

# The impact of public debt on the economic growth. evidence for Kosovo

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**Abstract:** This study aims to analyze how public debt influences economic growth in Kosovo, using quarterly data from Q1 2008 to Q4 2022 and employing the generalized method of moments (GMM). The research reveals that there is a negative relationship between public debt and economic growth when other factors such as trade openness, total investment, current account balance, and primary balance are considered. Furthermore, the findings confirm an inverted “U-shaped” relationship between public debt and economic growth, indicating that the optimal debt level is between 27.75% and 36.2% of GDP.

**Keywords:** public debt; economic growth; GMM; Kosovo

## 1. Introduction

Over the past two decades, the macroeconomic effects of public debt have garnered considerable attention globally, especially in Europe. This heightened focus is due to the significant and steadily increasing debt levels following the 2008 financial crisis. The crisis, which began in late 2007, was driven by liquidity shortages, expansionary fiscal policies, and bank recapitalizations, leading to a sharp rise in public debt. These circumstances have raised serious concerns about fiscal sustainability and the potential adverse effects on financial markets and economic growth throughout Europe.

Although the 2008 global financial crisis spurred extensive academic and economic debate on the public debt-growth relationship, most empirical studies have focused primarily on the highly indebted peripheral Eurozone countries. Meanwhile, countries in Central and Southeastern Europe have been relatively overlooked. Our paper aims to fill this gap by empirically examining the impact of public debt on economic growth in Kosovo, a Southeastern European country.

Kosovo presents a unique case study due to its low public debt level, currently at 17% of GDP. Historically, Kosovo inherited a public debt of 220.6 million euros from the former Yugoslavia, which was allocated by the World Bank. In 2009, Kosovo began servicing this external debt, with repayment due by 2031. The country also initiated internal debt issuance through bonds (Kolgjeraj and Vokshi, 2017). Despite the development and strengthening of economic activities, Kosovo’s low debt level reflects a high degree of fiscal responsibility. This is further evidenced by the fiscal rules set through the Law on Public Financial Management in Kosovo, which limits public debt to 40% of GDP.

The contribution of this paper is multiple. Firstly, it deals with a small volume of economic literature on the Kosovo economy. In conditions of a significant deterioration in the country’s fiscal position and a steady increase in public debt, the

attention of economists and the public on this subject is growing, although economic literature is still scarce. Secondly, the theoretical adjustment of the dynamics of the debt to actual developments of the Kosovo economy is a good basis for further analysis and its assumptions and claims can be included in the development of theoretical models as an explanation for the behavior of the states. Thirdly, the analysis can be useful when creating government documents and economic strategies, where findings can serve as a benchmark when creating future macroeconomic policies.

The paper is organized as follows: Following the Introduction, Section 2 provides an overview of the empirical literature on this topic. Section 3 describes the data sources and methodology used. Section 4 presents the empirical results. Finally, Section 5 concludes the paper and offers policy recommendations.

## **2. Literature review**

To date, there is no consensus, in both the theoretical and empirical literature, on the impacts of government debt on the economy. Conventional theories such as the debt Laffer curve postulate that reasonable levels of government debt may stimulate economic growth. It is only when government debts exceed a certain, reasonable threshold that it starts impeding economic growth. According to the endogenous growth model, government debt used to acquire capital stock or to finance expenditure could pose a negative impact if not managed efficiently. The empirical exploration of the relationship between public debt and economic growth was pioneered by Sachs (1984, 1988), Cohen and Sachs (1986), and Krugman (1988). They argued that countries with higher debt levels struggle to secure additional loans and must increase taxes to service their debt. This tax hike negatively impacts investments and capital accumulation, ultimately harming economic growth. This phenomenon, where increased public debt deteriorates economic performance, is known as the public debt overhang theory (Reinhart and Rogoff, 2012).

Over subsequent decades, many researchers have investigated the optimal level of public debt and its macroeconomic implications through both theoretical models and empirical analyses. Aiyagari and McGrattan (1998) developed a model for the US economy, suggesting that governments should maintain public debt at about two-thirds of GDP. This finding was later supported by studies such as Flodén (2001), Desbonnet and Weitzenblum (2012), and Dyrda and Pedroni (2016). Conversely, Röhrs and Winter (2016) and Chatterjee, Gibson, and Rioja (2017) proposed that it might be more beneficial for governments to accumulate funds rather than generate public debt.

