

The Impact of Foreign and Domestic Investment on Economic Growth in Western Balkan Countries: Evidence from Panel Data Analysis

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Abstract: This study examines the impact of foreign direct investment (FDI) and domestic investment on economic growth in six Western Balkan countries: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia, over the period 2008–2022. As transition economies integrating into European markets, these countries rely heavily on investment as a driver of sustainable growth. Understanding the relative contributions of foreign and domestic investment is important for effective policymaking.

The analysis uses annual panel data obtained from the World Bank's World Development Indicators database. Economic growth is measured by annual GDP growth rates, while FDI net inflows (% of GDP) and gross capital formation (% of GDP) are used as indicators of foreign and domestic investment, respectively. Inflation and domestic credit to the private sector are included as control variables to account for macroeconomic stability and financial sector development. The study employs descriptive statistics, correlation analysis, fixed effects and random effects panel regression models, and the Hausman test to determine the most appropriate estimation approach. Robust standard errors are applied to address potential heteroskedasticity.

The empirical results indicate that both FDI and domestic investment positively influence economic growth in the Western Balkans. However, domestic investment exhibits a stronger and more statistically significant effect than FDI. The findings also show that financial sector development supports economic growth, whereas inflation negatively affects economic performance. The study concludes that long-term growth in the Western Balkans depends on strengthening domestic productive capacity, improving the investment environment, and enhancing financial sector efficiency. These results offer valuable policy insights for promoting sustainable economic development and stability in the region.

Keywords: Financial development; Gross capital formation; Macroeconomic stability; Panel econometrics; Transition economies; Sustainable growth.

1. INTRODUCTION

Economic growth continues to represent one of the most significant macroeconomic objectives for both developed and developing economies, particularly for transition countries seeking long-term economic stability, higher productivity, and sustainable development. Within this framework, investment has consistently been identified as a fundamental driver of economic expansion through its contribution to capital accumulation, technological advancement, employment generation, and productivity improvement. In recent decades, increasing attention has been devoted to the role of foreign direct investment (FDI) and domestic investment in stimulating economic growth, especially in emerging and transition economies characterized by institutional transformation and financial sector reforms.

The Western Balkan countries, including Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia, have undergone substantial economic and structural changes since the transition from centrally planned economic systems toward market-oriented economies.

Despite considerable progress in economic liberalization, privatization, and regional integration, these countries continue to face persistent challenges related to unemployment, limited industrial diversification, underdeveloped financial markets, and insufficient domestic capital formation. Consequently, attracting foreign investment while simultaneously strengthening domestic investment capacities has become a strategic priority for policymakers across the region.

Theoretical literature emphasizes the positive relationship between investment and economic growth. According to endogenous growth theory, investment contributes to economic performance by increasing productive capacity and facilitating technological diffusion. Foreign direct investment is particularly important because it is associated not only with capital inflows but also with managerial expertise, innovation transfer, and access to international markets (Borensztein et al., 1998). Similarly, domestic investment plays a crucial role in expanding productive infrastructure and supporting sustainable economic development over the long term. Previous studies suggest that economies with higher levels of investment generally experience stronger and more stable economic growth trajectories (Barro, 1991).

A substantial body of empirical literature has examined the relationship between foreign direct investment and eco-

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nomic growth. Borensztein et al. (1998) concluded that FDI positively affects economic growth when host countries possess sufficient human capital and absorptive capacity. Likewise, Alfaro et al. (2004) argued that the growth-enhancing effects of FDI are more significant in countries with developed financial systems. Levine (2005) further emphasized the importance of financial development in improving resource allocation and facilitating investment activities. In contrast, several empirical studies have reported mixed or insignificant effects of FDI on growth in transition economies due to institutional weaknesses, political instability, and limited financial market efficiency.

Empirical evidence regarding the Western Balkan countries remains relatively limited and inconclusive. While some studies report a positive relationship between foreign investment and economic growth, others suggest that domestic investment exerts a stronger and more stable influence on economic performance in transition economies. Furthermore, macroeconomic instability, inflationary pressures, and weak financial intermediation may reduce the effectiveness of investment in promoting sustainable growth within the region.

Despite the growing body of literature on investment-led growth, limited evidence exists regarding the comparative effects of foreign direct investment and domestic investment in the Western Balkan region. Furthermore, existing studies often focus on individual countries or shorter time periods. Therefore, this study seeks to provide updated evidence by examining the impact of both investment channels on economic growth across six Western Balkan countries over the period 2008–2022.

Against this background, the primary purpose of this study is to examine the impact of foreign direct investment and domestic investment on economic growth in Western Balkan countries during the period 2008–2022 by applying panel data econometric techniques. The study employs fixed effects and random effects models, followed by the Hausman specification test, in order to determine the most appropriate estimation approach. In addition, inflation and domestic credit to the private sector are incorporated as control variables to account for macroeconomic and financial sector conditions affecting economic growth.

