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DO INTERNATIONAL LABOR MIGRATION AND REMITTANCES REDUCE UNEMPLOYMENT? CASE STUDY OF WESTERN BALKANS 2010-2022

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ABSTRACT

The objective of this study is to explore the correlation between migration remittances and unemployment reduction in Western Balkan countries from 2010 to 2022. The research aims to analyze the influence of migration and remittances on unemployment levels in the Western Balkans region. The study seeks to identify and analyze variables affecting unemployment, with particular attention to migration patterns and remittance flows. The study utilizes panel data sourced from the World Bank and employs various econometric methods such as OLS, fixed effects method, random effects method, and the Hausman-Taylor model. Results from the Hausman test indicate that the Hausman-Taylor instrumental variable approach is more reliable and efficient compared to fixed effects and random effects methods for examining the relationship between migration, remittances, and unemployment rates in the Western Balkans. Findings reveal a positive coefficient for migration, indicating that for every 1% increase in migration, unemployment also increases. This relationship is further clarified by examining remittances, which suggests that recipients of remittances are more likely to experience increased unemployment. The primary limitations of the research include the lack of official data available from the earliest periods for these countries. This study contributes significantly to the existing literature by providing tangible data on the relationship between migration and unemployment in the Western Balkans. The results emphasize the crucial role that migration and remittances play for citizens of Western Balkan countries.

Key words: *labour migration, remittances, unemployment, Western Balkans.*

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1. INTRODUCTION

Labor migration for employment purposes in the developed countries of the Western Balkans is vital for their economies, especially considering the significant percentage of remittances to the GDP. According to the International Agency for Migration in 2022, there were 192,266 migrants in the Western Balkans (AGM, 2022). When households receive remittances, they can utilize the funds to initiate or expand businesses, thereby creating job opportunities and generating additional income. This paper provides a significant contribution through its empirical analysis and comprehensive inclusion of variables affecting the level of unemployment in these countries. Many studies in this field have relied on more general methods such as linear regression; the contribution of this study to the topic lies in the utilization of various models, including fixed-effects, random-effects, and Hausman-Taylor, and analyzing their impact.

The topic examining the relationship between remittances and unemployment has garnered significant interest among researchers across various countries. Present-day literature abounds with studies focusing on the impact of migration and remittances on unemployment. Researchers from different years have employed diverse methodologies, resulting in varied findings for different countries. Recognizing a gap in this area, particularly concerning the Western Balkans, we have selected this topic for analysis.

Many studies, such as those by Acosta, have concluded that there is a negative impact between migration and employment.[1] These studies suggest that an increase in migration leads to a decrease in employment rates. They further explain that families receiving remittances are more likely to experience increased unemployment due to the impact of income received from sources outside the labor market.

In contrast to these theoretical perspectives, significant studies demonstrate a positive relationship between migration and the unemployment rate. However, there are still no definitive findings regarding the link between unemployment and migration. Additionally, another study found that international migration does not have a statistically significant effect on unemployment rates.[2] Economic stagnation and unemployment in the countries of the Western Balkans

[1] Acosta, P.: Entrepreneurship, Labor markets and international remittances: evidence from el salvador, In: Özden, Ç., Schiff, M. (Eds.) *International migration policy and economic development*, Washington: International Bank for Reconstruction and Development and the World Bank, 2007, pp. 1-39.

[2] Gündoğmuş, B., Bayır, M.: The effect of international migration on unemployment: an empirical analysis on the European countries, *Manas Sosyal Araştırmalar Dergisi*, 10(4) 2021, pp. 2204-2217.

have led to waves of migration, which have, at different periods, influenced the level of unemployment and contributed to poverty reduction. The increase in remittances sent to the country of origin has directly influenced the standard of living in this part of the Balkans.

This study investigates the correlations between migration and unemployment in the WB including Kosovo, Albania, North Macedonia, Montenegro, Serbia, and Bosnia and Herzegovina, during the period 2010-2022. Understanding the extent of emigration in this part of the Balkans and the high unemployment rates in these countries will assist in gaining better insight into the impact of migration on unemployment.

The purpose of this paper is to examine the impact of remittances and migration on unemployment in the Western Balkans region. The study utilizes panel data from the Open Data World Bank for the period 2010 to 2022 for the following countries: Albania, Kosovo, Serbia, North Macedonia, Montenegro, and Bosnia and Herzegovina. To assess the causal relationship between migration, remittances, and unemployment, we employed an econometric model. The data analysis involved the application of various econometric methods, including the OLS method, fixed effects, random effects method, and the Hausman Taylor model.

The aim of this research is to analyze the relationship between emigration rates and the unemployment rate in the Western Balkans (WB) countries during the period 2010-2021.

The research hypotheses for this study are as follows:

H1. There is a positive relationship between migration and unemployment in Western Balkans countries.

H2. There is a positive relationship between remittances and unemployment in Western Balkans countries.

This paper provides a significant contribution through its empirical analysis and comprehensive inclusion of variables affecting the level of unemployment in these countries. Many studies in this field have relied on more general methods such as linear regression. In a study by Stephen[3], recognizing the opposite effect of remittances, they employed econometrics using a fixed effects model. Additionally, Kilic [4] used linear regression, including variables such as inflation, economic growth, and migration, commonly found in other studies.

