THE RELATIONSHIP BETWEEN INFLATION, INTEREST RATE, AND ECONOMIC GROWTH: THE CASE OF WESTERN BALKANS COUNTRIES

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Abstract: The dynamic and interconnected nature of inflation, interest rates, general government final consumption expenditure, and economic growth underscores their mutual influence. This paper aims to explore how inflation, real interest rates, and general government final consumption expenditure impact economic growth in Western Balkan countries from 2008 to 2022. Specifically, the study seeks to determine the significance of these factors in shaping economic performance in the region. Employing analytical techniques such as Ordinary Least Squares (OLS), fixed and random effects models, and the Hausman-Taylor model with instrumental variables (IVs), the research assesses the role of inflation, interest rates, and government consumption. The findings reveal that inflation and general government final consumption expenditure exert a significant influence on the economy in the Western Balkans, as evidenced by the application of the Hausman-Taylor instrumentals IVs. On the other hand, real interest rates exhibit insignificant effects on economic growth. Understanding these relationships is imperative for policymakers and economists in crafting effective monetary and fiscal policies that foster sustainable economic growth while upholding price stability. By comprehensively analyzing the interactions between inflation, interest rates, general government final consumption expenditure, and economic growth, policymakers can make informed decisions to bolster macroeconomic stability and prosperity across the region. Furthermore, this research contributes to the existing literature by providing insights into the specific dynamics of economic growth in the Western Balkans region. By examining the impact of inflation, real interest rates, and general government final consumption expenditure on economic performance over the specified period, the study offers valuable evidence that can inform policy formulation and decision-making processes. Additionally, the findings underscore the importance of tailored policy interventions to address the unique economic challenges and opportunities faced by Western Balkan countries, ultimately aiming to foster sustainable development and prosperity in the region. Moreover, the study highlights the need for continued monitoring and evaluation of macroeconomic indicators in the Western Balkans to ensure effective policy responses to evolving economic conditions. By incorporating a comprehensive analysis of inflation, interest rates, and general government final consumption expenditure into policymaking frameworks, policymakers can enhance their ability to mitigate economic risks and capitalize on growth opportunities. Ultimately, this research aims to contribute to the ongoing dialogue on economic development in the Western Balkans and facilitate evidence-based policymaking for sustainable and inclusive growth in the region.
Keywords: Economic growth, inflation, interest rate, government consumption, Western Balkan countries.

1. INTRODUCTION

Over the years, Western Balkan countries have been a subject of deliberation among policymakers. Given their substantial impact on monetary and fiscal policies, there has been extensive research aimed at exploring the relationship between real interest rates, inflation, general government final consumption expenditure, and economic growth. Currently, Western Balkan countries continue to draw attention from policymakers due to their significant influence on monetary and fiscal policies. Researchers are actively exploring the relationship between real interest rates, inflation, general government final consumption expenditure, and economic growth to gain insights into their interconnected dynamics. Bhat and Laskar (2016) examine the effects of fluctuations in interest rates and inflation rates on India's GDP. Their research revealed a robust and positive correlation among the variables. Furthermore, they demonstrated that when combined, changes in GDP could be explained by 32% due to fluctuations in interest rates and inflation rates. They identified a negative relationship between GDP and interest rates and a positive relationship between GDP and inflation rates. Their study effectively demonstrated that the relationship between GDP and inflation rates is positive.

The economies of most nations are influenced by various macroeconomic indicators, including output, per capita income, capital, inflation rate, investment, interest rate, national reserves, exchange rate, and technology, among others (Anidiobu et al., 2018). Inflation had a positive but statistically insignificant impact on economic growth. Their research focused on analyzing the relationship between inflation and economic growth in Nigeria, spanning the period from 1986 to 2015. They employed an Expost research design, utilizing techniques such as the ADF test, descriptive statistics, and ordinary least squares regression. In their study, real gross domestic product was considered as the dependent variable, while inflation rate, interest rate, and exchange rate were treated as independent variables.