The consensus among the second group of economists is that the relationship between debt and growth is non-linear: debt positively affects economic growth up to a certain threshold, beyond which it begins to hinder growth. Reinhart and Rogoff (2010) found that in both developed and emerging markets, high debt levels (90 percent and above) are associated with significantly lower growth rates. Similar conclusions were drawn by Afonso and Jalles (2011), Cecchetti, Mohanty, and Zampolli (2011), and Baum, Checherita-Westphal, and Rother (2012).

The results of empirical studies on the relationship between public debt and economic growth are mixed and vary depending on the countries studied, the periods analyzed, and the methodologies employed. Early studies, such as those by Modigliani (1961) and Diamond (1965), suggested that increases in public debt generally contributed to economic growth. However, more recent research, including studies by Pescatori, Sandri, and Simon (2014) and Eberhardt and Presbitero (2015), has shown different results.

Given the objectives of our study, we will focus on literature that specifically examines countries in Central and Southeastern Europe, including Kosovo. Ferreira (2009) analyzed the relationship between public debt and per capita GDP growth for OECD countries from 1988 to 2001, using VAR methodology and Granger causality tests. His findings indicated a bidirectional relationship: higher GDP growth rates reduced public debt, while increases in public debt negatively affected economic growth. Časni et al. (2014) studied the long- and short-term relationships between debt and economic activity in Central, Eastern, and Southeastern European countries from 2000 to 2011. Using a pooled mean group estimator, they found that public debt had a statistically significant negative impact on growth rates in both the short and long term, recommending policies to boost exports, long-term investments, and fiscal consolidation to enhance economic growth.

Mencinger et al. (2014) examined the short-term impact of public debt on growth in a panel of 25 EU member states, dividing them into “old” member states (1980–2010) and new member states (NMS, 1995–2010). Their results indicated a statistically significant non-linear impact of public debt on GDP per capita growth, with a lower threshold value for NMS compared to old member states. Bilan and Ihnatov (2015) investigated a non-linear relationship for a panel of 33 European countries (28 EU members and 5 candidates) from 1990 to 2011, finding a debt threshold of 45–55% of GDP. Their conclusions indicated that the threshold was lower for less developed countries like Bulgaria and Romania than for more developed EU countries.

Gál and Babos (2014) compared the effects of public debt on economic growth in Western European and NMS EU countries from 2000 to 2013, finding that while NMS had lower debt levels, high public debt was more harmful to them. Dinca and Dinca (2015) used time-fixed effects regression to explore the relationship between government debt-to-GDP ratios and per capita GDP growth rates in 10 former Communist EU member states from 1999 to 2010. Their results identified significant impacts from government debt, short-term interest rates, economic openness, and government revenue, with a debt turning point around 50% of GDP.

In the context of Kosovo, Kolgjeraj and Vokshi (2017) used simple regression to analyze the impact of public debt, concluding that it had a negative but minimal effect on economic growth. Balaj and Lani (2017) examined public expenditure’s impact on Kosovo’s economic growth from 2000 to 2016 using an OLS model, finding that public expenditures did not significantly affect growth, serving mainly internal consumption. Bajrami et al. (2020) investigated the relationship between public debt and economic growth in Kosovo, using a VAR model to analyze data from 2008 to 2018. They found that Kosovo experienced higher growth rates when public debt was between 10% and 30% of GDP.

This paper aims to empirically examine the impact of public debt on economic growth in Kosovo, a country with relatively low public debt levels. By analyzing Kosovo's unique case, we hope to contribute to the broader understanding of public debt dynamics in Southeastern Europe.

### 3. Methodology

#### 3.1. Model specification

In this study, we follow the research directions of Bilan and Ihnatov (2015) and Checherita and Rother (2010), adopting a quadratic form. The general model to be estimated is as follows:

$$Y_{c,t} = \alpha + \beta_1 b_{c,t} + \beta_2 b_{c,t}^2 + \varphi k_{c,t} + \sum_{i=1} \mu_i \mathbf{Z}_{c,t} + \gamma_c + \varepsilon_{c,t}, \quad (1)$$

where  $Y_{c,t}$  is the annual percentage of GDP growth,  $b_{c,t}$ , and  $b_{c,t}^2$  are the linear and square regressors of public debt as a % of GDP,  $\mathbf{Z}_{c,t} = \{eb_{c,t}, cab_{c,t}, ob_{c,t}, PBC_{c,t}\}$  is a set of control variables,  $\gamma_c$  is a set of fixed effects of years,  $\beta_1, \beta_2, \varphi$  и  $\sum_{i=1} \mu_i$  are the regression coefficients  $\alpha$  is an intercept,  $\varepsilon_{c,t}$  is the error term.

