that the results of these two groups are approximately equal, while the lowest level with 10.3 points was recorded among immigrants. The above results are presented in graph 1.

Graph 1: Level of financial literacy according to migration categories in BiH



Source: Author's calculation

Immigrants showed the lowest level of financial knowledge with an average of 2.73 points. Their financial awareness was evaluated with 2.67 points, while the best performance was achieved in the area of financial behavior with 4.9 points. Residents without a migration background achieved the highest results in the area of financial behavior with 6.14 points, followed by financial attitude with 3.02 points, while the weakest results were achieved in the area of financial knowledge with 3.99 points. Emigrants achieve the highest results in the area of financial behavior with 5.86 points, followed by financial attitude with 2.98 points, and finally, an unsatisfactory level of financial knowledge with 3.59 points.

It was found that residents without a migration background have the greatest knowledge about finances with 3.99 points. They are followed by emigrants with 3.59 points, while immigrants achieve the lowest level of 2.73 points. In the financial behavior component, residents without a migration background stand out with an average of 6.14 points. Immigrants and emigrants achieve similar results of 4.9 points. With regard to attitudes about finances, residents without a migration background have a slightly higher average of 3.02 points compared to other categories. The category of emigrants recorded 2.98 points, while immigrants achieved the lowest results with 2.67 points.

Finally, it can be pointed out that residents without a migration background achieve the best results, while education should be directed towards the category of immigrants who show a lower level of financial knowledge, behavior and attitudes. It is important to keep in mind that each group needs additional efforts to improve their financial literacy and create a more stable economic framework.

In the context of further research, a model that assumes a linear relationship between financial literacy as a dependent variable and migration movements as an independent variable is highlighted (Wooldridge, 2008). The model can be expressed as follows:

$$Yi = \beta\ 0 + \beta\ 1Xi + \beta\ 2Zi + \varepsilon\ i$$

Here, Yi represents the dependent variable (financial literacy), Xi immigrants, Zi emigrant, β 0 intercept, β 1 slope coefficient for immigrants, β 2 slope coefficient for emigrants, while ε i denotes the error.

In order to specifically apply OLS (Ordinary Least Squares) according to the collected data, we analyze the connection between financial literacy and migration. Therefore, the OLS model reads:

financial literacy = β 0 + β 1immigrants + β 2emigrants + ε i

The first model investigated the impact of migration on the level of financial literacy. The intercept (β0) is 13,156, which represents the expected value of financial literacy when the values of immigrants and emigrants are zero. This result is statistically significant at the 0.001 level, which means that it is unlikely that such a large value could be observed by chance.

The coefficient for immigrants (β1) is -2.856, which indicates that with an increase in the number of immigrants, there is a decrease in the overall level of financial literacy. In other words, for every immigrant, financial literacy drops by 2,856 points. The coefficient for emigrants (β2) is -0.726. As before, an increase in the number of emigrants per unit is associated with a decrease in financial literacy of 0.726 points. All coefficients are highly statistically significant, which indicates the existence of a significant relationship between the independent and dependent variables.

The standard deviations associated with each coefficient indicate how much variation in the dependent variable is not explained by the independent variables. In this case, the standard deviation for the intercept on the Y-axis is 0.173, the standard deviation associated with immigrants is 0.608, and with emigrants it is 0.268. Results close to zero indicate little data variability.

Overall, this OLS model suggests that the number of immigrants and emigrants in the population of Bosnia and Herzegovina is negatively related to financial literacy. In other words, as the number of immigrants or emigrants increases, financial literacy tends to decrease. It is important to note that this is an analysis of the current situation and does not indicate causality. The R-squared value of 0.040 means that 4% of the variability in financial literacy can be explained by the presence of immigrants and emigrants. Further research is needed to understand causality and control for other factors that may influence financial literacy.

In this regard, a model is formed that includes control variables such as gender, age, level of education, work status and monthly income, according to OECD recommendations. The regression results of the connection between population migration profiles and financial literacy in Bosnia and Herzegovina are given in table 1. The value of the dependent variable in this model is 8.413 when all independent variables are set to zero, and this value is statistically significant with $p<0.001$.