[3] Drinkwater, S., Levine, P., Lotti, E.: Labour market and investment effects of remittances, *School of Economics Discussion Papers,* (1906) 2006, pp. 1-34.

[4] Kilic, C., Yucesan, M., Ozekicioglu, H.: Relationship between migration and unemployment- panel data analysis for selected OECD countries, *Montenegrin Journal of Economics*, 15(3) 2019, pp. 101-111.

The paper is structured as follows: Section 1 provides an introduction to the study, Section 2 reviews the literature, and Section 3 presents the data and methodology. Section 4 outlines the empirical results, and the final section discusses the conclusions and other implications found in this area.

2. LITERATURE REVIEW

In this section of the literature review, we will analyze studies by various authors regarding the impact of remittances and migration on unemployment. Recent findings suggest that remittances have a positive impact on economic growth overall. However, based on this conclusion, it may be challenging to assess the impact of remittances on unemployment.

Several studies utilize different methodologies, yielding interesting findings that suggest a negative relationship between migration and employment levels. Many authors, utilizing panel data, were in favor of a positive relationship between migration and unemployment. Another study by Docquier et al. (2016)[5], which examined OECD countries in 1990, concluded that migration has either a positive effect or no effect on local employment.

Studies by Acosta[6] also provide data suggesting that remittances can have negative effects on labor supply and employment opportunities for those remaining in the home country. Among several studies focusing on the Western Balkans (WB), Adams conducted an extensive review based on 50 empirical studies regarding the impact of international remittances on economic development in the WB. The study analyzed both the positive and negative aspects of international remittances, including their effects on poverty, health, education, investments, and savings.[7] While international remittances were found to generally have a positive impact on poverty reduction and health outcomes, they were also associated with negative effects on employment, education, and economic growth. The long-term effects of migration and remittances on pro-

[5] Docquier, F., Ozden, Ç., Peri, G.: The labour market effects of immigration and emigration in OECD countries, *Discussion Paper*, (6258) 2016, pp. 1106-1145.

[6] Acosta, P.: Entrepreneurship, Labor markets and international remittances: evidence from El Salvador, in international migration policy and economic development, In: Özden, Ç., Schiff, M. (Eds.) *International migration policy and economic development*, Washington: International Bank for Reconstruction and Development and the World Bank, 2007, pp. 1-39.

[7] Adams, R. H.: Evaluating the economic impact of international remittances on developing countries using household surveys: a literature review, *The Journal of Development Studies*, 47(6) 2011, pp. 809-828.

ductivity remain inconclusive, attributed to several methodological issues such as selection bias and variable measurement.[8]

Furthermore, Kilic (2019)[9] conducted a study on OECD countries titled "Relationship between Migration and Unemployment" using panel data analysis to investigate the direct relationship between migration and unemployment in 23 selected OECD countries. The primary reason for international migration to OECD countries is generally for labor force transfer, with individuals seeking employment in Western countries such as the USA, Canada, Australia, and New Zealand. The study establishes a connection between migration and unemployment by examining changes in the labor markets of both migrant-receiving states and migrant-sending states, which directly influence unemployment rates. Ahmad et al. (2008)[10] conducted an analysis of migration in Pakistan using data from 1973-2005. By testing the relationship between migration and unemployment, they concluded that there is a positive relationship between migration and both unemployment and inflation. The study identified remittances as a factor contributing to the increase in international migration. Similarly, Darkwah and Verter (2014)[11] conducted a study on Nigeria using time series analysis method for the years 1991-2011. The research aimed to identify the main indicators of migration. It highlighted unemployment, migrant remittances, and population growth as determinants of the migration level. The results indicated a positive relationship between migration and unemployment during these years.

Similar to many other studies, a study conducted by Angrist and Kugler focused on European countries, where the authors utilized panel data to estimate the effect of immigrant flows on native employment. This study, titled "European Labor Market Institutions and the Effect of Immigrants on EU Natives", examined how reducing flexibility in labor market policies can protect natives from immigrants. Using OLS estimates for a panel of European countries, the results revealed a significant negative effect on employment in countries with

[8] Adams, R. H., Page, J.: Do international migration and remittances reduce poverty in developing countries?, *World Development*, 33(10) 2005, pp. 1645-1669.

[9] Kilic, C., Yucesan, M., Ozekicioglu, H.: Relationship between migration and unemployment- panel data analysis for selected OECD Countries, *Montenegrin Journal of Economics*, 15(3) 2019, pp. 101-111.

[10] Ahmad, N. et al.: Macroeconomic determinants of international migration from Pakistan, *Pakistan Economic and Social Review*, 46 2008, pp. 85-100.

