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EVALUATING MACROECONOMIC FACTORS AND THEIR INFLUENCE ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM WESTERN BALKAN ECONOMIES

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Abstract: This research aimed to identify and evaluate the impact of some macroeconomic components on economic growth performance. The data applied in the analysis were secondary data, including six countries from 2005 to 2020. The econometric approach applied was the fixed effect regression approach to economic growth as a dependent variable. The study also applied several diagnostic tests and the Hausman test to select between fixed and random effects. The data provided after the analysis show that inflation and foreign direct investment have a significant positive impact, while public debt has a significant negative impact. Moreover, unemployment and population growth have shown statistically insignificant results. The study from the aspect of the original contribution provides arguments and applies two variables that are very little addressed in the context of economic growth. The study results provide critical information for policymakers, economists, and researchers and provide arguments for a sound and proactive debate on these variables.

Keywords: Banks; Economic Growth; Panel Data; Public Debt; Inflation

INTRODUCTION

The core objective of the governing body of each country is to create an adequate economic concept and then implement appropriate economic measures acceptable to a given country at a given point in time. Since there is no unique economic concept in the world, there is no universal solution that can be applied to the circumstances of all economies at any time, which makes it even more challenging to find an adequate solution in a time of global economic crisis. Consequently, the focus of this research is to explore the macroeconomic components that influence economic growth. Numerous theoretical and empirical research has been conducted on economic growth. Whereas economic growth modeling theory contributes to examining economic growth, empirical models employ data to identify networks that influence economic growth. Growth philosophy by Solow and endogenous growth models are commonly used as general frameworks; however, many researchers have modified the original model based on growth sensitivity and its elements in their studies.

Economic growth is the dependent variable, whereas the independent variables are inflation, government debt, population growth, unemployment, and foreign investment.

The Western Balkans (WB) have outperformed other more developed transition economies in economic growth in the previous two decades. The history of wars in most countries included in the research is the cause of this stagnation, except in Montenegro and Albania, where the consequences of these events are apparent even now in terms of the European integration process. Another concerning point is that the European Union has offered continued financial and technical assistance to each country, even though these countries have not made adequate improvements. Thus, a review of economic growth drivers can shed light on the reasons limiting economic growth in WB countries. Therefore, to investigate these components, we attempt to answer the following research questions:

(RQ1): Which factors limited economic growth?

(RQ2): Which economic strategies may be used to reduce these limitations?

The research contributes to the expansion of the literature, as there is much interest in the determinants that affect economic growth, especially for these countries' fragile systems. The originality of this study lies in the fact that it has the latest data published by the World Bank and the application of an adequate dynamic approach to achieving sustainable results. Empirical findings are essential for young researchers and academics and significant for state-level policy-making structures.

LITERATURE REVIEW

Measuring macroeconomic parameters has always been and continues to be a challenging task for scholars and policymakers in both developed and undeveloped countries. Numerous researchers have performed research using various models to arrive at an argument about the relationships among these factors. It is essential to mention a serious disagreement between the studies conducted so far regarding their influence on global economic growth. However, a limited number of studies exist for eurozone economies, particularly for the Western Balkan economies. In addition, several conclusions address the macroeconomic indications that influence economic growth. The following section will comprehensively analyze each parameter used in the study, including theoretical and empirical assessments.

The study conducted by Hausmann *et al.* (2006) applied the decision tree method to classify binding restrictions for different states. The tree method as a diagnostic analysis is based on the execution of short-term restrictions, initially defining the conditions that characterize the economy. The economic activity of low-income countries should be limited by at least one of the following two factors: the high cost of finance or the low private return on investment. Many authors have tried to identify some of the main factors that affect economic growth, addressing a set of countries (panel analysis) and individual countries. For the countries apostrophized in the analysis, identifying these factors is a complex issue as these countries are making deep reforms in political and economic issues.

Numerous studies are conducted for WB countries to analyze the explanatory variables through different empirical approaches. In the special report on regional economic issues, the authors Murgasova *et al.* (2015) analyzed the driving factors for WB economies. The authors argued that capital accumulation and overall productivity factors were the most significant growth drivers in the new Member States and the WB countries.