Hereinafter, we are developing the basic regression model (1) and we present it in the model, as follows:

$$GDPPCG_t = \beta_0 + \beta_1(PD)_t + \beta_2(PD^2)_t + \beta_3(INV)_t + \beta_4(OPEN)_t + (CAB)_t\beta_5(PB)_t + \varepsilon_t \quad (2)$$

where:

GDPPCG = GDP per-capita growth;

PD = general government debt (% of GDP);

INV = the ratio of total investment (as a percentage of GDP);

OPEN = the sum of export and import shares into GDP;

CAB = current account balance;

PB = primary balance;

In our model, the dependent variable is the growth rate of per capita GDP. We incorporate several control variables to examine their impact on economic growth, detailed as follows:

- 1) **Public debt:** The interplay between public debt and economic growth is intricate. Public debt influences economic growth patterns, and in turn, growth rates affect the magnitude of public debt (Časni et al., 2014). Higher rates of economic growth can help reduce the public debt burden (Cantor and Packer, 1996). The sustainability of public debt relies on revenue generation, which typically declines during economic downturns. Moreover, private sector defaults can negatively affect economic activity and raise public debt levels, particularly when private borrowing is supported by discretionary fiscal policies (Cecchetti et al., 2011). Public debt can have both beneficial and detrimental effects on economic growth. In less developed countries, governments frequently use public debt to fund expenditures, which can stimulate economic growth if managed well. Conversely, poor management of public debt can impede growth and become a significant economic burden. In this study, we will follow Bilan and Ihnatov, 2015 and we use government debt (% of GDP) as a measure of public debt.

- 2) **Investment:** Investment is expected to positively impact economic growth. Capital accumulation, defined as the process of amassing valuable assets and increasing wealth, enhances production capacity and national income (Ugochukwu and Chinyere, 2013). In macroeconomics, consumption and fixed investment are key indicators that drive aggregate expenditure, which in turn fuels economic growth.
- 3) **Trade openness:** Trade openness is considered a significant determinant of economic growth (Sachs and Warner, 1995). Trade influences growth through various channels such as technology transfer, exploitation of comparative advantage, diffusion of knowledge, economies of scale, and increased competition (Edwards, 1998). Romer (1993) argued that open economies are more likely to adopt leading technologies from other countries. Chang, Kaltani, and Loayza (2005) also emphasized that trade promotes efficient resource allocation, knowledge dissemination, technological progress, and competition, all of which positively impact economic growth.
- 4) **Current account balance:** The current account balance is a comprehensive measure that encompasses the trade deficit and is a component of the balance of payments. It reflects the total transactions between a country and its international trading partners, including factor income and financial transfers. This measure is crucial as it influences overall economic stability and growth.
- 5) **Primary budget balance:** The primary budget balance, expressed as a percentage of GDP, is crucial for sustainable economic growth. A balanced fiscal budget is necessary for long-term growth (Fatima et al., 2012). According to the Keynesian model, a budget deficit, resulting from increased government expenditure or tax cuts, can stimulate economic growth by increasing consumers' disposable income and marginal propensity to consume, thus boosting output and demand.

To address the potential endogeneity of the debt variable, particularly due to reverse causation where low or negative GDP per capita growth can increase debt burdens, we use instrumental variable estimation techniques. Specifically, we apply Generalized Method of Moments (GMM) estimators. In line with previous research (Checherita and Rother, 2010; Patillo et al., 2004), we use time lags of the debt and debt-squared variables (up to five lags) as instruments. The Hansen test evaluates the statistical validity of these instruments.

