

THE LINK BETWEEN PUBLIC INVESTMENT STRATEGY AND PUBLIC DEBT: AN EMPIRICAL ASSESSMENT

Teuta Çerpja *, Forcim Kola **

* Corresponding author, Department of Economics and Finance, Faculty of Economics, Business and Development, European University of Tirana (UET), Tirana, Albania

Contact details: European University of Tirana (UET), Xhura Complex, St. Xhanfize Keko, Tirana, Albania

** Department of Management and Marketing, Faculty of Economics, Business and Development, European University of Tirana (UET), Tirana, Albania



Abstract

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Economic growth and long-term output are significantly impacted by public investments. Public debt serves as a major source of funding for these investments. The purpose of this study is to assess, along with a few other macroeconomic factors, the short- and long-term effects of Albania's external and domestic debt on public investment. The empirical research was conducted using the autoregressive distributed lag (ARDL) estimation approach, based on annual data for the years 2000–2022. Among other things, the results demonstrated that Albania's public investments are significantly and negatively impacted in the long-run term by external debt. However, for the period under consideration, there is no statistically significant correlation between internal debt and public investments. Furthermore, we discovered that the amount of public investments is positively and significantly correlated with both the gross domestic product (GDP) and foreign direct investments (FDI). The conclusions of the research can be helpful to the Albanian government because they shed light on the relationship between two main categories of public debt and public investments. The paper suggests that stringent project implementation guidelines be put in place by the government to guarantee profitable borrowing and closely monitor public debt.

Keywords: Public Investments, Domestic Debt, External Debt, ARDL, Albania

Authors' individual contribution: Conceptualization — T.Ç. and F.K.; Methodology — T.Ç.; Investigation — T.Ç. and F.K.; Data Curation — F.K.; Formal Analysis — T.Ç. and F.K.; Writing — Review & Editing — T.Ç. and F.K.

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1. INTRODUCTION

The role of public investments' contribution to economic growth is widely recognized. According to economic theory, increasing public investments is seen as an expansive fiscal strategy that will boost aggregate demand and, in turn, create jobs, improve production, and ultimately spur economic growth.

This approach has led to an increase in public investment levels in many nations, particularly developing ones. This is supported also in a recent study on financing investment in times of high public debt by Cerniglia et al. (2023), which

emphasizes that the last two events those of the pandemic and the start of the war in Ukraine, have required many nations to increase public spending, particularly in infrastructure, to comply with strict monetary policies.

As it is widely known, when a nation's domestic savings are insufficient to fund its economic endeavors, it must borrow. Public borrowing has historically been a major way for both developed and developing countries to finance budget deficits, which affects macroeconomic activity like investment after first affecting the economy's distribution of resources.

However, various opportunities or threats for nations might be linked to public borrowing. Public debt may offer an opportunity when it helps finance the demands of the population and fosters national development and growth from one side, but conversely, the long-term impacts of public debt on economic growth according to the neoclassical viewpoint, may increase the debt servicing burden.

Hence, big interest payments resulting from high debt levels may swallow up a big amount of government revenue, leaving less for other vital services and public investments (Modigliani, 1961; Blanchard, 1985). Even more risk exists if public debt is not used for constructive purposes or rises to an extent that is unaffordable for the national economy, putting the economic stability of a country in danger (Eastely & Kraay, 2000; Reinhart & Rogoff, 2010, 2011; Law et al., 2021).

Policymakers and academic experts continue to highlight the link between public debt and investment and economic growth as a result, as one of the most pressing issues facing the country not just due to the various features of each country's development, but also because of the various economic events that accompany with these developments (Nguyen et al., 2003; Pattillo et al. 2011; Checherita & Rother, 2010; Picarelli et al., 2019; Siyang, 2024).

External debt, which is mostly raised to finance development expenses, and domestic debt, which is primarily incurred to address fiscal deficits, are the two main forms of public debt. They may have distinct effects on economic growth or stability, investments, and other macroeconomic variables. The impact of both external and domestic debts on public investments must thus be independently investigated to fully understand this effect. It is hard to aggregate domestic and foreign public debt into a single indicator of overall public debt since, as Panizza (2008) highlights, different debt classes have varying default risks.

Consequently, it would be worthwhile to examine the effects of foreign and internal debt independently on public investments to appropriately direct government policy as well as to comprehend their implications.