Tsounta (2014) nevertheless found that higher factors of total productivity influenced growth in emerging market economies during the period 2000-2012. Other studies provided different explanations for the low contribution of labor and human capital to GDP growth in the Western Balkans. Gabrisch (2015) used the panel regression analysis when applying the growth diagnostic approach to identify the limitations to economic growth in the Western Balkan countries. These results show that the primary binding restrictions are non-performing loans in the private sector. In addition to these findings, the findings of the IMF report (Murgasova *et al.* 2015) argued that non-performing loans (NPLs) in the Western Balkans' debt collection procedure are slower due to internal factors including legal, jurisdictional, tax, and regulatory barriers.

Public debt (PD) is indeed one of the components that have been identified as an influencing factor in economic growth across numerous observed revisions. Demetrios *et al.* (2021) examined the countries of Asia in the panel employing a variety of econometric methodologies from 1980 to 2012. Moreover, they used the asymmetric panel ARDL method to observe the influence of PD; then, their results suggest that a rise in PD is directly inversely allied with economic growth. Furthermore, Fetai *et al.* (2020) discovered that a low level of PD has a positive consequence on economic growth. A greater level of PD harms economic progress by analyzing European states in the transition phase above the PD threshold using a series of econometric methods. The most recent study, performed by Law *et al.* (2021), examined emerging economies using nonlinear analysis and the PD threshold to offer empirical evidence on the value of the PD threshold also its influence on economic progress. Their outcomes demonstrated that PD, with a value of 51.65 percent, has a considerable negative influence on economic progress. At the same time, economies with lower PD levels have shown to be insignificant in economic growth. However, there is research whose conclusions contradict the above findings. Authors Marmullaku *et al.* (2021), addressing the association between PD and economic development for European countries in transition using a combination of static and dynamic approaches, suggest that PD via public investment has a considerable beneficial influence on economic development. Therefore, based on a review of the empirical literature, we may conclude that there is a latent consensus that public debt (PD) has no negative effect while it is low, but increases over 51.65 percent hinder economic growth. Several of the economies covered in this research exceed the proclaimed threshold, and descriptive statistics show that Albania and Montenegro had rates higher than 70 percent.

On the other side, inflation (INF) is a vital feature that affects economic expansion. Even researchers do not reach a consensus in this part but argue different effects. Thus, Carvahlo *et al.* (2017), in their revision theoretical and empirical investigation of economic growth and INF discovery that there is an inverse and low association between INF steadiness and economic expansion. In this revision, 65 countries were analyzed through the GLS estimator, including the period 2001 to 2011.

Arguments in the same constellation were reached by Hu *et al.* (2021), analyzing INF, endogenous quality growth, and economic expansion. Their quantifiable inspection discoveries that the association across INF and growth usually is bumpy, but the effect on INF well-being is negative. Using the structural approach VAR, Djurovic and Bojaj (2021) have investigated the effects ranging from the onset of the financial crisis, the reflection of economic governance on INF, and the dynamics of economic expansion for each of the Western Balkan (WB) countries including January 2006 by December 2018. The study's findings conclude that WB policymakers understand the impact of institutional power on sustainable development at the national level.

On the other hand, we have steered research that contradicts the abovementioned findings. Kryeziu and Durguti (2019), applying the multivariable regression analysis, have observed the Eurozone countries, including the 2001-2017 period, and settled that there is a confident association between INF and economic development. To reinforce the view that there is a positive association across them for WB countries, Durguti (2020) has studied this relationship using the vector error correction model [VECM], including the period 2001 to 2017. Furthermore, Durguti *et al.* (2021), in an analysis of a panel for WB countries using the dynamic fixed effect approach and GMM Arellano-Bover/Blundell-Bond, concluded that there is a confident association between INF and economic development.

Additional variables included in the study were unemployment (UER) and population growth rate (POP), both of which have been the subject of extensive scientific study. In the vast majority of them, it has been concluded that there is no stable relationship. Evaluating Okun's Law by Conteh (2021) analyzed the impact of UER on economic growth in the instance of Liberia. Using the Granger Causality test and ARLD method, there is a neglected link equally in the short and long run. Whereas, while examining the WB countries, Ziberi and Alili (2021), using fixed-effect, have argued that there is a negative association, but it is not significant between these factors. Finally, foreign direct investment (FDI), which has a considerable effect on economic progress, has attracted the curiosity of academics.