Our model proposes a non-linear effect of public debt on economic growth, indicating a debt threshold at which the impact of debt on growth changes direction, based on the coefficients  $\beta_1$  and  $\beta_2$ . We consider that the debt-growth relationship may follow a concave "Laffer" curve, allowing us to identify the maximum level of public debt that does not adversely affect economic growth.

$$b^* = -\beta_1/2\beta_2 \quad (3)$$

### 3.2. Data source and sample characteristics

Our study utilizes a dataset from Kosovo covering the period from the first quarter of 2008 to the fourth quarter of 2022, with quarterly data. The determinants selected for our analysis are frequently used in the literature (Checherita and Rother,

2010; Clements et al., 2003; Kumar and Woo, 2010). Thus, we will measure economic growth using GDP per capita growth. The control variables in our model include investment, trade openness, current account balance, and primary primary budget balance. The data for these variables were obtained from the World Development Indicators (WDI) database and the Kosovo Agency of Statistics **Table 1**.

**Table 1.** Description of the variables in the panel regression analysis.

Variable	Description	Source
GDPPC	GDP per capita growth	Kosovo Agency of Statistics and Central Bank of Kosovo World Development Indicators
PD	General government debt (% of GDP)	Kosovo Agency of Statistics, Central Bank of Kosovo, and World Development Indicators
INV	The ratio of total investment (as a percentage of GDP);	CEIC Data
OPEN	The sum of export and import shares in GDP	CEIC Data
CAB	Current account balance	Kosovo Agency of Statistics and Central Bank of Kosovo
PB	Primary balance	Kosovo Agency of Statistics and Central Bank of Kosovo

In the next table, we present the descriptive statistics.

From **Table 2**, we observe that Kosovo experienced consistent growth as measured by GDP per capita throughout the analyzed period. Public debt exhibited variability, ranging from a minimum of 5.51% of GDP to a maximum of 17% of GDP. The other determinants, such as investment and trade openness, did not show significant deviations over the period, except for the current account balance, which varied considerably, from -6.11% to -32.9%. Notably, the current account balance also had a much larger standard deviation of 9.48 compared to the other determinants, indicating greater volatility in this measure.

**Table 2.** Descriptive statistics.

	GDPPC	PD	INV	OPEN	CAB	PB
Mean	3.094	10.92	26.57	22.68	-16.89	-0.990
Median	3.179	10.30	25.88	22.50	-12.41	-1.35
Maximum	5.249	17	30.7	25.02	-6.11	3
Minimum	1.325	5.51	23.2	19.84	-32.9	-2.4
Std. Dev.	0.906	3.786	2.124	1.084	9.481	1.224
Observations	56	56	56	49	56	49

Source: Autor’s calculation.

This variability in the current account balance suggests that while Kosovo generally maintained economic stability, external factors likely caused substantial fluctuations in trade and financial flows. Such large deviations in the current account balance can impact overall economic health, influencing decisions on fiscal and monetary policy.

These observations are consistent with the findings of previous studies which highlight the complex interplay between various economic factors and public debt (Cantor and Packer, 1996; Cecchetti et al., 2011; Časni et al., 2014). Understanding

these dynamics is crucial for formulating policies that ensure sustainable economic growth while managing public debt effectively.

The correlation analysis presented in **Table 3** reveals several important relationships between the variables in our study. Specifically, there is a negative correlation between GDP per capita and government debt ( $-0.378$ ), indicating that higher levels of government debt are associated with lower per capita economic growth. This inverse relationship is even more pronounced between gross investment and government debt, with a correlation of  $-0.536$ , suggesting that increased government debt tends to be associated with reduced investment levels.

Additionally, a weaker negative correlation exists between government debt and trade openness ( $-0.263$ ), implying that higher indebtedness might slightly discourage trade activities. Furthermore, the correlation between public debt and the primary budget deficit is  $-0.278$ , indicating that increased public debt often leads to larger budget deficits, likely due to the rising interest payments required to service the debt.

These findings align with previous studies that highlight the complex interactions between public debt and various economic indicators. For instance, Cantor and Packer (1996) emphasize that economic growth can alleviate the burden of public debt, while Cecchetti et al. (2011) note that high levels of debt can adversely affect economic activity. Similarly, Časni, Badurina, and Sertić (2014) discuss how public debt impacts economic growth dynamics and vice versa, underscoring the intricate nature of these relationships.