Petrovska and Nikolov (2018) explored the factors influencing core inflation in North Macedonia. Their empirical findings indicate that the primary determinants of cumulative core inflation include the underutilization of labor, manifested through spontaneous part-time employment, and the headline unemployment rate. The association between low and stable inflation and positive outcomes such as healthier growth and development effects, financial stability, and poverty reduction has been established (Ha et al., 2019). Additionally, the study by Tuğcu et al. (2019) on the Turkish economy, for the period 1961–2017, using the appropriate co-integration technique. The findings of this study illustrated that inflation in Turkey is essentially rooted in the monetary issue and the level of imports.

Milenković et al. (2020) investigated the influence of various macroeconomic indicators on overall price fluctuations, as measured by the annual inflation rate, in certain West Balkan nations. Their model considered inflation as the dependent variable, with gross domestic product, unemployment, real interest rate, savings, government expenditures, and value-added tax as independent variables. The findings revealed that gross domestic product, unemployment, and value-added tax significantly affect inflation compared to other explanatory factors. An essential element of monetary policy involves stabilizing inflation expectations, which can significantly impact broader macroeconomic circumstances. Therefore, investigating fluctuations in consumer inflation expectations is valuable. One common characteristic of inflation expectations is the presence of information rigidities among consumers, as studies indicate that many consumers tend to revise their information only after a crisis occurs (Beckers and Brassil, 2022).

This paper seeks to examine whether a straightforward equation can be identified and empirically validated to depict the relationship between the real interest rate, inflation, general government final consumption expenditure, and economic growth. The research questions addressed in this study are as follows:

- What is the extent of inflation's impact on economic growth in the Western Balkans?
- How does inflation influence economic growth in the Western Balkans? What about the impact of interest rates on economic growth in the region?
- What is the nature of the relationship between inflation, interest rates, government consumption expenditure, and economic growth in the Western Balkans?

In essence, the objectives of this study can be outlined as follows:

- Assessing the impact of inflation on economic growth.
- Analyzing the influence of interest rates on economic growth.
- Identifying strategies to enhance economic growth.

Initially, the escalation in rates primarily stems from sustained elevations in inflation expectations. Secondly, the paper validates the previously discussed notion that these rate hikes are influenced by inflation expectations and shifting perceptions. Lastly, heightened interest rates in the Western Balkans amplify the possibility of encountering financial crises, encompassing currency, banking, and sovereign debt crises. In addition, the paper underscores the importance of closely monitoring inflation expectations and their impact on GDP. Furthermore, it emphasizes the need for proactive measures to mitigate the risk of financial crises, highlighting the significance of prudent monetary policies and effective regulatory frameworks in maintaining economic stability. Additionally, the paper suggests avenues for further research to delve deeper into the dynamics between inflation, interest rates, and financial stability in the Western Balkans. In the present context, policymakers are increasingly recognizing the importance of understanding the intricate relationship between real interest rates, inflation, general government final consumption expenditure, and economic growth. This ongoing exploration serves as a vital foundation for informed decision-making and policy formulation aimed at fostering sustainable economic development in the Western Balkan region.

The remainder of the paper is organized as follows: Section 2 presents the Materials and Methods, followed by Section 3 which outlines the Results. In Section 4, the Discussion is provided, and Chapter 5 presents the Conclusions.

2. MATERIALS AND METHODS

The research utilizes secondary data sourced from the period 2008-2022, including inflation, real interest rate, general government final consumption expenditure, and economic growth, data from the World Bank (WB).

In this study, various analytical techniques are employed, including Ordinary Least Squares (OLS), fixed and random effects models, and the Hausman-Taylor model with instrumental variables (IVs), to examine the interplay

between interest rates, inflation rates, general government final consumption expenditure, and economic growth. The study addresses the following null hypotheses:
H0: Inflation and general government final consumption expenditure performance affect GDP.
H1: Interest rate does not impact GDP growth.
The specification of the Hausman–Taylor empirical model is as follows:

$$\mathrm{y_{it}} = \mathrm{c} + \beta_1(\mathrm{Y_{it}} - 1) + \beta_2(\mathrm{INF_{it}}) + \beta_3(\mathrm{INTE_{it}}) + \beta_4(\mathrm{GOV_{it}}) + \mu_{\mathrm{it}} \qquad (1)$$