As a result, the aim of this inquiry is to control whether public investments, domestic debt, and external debt are related, as well as whether the elements of public debt have the potential to boost investment and the growth of the economy. The following research question will be addressed by this study:

RQ: How do the two main components of public debt separately affect public investments in Albania in the short run and long run terms?

To achieve this, through this research paper, we measured the impact of both extraneous and domestic debt on public investments over the years 2000-2022, providing empirical evidence that reveals the influence of each on public investments in the illustration of Albania.

Finding a middle ground between the need to maintain public spending and the International Monetary Fund's (IMF) demand that they be paid with as little more debt as is acceptable is proving to be challenging for the Albanian government, which

is also having trouble enforcing strict budgetary constraints. In this light, this study is significant because it considers public debt and investment as crucial challenges for developing nations, both theoretically and empirically. Solving these questions is crucial to promoting the country's economic growth and development.

This research can contribute to a profound comprehension of the relationships between these variables in the context of a developing country. The conclusions of the study will increase the frame of acquaintance on public investments, and debt (both internal and external), and offer guidance to policymakers in Albania and other countries dealing with related topics.

The paper is organized into five sections as follows. Section 1 presents the research problem, research questions, and the study's significance. Section 2 reviews the theoretical and empirical literature, outlining the various conclusions of how public debt affects public investments. In the context of the study, Section 3 provides an overview of Albania's public investments and public debt. Section 4 discusses the research methodology and model estimation while Section 5 offers the empirical results. Section 6 discusses the research results. Section 7 wraps up the research and offers a few potential expansions and problems that need additional study.

2. LITERATURE REVIEW

The importance of government spending on the economy was established by Keynes's fundamental work in 1936, which theoretically supports the role of public investments in encouraging employment and economic development. According to Keynesians, public expenditure, and particularly public investments, must be an important contributor to the process of economic growth (Keynes, 1936).

Since then, it has been generally accepted that economic activity is increased by public investment through its effects on aggregate demand. Blinder (2008) concluded that public investment multiplies production in addition to raising aggregate demand. Additionally, as noted by Barro (1990), the economy benefits from public investment since it encourages new private investment, which benefits from improved productivity and consequently fosters economic growth.

On the other hand, the rise in government spending and its supposed effects on the economy may also have the opposite result. This has to do with the fact that debt is normally used to finance public investments. The long-term growth of the economy may be destroyed if the debt rises above the country's ability to pay it off. The debt-overhang hypothesis lends support to this, contending that high debt levels may lead to underinvestment, which maneuvers economic development and exacerbates the difficulties of recovery (Panizza & Presbitero, 2013).

In this regard, various academics have made an effort to investigate empirically the impact of public debt on public investments, taking into account the unique characteristics of economic

development and potentially involving different countries. Due to factors primarily associated with the nations' respective developmental contexts or the inefficient use of the debt, these studies have yielded varying conclusions regarding the short- and long-term effects of public debt on public investments.

Heinemann (2006) tries to explain the drop in public investment in the nineties, in 16 Organisation for Economic Cooperation and Development (OECD) nations, most of which were in Europe. The results of their econometric assessment demonstrated that since the 1970s rises in debt have significantly hampered the government's ability to fund new projects, highlighting that low levels of public investment are correlated with high levels of debt.

In a similar vein, Bacchiocchi et al. (2011) show how falling public investment has resulted from high debt levels across all OECD countries. Thus, it appears that the need to maintain debt sustainability has limited the capacity of the European Union (EU) countries to choose where to invest, whereas public investments have increased in countries with low national debt proportions.

In their research, which focuses on just 12 EU countries, Checherita and Rother (2010) oppose that public investment is one of the major ways that debt may destructively impact economic growth. Moreover, based on their empirical conclusions, they argue that lowering public debt is necessary to promote longer-term economic growth.

Using a panel dataset, Picarelli et al. (2019) examine the crowding out effect for the 26 EU member states between 1995 and 2015. Using a generalized method of moments (GMM) assessment, they conclude that public investment falls by 0.03% for every 1% increase in public debt in the EU; furthermore, this is specifically evident in countries with high public debt levels.

Hakimi et al.'s (2019) research investigates whether foreign debt encourages investment and economic evolution in low-income countries. Based on empirical facts from the seemingly unrelated regression model, they determined that external debt significantly reduces investment and economic growth. According to the empirical findings of Kostarakos (2022), which examines the relationship between aggregate investments and public debt in a group of EU nations, public debt generally has a negative impact that is especially noticeable in the case of public investments. External debt and public investments have been found to be negatively correlated by several additional studies (Babu et al., 2014; Georgiev, 2014; Ncanywa & Mamokgaetji, 2018; de Mendonça & Brito, 2021).