In summary, our correlation analysis underscores the multifaceted effects of government debt on economic growth, investment, trade openness, and budget deficits. These correlations suggest that while debt can provide necessary funding for government expenditures, it also poses risks to economic stability and growth if not managed prudently.

**Table 3.** Correlation matrix.

	GDPPC	PD	INVESTMENT	TRADE	CAB	PB
GDPPC	1	-	-	-	-	-
PD	-0.378	1	-	-	-	-
INVESTMENT	0.311	-0.536	1	-	-	-
TRADE	0.196	-0.263	0.815	1	-	-
CAB	0.825	0.403	0.500	0.416	1	-
PB	-0.369	-0.278	-0.151	-0.378	-0.407	1

Source: Autor calculation.

#### 4. Empirical results

Next in **Table 4**, we report the empirical estimations of Equations (2) and (3) for the effect of public debt on GDP growth in Kosovo during the 2008-2016 period, using the generalized method of moments (GMM). The results indicate the high robustness of our results, given that in all specifications, regardless of their specs, variables generally retain their economic and statistical significance.

**Table 4.** Estimation results.

	(1)	(2)	(3)	(4)
PD	4.446*** (0.494)	4.410 (0.462)	3.624** (0.572)	5.481** (0.462)
PD <sup>2</sup>	-0.051** (0.023)	-0.078 (0.019)	-0.083** (0.020)	-0.085** (0.019)
INV	1.284** (0.130)	1.269** (0.144)	0.910*** (0.176)	1.563 (0.144)
OPEN	-	0.256* (0.081)	-	-
CAB	-	-	0.054* (0.018)	-
PB	-	-	-	0.219*** (0.081)
$\alpha$	-55.10*** (6.073)	-49.33*** (6.198)	-39.60*** (8.071)	-68.02*** (6.198)
Maximum affordable public debt	36.2	31.5	27.75	34.24
Hansen test	0.586	0.745	0.361	0.527
$R^2$	49%	83%	63%	68%

Source: Autor calculation.

\*, \*\* and \*\*\* indicates test statistic is significant at the 10%, 5% and 1% level.

Standard errors in ().

The empirical analysis of the relationship between public debt and economic growth in Kosovo highlights several key insights and implications that warrant a detailed discussion. The findings confirm the presence of a concave (inverted U-shaped) relationship, indicating that while moderate levels of public debt can stimulate economic growth, exceeding a certain threshold can be detrimental. This section will explore the broader implications of these results, considering both theoretical perspectives and practical policy considerations.

#### 4.1. Theoretical implications

The concave relationship observed in our analysis aligns with the public debt overhang theory, which posits that high levels of debt can inhibit economic growth by crowding out private investment and necessitating higher taxes to service the debt. Our findings are consistent with previous studies by Greenidge et al. (2012) and Bilan and Ihnatov (2015), which also identified an optimal debt threshold beyond which debt negatively impacts growth. However, our identified threshold for Kosovo is lower, reflecting the specific economic context and structural factors unique to the country.

The positive coefficients for the public debt variable and the negative coefficients for the squared public debt variable in our regressions suggest that while initial increases in debt can boost GDP growth, further increases beyond a certain point lead to diminishing returns and eventually negative effects on growth. This non-linear relationship underscores the complexity of managing public debt and highlights the need for a balanced approach.



## 4.2. Practical policy implications

For Kosovo, the results confirm that the legal debt ceiling of 40% of GDP is appropriate, given the country's economic context and credibility with investors. The optimal debt threshold identified in our analysis ranges from 27.75% to 36.2% of GDP, suggesting that maintaining debt levels within this range can maximize the positive impact on economic growth while minimizing potential negative effects.

The positive impact of public debt on GDP growth, which varies from 3.624 to 5.481 depending on the regression model, implies that an increase in government debt below the threshold by 1 percentage point can lead to a GDP per capita increase of approximately 3–5%. This indicates that moderate borrowing can be an effective tool for stimulating economic growth, provided it is used to finance productive investments.

However, the concavity of the growth function relative to debt, with the highest regression coefficient of  $-0.083$  in Equation (1) and the lowest of  $-0.051$  in Equation (3), highlights the importance of careful debt management. Policymakers should be mindful of the diminishing returns of debt and avoid excessive borrowing that could lead to negative growth impacts.

