**IJEM**
International Journal of Economics and Management
Journal homepage: http://www.ijem.upm.edu.my

# Foreign Direct Investment, Domestic Investment, and Economic Growth: Investment Synergy in The Former Soviet Countries

IKBOLJON KASIMOV[a], LU WENCONG[b*],
HAYOT BERK SAYDALIEV[a] AND MUZAFFAR KARIMOV[c]

[a]*Research and Grants Department, Graduate School of Business and Entrepreneurship, Uzbekistan*
[b]*School of Public Affairs, Zhejiang University, China*
[c]*SInstitute for Macroeconomic and Regional Studies, Uzbekistanversity*

## ABSTRACT

This study analyzes whether foreign direct investment (FDI) crowds in or crowds out domestic investment (DI) in the Former Soviet Union (FSU). Additionally, it examines the causal relationships between FDI, DI, and economic growth (EG) using balanced panel data from 2002 to 2022. Panel Autoregressive Distributive Lag (Panel - ARDL) estimation results suggest the existence of the crowding-in effect and bidirectional causality between EG and FDI, as well as DI and FDI. Further, this study found a surprising unidirectional causality from DI to EG, implying that economic expansions might not lead to increased domestic investment. These findings imply that the FSU transition economies should prioritize an inclusive business environment and promote synergies between FDI and DI. This can be achieved through policies encouraging investment complementarity, promoting joint ventures, targeting high-spillover sectors, and leveraging growth to attract and retain investment.

**JEL Classification:** F21, F43, F10, O47, O43

**Keywords:** Transition economics; Economic growth; Foreign direct investment; Domestic investment; Panel – ARDL; causality

*Article history:*
Received: 14 October 2024
Accepted: 7 April 2025

* Corresponding author: Email: wenclu@zju.edu.cn
DOI: http://doi.org/10.47836/ijeam.19.1.07

## INTRODUCTION

Investment synergy between foreign direct investment (FDI) and domestic investment (DI) is critical for economic growth in developing countries. Theoretically, FDI can stimulate economic growth through technology transfer, capital inflows, job creation, and market expansion (Adam et al., 2024; Mishrif et al., 2024). DI, on the other hand, can foster economic growth by job creation, infrastructure development, increased productivity, and stimulating domestic demand Seyoum et al. (2024). Therefore, based on the complementarity theory (Kwablah and Amoah, 2022), the synergy of these investments is perceived to stimulate economic growth by enhancing each other's effectiveness and creating a multiplier effect.

The literature on FDI and its impact on economic growth in developing countries has grown considerably over the years. However, many studies have arrived at inconclusive results, and thus, the impact of FDI on the host economy remains controversial (Kopiński, 2023; Kamil and Bazoumana, 2018). One reason for such a result could be the degree of substitution or complementary relationship between FDI and DI. The reaction of domestic investors to FDI may lead to either a substitution or a complementary relationship. Hence, the main question is whether FDI crowds in or crowds out DI. The existence of the "crowding-out" effect reduces domestic investment due to the sophisticated technologies of foreign firms and the limited absorptive capacity of domestic firms. Jude (2019) highlighted that the implications of the crowding-out effect could be equivocal because it can force inefficient domestic firms to exit the market, leading to a short-term negative impact on investment but boosting average productivity levels in the long-term. The "crowding-in" effect, on the other hand, leads to more investment from domestic sources and contributes to economic growth. Pilbeam and Oboleviciute (2012) noted that the crowding-in effect complements domestic investment by transferring new resources and technologies, improving existing skills and practices, and stimulating innovation and efficiency in host economies.

Prior research, such as Adams (2009), Ghazali (2010), Farla et al. (2016), and Osei and Kim (2020) found significant links between EG and FDI or DI. However, while these studies have shed light on long-run economic growth through FDI or DI, they fail to establish clear causality. Hence, the findings of these studies are rather ambiguous because instead of higher FDI or DI leading to rapid economic growth; economic growth could be leading to higher FDI or DI (Chanegriha et al., 2020). This is when economic growth attracts higher FDI, as a rapidly growing economy provides greater profit opportunities (Belaşcu et al., 2018). Likewise, economic growth can be advantageous for DI through its impact on saving rates and local production capacities. Few studies, such as Akadiri et al. (2020) and Shabbir et al. (2021), investigated the causal link between EG, DI, and FDI, emphasizing that the importance of domestic investment should not be undermined in favor of FDI, especially in developing countries. This infers that mismanaged FDI can potentially crowd-out DI, undermining its benefits, while a crowding-in effect could bolster DI and foster growth. Therefore, understanding the causal relationship between FDI and domestic investment is crucial, as both can cause each other. Considering the obsolete capital stock inherited from the socialist era and the mass industrial transformation followed by the economic transition, this issue is fundamental for transition economies, especially for FSU countries.