Concentrated in low-income nations, Nguyen et al. (2003) inspected the connection between public investments and external debt. In contrast to the findings mentioned above, their empirical estimates imply that the stock of external debt has no effect on public investment. Like this, Javed and Sahinho (2005) demonstrated in the case of Turkey that variables associated with economic growth and

foreign direct investment (FDI) had a positive effect on overall investments; however, the relationship between external debt and investment was determined to be statistically insignificant throughout the study. In the meantime, Saglam and Yalta's (2011) study which looked at the relationship between FDI, private investment, and public investment in Turkey from 1970 to 2009 showed that there was no long-term interaction between these forms of investments.

Giving an alternative perspective to the aforementioned empirical research, the study by Marmullaku et al. (2021) looks at the connection between investment and public debt in European transition countries. The empirical results of their research showed that public debt in European transition countries promotes economic growth through public investment. They claim that these nations could take more debt to fund capital investments by the government, which in turn affects economic growth.

Numerous additional researches have similarly found a positive connection between public debt and public investment (Sanchez-Juárez & Garcia-Almada, 2016; Kasele et al., 2019). However, as Sanchez-Juárez and Garcia-Almada (2016) point out, public debt could be a viable source of funding for public investment, provided that it is utilized exclusively for this purpose and is not misdirected.

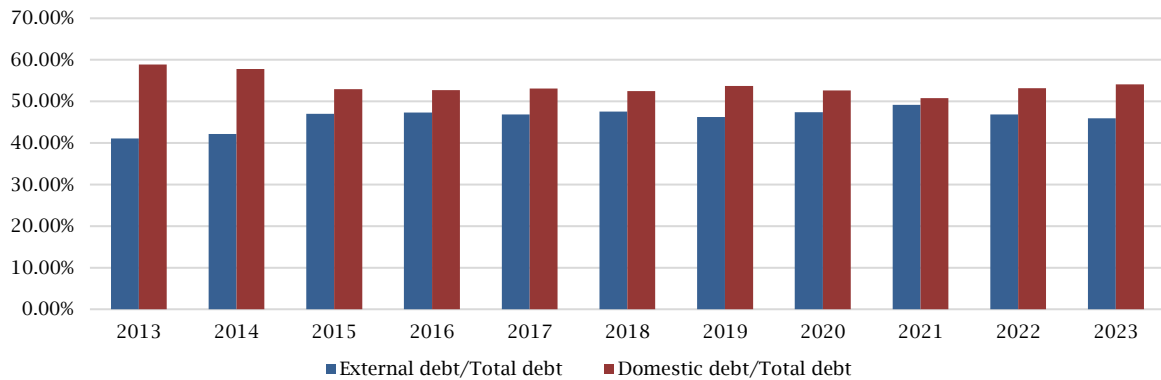
Overall, the relationship between public debt and public investment is rather limited, and there have been even fewer researches on this relationship in the Albanian case, as far as we know. The largest number of studies have been focused on the connection between debt and economic development or public debt and private investment. Furthermore, most of the empirical literature is mostly based on the overall effect of public debt on investment.

Hence this study is important since attempts to explore the effect of both external and domestic debt separately on public investments to address this issue more specifically in a specific country. Additionally, this research paper contributes by assessing the connection between public debt and public investments in Albania as a developing country, given the country's debt load and growing demand for public investment.

3. THE CONTEXT OF THE STUDY: ALBANIAN PUBLIC DEBT AND PUBLIC INVESTMENTS

Albania has faced difficulties in the past few years as a result of three consecutive events: the 2019 earthquake, the COVID-19 epidemic, and the Russian-Ukrainian war, which raised the country's financial requirements. Additionally, the data shows that Albania's public debt has increased by over 60% since 2012, surpassing one of the benchmarks established by international organizations.

Figure 1. External debt/total debt stock and domestic debt/total debt stock (2013–2023)



Source: Ministry of Finance and Economy (n.d.).

