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The Effects of Unemployment and Trade on Economic Growth: Case of Western Balkans

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Abstract

This research paper investigates the effects of unemployment and trade on economic growth in countries of Western Balkan. Using panel data for the time span 2000-2023 and employing the fixed and random effects regression models, this study aims to provide better understanding concerning the correlation of abovementioned variables. The results suggest that there is a statistically significant effect of both independent variables, such as unemployment and trade on GDP per capita. Hausman test justified the use of the random effect model as an appropriate model for analysis. As expected considering the theoretical framework, the empirical evidence shows that higher unemployment harms GDP per capita, while trade improves it. This brings into focus the importance of trade openness especially in small open economies and proposing measures and control over the rise of unemployment.

Keywords: Economic growth, unemployment, trade openness, GDP per capita, Western Balkans.

Introduction

Achieving higher economic growth remains one of the most important goals for countries, especially in transitional regions such as the Western Balkans, where European integration aspirations and continuous structural challenges continue to put obtstacles towards growth (Schwickert & Giucci, 2024; World Bank, 2026). Among the various determinants of growth, trade and unemployment are especially important for small, open economies. The Western Balkans, including Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia have had significant economic reforms over the past two decades. Yet, high unemployment rates and volatile trade performance remain central policy concerns. Export oriented firms that try expanding their businesses and encourage import substitution industries create favorable business environments and increase employment (Sadiku et al., 2018).

This study investigates the impact of unemployment and trade on GDP per capita in the Western Balkans over the period 2000 to 2023, using a panel dataset and employing both fixed and random effects models.

Literature Review

According to Okun's Law (1962), a decrease in unemployment is associated with an increase in economic output (GDP) stating that for every 1% decrease in the unemployment rate, a country's GDP will be roughly 2% higher than its potential output. However, a recent empirical study conducted by Tenzin (2019) for Bhutan has shown that economic growth had no impact on the reduction of unemployment rate in both short and long run.

Berument et al. (2006) studied whether or not macroeconomic policy shocks have different effects on overall unemployment. Their empirical observation showed that monetary policy instruments do not affect the total unemployment in Turkey but income policies, and unemployment itself, might be the main factors that affect the behavior of total unemployment.

In their analysis, Agénor and Lim (2018) outline that labor market reforms reducing unemployment can have positive implications for economic growth and individual welfare, suggesting that carefully designed labor policies can yield favorable outcomes.

However, as discussed by Fanati and Manfredi (2003), this relationship is not strictly linear and it can vary based on demographic factors and social policies, indicating that the effects of unemployment on growth can be both positive and negative depending on the socio-economic context. Furthermore, certain models, such as those positing creative destruction as suggested by Schumpeter, indicate that periods of high unemployment may lead to long-term economic growth by allowing for the reallocation of resources toward more innovative sectors (Wang & Le, 2018).

Higher unemployment levels may result in lower consumption by individuals, lower productivity of the economy as a whole, and lower investments into the human capital, hence, negatively affecting the economy's growth (Josten, 2006). In line with this observation, recent studies on the macroeconomic situation in the Czech Republic have demonstrated the strong inverse relationship between the unemployment levels and GDP growth (Hedvičáková & Pozdílková, 2023). Similar conclusions have been made for the Western Balkans, where high levels of unemployment have resulted in economic decline, inability to utilize the country's production capacities, and low living standards (Kukaj, 2018).

The presence of a negative correlation between unemployment and economic activity is also widely supported by data from North Macedonia. Velichkovska (2021) discovered, using an ARDL technique for the years 1991–2019, that while the short-run relationship does not quite follow the conventional Okun's Law, higher unemployment considerably slows GDP growth over the long term. Specifically, a 1% rise in unemployment was related with an 8.02% drop in GDP growth in the long term, demonstrating that unemployment remains a key restraint on economic performance in North Macedonia.

The effects of growing unemployment go beyond purely economic consequences and are associated with other social challenges, including higher poverty rates and decreased economic participation (Murjani, 2019). Consequently, unemployment results in a decrease in investment opportunities and, thus, affects economic and community growth negatively.

Regarding the trade openness, empirically, it has been shown that increased trade openness significantly impacts the country's GDP per capita. For example, Mbogela (2019) notes that trade openness results in GDP per capita increase, and thus, nations that eliminate trade barriers tend to enjoy improved economic performance and GDP per capita growth. In contrast, Nzeh et al. (2023) found that while trade

openness can sometimes adversely affect GDP per capita, effective governance and institutional quality can mitigate these negative outcomes. This illustrates that merely increasing trade does not automatically lead to higher GDP per capita; rather, the context in which trade is liberalized plays a crucial role.

Enhanced trade often coincides with improvements in domestic production capabilities, as illustrated by studies examining trade relations within BRICS economies (Mishra et al., 2015).

Fujii and Roland-Holst (2007) stated that the benefits of trade can have long-term effects on poverty alleviation and economic resilience, while trade can increase GDP per capita, the distribution of gains may vary significantly across different socio-economic groups, underscoring the need for thoughtful policy interventions.