[11] Darkwah, S. A., Verter, N.: Determinants of international migration: the Nigerian experience, *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,* 62(2) 2014, pp. 321-327.

restrictive policies. Changes in the labor market are expected when flexibility decreases and entry costs increase.[12]

Furthermore, a study by Ortiz et al. (2015)[13] investigated the effects of international migration on unemployment in European countries, excluding Bulgaria, Norway, and Iceland, for the periods 2005-2006 and 2011-2012. The study hypothesized a positive relationship between immigration and unemployment in the short term. Employing multiple regression models with various dependent variables for empirical analysis, the study found that the increase in migration to a country in the short term actually reduces unemployment. Upon testing the model, the hypothesis was found to be incorrect, suggesting that an increase in immigration in a nation-state leads to a decrease in the unemployment rate in the short term.

According to Lotti (2003)[14] the possibilities of migration may have two effects. Firstly, unemployment may increase if individuals perceive remittances as an opportunity to enhance their well-being and income. Secondly, remittances can reduce credit constraints in developing economies, potentially encouraging businesses to increase their investment levels. The study utilizes panel data from the Western Balkans, selecting a sample of 19 countries with a 1% share of remittances in GDP during the period from 1976 to 2003. It was found that remittances have a negative but significant effect on unemployment. Additionally, fixed effects models demonstrated a positive relationship between investments and remittances.

The study by Dey (2022)[15] examines the effect of remittances on the labor market entry decisions of adult families in India who remain at home. To conduct a more specific analysis, the data are divided into families that accept remittances and families that do not. Two selectivity and endogeneity corrected models are used for unit (household) data on rural households. The findings indicate that individuals from families that accept remittances are less inclined to participate in the labor market. In another study, Kim (2007)[16] explained

[12] Angrist, J., Kugler, A.: Protective or counter-productive? European labor market institutions and the effect of immigrants on EU natives, *NBER Working Paper Series*, (3196) 2001, pp. 1-50.

[13] Ortiz, J., Grimée, J., Prichard, T.: Analyzing the impact of immigration on unemployment in European Union, *Econometric Analysis Undergraduate Research Papers*, 2015, pp. 1-20.

[14] Drinkwater, S., Levine, P., Lotti, E.: Labour market and investment effects of remittances, *School of Economics Discussion Papers*, (1906) 2006, pp. 1-34.

[15] Dey, S.: Impact of remittances on labour supply and occupational choice in rural India, *International Journal of Rural Management*, 18(1) 2022, pp. 78-102.

[16] Kim, N.: The impact of remittances on labor supply: the case of Jamaica, *World Bank Policy Research Working Paper*, (4120) 2007, pp. 1-17.

the paradoxical labor market in Jamaica wherein high rates of unemployment coexist with rising real wages. The study utilized data from two groups: The Survey of Living Conditions (SLC) and Labor Force Survey (LFS), Kim estimated the effect of remittances on labor supply using both cross-sectional analysis for a year and a pseudo-panel data model for the entire period. The results indicated that families receiving remittances may be able to avoid the need to participate in the labor market. Empirical analysis examining the effect of remittance income on labor supply showed that remittances contribute to higher real wages in the presence of high unemployment.

Edo (2015)[17] conducted a study on the French economy for the period 1990-2002, analyzing the impact of international migration using microdata. The results suggest that international migration has a negative effect on the employment rate. Pischke and Velling (1997)[18] investigated the impact of immigration on employment using data from 167 labor markets in Germany during the period 1985-1989. Their study focused on an independent variable that was the change in the number of foreign workers in the labor force, and the results indicate a negative effect of immigration on the employment of natives.

Latif (2015)[19] conducted a study covering the years 1983-2010 and analyzed estimation results. The findings revealed a positive correlation between migration and unemployment in the short term. Similarly, Gündoğmuş (2021)[20] investigated empirically the effect of international migration on unemployment rates in 27 European countries from 2000-2017.Using panel regression with unemployment as the dependent variable, the study found that international migration does not statistically have an effect on unemployment rates, but other variables contribute to reducing the unemployment rate.

The study by Troshchenkov (2011)[21] analyzed the influence of migration on the unemployment rate in Denmark during the years 2007-2009, using a model where the unemployment rate (UR) served as a dependent variable. The pur-

[17] Edo, A.: The impact of immigration on native wages and employment, *The B.E. Journal of Economic Analysis and Policy*, 15(3) 2015, pp. 1151-1196.

[18] Pischke, J.-S., Velling, J.: Employment effects of immigration to Germany: an analysis based on local labor markets, *The Review of Economics and Statistics*, 79(4) 1997, pp. 594-604.

[19] Latif, E.: The relationship between immigration and unemployment: panel data evidence from Canada, *Economic Modelling*, 50 2015, pp. 162-167.

[20] Gündoğmuş, B., Bayır, M.: The effect of international migration on unemployment: an empirical analysis on the European countries, *Manas Sosyal Araştırmalar Dergisi*, 10(4) 2021, pp. 2204-2217.

[21] Troshchenkov, S.: Influence of immigration on the unemployment rate: the case of Denmark, *Umeå School of Business and Economics*, 2011, pp. 1-42.

pose was to demonstrate the effect of immigration on the unemployment rate. The results revealed that there is no positive effect on the unemployment rate stemming from immigration, nor from the number of immigrants. The participation of immigrants in the labor market does not increase the unemployment rate. Boubtane et al. (2013)[22] empirically analyzed the impact on immigration and economic conditions in 22 OECD countries during the period 1987-2009. They employed panel VAR techniques on a large annual dataset covering 22 OECD countries. The VAR approach helps address the endogeneity problem. According to the results, migration has a positive effect on GDP but a negative effect on the host country's total unemployment rate.