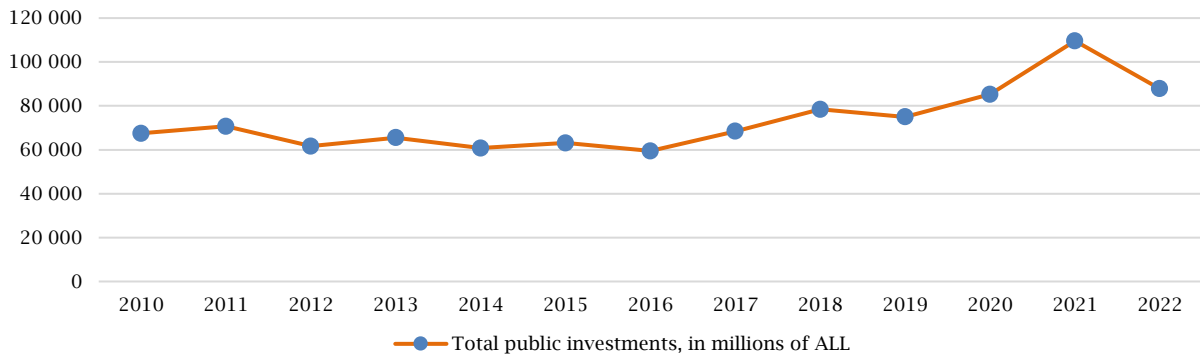
Domestic debt accounts for the lion’s share of the total debt. As of 2023, domestic debt makes up 54% of the overall debt stock, while external debt makes up 46% (Figure 1).

However, since 2013, the ratio of domestic debt to total debt has been falling, while the percentage of external debt has been growing, particularly since 2019. This is supported by the fact that the need for funding increased after 2019 and persisted for

the next two years, the central government changed its borrowing policy, and there were limitations on the domestic market. Additionally, the government has turned to borrowing from the foreign market to reorganize the portfolio of domestic debt.

The amount that the government has invested has fluctuated significantly over the years, as shown in Figure 2. The majority of public investments are financed mainly domestically.

Figure 2. Public investments in Albania (2010–2022)

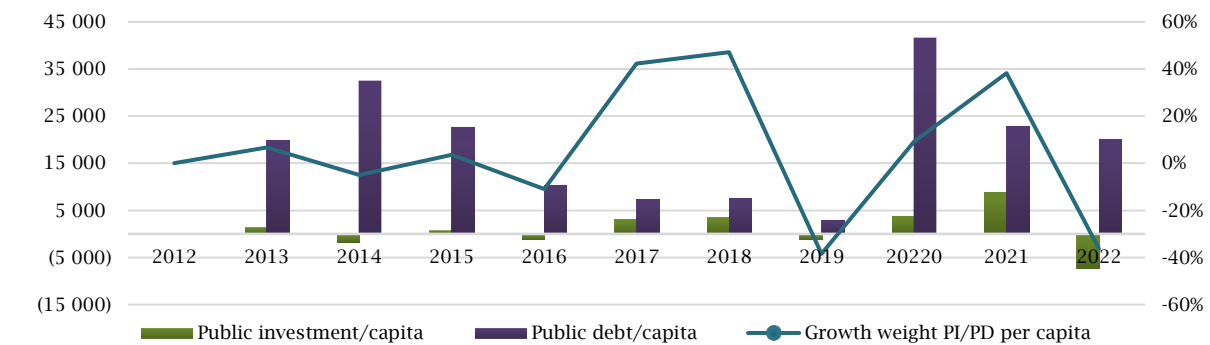


Source: Ministry of Finance and Economy (n.d.).

Public investments as a ratio per capita have been steadily rising, while the rate of public debt per capita does not exhibit the same steady increase. On the other hand, Figure 3 shows that, for the years 2010–2022, there is no positive correlation between

the ratio of public debt per capita and public investments per capita. Compared to public investments, the average annual growth rate of public debt is larger.

Figure 3. Public investment/capita vs public debt/capita in Albania (2012–2022)



Source: Ministry of Finance and Economy (n.d.).

Despite the growing value of the debt, public investments per capita do not show an upward tendency over the entire period. This could indicate that the rise in the amount of public debt is mostly due to factors other than an increase in public investments.

4. RESEARCH METHODOLOGY

The aim of this inquiry was to examine the relationships between Albanian public investment, external debt, and domestic debt. In the empirical analysis, the autoregressive distributed lag (ARDL) estimation approach was used. It is not always necessary for all variables to be in the same integration order of integration when using the ARDL methodology, often known as the bounds testing procedure, offering an advantage when applying this technique.