Research Methodology

To analyze the effects of unemployment and trade over economic growth, the study uses fixed and random effects panel regression analysis. The Hausman test has been conducted to determine correct usefulnes between the both models. The annual data used to conduct the analysis are obtained from World Bank for the time spin 2000-2023 for five countries of Western Balkan, excluding Kosovo due to the lack of data for earlier years. In order to determine accuracy of results and to avoid the problem of heteroscedasticity, the data were transformed in logarithmic form.

The econometric model consists of a double logarithmic model and is specified as in the following form:

$$\log GDP_{it} = \beta_0 + \beta_1 log(Unemployment)_{it} + \beta_2 \log(Trade)_{it} + \varepsilon_{it}$$

Where GDP per capita is the dependent variable and used as a proxy variable for economic growth. Explanatory variables are considered the unemployment rate and trade openness.

β0 – constant term

β1 – slope coefficient for Uneployment

β2 – slope coefficient for Trade

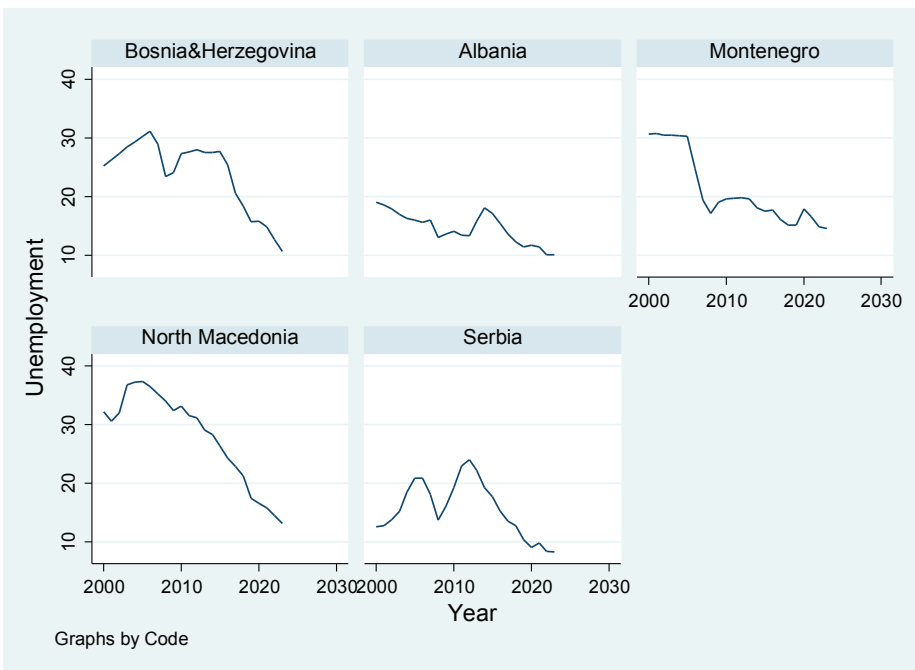
ϵ - error term

Empirical Results

This section starts with presenting of the trends of the variables used in this research, in order to provide a more comprehensive approach regarding the relationship between the independent and dependent variable. Based on time series shown in Figure 1, there is a decreasing trend of uneployment for countries of Western Balkans. Bosnia and herzegovina and North Macedonia have the highest level of unemployment, while Albania and Serbia have lower rates of unemployment during the observation period.

Figure 1.

Unemployment in Western Balkans 2000-2023

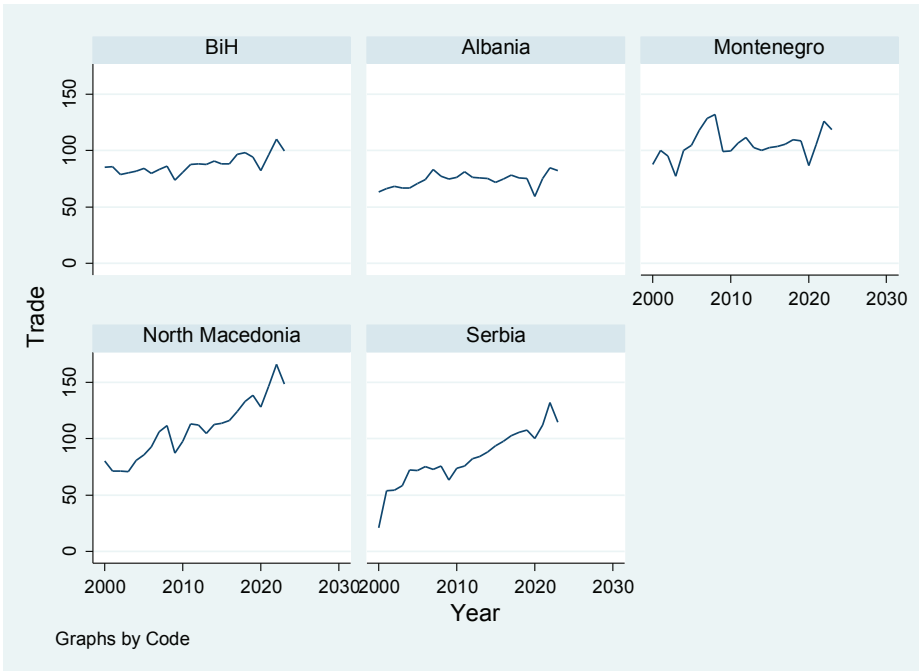


Source: World Development Indicators, World Bank (2025)