From the finding of these studies on the role of migration in reducing unemployment, we understand that this study will provide a different approach to the role of migration over the years in the WB.

One of the central themes explored in the work of King and Oruc (2020)[23] is the impact of economic factors on migration patterns. Economic inequalities within and between countries in the Western Balkans have led to varying levels of emigration and internal migration. The authors analyze the role of economic opportunities, labor market conditions and income inequalities in shaping migratory movements, providing critical insights into the socio-economic drivers of migration in the region.

In their seminal study, Petreski et al. (2018)[24] launch a comprehensive analysis of emigration and migrant remittances within the Western Balkans, using a forecasting methodology based on the Delphi process. Using the Delphi process, which harnesses the collective wisdom of experts in the field, the authors aim to provide policymakers with evidence-based knowledge to formulate effective strategies for managing migration and harnessing the development potential of remittance inflows.

Klaiqi, Macani and Aliu Mulaj (2023)[25] investigated the main role of remittances as key indicators of economic growth within the Western Balkans re-

[22] Boubtane, E., Coulibaly, D., Rault, C.: Immigration, growth, and unemployment: Panel VAR evidence from OECD Countries, *Labour*, 27(4) 2013, pp. 399-420.

[23] King, R., Oruc, N. Migration in the Western Balkans – trends and challenges, In: King, R., Oruc, N. (Eds.) *Migration in the Western Balkans*, London: Routledge, 2020, pp 1-10.

[24] Petreski, M. et al.: The size and effects of emigration and remittances in the western Balkans. A forecasting based on a Delphi process, *Comparative Southeast European Studies*, 65(4) 2018, pp. 679-695.

[25] Klaiqi, S., Maçani, F., Aliu Mulaj, L.: Remittances are the main indicators of economic growth in the Western Balkans, *InterEULawEast: journal for the international and European law*, economics and market integrations, 10(1) 2023, pp. 101-117.

gion. As globalization continues to shape economic landscapes, remittance flows remain an important driver of financial stability and development in emerging markets. In this paper, we deepen the complex relationship between remittance flows and economic prosperity, shedding light on the nuanced mechanisms through which these remittances affect key macroeconomic indicators. Gashi and Sylejmani (2020)[26] undertook an econometric examination of the complex relationship between remittances and economic growth in the Western Balkans. Remittances, characterized by the transfer of monetary resources by immigrants to their countries of origin, have emerged as important contributors to economic development, especially in regions dependent on external financial flows. Within the context of the Western Balkans, a region marked by historical migration patterns and economic challenges, understanding the link between migrant remittances and economic growth is imperative for policy makers and researchers.

In summarizing the studies by different authors, it can be concluded that there is no consensus regarding the effect of remittance migration on unemployment. Most of these studies have utilized regression and the OLS method, with a smaller number using the fixed effects method. Our study in this field will provide a significant contribution to WB which has not been included in recent studies. Additionally, our methodology used OLS, fixed effects, random effects, and Hausman-Taylor with IVs.

From the reviewed literature, it can be concluded that in countries where economic growth is lower and unemployment is higher, the relationship between migration and unemployment tends to be positive. Conversely, a negative effect of migration on unemployment is observed in countries with higher economic growth and lower unemployment.

3. RESEARCH METHODOLOGY AND DATA

This section employs various econometric models including OLS, the fixed effects, random effects, and the Hausman Taylor instrumental IV to examine the casual relationship between migration and unemployment remittances. To determine the most suitable model, the Hausman test is utilized. The findings of the Hausman test indicate that the IV Hausman-Taylor instrument is more consistent and efficient compared to fixed effects and random effects in examining the relationship between migration and remittances on the unemployment rate in WB.

[26] Gashi, R., Sylejmani, L. A.: Econometric approach of the nexus between remittances and economic growth in Western Balkans, *International Journal of Economics and Business Administration*, 8(1) 2020, pp. 83-96.

The Hausman-Taylor IV model is often preferred in panel data econometrics, especially when addressing complexities like endogeneity and unobserved individual effects. Unlike traditional fixed effects and random effects models, the Hausman-Taylor IV model accommodates endogeneity concerns by integrating instrumental variables into the analysis. This feature is particularly valuable when there are suspicions of a correlation between explanatory variables and the error term, ensuring that the estimates maintain consistency and lack bias. By allowing the incorporation of instruments, the model strikes a balance between efficiency and control over endogeneity issues, rendering it a robust framework for researchers navigating nuanced panel datasets.

Moreover, the Hausman-Taylor IV model excels in its capacity to manage unobserved individual effects, a challenge that often undermines fixed effects and random effects models. Unobserved individual heterogeneity can lead to biased and inconsistent estimates in these conventional models. However, the Hausman-Taylor IV model mitigates these concerns by integrating instruments that account for individual-specific effects. The efficiency gains attained by the model, particularly in scenarios where the strict exogeneity assumption is violated, render it a compelling option for econometricians seeking reliable estimates in the presence of both endogeneity and unobserved individual effects. Hence, the Hausman-Taylor IV model represents a powerful tool for researchers grappling with the complexities of panel data, providing a nuanced and robust solution to econometric challenges.