At the same time, the ARDL techniques have advantages compared to other techniques even in situations with small sample data, so they are highly practical and effective (Pesaran & Shin, 1999).

$$\Delta \ln PI_t = \beta_0 + \theta_1 \ln PI_{t-1} + \theta_2 \ln DD_{t-1} + \theta_3 \ln ED_{t-1} + \theta_4 \ln GDP_{t-1} + \theta_5 \log FDI_{t-1} + \sum_{i=1}^p \beta_{1i} \Delta \ln PI_{t-i} + \sum_{j=1}^q \beta_{2j} \Delta \ln DD_{t-j} + \sum_{k=1}^r \beta_{3k} \Delta \ln ED_{t-k} + \sum_{m=1}^s \beta_{4m} \Delta \ln GDP + \sum_{l=1}^t \beta_{5l} \Delta \log FDI_{t-l} + \mu_t \quad (2)$$

where:

- $\theta_1, \theta_2, \theta_3, \theta_4, \theta_5$ — the long-term coefficients;
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ — the short-term coefficients;
- μ — the Gaussian error term to capture unobserved variables in the model.

Other approaches might be appropriate for carrying out the research in addition to the econometric methodology used in this article. An alternate methodology that this particular study can employ is a dynamic stochastic general equilibrium (DSGE) model. By utilizing a DSGE model, the research could take into account contemporary macroeconomic theories to forecast how external and domestic debt would affect public investment. Panel data analysis, vector autoregression (VAR) model, and structural equation modeling (SEM) can provide additional insights and can help achieve a more robust and comprehensive analysis of the relationship between public debt and public investment. An understanding of the possible results of various policy actions and their long-term implications could be gained by using simulation models to investigate different fiscal policy scenarios and their effects on investment and economic growth.

We used a sample of 23 observations of annual macroeconomic data of Albania, ranging from 2000 to 2022. Throughout the empirical study, time series are the most commonly used variables, and they are obtained from the World Bank and the National Institute of Albania (INSTAT) databases.

Theoretical model specification is:

$$\ln PI_t = \beta_0 + \beta_1 \ln DD_t + \beta_2 \ln ED_t + \beta_3 \ln GDP_t + \beta_4 \ln FDI_t + \mu_t \quad (1)$$

where:

- PI — Public investments (measured by gross fixed capital formation);
- DD — Domestic debt;
- ED — External debt;
- GDP — Gross domestic product;
- FDI — Foreign direct investments;
- β_i — Elasticity coefficients.

The functional relationship between domestic debt, external debt, GDP, FDI, and public investment is specified by the ARDL model as follows:

Despite these other methodologies' usefulness, the ARDL methodology was selected for this study because it can statistically examine connections between variables, which aligns with the study's focus on studying the relationship between public debt and public investment.

5. EMPIRICAL RESULTS

5.1. The stationary tests of the model

Stationarity is one of the primary issues when using time series. To ascertain the optimal co-integration methodology, the majority of co-integration procedures start by pre-testing the stationarity of the data series. The ARDL method of co-integration states that all variables must be I (0) or I (1) and that none of them can be integrated in the second order. This study practices the Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test, two of the most used tests of unit roots (Phillips & Perron, 1988).

To summarize, Table 1 provides the outcomes of the stationary tests.

Table 1. Unit root test results

Series	ADF test statistic (p-value)		PP test statistic (p-value)	
	Level I (0)	First difference I (1)	Level I (0)	First difference I (1)
Public investments	-3.174179		-3.17418	
	0.0355		0.0355	
Domestic debt	-1.137402	-4.958088	-0.904559	-6.152131
	0.6817	0.0008	0.7672	0.0001
External debt	-1.532787	-4.544174	-1.56006	-4.544248
	0.4988	0.0019	0.4854	0.0019
Gross domestic product	-1.801143	-2.923804	-1.70833	-2.934518
	0.3701	0.0594	0.4135	0.0582
Foreign direct investments	-1.775014	-4.017144	-2.125441	-4.294198
	0.3821	0.0064	0.2373	0.0033

Source: Authors' elaboration.

Public investments, as indicated by Table 1, are stationary at level, and every other variable, as determined by the ADF and PP tests, are also stationary after initial differencing. Small sample sizes are effective for ARDL, according to Narayan (2004) and Duasa (2007), when all variables are stationary at the first difference, at level, or a mix of the two.