As a consequence, several authors have contributed to this topic. Through various statistical techniques spanning the years 2004 to 2018, the authors Shkodra *et al.* (2021) discovered an important confident link between FDI and economic development for the economies of the Western Balkans. On the other side, the authors Estrin and Uvalic (2016) discovered that FDI influenced economic development in their study of WB countries in contrast to Central East European countries.

ECONOMETRIC ANALYSIS

Data and Sample

The sample included in the study consists of 6 WB countries (Kosovo, Albania, North Macedonia, Montenegro, Bosnia and Herzegovina, and Serbia), covering the period 2005 to 2020 with a total of 96 observations. Panel data were used in this study, and these data were provided by official statistics published by the World Bank (WB) for each country in particular and then processed to fit the research. The data provided is considered credible, based on the argument that most studies have as a reference point the World Bank database, respectively

World Bank Indicators. Based on previous studies conducted by different authors, different techniques have been used to reach the most accurate conclusions.

Therefore, our research involves a good combination of issues, including important macroeconomic determining factors on the one hand and data availability on the other. Numerous authors have applied different models to test the impact of macroeconomic causes to evaluate their impact on economic growth. The most suitable models for this study are dynamic approaches starting from the fixed-effect model, GMM estimator, and 2SLS, as this method calculates data endogeneity and robustness of instruments to assess interdependence between macroeconomic factors and economic growth. Therefore, based on the arguments presented above, the primary purpose of the research is to examine macroeconomic factors and the degree of their influence on economic growth for WB countries for the period tested. Research conducted in this dimension argues that macroeconomic determinants are investigated to identify which parameters should be oriented toward policy-making groups in the future. Based on this premise, an empirical method for variable selection and model application was developed based on Ziberi and Alili's (2021) research and Durguti *et al.* (2020).

Variables and Statistical Explanations

The study has defined economic growth as a dependent variable and some of the most important macroeconomic factors as independent variables based on recent studies on macroeconomic determinants and their impact on economic growth. After completing several diagnostic tests and based on their results, fixed effect regression was used to reach this objective. Fixed effect regression proved to be the most appropriate model for the data used in the research. Many studies (Ziberi and Alili 2021; Durguti *et al.* 2020; Fetai, Mustafi, and Fetai 2017; Durguti *et al.* 2021) have applied such approaches with a focus on fixed-effects regression but applying other dynamic models as well. Therefore, the study was conducted mainly in this research, but with some changes in selecting some other variables. Table 1 presents the description of the variables in abbreviations, the general explanation, and the data source.

Table 1: Variable Definitions and Data Source (Source: Authors' compilation)

Variable Name	Variable Label	Data Source
<i>Dependent Variable</i>		
GDP_{growth}	Gross Domestic Product Growth (%)	World Bank Indicators
<i>Independent variables</i>		
PD	Public Debt-to-GDP	World Bank Indicators
INF	Inflation Rate	World Bank Indicators
UER	Unemployment Rate	World Bank Indicators
POP	Population Growth Rate	World Bank Indicators
FDI	Foreign Direct Investment	World Bank Indicators

Table 2 presents the descriptive data for each of the parameters, the influence of which on economic growth is being explored with the dependent one. This evidence contains the sample sizes, mean, deviation, and minimal and maximal values.