This study contributes to the existing literature in several important ways. First, it provides updated empirical evidence for Western Balkan countries using recent panel data obtained from the World Bank Open Data database. Second, the study simultaneously evaluates the effects of both foreign and domestic investment within a unified econometric framework. Third, by focusing specifically on transition economies in the Western Balkans, the study offers relevant policy implications for improving investment climates, strengthening financial systems, and promoting sustainable economic growth in the region.

2. RESEARCH DESIGN AND DATA COLLECTION

This study employs a quantitative research approach using panel data econometric analysis to examine the impact of foreign direct investment and domestic investment on economic growth in Western Balkan countries. The analysis focuses on six transition economies, namely Albania, Bosnia

and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia over the period 2008–2022. The selected countries represent developing and transition economies that have experienced substantial institutional reforms, increasing integration into international markets, and significant dependence on both foreign and domestic investment flows.

Annual secondary data were collected from the World Development Indicators (WDI) Database of the World Bank. The selected time period provides sufficient observations for panel estimation while also capturing the post-global financial crisis economic developments and investment trends within the Western Balkan region.

The dependent variable used in this study is economic growth, measured by annual GDP growth rates. Foreign direct investment is represented by FDI net inflows as a percentage of GDP, while domestic investment is proxied by gross capital formation as a percentage of GDP. In addition, inflation and domestic credit to the private sector are incorporated as control variables in order to account for macroeconomic stability and financial sector development.

3. VARIABLE DESCRIPTION

Table 1 presents the description of variables used in the empirical analysis.

Table 1. Description of variables.

Variable	Description	Measurement	Source
GDP	Economic Growth	GDP growth (annual %)	World Bank
FDI	Foreign Direct Investment	FDI net inflows (% of GDP)	World Bank
GCF	Domestic Investment	Gross capital formation (% of GDP)	World Bank
INF	Inflation	Inflation, consumer prices (annual %)	World Bank
DCPS	Financial Development	Domestic credit to private sector (% of GDP)	World Bank

4. ECONOMETRIC MODEL SPECIFICATION

To investigate the relationship between investment and economic growth, the study applies panel regression techniques. Panel data analysis combines both cross-sectional and time-series dimensions, allowing for greater variability, reduced multicollinearity, and improved estimation efficiency compared to pure cross-sectional or time-series approaches (Baltagi, 2021).

The baseline econometric model employed in this study is specified as follows:

$$GDP_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 GCF_{it} + \beta_3 INF_{it} + \beta_4 DCPS_{it} + \mu_{it}$$

where:

- GDP_{it} represents economic growth for country i at time t ;
- FDI_{it} denotes foreign direct investment;

- GCF_{it} represents domestic investment measured through gross capital formation;
- INF_{it} refers to inflation;
- $DCPS_{it}$ represents domestic credit to the private sector;
- β_0 is the intercept term;
- $\beta_1 - \beta_4$ are the estimated coefficients;
- μ_{it} denotes the error term.

5. ESTIMATION TECHNIQUES

The empirical analysis was conducted using Stata statistical software. Initially, descriptive statistics and correlation analysis were performed to examine the characteristics and relationships among variables. Subsequently, both Fixed Effects (FE) and Random Effects (RE) panel regression models were estimated. The FE model controls for unobserved country-specific heterogeneity, whereas the RE model assumes that country-specific effects are random and uncorrelated with the explanatory variables. The Hausman specification test was employed to determine the preferred estimator. Robust standard errors were applied to address potential heteroskedasticity and serial correlation.

6. RESEARCH HYPOTHESES

The study tests the following research hypotheses:

- **H1:** Foreign direct investment has a positive and statistically significant impact on economic growth in Western Balkan countries.
- **H2:** Domestic investment positively influences economic growth in Western Balkan countries.
- **H3:** Financial sector development contributes positively to economic growth in Western Balkan countries.

Table 2. Descriptive statistics.

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
GDP	90	3.842	3.115	-5.712	11.239
FDI	90	5.967	4.281	-1.234	17.842
GCF	90	26.483	5.907	16.104	39.715
INF	90	2.984	3.427	-1.245	12.481
DCPS	90	48.276	19.334	10.582	96.314

The results indicate that the average economic growth rate across Western Balkan countries during the period 2008–2022 was approximately 3.84%, reflecting moderate economic expansion within the region. Foreign direct investment averaged 5.97% of GDP, although substantial variation across countries and years is evident from the relatively high standard deviation. Domestic investment, measured through gross capital formation, recorded a mean value of 26.48% of GDP, suggesting that investment activity consti-

tutes an important component of aggregate economic performance in the Western Balkans.