Considering the importance of trade for small open countries such as the WBC, North Macedonia and Serbia have a higher increasing rate during the years, while Bosnia and Herzegovina and Albania have smaller changes during our observation period.

Figure 2.

Trade in WBC 2000-2023



Source: World Development Indicators, World Bank (2025)

The results, shown in Table 1 present the fixed effects panel regression output, indicating that both explanatory variables are statistically significant. Specifically, the coefficient of unemployment is -0.453 and statistically significant at one percent significance level, suggesting that a 1% increase in unemployment is associated with a 0.453% decrease in GDP per capita, holding other factors constant. This negative relationship is highly statistically significant and aligns with theoretical expectations. In contrast, Trade shows a positive and significant coefficient of 0.417, also highly significant at one percent level, indicating that a 1% increase in this variable is associated with a 0.417% increase in GDP per capita, holding unemployment unchanged. The within R-squared value of 0.6184 indicates that the model explains approximately 61.84% of the variation within groups over time, reflecting a relatively strong model fit.

Table 1.

Fixed Effects Results

FIXED effects						
R-square	Obs. per group		Number of obs. = 120			
Within = 0.6184	Min = 24		Number of groups = 5			
Between = 0.2496	Avg = 24.0		F(2, 113) = 91.55			
Overall = 0.0371	Max = 24		Prob > F = 0.0000			
log (GDP)	**Coef.**	Std. error	t	p > t	95% CI	
log (Unemployment)	-0.4527535	0.0546396	-8.29	0.000	-0.5610045	-0.3445025
log (Trade)	0.4173418	0.07370708	5.71	0.000	0.2725754	0.5621082
_cons	13.82715	0.4273697	32.35	0.000	12.98045	14.67385

Source: Own Research

The random effects model results, presented in Table 2, are largely consistent with those of the fixed effects model. The coefficient of unemployment remains negative and highly statistically significant at 0.1 percent level, while trade retains a positive and also significant effect at 0.1 percent level. These consistent estimates suggest robustness across model specifications. The model's overall goodness-of-fit is also acceptable, and the Wald Chi² test confirms the joint significance of the predictors.

Table 2.

Random Effects

RANDOM effects						
R-square	Obs. per group			Number of obs. = 120		
Within = 0.6184	Min = 24			Number of groups = 5		
Between = 0.2498	Avg = 24.0			Wald chi2(2) = 184.67		
Overall = 0.0372	Max = 24			Prob > chi2 = 0.0000		
log (GDP)	**Coef.**	Std error	z	P > z	95% CI	
log (unemployment)	-0.452973	0.0544112	-8.32	0.000	-0.5596169	-0.346329
log (Trade)	0.4170839	0.0727654	5.73	0.000	0.2744663	0.55297014
_cons	13.82896	4.38528	3.15	0.002	5.233966	22.42395

Source: Own Research

Table 3.

Hausman Test

log (Unemployment)	-0.4527535	-0.452973	0.0002195	0.0049913
log (Trade)	0.4173418	0.4170839	0.0002579	0.0066741
Chi2 (2)	0.35			
Prob > chi2	0.1988			

Source: Own Research

To determine the appropriate model for interpretation, fixed or random effects, a Hausman specification test was conducted (Table 3). The test yielded a Chi^2 statistic of 0.35 with a p-value of 0.1988, indicating that the null hypothesis cannot be rejected. Therefore, the random effects model is more appropriate for the analysis, as it allows for time-invariant differences across entities without compromising the consistency of the estimates.

Conclusion

In this paper, evidence is given regarding the relationship between unemployment, trade and economic growth in the Western Balkan countries during the period 2000-2023. It is found that unemployment rate reduction and trade openness are necessary factors to improve the situation in the region. Consistent conclusions have been reached under the application of both fixed and random effect models. Besides, the results of the Hausman test justify the use of the random effect model as an appropriate model for analysis and estimation.

As policy recommendation in line with the findings of this research is that labor market policy measures for decreasing unemployment should be priority for governments of these countries to address this issue, especially for countries with higher unemployment rate. Alongside this, efforts should also be made to deeper regional integration into trade. As the Western Balkan area experiences a complex geopolitical environment and dynamic economies, it would be interesting to conduct research in the field, considering additional aspects such as foreign investments and trade balance by sectors.

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