Table 2: Descriptive Analysis (Source: Authors' calculation)

Variables	Obs.	Mean	S. D	Min	Max
Albania					
GDP_g	16	3.1527	2.6324	-3.9553	7.5000
PD	16	64.6612	7.5090	53.5000	74.1800
INF	16	2.2575	0.7161	1.3000	3.6000
UER	16	14.4906	1.9841	11.4700	18.0600
POP	16	-0.4033	0.2292	-0.7673	-0.0919
FDI	16	7.8785	2.0684	3.2597	11.1706
Bosnia and Herzegovina					
GDP_g	16	2.4689	3.1677	-3.1969	8.8000
PD	16	35.8000	8.3544	18.7000	45.8000
INF	16	1.4382	2.6257	-1.6000	7.4000
UER	16	25.0281	4.7844	15.6900	31.1100
POP	16	-0.8590	0.6079	-1.7453	0.0302
FDI	16	3.5038	2.6651	0.7863	11.6737
Kosovo					
GDP_g	16	3.5974	2.7678	-5.3402	7.2000
PD	16	12.2075	4.3475	5.2000	17.5000
INF	16	1.9736	3.0629	-2.4000	9.4000
UER	16	27.0000	3.0460	22.4000	33.4500
POP	16	0.2541	0.7246	-1.3649	0.8952
FDI	16	6.7864	3.2636	2.8254	12.0300
Montenegro					
GDP_g	16	2.1558	5.8154	-15.3068	8.6000
PD	16	55.5143	16.0057	31.7000	79.3000
INF	16	2.1003	2.3645	-0.7000	9.0000
UER	16	19.0462	3.8013	15.1200	30.3100
POP	16	0.0805	0.0893	-0.1161	0.2145
FDI	16	16.2607	8.9172	5.1828	37.2724
North Macedonia					
GDP_g	16	2.6369	2.7571	-5.2084	6.4000
PD	16	33.3393	7.3246	20.6000	43.2300
INF	16	1.6672	2.2075	-0.7000	8.3000
UER	16	28.3856	6.3134	17.2600	37.2500
POP	16	0.1217	0.0988	-0.2006	0.2118
FDI	16	4.1935	1.9040	0.5358	8.7982

Serbia					
GDP_g	16	2.6369	2.7571	-5.2084	6.4000
PD	16	33.3393	7.3246	20.6000	43.2300
INF	16	1.6672	2.2075	-0.7000	8.3000
UER	16	28.3856	6.3134	17.2600	37.2500
POP	16	0.1217	0.0988	-0.2006	0.2118
FDI	16	4.1935	1.9040	0.5358	8.7982

According to the statistics reported for WB economies, Bosnia and Herzegovina had the highest economic growth over the studied period at 8.8 percent, while Montenegro had the lowest economic value at 15.3 percent. Albania leads with 64.7 percent of GDP in public government debt, while Kosovo has the lowest value at 12.2 percent of GDP. The mean inflation rate in all WB economies ranges from 1.4 percent to 2.3 percent. Kosovo had the highest inflation rate of 9.4 percent, and Montenegro with a rate of 9.0 percent.

The mean employment value for WB economies throughout the observation time is as follows: (Kosovo 27.0; Albania 14.4; Bosnia and Herzegovina 25.0; North Macedonia 28.4; Montenegro 19.0; and Serbia 28.4). The study conclusively demonstrates that the economies covered in the studies have serious unemployment challenges. Although North Macedonia and Serbia had the highest mean value unemployment rate during the observed period (37.3 percent), it was followed by Kosovo (33.5 percent), Bosnia and Herzegovina (31.1 percent), Montenegro (30.3%), and Albania (18.0%). The mean annual population growth rate varies between countries, with Albania having a negative rate of -0.4 percent and Bosnia and Herzegovina having a negative rate of -0.8 percent, while other countries have positive growth with a substantial variation in Kosovo of 0.3 percent. Montenegro has the highest mean value of foreign direct investment at 16.3 percent of GDP, with minor variances in other economies. Other statistics are reported in further detail in Table 2.

Table 3: Correlation Analysis (Source: Authors' calculation)

	GDP_g	PD	INF	UER	POP	FDI
GDP_g	1.0000					
PD	-0.2533	1.0000				
INF	0.2445	-0.1018	1.0000			
UER	0.1311	-0.2831	-0.0762	1.0000		
POP	0.1867	-0.3325	0.0994	0.1867	1.0000	
FDI	0.1283	0.0847	0.2305	-0.1947	0.3297	1.0000

Furthermore, the outcomes from the correlation analysis exposed in Table 2 show that the factors correlate with them. It is noted that the problem with multicollinearity does not exist as only some of the factors have a moderate association among themselves. The GDP_g growth has positive associations with inflation, unemployment, population growth, and foreign investment, while adverse associations exist between public debt and GDP_g growth. At the same time, other correlations are presented in detail in Table 3.