5.2. ARDL bounds test to cointegration

At first, it is recognized whether every variable in our model is stationary at level or first difference,

and then we determine if the variables are cointegrated or not. The Akaike Information Criterion (AIC) was employed to find the quantity of optimum lags inside the model. According to our data results, when there are annual data, the optimal number of lags is less than 3, which is in line with what some researchers have indicated (Mohan, 2006). The border test is used to determine whether or not *PI*, *DD*, *ED*, *GDP*, and *FDI* have a long-term relationship. This allows us to select cointegration by computing the statistic F-value, which is compared to the upper and lower boundary values (Pesaran et al., 2001).

Table 2. ARDL bounds cointegration test

F-statistic = 6.2121564	Critical value bounds for K = 4					
	Significance 1%		Significance 5%		Significance 10%	
	I (0) bound	I (1) bound	I (0) bound	I (1) bound	I (0) bound	I (1) bound
	3.74	5.06	2.86	4.01	2.45	3.52

Source: Authors' elaboration.

There are four independent variables in the model, as can be seen from the findings shown in Table 2. For the 10%, 5%, and 1% significance levels, the F-statistic value (6.2121564) is higher than the upper bound critical value. The zero hypothesis, which holds that there is no long-term link among the variables, can be rejected in favor of the alternative hypothesis, which holds that there is cointegration between the variables because the computed F-statistic is higher than the bound critical value. Thus, *PI*, *DD*, *ED*, *GDP*, and *FDI* are cointegrated. This implies that the series progresses jointly throughout time.

5.3. Results for ARDL short- and long-run models

By using the ARDL bound test for cointegration, the public investment model's long-term and possibly short-term linkages have been verified. The long-term estimated coefficients of the ARDL model (1, 0, 2, 1, 2) are shown in Table 3. Within the period of the study, the findings of the analysis indicated a positive but insignificant long-run link between public investment and domestic debt. Meanwhile, public investments and external debt have a substantial and adverse link. This suggests that a 1% rise in long-term external debt payments would result in a 0.618% decrease in Albanian public investment.

Table 3. Estimated long-run coefficients ARDL (1, 0, 2, 1, 2) selected based on AIC

Variable	Coefficient	Std. Error	t-statistic	Prob.
LNDD	0.164775	0.191622	0.859893	0.41
LNED	-0.618477	0.09878	-6.261165	0.0001
LNGDP	0.771107	0.304358	2.533431	0.0297
LNFDI	0.390093	0.123939	3.147458	0.0104

Note: $EC = LNPI - (0.1648 * LNDD - 0.6185 * LNED + 0.7711 * LNGDP + 0.3901 * LNFDI)$.

Source: Authors' elaboration.

Additionally, Table 3 demonstrates a strong and positive correlation between public investments and both GDP and FDI. This implies that public investment would increase by 0.771% and 0.39% for every 1% increase in real GDP and FDI, respectively.

In cases where there is a long-term relationship between variables, we can estimate the error correction

coefficient (CointEq(-1)). The error-correction coefficient captures the dynamics of the short-run pattern as well as how quickly the model returns to equilibrium following a shock. Table 4 presents the findings.

Table 4. Estimated short-run coefficients

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	-0.267057	0.039272	-6.800186	0.0000
D(LNED)	-0.043513	0.032595	-1.334938	0.2115
D(LNED (-1))	0.219349	0.056245	3.899904	0.0030
D(LNGDP)	1.440294	0.154599	9.316321	0.0000
D(LNFDI)	0.215678	0.038562	5.592968	0.0002
D(LNFDI (-1))	-0.099462	0.022848	-4.353106	0.0014
CointEq(-1)*	-0.91462	0.138698	-6.59432	0.0001
R-squared	0.899647	Mean dependent var.	0.043022	
Adjusted R-squared	0.856639	S.D. dependent var.	0.067729	
S.E. of regression	0.025644	Akaike Info Criterion	-4.227789	
Sum squared resid	0.009207	Schwarz criterion	-3.879614	
Log-likelihood	51.39178	Hannan-Quinn criter.	-4.152226	
F-statistic	20.918	Durbin-Watson stat.	1.897346	
Prob(F-statistic)	0.000003			

Source: Authors' elaboration.

The error correction coefficient (CointEq(-1)), is -0.914620 and is close to the value of 1 and negative, satisfying both of the two important requirements. This suggests that there are long-term correlations between variables. Furthermore, it indicates that present shocks to public investments will be recovered at an adjustment speed of approximately 91.462%, or less than a year.