The Hausman-Taylor model is defined as follows:

$$y_{it} = c + \beta_1(y_{it\text{-}1}) + \beta_2(MIG_{it}) + \beta_3(REM_{it}) + \beta_4(GDP_{it}) + \beta_5(T_{it}) + \beta_6(INF_{it}) + \mu_{\text{it}}$$

Where y represents the dependent variable, which in our study is unemployment (% of the total labour force), $i = 6$ (represent six countries), $t = 2010...2022$ (years), c is the constant, and the independent variables are $y_{it\text{-}1}$, net migration (% of GDP), GDP growth (annual %), Trade (% of GDP) and Inflation, consumer prices (annual %).

3.1. DESCRIPTIVE STATISTICS

The empirical study covers panel data from 2010 to 2022 for the countries: Albania, Kosovo, Serbia, North Macedonia, Montenegro, Bosnia and Herzegovina. Data for these countries were sourced from the World Bank. Due to data limitations, the study could not utilize information from the earliest years.

The data underwent analysis using econometric methods within the Stata program. The methods used include: the OLS method, the fixed effects method, the random effects method, and Hausman Taylor. Based on the results of the Hausman test, the Hausman-Taylor model is deemed preferable.

The following table presents descriptive statistics for the study's variables: Unemployment (UNP), Migration (MIG), Remittances (REM), Gross Domestic Product (GDP), Trade (T), Inflation (INF). The selection of unemployment as a dependent variable is fully justified by recognizing the effects on the level of migration brought about by the high rate of unemployment in the countries of the Western Balkans. Unemployment as a dependent variable helps us to understand people's choices to leave countries when economic pressures increase, and politicians should offer alternatives to overcome these problems easily. In this topic, the dependent variable is the unemployment rate, represented as a percentage of the total labor force in certain states of WB. The independent variables include GDP growth, **measured** annually as the percentage increase in the total value of goods and services produced within a year; inflation, measured by the annual percentage change in consumer prices; Remittances received, expressed as a percentage of GDP, which refers to money sent back to the country of origin; Trade encompassing imports and exports as a percentage of GDP (based on World Bank national accounts data). Notably, only migration exhibits a pronounced standard deviation, while the other variables demonstrate standard deviations within standard ranges, i.e., a value lower than the average.

Table 1. Descriptive statistics of variables

Variables	Obs	Mean	Std. Dev.	Min	Max
UNP	72	20.84	6.58	9.01	35.26
MIG	72	14595.47	17258.72	0	67267
REM	72	10.14	3.96	2.81	18.83
GDP	72	2.60	3.75	-15.30	13.04
T	72	94.64	17.55	59.82	148.46
INF	72	2.70	3.52	-1.58	14.20

Source: STATA Author's Calculation; Data from the World Bank (Annex 1)

Table 1 presents the descriptive statistics of the study variables. The presented results show an unemployment rate of approximately 20.84%, indicating a significant challenge in the labor market within these nations. This suggests persistent job market inefficiencies or structural issues that may have hindered

employment opportunities. Such a high unemployment rate could have implications for social stability and economic growth, as it indicates a sizable portion of the workforce experiencing difficulties in securing employment, potentially leading to income inequality and reduced consumer spending.

The mean migration figure of around 14 thousand per 100 thousand residents suggests substantial movements of people across borders within the Western Balkan Countries. Migration on this scale could be driven by various factors, including economic opportunities, political instability, or social conditions. Such significant migration patterns could have both positive and negative impacts on the economies of these countries, including changes in labor market dynamics, remittance inflows, and potential strain on social services.

Additionally, the mean remittances as a percentage of GDP of approximately 10.14% highlights the importance of migration as a source of income for households and its contribution to the overall economic activity within the region.

3.2. RESULTS AND DISCUSSION

The table below displays the results of five econometric models: OLS, fixed effects, random effect, and Hausman Taylor. For interpretation purposes, the Hausman test was initially conducted comparing the fixed effects and random effects models, with a value of 0.0002. This suggests the preference for the model with fixed effects. However, a subsequent Hausman test was conducted between the fixed effects model and the Hausman Taylor model, resulting in a value of 0.043. Consequently, it the Hausman Taylor model is deemed preferable.

Table 2 displays a positive coefficient of 0.000142 (s.e. 3.96) for migrations, suggesting that for every 1% increase in migrations, unemployment rises by approximately 0.0001%. This coefficient is statistically significant at the 1% level. Previous studies (Ahmad, 2008[27] and Darkwah and Verter 2014[28]) have also indicated a positive link between international migration and the unemployment rate.

[27] Ahmad, N. et al.: Macroeconomic Determinants of International Migration From Pakistan, *Pakistan Economic and Social Review*, 46(2) 2008, pp. 85-100.

[28] Darkwah, S. A., Verter, N.: Determinants of international migration: the Nigerian experience, *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,* 62(2) 2014, pp. 321-327.