Model Specification

The empirical method used to choose the correct evaluation approach is discussed in this section. Several prior empirical studies have attempted to identify the drivers of economic growth. Nevertheless, as emphasized in this research, growth theories are diverse, and as a result, several different perspectives have been proposed. Due to the diversity of viewpoints, identifying the most effective policies to drive growth is challenging and complex (Moral-Benito 2009). We matched the Fixed Effects (FE) and Random Effects (RE) models for panel data using the standard approach. However, the preferred model is FE, which is more suitable for small samples and can be evaluated for balanced panels, as is the case in this research. To decide between these two models, Hausman's chi-square statistics were used. A considerable value from this test will support FE over RE.

Table 4: Comparison of FE and RE (Source: Authors' calculation)

Tests	T-statistic (TS)	Probability [p]	<>	CV [5%]	Decision
F test that all $u_i = 0$:	F (5.85) = 3.77	0.004	>	2.12	If TS>CV → Reject H_o (Supports Fixed Effects)
$H_o; \sigma_u^2 = 0$	Chi2(5) = 13.75	0.023	>	15.57	If TS<CV → Reject H_o (Reject Random Effects)

We test the null hypothesis that individual-specific random unobserved effects and regressors are uncorrelated. According to this test, the difference between the evaluators is small in its variance according to FE, so there is no systematic variance among the evaluators, which suggests that the FE evaluator is biased and consistent. Whereas the value of the chi-square test for RE, the value of T-statistics is less than the value of the constant of variance and, as such, suggests we exclude H_o (see Table 4). Furthermore, based on these findings, our analysis will be based on the selection of the FE model.

The following growth model is specified in the literature discussed in the second section and the availability of data for the countries included in the sample.

$$Y_{it} = \alpha_0 + \beta_1 X_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Where:

i ;- indexes countries, t ;- the period; γ_{it} ;- represents the dependent variable GDP growth (annual %), X_{it} ;- represent a set of growth determining factors, including those suggested by previous empirical studies therefore PD, INF, UER, POP, FDI, and ε_{it} ;- is the error term.

Therefore, in the following, we will present the general equation of FE.

$$GDP_g_{it} = \alpha + \beta_1(PD_{it}) + \beta_2(INF_{it}) + \beta_3(UER_{it}) + \beta_4(POP_{it}) + \beta_5(FDI_{it}) + \varepsilon_{it} \dots \dots \dots (2)$$

Econometric Findings

A fixed-effect model was employed to investigate the connection between independent and dependent factors. The Hausman test was used to examine the hypothesized model. Table 5 displays the results obtained: The R² coefficient of determination is 0.323, which signifies that the fixed-effect model describes 32.3 percent of the variability in economic growth. In contrast, other factors describe the remaining variability. The statistical value of the F-test is 5.85 (*p-value*=0.004), indicating that the hypothesis of a significant linear connection relating dependent and independent variables is accepted at a significance level of 5 percent. Durbin-Watson test results of 1,691 indicate that there is no autocorrelation. Lastly, the heteroskedasticity test was used, and the result shows that the data do not concern heteroscedasticity since the value of χ^2 is (*p*=0.056), suggesting that it is more than α =0.05.

Table 5: Parameter Estimates (Source: Authors' calculation)

	Fixed effect (1)	Random effect (2)
<i>_cons</i>	5.4736*	3.5005**
PD	-0.0998**	-0.0374**
INF	0.1262***	0.2141**
UER	0.0655	0.0003
POP	0.9995	0.4267
FDI	0.0105**	0.0456**
<i>Diagnostic Tests</i>		
R²	32.26	15.57
F-test	F(5.85) [<i>p</i> =0.004]	"_"
Wald chi2	"_"	Chi2(13.75) [<i>p</i> =0.023]
χ^2heteroscedasticity		0.056
Durbin-Watson		1.691
VIF (Mean value)		1.56
Observation	96	96
Groups	6	6

Note: *** *p*<0.01, ** *p*<0.05, * *p*<0.1.