Stated differently, the private investment's disequilibrium will recover to long-run equilibrium in less than a year. Additionally, in the short term, external debt, GDP, and FDI have a positive and significant effect on public investments.

5.4. Diagnostic test

After determining the effects of domestic debt, external debt, GDP, and FDI on public investments in Albania, it must be verified the accuracy and reliability of the findings of the econometric analysis. To achieve this, we run a few diagnostic tests that show whether the final model has generated reliable and insightful results. Since the model could not be appropriate for analysis and prediction, these tests are essential. The results are summarized (see Appendix, Table A.1).

The Breusch-Godfrey LM test confirms that the model was free from autocorrelation since the LM F-statistic (0.028733) was statistically insignificant (0.8691) at a 5% significance level. The Breusch-Pagan-Godfrey test confirmed that the data series were homoscedastic since the F-statistic (0.251142) was highly insignificant (0.9801) at a 5% significance level. The ARCH test further supports the lack of heteroscedasticity with a probability of 0.6063, higher than the 5% significance level. The residuals are normally distributed and random given the probability value (0.621962) higher than the 5% significance level.

The long-term stability of the model parameters was further examined using the CUSUM and CUSUM of squares tests, in addition to the diagnostic tests mentioned above (see Appendix, Figure A.1).

The results of both tests demonstrate that the specification is stable over the considered period. Considering the CUSUM and CUSUM of squares statistics do not exceed the 5% critical bounds of parameter stability, the results validate the stability of the coefficients. Therefore, the results of this study are suitable for prescribing and policy making.

6. DISCUSSION

This study examined empirically the effects of both internal and external debt as well as GDP and FDI on public investments in Albania from 2000 to 2022. Based on ARDL bound testing to cointegrating technique, the empirical findings demonstrate the existence of a long-term relationship between the study's variables.

Furthermore, the results show that a 1% increase in external debt payments would result in a 0.618% decrease in Albanian public investments in the long run. There are a few possible reasons for this, such as the requirement to pay back and maintain the debt, the effectiveness of using borrowed funds, the tendency to crowd out private

investment, or the increased risk of default associated with an over-reliance on external borrowing. The results imply that external debt has a negative impact on public investments in Albania and that public sector spending is crowding out possibly by higher debt service payments. From an alternative perspective, rationally, more funds from external debt would enable countries to increase capital expenditures, investments, and eventually economic growth.

But in reality, developing countries have difficulties if they borrow for reasons other than those mentioned above; as a result, investments decrease even while external debt increases. In other words, while borrowing from outside sources can temporarily fund public investment projects, if it is not handled properly, the long-term effects could be harmful to development and sustained economic growth (Presbitero, 2012). This is supported also by Alamro (2024) who concludes that in corrupt societies, economic growth is inhibited by governmental debt. The negative correlation between external public debt and economic growth in the Albanian case is also supported by Bajrami (2020), who points out that this outcome could be the result of mismanaging this debt owing to corruption or from investing the funds in an unfavorable direction for the economy. There is, however, a stronger and more direct connection between public debt and economic growth — the public debt-investment link, as emphasized in this work. Based on the information provided in Section 3, the percentage of external debt has increased while the ratio of domestic debt to overall debt has declined in the last few years in Albania. This suggests that finding alternative sources of funding might lessen reliance on debt from outside sources considering the long-term negative impact of external debt on public investments.

Also, the result shows that a 1% increase in GDP would increase public investments by 0.771% and a 1% increase in FDI would lead to an increase in public investments by 0.39%. In contrast, Shiyalini and Suresh (2022) argued that foreign debt has a significant inverse relationship with FDI inflows in the short term and it has no effect on FDI over the long term in developing market cases. However, Hayami (2001) and later Todaro and Smith (2003) argue that FDI may fill gaps in private or public investments. This is also following Mileva's (2008) study which points out that in the long-term, at least one dollar of local investment is generated for every dollar of FDI, so FDI and debt inflows encourage public investment.

The empirical results also show that the system can reach equilibrium at a speed of 76%, according to the error correction coefficient. Additionally, in the short run, external debt, GDP, and FDI have positive and significant effect on public investments. This means among other things that borrowing from abroad can offer short-term funding for public investments.