Table 2. Summary results of the regressions

Models	OLS	Fixed-effects	Random-effects	Hausman Taylor
Variables	**UNP**	**UNP**	**UNP**	**UNP**
UNP_L1				0.4243
				(5.28)
MIG	0.000156**	0.000134***	0.000156**	0.000143***
s.e	(3.01)	(3.51)	(3.01)	(3.96)
REM	-0.181	0.527	-0.181	0.2204*
s.e	(-0.66)	(1.23)	(-0.66)	(0.32)
GDP	0.0388	0.287*	0.0388	0.1715
s.e	(0.17)	(2.60)	(0.17)	(1.85)
T	-0.0000785	-0.354***	-0.0000785	-0.2645***
s.e	(-0.00)	(-8.93)	(-0.00)	(-7.49)
INF	-0.366	-0.212	-0.366	0.0105
s.e	(-1.57)	(-1.92)	(-1.57)	(0.11)
cons	21.16*	47.30***	21.16**	26.94**
	(2.66)	(8.10)	(2.66)	(2.97)
Prob>F	0.0002	0.0000	0.0007	0.0000
N	67	67	67	64

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

Source: STATA Author's Calculation; Data from the World Bank

Therefore, H1 is confirmed which indicated a positive relationship between migration and unemployment in Western Balkans countries. Moreover, based on the findings in Table 2, the coefficient for trade is negative at 0.2645 (s.e. -7.49). This implies that for every 1% of GDP increase in trade, unemployment decreases by approximately 0.26%. This coefficient is statistically significant at the 1% level. Similar finding was observed in research by Drinkwater (2006)[29], which concluded that remittances positively impact investments, subsequently leading to a positive effect on the employment rate.

Based on the presented results of the Hausman Taylor model, the impact of remittances on the increase in unemployment in the countries of the Western Balkans is positive (B = 0.22). So, for every 1% of GDP increase in remittances, unemployment increases by 0.22% on average, where the coefficient

[29] Drinkwater, S., Levine, P., Lotti, E.: Labour market and investment effects of remittances, *School of Economics Discussion Papers*, (1906) 2006, pp. 1-34.

is statistically significant at the 1% significance level. Based on this result, we have sufficient statistical evidence to accept the second hypothesis raised and conclude that there is a positive relationship between remittances and unemployment in Western Balkans countries.

The results presented in Table 2, indicate a coefficient 0.1715 (s.e 1.85) for economic growth, suggesting that for every 1% increase in GDP, unemployment increases by 0.17% on average. However, this coefficient does not demonstrate a significant level of importance in our study, as it does not include remittances and inflation. Similar findings were reported by Boubtane et al. (2013)[30], indicating that migration has a positive effect on GDP but a contradictory negative effect on the host country's total unemployment rate. Additionally, Kajtazi and Fetai (2022) in South-Eastern Europe highlighted the positive effect of remittances on economic growth.

The study results align with some findings from the literature, although with nuanced differences. Literature reviews, such as Angrist and Kugler (2001)[31] and Ortiz et al. (2015)[32] suggested that international migration had a slight negative impact on unemployment in European countries, emphasizing the potential benefits of migration in reducing unemployment rates. Similarly, the study by Kajtazi and Fetai (2022)[33] in South-Eastern Europe highlighted the positive effect of remittances on economic growth. The results indicate a positive coefficient for migration (0.000142), suggesting that on average, for every 1% increase in migrations, unemployment increases by 0.0001%. This finding contrasts with the expectations set by some literature that migration could have a positive impact on reducing unemployment. It is essential to note that the magnitude of this coefficient is very small, and while it may be statistically significant, its practical significance may be limited.

Furthermore, the study findings are consistent with literature regarding trade and economic growth. The negative coefficient for trade (-0.2645) implies that on average, for every 1% increase in trade, unemployment decreases by 0.26%. This corresponds with literature that often emphasizes the positive impact of economic activities, including trade on reducing unemployment rates.

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[30] Boubtane, E., Coulibaly, D., Rault, C.: Immigration, growth, and unemployment: Panel VAR evidence from OECD Countries, *Labour*, 27(4) 2013, pp. 399-420.

[31] Angrist, J., Kugler, A.: Protective or counter-productive? European labor market institutions and the effect of immigrants on EU natives, *NBER Working Paper*, (8660) 2001, pp. 1-50.

[32] Ortiz, J., Grimée, J., Prichard, T.: Analyzing the impact of immigration on unemployment in European Union, *Econometric Analysis Undergraduate Research Papers,* 2015, pp. 1-20.

[33] Kajtazi, K., Fetai, B.: Does the remittance generate economic growth in the Southeast European countries?, *Scientific Annals of Economics and Business*, (69) 2022, pp. 57-67.

While the study does not explicitly consider remittances and inflation, the literature review suggests that remittances can play a significant role in economic growth (Çollaku and Merovci, 2021)[34]. The comparison of these results highlights the intricate nature of the relationship between migration and unemployment, with multiple factors such as trade and economic growth playing significant role in shaping the outcomes.