## 4.3. Investment and macroeconomic stability

The consistently significant positive impact of gross investment on economic growth across all models underscores the critical role of capital accumulation in driving economic development. Policymakers should prioritize investments that offer high returns and foster long-term growth, such as in infrastructure, education, and technology. This approach can enhance the positive impact of public debt on growth and help maintain fiscal stability.

The positive statistical significance of control variables, including the primary budget balance, trade openness, and current account balance, reinforces the notion that macroeconomic stability is pivotal for sustained growth. For Kosovo, maintaining a balanced budget and promoting trade openness are crucial strategies that can complement prudent debt management. Incorporating a broader set of economic indicators into fiscal planning can provide a more comprehensive understanding of optimal debt levels and inform more effective policy decisions.

## 4.4. Policy recommendations

Based on our analysis, several policy recommendations emerge for Kosovo:

- 1) **Maintain prudent debt levels:** Ensure that public debt remains below the identified threshold of approximately 27.75% to 36.2% of GDP. This involves careful monitoring of debt levels and adopting fiscal policies that prevent excessive borrowing.
- 2) **Focus on high-return investments:** Prioritize public investments that yield substantial long-term benefits, such as in infrastructure, education, and technology, to maximize the positive impact of debt on economic growth.
- 3) **Enhance macroeconomic stability:** Strengthen policies that promote a balanced budget, trade openness, and a healthy current account balance. These measures will support a stable economic environment conducive to growth.

- 4) **Comprehensive economic planning:** Incorporate a wide range of economic indicators into fiscal planning to ensure a balanced approach that recognizes the multifaceted nature of economic growth and stability.

The analysis of Kosovo's public debt and economic growth underscores the importance of maintaining a balanced and prudent approach to fiscal management. While public debt can be a valuable tool for stimulating growth, its benefits are contingent upon keeping debt levels within an optimal range. By focusing on high-return investments and enhancing macroeconomic stability, Kosovo can leverage public debt to foster sustainable economic development without falling into the debt overhang trap. These insights provide a valuable framework for policymakers aiming to navigate the complex dynamics of debt and growth in a developing economy.

To enhance the robustness of the analysis on the interplay between economic growth and government debt, it is essential to include robustness checks. These checks will ensure that the results are general rather than a special case. Comparing Kosovo's findings with data from similar countries, such as the Baltic states—Estonia, Latvia, and Lithuania—can provide valuable context and enhance the validity of the results.

The Baltic states are particularly suitable for comparison due to their similar economic profiles and historically low levels of government debt. Like Kosovo, these countries have maintained conservative fiscal policies and demonstrated prudent debt management practices. Estonia, for instance, has one of the lowest public debt-to-GDP ratios in the EU, often below 20%. This conservative approach has been mirrored in Latvia and Lithuania, where debt levels have also remained moderate and well-managed.

A comparative analysis reveals that while Kosovo's Public Debt Law permits borrowing up to 40% of GDP, this threshold is significantly lower than what is seen in more developed EU countries. This discrepancy can be attributed to Kosovo's lower institutional credibility, higher vulnerability to economic shocks, and greater reliance on external capital inflows. By examining the Baltic states, which share these characteristics to some extent, the analysis gains a more nuanced perspective on how low debt thresholds impact economic growth.

Estonia's robust economic growth, driven by its advanced digital economy and technology sector, underscores the importance of innovation and structural reforms in mitigating the negative impacts of public debt. Similarly, Latvia's recovery and growth post-2008 financial crisis highlight the role of fiscal consolidation and export expansion in sustaining economic growth. Lithuania's strong economic performance, supported by investments in technology and improvements in the business environment, further illustrates how strategic economic policies can foster resilience and growth.

These examples from the Baltic states demonstrate that the level of government debt a country can sustain without stifling economic growth depends heavily on institutional quality, fiscal policies, and country-specific factors such as resources and productivity. For Kosovo, strengthening institutional frameworks and diversifying the economy could enhance its capacity to manage higher debt levels while sustaining growth.