These findings demonstrate that all variables included in the study, except for domestic debt affect public investments in Albania. Establishing appropriate policies that convert the public debt into a beneficial instrument and further promote FDI and economic growth is, thus, the responsibility of policy-making institutions. To sum up, our results

suggest that, to secure the long-term sustainability and expansion of public spending, Albanian policymakers should give top priority to measures that stably boost GDP growth and draw FDI while also carefully controlling external debt. These suggestions are in line with the empirical data that the ARDL model and the study's diagnostic tests have to offer.

7. CONCLUSION

A study on the relationship between public debt and investment in developing countries is essential for offering perspectives that can assist in striking a balance between fiscal stability and economic development. It helps achieve sustainable development goals, encourages the wise use of public resources, and supports policymaking — all of which are essential for the future economic growth of developing countries.

Although borrowing from abroad can offer short-term funding for public investments, an over-reliance on debt can negatively impact a nation's long-term economic prospects by restricting fiscal policy, making the nation more susceptible to outside shocks, and reducing the government's capacity to make investments in vital development sectors. This demonstrates that rigorous public debt management is necessary to ensure that public investments and, ultimately, economic growth are not negatively impacted over time. Furthermore, the authors recommend that public debt must be controlled since excessive debt will have unfavorable long-term repercussions and because taking on more debt during successive borrowing phases will slow down economic growth.

This paper is important for future research as it sheds light on the critical connection between

public debt and public investment, and offers insightful information to academics and policymakers alike. These results may serve as a foundation for additional research on how public debt affects investment and economic growth in other nations. More research in this field is made possible by the study's attention to the distinctions between domestic and external debt and how each affects stability and economic growth.

There are, of course, some limitations to take into account. Some possible variables, such as political stability, corruption indices, and other socioeconomic issues, that could affect public investment are not taken into consideration by the current model. A more comprehensive understanding of the dynamics at work might result from including these variables and perhaps this would make it clearer which of these variables may have contributed to the long-term negative impact of external debt on economic growth. In addition, taking these variables into account may offer a better approach for guiding solutions so that the rise in public debt is converted into increased public investments.

Furthermore, the research only examines macroeconomic variables; it does not attempt to explore the implications of public debt at the micro level for individual industries or geographical areas of the nation. Research in the future could overcome these constraints by taking into account the micro effects of public debt.

However, the conclusions are unique to Albania and the results are limited to this country, limiting the generalizability of findings. To ensure wider relevance, analogous research has to be carried out in additional developing nations to ascertain whether the outcomes hold true in various situations.

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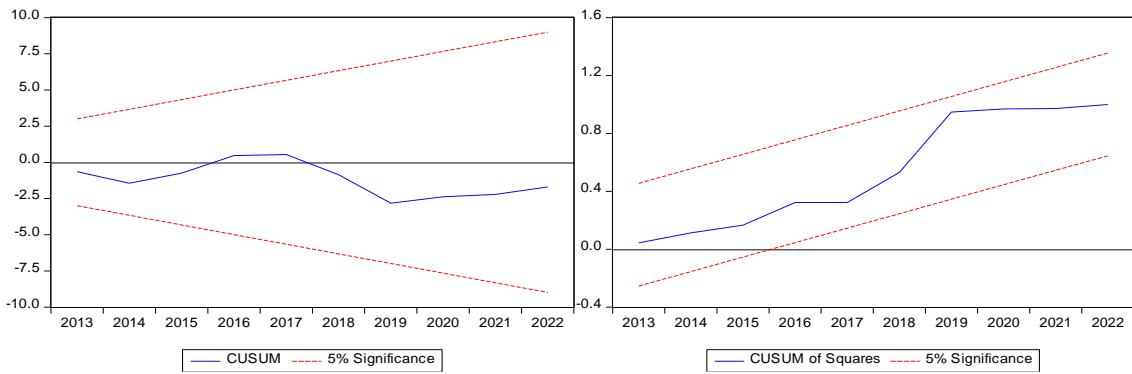
APPENDIX

Table A.1. Diagnostic test

Test	F-statistic	p-value
Breusch-Godfrey serial correlation LM test	F-statistic = 0.028733	0.8691
Heteroskedasticity test: Breusch-Pagan-Godfrey	F-statistic = 0.251142	0.9801
Heteroskedasticity test: ARCH	F-statistic = 0.516416	0.6063
Jarque-Bera normality test	-	0.621962

Source: Authors' computation.

Figure A.1. CUSUM and CUSUM of squares of residuals



Source: Authors' computation.