4. CONCLUSION

Our analysis reveals the relationship between migration and remittances in the Western Balkans, focusing on Kosovo, Albania, North Macedonia, Montenegro, Serbia, Bosnia and Herzegovina from 2010 to 2022. This research presents a limitation due to the lack of data in some years for unemployment in Kosovo. We also believe that the inclusion of more years in the model could have provided better insight, but the lack of data for some countries in the Western Balkans made expansion difficult. This paper could not delve into the gender effect on unemployment levels and migration in these countries. We believe that exploring this aspect could be intriguing for future research to analyze how the economic circumstances differ between men and women due to migration.

Interestingly, we found that migration and remittances have a positive effect on unemployment, and this effect is statistically significant. Additionally, our results indicate that trade has a negative effect on unemployment, meaning that an increase in trade leads to a decrease in unemployment.

Economic growth in Western Balkans also positively influences unemployment, although the significance of this coefficient is not emphasized.

The paper highlights other effects that income from migration can bring to the labor market in this part of the Western Balkans. Based on the significances attributed by previous studies to the impact of remittances on unemployment levels and their positive correlations with economic growth, we recommend that countries adopt policies aimed at reducing unemployment and incentivizing higher wages to encourage greater participation in the labor market and stimulate investments and overall economic growth.

The findings of this study have significant implications for policymakers and stakeholders in the Western Balkans, particularly regarding the management of

[34] Çollaku, B., Merovci, S.: The impact of remittance in economic growth: Empirical evidence from the Western Balkan countries, *Academy of Accounting and Financial Studies Journal*, 25(4) 2021, pp. 1-9.

migration, remittances and their impact on unemployment. The positive relationship between migration and unemployment, as well as the statistically significant effect of remittances on increasing unemployment rates, underscores the need for targeted policies to address labor market challenges. Policymakers should consider implementing measures aimed at improving job creation and enhancing workforce skills to mitigate the adverse effects of migration on unemployment. Additionally, efforts to promote sustainable economic growth should be prioritized, as evidenced by the negative effect of trade on unemployment. This could involve fostering a conducive environment for trade and investment to stimulate job opportunities and reduce reliance on remittances as a source of income.

Furthermore, the study highlights the importance of understanding the complex interplay between migration, remittances, and economic growth in the WB. While remittances can contribute positively to economic growth, their impact on unemployment underscores the need for comprehensive policies that address both short-term labor market challenges and long-term economic development goals. Policymakers should focus on creating an enabling environment for productive investment, fostering entrepreneurship, and promoting inclusive economic growth that benefits all segments of society. Future research could explore the gender-specific effects of migration on unemployment to better understand how migration dynamics impact different demographic groups and inform more targeted policy interventions. Overall, these implications emphasize the importance of adopting a holistic approach to addressing unemployment in the Western Balkans, integrating migration policies with broader economic development strategies to promote sustainable and inclusive growth.

LITERATURE

1. Acosta, P.: Entrepreneurship, labor markets and international remittances: evidence from El Salvador, In: Özden, Ç., Schiff, M. (Eds.) *International migration policy and economic development*, Washington: International Bank for Reconstruction and Development and the World Bank, 2007, pp. 1-39.
2. Adams, R. H., Page, J.: Do international migration and remittances reduce poverty in developing countries?, *World Development*, 33(10) 2005, pp. 1645-1669.
   – DOI: https://doi.org/10.1016/j.worlddev.2005.05.004
3. Adams, R. H.: Evaluating the economic impact of international remittances on developing countries using household surveys: A literature review, *The Journal of Development Studies*, 47(6) 2011, pp. 809-828.
   – DOI: http://10.1080/00220388.2011.563299

4. Ahmad, N., Hussain, Z., Sial, M. H., Hussain, I., Akram, W.: Macroeconomic determinants of international migration from Pakistan, *Pakistan Economic and Social Review*, 46 2008, pp. 85-100.
5. Angrist, J., Kugler, A.: Protective or counter-productive? European labor market institutions and the effect of immigrants on EU natives, *NBER Working Paper Series*, (3196) 2001, pp. 1-50.
   – DOI: https://doi.org/10.3386/w8660
6. Boubtane, E., Coulibaly, D., Rault, C.: Immigration, growth, and unemployment: Panel VAR evidence from OECD Countries, *Labour*, 27(4) 2013, pp. 399-420.
   – DOI: https://doi.org/10.1111/labr.12017
7. Çollaku, B., Merovci, S.: The impact of remittance in economic growth: Empirical evidence from the Western Balkan countries, *Academy of Accounting and Financial Studies Journal*, 25(4) 2021, pp. 1-9.
8. Darkwah, S. A., Verter, N.: Determinants of international migration: The Nigerian experience, *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,* 62(2) 2014, pp. 321-327.
   – DOI: http://dx.doi.org/10.11118/actaun201462020321
9. Dey, S.: Impact of remittances on labour supply and occupational choice in rural India, *International Journal of Rural Management*, 18(1) 2022, pp. 78-102.
   – DOI: https://doi.org/10.1177/0973005221994371
10. Docquier, F., Ozden, Ç., Peri, G.: The labour market effects of immigration and emigration in OECD countries, *Discussion Paper*, (6258) 2016, pp. 1106-1145.
   – DOI: https://doi.org/10.1111/ecoj.12077
11. Drinkwater, S., Levine, P., Lotti, E.: Labour market and investment effects of remittances, *School of Economics Discussion Papers*, (1906) 2006, pp. 1-34.
12. Edo, A.: The impact of immigration on native wages and employment, *The B.E. Journal of Economic Analysis and Policy*, 15(3) 2015, pp. 1151-1196.
   – DOI: https://doi.org/10.1515/bejeap-2014-0075
13. Gashi, R., Sylejmani, L. A. (2020). Econometric approach of the nexus between remittances and economic growth in Western Balkans, *International Journal of Economics and Business Administration*, 8(1) 2020, pp. 83-96.
   – DOI: https://dx.doi.org/10.2139/ssrn.3697601
14. Gündoğmuş, B., Bayır, M.: The effect of international migration on unemployment: an empirical analysis on the European countries, *Manas Sosyal Araştırmalar Dergisi*, 10(4) 2021, pp. 2204-2217.
   – DOI: https://doi.org/10.33206/mjss.865460
15. IOM UN Migration, World Migration Report, December 2021. https://worldmigrationreport.iom.int/wmr-2022-interactive/