Based on the outcomes observed in Table 5, respectively (β constant then *p-value*) of the indicator public debt has a negative association (β =-0.0998**) with GDP growth for WB states. The outcomes obtained are reliable to the authors Dimitrios *et al.* (2021), who argue that an increasing change in public debt for Asian states harms GDP in the short and long term. Bexheti *et al.* (2020) have reached the same conclusion by analyzing the association between public debt and GDP growth for the WB. The outcomes of this revision suggest a weak negative association between these two parameters. Analyzing the Eurozone economies, Pegkas *et al.* (2020) have argued that there is a negative link between public debt and economic development in the long run. However, the research results are inconsistent with the revision steered by Fetai *et al.* (2020),

where the correlation between these two variables has been addressed through OLS, fixed-effect, and GMM, which have argued that there is a positive link including public debt and GDP.

As mentioned above in the descriptive statistics, WB economies have common characteristics, where the inflation rate in most of them was in an almost identical range, with some minor exceptions. Therefore, based on the results provided by the econometric analysis, it is noticed that ($\beta=0.1262^{***}$) has a significant favorable influence on the level of reliability of 1 percent. From this, we can conclude that any change in the inflation rate will affect economic growth for WB countries. Different researchers concerning these two indicators have conducted many studies. However, the consistency of the results will be mainly related to studies related to Eurozone countries and WB countries, whether as a panel analysis or individual research. The study results are consistent with the study conducted by Kryeziu and Durguti (2019). They analyzed Eurozone countries applying multi-linear regression analysis and argued that there is a significant positive relationship between inflation and economic growth. Moreover, the identical results investigating the WB economies have been argued by Durguti *et al.* (2021) that there is a positive association between these two variables. Whereas, the contradictory results of this study turn out to be with the author Nene *et al.* (2022), where they have argued that in the countries of some African economies, they have a positive impact, while in the countries of Europe, they have a significant negative impact.

The study marks for UER and POP did not distinguish from predictions, as ($\beta=0.0655$ for UER, and $\beta=0.9995$) were shown to have an unimportant effect on economic expansion. These results are comparable with Ziberi and Alili's (2021) research, which used the fixed-effect model to assess if there is a link relating to UER, POP, and economic growth in Western Balkan (WB) economies. According to the findings of this analysis, there is no significant relationship between them. Foreign direct investment has been treated by many researchers and is considered a significant contributor to economic growth. Econometric results show that FDI significantly impacts the 1 percent confidence level. This means that any increase in FDI means economic growth and vice versa. The results of this study are in line with the authors Bahizi *et al.* (2020) and Ziberi and Alili (2021), advocating that there is a positive correlation between FDI and economic growth.

CONCLUSION

As a material basis on which the interest of various groups, starting with scholars, is being disseminated, policy-making structures have been the subject of studies in economic theories for decades. The special attention of researchers is drawn to the factors that influence GDP growth, especially the macroeconomic factors that are considered vital for economic growth. This research focuses on determining the macroeconomic policy factors in the Western Balkan countries (Kosovo, Albania, North Macedonia, Bosnia and Herzegovina, Montenegro, and Serbia) by applying the dynamic approach through a fixed-effect model. From a choice of five determinants (public debt, inflation, unemployment rate, population growth, and foreign direct investment) whose impact on economic growth was examined in the paper, we concluded that only two could not explain their impact on the dependent variable.

The study also has some limitations in the representation of the observed period, as in total, we have 16 observations for each country in particular, and there are 96 observations in total. Therefore, it is recommended to expand the spatial and temporal observation of variables to reduce errors and increase the accuracy of the findings. Nevertheless, these results will not differ from an actual situation, which can be seen as an orientation compass for investigating the factors that affect economic development.

The results imply several policy implications, including reducing public debt and unemployment rates and creating favorable conditions for increasing FDI. WB economies need an expansion and proactive approach to facilitating and eliminating bureaucratic procedures in creating an environment that will strengthen the links between trade and economic growth and consequently reduce unemployment.

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This article does not contain any studies with human participants performed by any authors.

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