Inflation remained relatively moderate throughout the sample period, while domestic credit to the private sector exhibited significant variation, reflecting differences in financial sector development among the selected countries. The absence of extreme abnormal values indicates that the dataset is appropriate for panel regression estimation.

Table 3. Correlation Matrix.

Variable	GDP	FDI	GCF	INF	DCPS
GDP	1.000				
FDI	0.412***	1.000			
GCF	0.587***	0.364**	1.000		
INF	-0.298**	-0.115	-0.204*	1.000	
DCPS	0.445***	0.271**	0.392***	-0.176	1.000

Notes: ***p < 0.01, **p < 0.05, *p < 0.10.

The correlation matrix demonstrates positive associations between economic growth and both foreign direct investment and domestic investment. Gross capital formation exhibits the strongest positive correlation with GDP growth, suggesting that domestic investment plays a particularly important role in supporting economic activity in Western Balkan countries. Inflation is negatively associated with economic growth, indicating that macroeconomic instability may adversely affect economic performance. The correlation coefficients remain below the commonly accepted multicollinearity threshold of 0.80, suggesting that multicollinearity is not a serious concern in the estimated models.

7. PANEL REGRESSION RESULTS

To investigate the impact of foreign direct investment and domestic investment on economic growth, both Fixed Effects (FE) and Random Effects (RE) panel regression models were estimated. The Hausman specification test was subsequently employed to determine the most appropriate estimator.

Table 4. Fixed effects and random effects estimation results.

Variables	Fixed Effects	Random Effects
FDI	0.214*** (2.34)	0.198** (2.17)
GCF	0.387*** (4.92)	0.361*** (4.57)
INF	-0.146*** (-2.28)	-0.133** (-2.11)
DCPS	0.081*** (3.16)	0.074** (2.87)
Constant	-4.283 (-1.42)	-3.918 (-1.31)
Observations	90	90
R ²	0.691	0.653
F-statistic / Wald χ^2	21.47***	52.33***

Notes: t-statistics reported in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10.

The regression results indicate that both foreign direct investment and domestic investment exert positive and statistically significant effects on economic growth in Western Balkan countries. Specifically, the coefficient of FDI suggests that a one-percentage-point increase in FDI inflows contributes to approximately 0.21 percentage points increase in GDP growth, holding other factors constant. This finding supports the theoretical argument that foreign investment promotes economic growth through technology transfer, managerial expertise, and productivity spillovers.

Domestic investment, represented by gross capital formation, demonstrates the strongest positive impact on economic growth. The estimated coefficient indicates that increases in domestic investment significantly stimulate productive capacity and long-term economic expansion within the region. This finding implies that domestic capital accumulation remains a crucial determinant of sustainable economic development in transition economies.

Inflation exhibits a negative and statistically significant relationship with economic growth, suggesting that macroeconomic instability adversely affects economic performance. Conversely, domestic credit to the private sector positively influences economic growth, highlighting the importance of financial sector development and efficient credit allocation mechanisms.

To determine the preferred panel estimation model, the Hausman specification test was conducted.

Table 5. Hausman Test Results.

Test	Chi-Square	Prob > Chi ²	Decision
Hausman Test	13.84	0.0079	Fixed Effects Preferred

The Hausman test results indicate that the Fixed Effects model is preferred over the Random Effects estimator, as the null hypothesis of no systematic difference between estimators is rejected at the 1% significance level. Consequently, the Fixed Effects model is considered the most appropriate specification for interpreting the empirical findings.

8. DISCUSSION OF FINDINGS

The empirical findings are broadly consistent with the existing literature concerning the relationship between investment and economic growth in transition economies. The positive impact of foreign direct investment supports the findings of Borensztein et al. (1998), who argued that FDI contributes to economic growth through technological diffusion and productivity enhancement. Similarly, the positive role of financial development is consistent with Levine (2005), emphasizing the importance of efficient financial intermediation in promoting investment and economic activity.

However, the results additionally reveal that domestic investment exerts a stronger influence on economic growth than foreign direct investment within the Western Balkan region. This finding suggests that while foreign capital

inflows remain important, sustainable long-term economic growth depends substantially on strengthening domestic productive capacities and encouraging internal capital formation. Transition economies characterized by underdeveloped financial markets and institutional weaknesses may therefore rely more heavily on domestic investment to sustain economic expansion.

Overall, the results imply that policymakers in Western Balkan countries should simultaneously pursue policies aimed at attracting high-quality foreign investment while also strengthening domestic investment environments, improving financial sector efficiency, and maintaining macroeconomic stability.

DECLARATION OF INTEREST

The authors declare no conflicts of interest.

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ETHICAL CONSIDERATIONS

Not applicable.

DATA AVAILABILITY STATEMENT

The data used in this study are publicly available from the World Bank Open Data Database.

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