Within the independent variables, immigrants, gender, education and work status are also statistically significant with $p<0.001$. The coefficient for immigrants is -2.292, indicating that immigrants are associated with lower financial literacy. The gender analysis shows a negative coefficient of -0.758, which suggests that women are associated with lower financial literacy.

On the other hand, education and work status have positive coefficients of 0.898 and 0.159, respectively. This implies that a higher level of education and employment is associated with higher financial literacy. It is important to note that expatriates, age and monthly income do not have statistically significant coefficients at the $p<0.05$ level.
The R-squared value for this model is 0.194, which means that the independent variables explain approx. 19.4% of the variance of the financial literacy of the population of Bosnia and Herzegovina. This value indicates a moderate level of model explanation. A higher R-squared value indicates a better fit of the model to the data and a greater proportion of the variability of the dependent variable that is explained by the independent variables.

In order to account for possible heteroscedasticity in the data, a given regression model including control variables with robust standard errors was tested. The age variable does not show statistical significance, which indicates a possible relationship between age and financial literacy that may affect heteroscedasticity in the data.

The R-squared value for these two models, taking into account the control variables, is 0.194, which means that the independent variables explain approximately 19% of the variation in the financial literacy of the population of Bosnia and Herzegovina. This analysis points to the importance of including control variables in order to better understand the relationship between various factors and financial literacy. The robust regression analysis data are presented below.

Table 1: Regression results of the connection between migration profiles of the population and financial literacy in BiH

Dependent variable: financial literacy	
Independent variable	Model
Interception	8,413***
	(0.779)
Immigrants	-2.292***
	(0.476)
Emigrants	-0.375
	(0.258)
Women	-0.758***
	(0.239)
Age	0.142
	(0.087)
Education	0.898***
	(0.123)
Work status	0.159***
	(0.059)
Monthly income	0.461**
	(0.203)
Size sample	608

R-squared	0.194

**** significance p<0.001, ** significance p<0.01, * significance p<0.05*

Note: standard errors are given in parentheses

5. Conclusion

This paper investigates the significance of migration flows in the context of financial literacy with a special focus on Bosnia and Herzegovina. Migration profiles such as immigrants, emigrants and residents without a migration background are analyzed, and an attempt is made to understand the connection between migration flows and financial literacy. Data obtained through a standardized questionnaire were analyzed in order to determine the connection between migration profiles and the level of financial literacy of the population. Through the operational objectives of the research, it was determined that there is a significant variation in financial literacy among different migration groups.

The results showed that residents without a migration background achieve the highest results in terms of financial literacy, while immigrants showed a lower level of financial knowledge, behavior and attitudes. This research highlights the need for targeted education and training programs to increase financial literacy among immigrants and emigrants.

Additionally, the regression models confirmed the negative association between the presence of immigrants and emigrants and the level of financial literacy. These models also identified other factors that influence financial literacy, such as education, employment and gender. Control variables showed that a higher level of education and employment have a positive effect on financial literacy, while women showed a lower level of literacy compared to men.

It emphasizes the need to direct educational programs towards older, working-age residents who remain in the country to improve their financial literacy. Also, young people should be supported in order to stay in the country, while raising the level of their financial literacy in order to improve their financial well-being in the future. Further research is needed to gain a deeper understanding of the reasons and consequences of migration on financial literacy and societal well-being.

Finally, the research provided a deeper understanding of the link between migration flows and financial literacy. The results indicate the need for targeted educational programs to support raising the level of financial literacy among migrant groups. These findings are important for policy makers and decision makers in order to develop strategies to increase financial literacy and contribute to the economic development and stability of the country.

As pioneering research in this field, this paper paves the way for further analysis and recommends focused efforts to generate more detailed data to better understand the impact of international migration on financial literacy and economic aspects of Bosnia and Herzegovina.

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