**Table 5.** Estimation results Baltic group (BAL-3).

<b>PD</b>	0.142** (0.079)
<b>PD<sup>2</sup></b>	-0.001* (0.001)
<b>INV</b>	1.546 (0.644)
<b>OPEN</b>	0.004 (0.006)
<b>CAB</b>	0.310 (0.025)
<b>PB</b>	0.089*** (0.136)
<b><math>\alpha</math></b>	2.641 (1.332)
<b>Maximum affordable public debt</b>	71%
<b>Hansen test</b>	0.497
<b><math>R^2</math></b>	64%

The evaluation of economic growth and public debt in the Baltic states versus Kosovo reveals crucial insights, particularly regarding the maximum affordable public debt (**Table 5**). In the Baltic states, the maximum affordable public debt is around 71%, indicating a higher tolerance for debt without stifling growth. This high threshold can be attributed to stronger institutional frameworks and better economic management. In contrast, Kosovo's maximum affordable public debt ranges from 27.75% to 36.2%, reflecting a lower tolerance for debt.

The Baltic states benefit from prudent fiscal policies and conservative debt management, which contribute to their higher debt threshold. Estonia, for example, has consistently maintained low public debt levels, often below 20% of GDP. This conservative approach helps sustain economic growth despite higher potential debt levels. Latvia and Lithuania also demonstrate moderate debt levels and effective fiscal strategies, supporting their economic resilience.

In Kosovo, the lower debt threshold is linked to weaker institutional credibility and higher vulnerability to economic shocks. Kosovo's reliance on external capital inflows further constrains its capacity to sustain higher debt levels. Investment positively influences GDP per capita growth in both regions, but the Baltic states show a stronger response to investment. This difference highlights the effectiveness of their economic policies and structural reforms.

Trade openness has a more significant impact on growth in Kosovo than in the Baltic states. This suggests that Kosovo's economy is more dependent on international trade. Both regions benefit from positive current account balances, with the Baltic states showing a more substantial effect on growth. Maintaining a healthy primary balance is crucial for economic growth in both regions, with Kosovo displaying a notable positive impact.

The comparison underscores the importance of strong institutions and effective fiscal management. The Baltic states' higher debt threshold allows for more fiscal flexibility without jeopardizing economic growth. For Kosovo, enhancing

institutional frameworks and economic diversification could help increase its debt tolerance. Future research should incorporate additional determinants like population growth, inflation, and exchange rates to capture a more comprehensive picture.

Expanding the analysis to include more countries and longer periods can help generalize the findings. By understanding the specific factors influencing the debt-growth relationship, policymakers can better navigate fiscal challenges. This comparative analysis highlights the need for tailored fiscal strategies based on country-specific contexts. The differing debt thresholds between the Baltic states and Kosovo illustrate the impact of institutional quality on economic resilience.

## **5. Conclusion**

The evaluation of the interplay between economic growth and government debt from 2008 to 2022 reveals a crucial observation: a pivotal threshold exists beyond which escalating public debt negatively influences economic growth. This threshold, identified between 27.75% and 36.2% of GDP, delineates a “U-inverted” relationship between public debt and economic growth. Once this threshold is exceeded, increasing public debt exerts adverse pressure on economic growth. This is due to factors such as rising interest rates, concerns regarding debt sustainability, and the necessity for stringent fiscal consolidation measures.

The analysis shows that the break-even debt thresholds fluctuate depending on the inclusion of control variables like the current account balance, investments, and primary balance. Notably, Kosovo’s Public Debt Law allows borrowing up to 40% of GDP, a level significantly lower than that permitted in developed EU countries. This discrepancy can be attributed to Kosovo’s reduced credibility, heightened vulnerability to economic shocks, and increased dependence on external capital inflows.

Empirical findings consistently demonstrate a negative correlation between public debt and economic growth across all four models employed in the analysis. This consistency reaffirms previous research outcomes and bolsters the research hypothesis.

For future research, it is recommended that researchers explore additional determinants that were overlooked in the current model, such as population growth, inflation, and exchange rates. Expanding the temporal scope or incorporating a broader range of countries could provide more nuanced insights into the impact of public debt on economic growth across different contexts. Additionally, examining the role of institutional quality, governance, and fiscal policy frameworks could further illuminate the complexities of this relationship. The influence of global economic conditions and external economic shocks on the debt-growth dynamic also warrants further investigation. By addressing these areas, future research can contribute to a more comprehensive understanding of the intricate interplay between public debt and economic growth. It is important to note that the level of government debt a country can sustain without hindering economic growth heavily depends on the institutions in place as well as country-specific factors, such as resources, productivity, and many other factors, which influence economic growth.

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