16. Kajtazi, K., Fetai, B.: Does the remittance generate economic growth in the Southeast European countries?, *Scientific Annals of Economics and Business*, (69) 2022, pp. 57-67.
– DOI: https://doi.org/10.47743/saeb-2022-0004

17. Kilic, C., Yucesan, M., Ozekicioglu, H.: Relationship between migration and unemployment- panel data analysis for selected OECD countries, *Montenegrin Journal of Economics*, 15(3) 2019, pp. 101-111.
– DOI: https://doi.org/10.14254/1800-5845/2019.15-4.8

18. Kim, N.: The impact of remittances on labor supply: the case of Jamaica, *World Bank Policy Research Working Paper,* (4120) 2007, pp. 1-17.
– DOI: https://doi.org/10.1596/1813-9450-4120

19. King, R., Oruc, N. Migration in the Western Balkans – trends and challenges, In: King, R., Oruc, N. (Eds.) *Migration in the Western Balkans*, London: Routledge, 2020, pp 1-10.
– DOI: https://doi.org/10.1080/19448953.2018.1532682

20. Klaiqi, S., Maçani, F., Aliu Mulaj, L.: Remittances are the Main Indicators of Economic Growth in the Western Balkans, *InterEULawEast: journal for the international and European law*, economics and market integrations, 10(1) 2023, pp. 101-117.
– DOI: https://doi.org/10.22598/iele.2023.10.1.6

21. Latif, E.: The relationship between immigration and unemployment: Panel data evidence from Canada, *Economic Modelling*, 50 2015, pp. 162-167.
– DOI: https://doi.org/10.1016/j.econmod.2015.06.013

22. Norwegian Ministry of Foreign Affairs, Ministry of the interior of the Czech Republic and Ministry of Foreign Affairs and International Cooperation of Italy: Migration trends in the Western Balkans in 2022, https://bih.iom.int/sites/g/files/tmzbdl1076/files/documents/WB_Annual_Report.pdf.

23. Ortiz, J., Grimée, J., Prichard, T.: Analyzing the impact of immigration on unemployment in European Union, *Econometric Analysis Undergraduate Research Papers, College of Liberal Arts - Ivan Allen College*, 2015, pp. 1-20.

24. Petreski, M., Petreski, B., Tumanoska, D., Narazani, E., Kazazi, F., Ognjanov, G., Janković, I., Mustafa, A., Kochovska, T.: The size and effects of emigration and remittances in the western Balkans. A forecasting based on a Delphi process, *Comparative Southeast European Studies*, 65(4) 2018, pp 679-695.
– DOI: https://doi.org/10.1515/soeu-2017-0044

25. Pischke, J.-S., Velling, J.: Employment effects of immigration to Germany: an analysis based on local labor markets, *The Review of Economics and Statistics*, 79(4) 1997, pp. 594-604.
– DOI: https://doi.org/10.1162/003465397557178

26. Troshchenkov, S.: Influence of immigration on the unemployment rate: the case of Denmark, *Umeå School of Business and Economics* (USBE), 2011, pp. 1-42.

ANNEXES

Table A1. Description of variables

Definition	Variable	Unit	Source
Unemployment	UNP	% of the total labor force	World Bank
Migration	MIG	Net migration	World Bank
Remittances	REM	% of GDP	World Bank
GDP growth	GDP	annual %	World Bank
Trade	T	% of GDP	World Bank
Inflation	INF	annual %	World Bank

Source World Development Indicators/ World Bank (Annex 1)

Table A2. Hausman test

Test	Prob>Chi^2	Results
Fixed Effects vs Random Effects	0.0002	Reject Ho
Fixed Effects vs Hausman – Taylor	0.043	Does not reject Ho

Table A3. Western Balkan countries

Western Balkan countries	
Nr	**Country**
1	Kosovo
2	Albania
3	North Macedonia
4	Montenegro
5	Bosna and Herzegovina
6	Serbia