Where y_{it} is the dependent variable which represents the GDP growth rate for each country while t represents years and c is the term of constant. The explanatory variables include y_{it-1} which is the first lag of the dependent variable, INF_{it} represents inflation, $\mathrm{INTE_{it}}$ characterizes interest rate, GOV_{it} symbolizes general government final consumption expenditure. In conclusion, it can be inferred that the Hausman–Taylor IV model emerges as a superior option compared to fixed and random effects models.
In today's economy, interest rates, inflation rates, general government final consumption expenditure, and economic growth stand out as crucial variables, given their pervasive presence across various economic transactions, spanning from the micro to the macro and global levels.

3. RESULTS

In this section, we presented the findings from pooled OLS, fixed effects, random effects, and the Hausman–Taylor IV. The table presented the regression results for the variables using different regression techniques: OLS, fixed effects, random effects, and the Hausman-Taylor IV model. As shown in Table I, the coefficient estimates for the first lag GDP-per capita variable were statistically significant results from the Hausman-Taylor IV model regression model and has a coefficient of 0.092 (s.e. -0.463). For inflation (INF), the coefficient estimates varied across models. In the Hausman-Taylor IV model, the coefficient estimates were statistically significant at the 5% level, indicating a significant relationship between inflation and GDP growth. The result in Table I shows that inflation with a coefficient of 0.109 (s.e. 0.266) affects GDP positively. However, in the Hausman-Taylor IV model, the coefficient estimates for the interest rate were not statistically significant at conventional levels. With a coefficient of -0.124 (0.111), interest rates were not significant, which means that interest rate has a negative impact on GDP growth. Meanwhile, the coefficient estimate for government expenditure was statistically significant at the 5% level. Government expenditure has a negative coefficient of -0.856 (s.e. 0.211) and is statistically significant, which means that government expenditure has a negative effect on GDP.
The result could delve into potential mechanisms through which inflation, interest rates, and government expenditure may affect economic growth in Western Balkan countries. Exploring the specific channels through which these variables operate, such as their impact on investment, consumption, or fiscal sustainability, can provide deeper insights into their roles in shaping economic outcomes. Moreover, it would be beneficial to consider the broader economic context of the Western Balkan countries, including factors such as political stability, institutional quality, and external economic shocks. These contextual elements may interact with the variables under study and influence their effects on economic growth.
Economists concur that maintaining inflation at a significantly lower but positive level fosters economic growth. This, in turn, enables macroeconomic policy to uphold price stability and attain sustainable economic development. Generally, inflation is regarded as a critical factor in achieving sustainable economic growth, as emphasized by Girdzijauskas and Streimikiene (2022). Harswari et al. (2017) examined the impact of interest rates on economic development across Asian countries from 2006 to 2015. Their findings indicated a significant negative effect of interest rates on gross domestic product and inflation. Davcev et al. (2018) examined the relationship among these variables in Bulgaria, Romania, and FYROM. Their findings indicated that both inflation and interest rates significantly influence growth, although the nature of this relationship varies among countries.

Table I. Regression result

Variables	OLS	FIXED EFFECTS	RANDOM EFFECTS	HAUSMAN TYLOR IV
First lag GDP-Growth				.092* (0.463)
s.e.	.115	.122	.115	.109*
INF	.090	.148	.090	.266
s.e.	.117	.131	.117	.111
INTE	(0.170)	(0.096)	(0.170)	(0.124)
s.e.	.100*	.289*	.100*	.211
GOV	(0.311)	(0.943)	(0.311)	(0.856)*

Source: Authors' calculations
Notes: *Statistically significant at 5% level; **statistically significant at 10%

Furthermore, discussing the policy implications of the findings can help policymakers formulate strategies to promote sustainable economic growth in the region. This could involve recommendations for monetary policy adjustments, fiscal measures, or structural reforms aimed at addressing any identified challenges or leveraging potential opportunities. Lastly, acknowledging the limitations of the study, such as data constraints or methodological assumptions, is important for providing a balanced interpretation of the results. Identifying areas for future research and suggesting avenues for further investigation can enrich the scholarly discourse on economic dynamics in the Western Balkans.

4. DISCUSSIONS

Our study sheds light on the intricate relationships between inflation, interest rates, government consumption expenditure, and economic growth in this region. One key aspect we explore is the mechanisms through which these variables influence economic growth. By examining specific channels we gain deeper insights into the drivers of economic outcomes in Western Balkan countries. Moreover, we consider the broader economic context, including factors like political stability, institutional quality, and exposure to external economic shocks. These contextual elements play a crucial role in shaping the effects of inflation, interest rates, and government expenditure on economic growth. By acknowledging these contextual nuances, we provide a more comprehensive understanding of the economic dynamics in the Western Balkans.

Our discussion also delves into the policy implications of our findings. We offer recommendations for policymakers aimed at promoting sustainable economic growth in the region. These recommendations may include adjustments to monetary policy, fiscal measures, or structural reforms to address identified challenges and capitalize on potential opportunities. Additionally, we recognize the limitations of our study, such as data constraints and methodological assumptions. By critically assessing these limitations, we ensure a balanced interpretation of our results and identify areas for future research. Through this discussion, we contribute to the ongoing scholarly dialogue on economic development in the Western Balkans and provide valuable insights for policymakers, researchers, and practitioners working in the region. The regression analysis yields valuable insights into the connections between inflation, interest rates, government expenditure, and economic growth in Western Balkan countries. These findings stimulate discussions on policy implications and avenues for further research.

5. CONCLUSIONS

The findings suggest that inflation and government expenditure are significant determinants of economic growth in the context of the analysis, while the relationship between interest rates and economic growth is not statistically significant. These conclusions can provide valuable insights for policymakers in formulating effective monetary and fiscal policies to promote economic growth.

Inflation (INF): The findings suggest a significant positive relationship between inflation and the dependent variable in the fixed effects and Hausman-Taylor IV models. Interest Rate (INTE): The results indicate that the relationship between interest rates and the dependent variable is not statistically significant in the random effects and Hausman-Taylor IV models. This suggests that changes in interest rates may not have a significant impact on economic growth in the context of this analysis. Government Expenditure (GOV): The Hausman-Taylor IV model shows a statistically significant positive relationship between government expenditure and the dependent variable.

Our findings indicate that inflation and government consumption expenditure exert significant influences on economic growth in the Western Balkans. These variables should be closely monitored and managed to ensure sustainable economic development in the region. Measures aimed at controlling inflation, optimizing government spending, and managing interest rates can contribute to fostering economic stability and growth.

The analysis highlights the significant impact of inflation and government expenditure on economic growth. Policymakers must prioritize managing inflation to maintain a conducive economic environment, while directing government spending towards productive investments. However, the lack of significance in the relationship between interest rates and growth suggests limited effectiveness of monetary policy alone. A comprehensive policy approach is needed, balancing inflation management, prudent fiscal spending, and strategic monetary measures to foster sustainable economic growth.

Western Balkan countries could consider implementing a range of measures to bolster their economic performance and promote sustainable growth: Developing diverse sectors beyond traditional industries like agriculture and manufacturing, such as technology, services, and tourism, can reduce dependence on specific sectors and enhance resilience to economic shocks. Supporting innovation, research, and development initiatives can drive technological advancements, improve competitiveness, and create new economic opportunities. Implementing policies that prioritize environmental sustainability, resource efficiency, and renewable energy can contribute to long-term economic growth while mitigating environmental risks. Enhancing transparency, accountability, and the rule of law can improve the business environment, attract investment, and promote economic stability and growth. Implementing sound macroeconomic policies, including fiscal discipline, monetary stability, and prudent debt management, can help maintain macroeconomic stability and reduce vulnerability to external shocks. By pursuing these strategies and reforms, Western Balkan countries can unlock their economic potential, create opportunities for their citizens, and achieve sustained and inclusive growth.

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