This research examines the trilemma relationships between economic growth, foreign direct investment, and domestic investment in 15 FSU countries during the 2002-2022 period. The contributions of this study are threefold. First, focusing on FSU economies with similar social and economic conditions helps to reduce sample selection bias. Second, past studies have rarely considered the transition economies of the FSU, whereas other studies on other developing countries have arrived at mixed results. Besides, only a handful of studies have considered the causal links among these variables, evolving the debate around whether FDI crowds in DI, promoting economic growth, or crowds it out, decreasing domestic investments. Studies, such as Chakraborty and Mukherjee (2012) and Farla et al. (2016) suggest that FDI stimulates DI, whereas Morrissey and Udomkerdmongkol (2012) argue that it replaces DI. The relationship between FDI, DI, and EG is also debated, with some studies highlighting positive impacts Ali et al. (2010) and Shabbir et al. (2020) while others reported negative or no clear effects (Buchanan et al., 2012; Chanegriha et al., 2020). Causality between these variables also varies, with some studies suggesting unidirectional causality from FDI to economic growth Lean and Tan (2011) and other reporting bidirectional links (Tan and Tang, 2012). These diverse findings reflect the complexity of the relationships between the variables and reveal the need for further investigation to clarify the dynamics. Considering the unique economic and social aspects of the FSU

countries, the findings of these studies cannot be generalized. These countries share a common history under the Soviet Union, where many countries have inherited state-controlled industries, heavy reliance on natural resources as key economic drivers, and similar infrastructure, such as transportation and energy systems. Given these aspects, a comprehensive empirical study with large panel data helps identify and explain the causal relationships between these variables. Last but not least, this research work investigates whether FDI crowds out or crowds in DI and enables a better understanding of which investment source conveys a greater economic growth effect in FSU transition economies.

The originality of this study is that it investigates the three-way relationships between EG, FDI, and DI in FSU countries using the ARDL models. The ARDL bounds testing to cointegration test enables to examine the presence of the short- and long-run causal relationships between these variables. The results show bidirectional causality between FDI and EG, unidirectional causality between DI and EG, where domestic investment causes EG, and bidirectional causality between FDI and DI. These findings signify that a positive association between FDI and DI or economic growth might be attributable to the possible mutual relationships, where higher EG growth attracts more significant FDI, higher FDI then promotes DI, and DI increases EG. These empirical results provide some tremendous implications for government entities and policymakers.

The rest of the paper is organized as follows: Section 2 discusses the theoretical and empirical literature on the relationship between foreign direct investment, domestic investment, and economic growth. Section 3 describes the methodology, data and variables, and empirical specification. Section 4 presents the empirical results and discusses the findings. Section 5 provides concluding remarks and policy implications.

## LITERATURE REVIEW

### Foreign Direct Investment and Economic Growth

Earlier studies, Blomström et al. (2003) listed several advantages of FDI inflows for host countries, including human capital development, new business opportunities, increased demand for labor, reduction of the balance of payments deficit, stimulation of domestic capital, expanding the market power of existing firms and tax revenues compared to other types of financial capital. Even though the variable prerequisites are controlled, Herzer and Klasen (2008) reported that FDI has a negative impact on economic growth. The authors believed that FDI in the form of acquisitions and mergers might not lead to an increase in the fixed capital of host countries, and if FDI displaces domestic investment, FDI may have a negative impact on economic growth. In addition, the contribution of foreign direct investment to national income may influence the impact of FDI on EG (Tekin, 2012; Shokhrukh et al., 2023). Iamsiraroj (2016) suggested that the effect of FDI on economic growth depends on certain factors, such as human resources, sophisticated monetary systems, absorptive capacity, and infrastructure arrangements. This view was also emphasized in Palaniaandy and Chin (2018).

Several other researchers have investigated the impact of EG on FDI, taking into account nations' other cultural characteristics, which has led to varied outcomes. Ali et al. (2010) and Asamoah et al. (2016) studied the FDI-EG nexus and discovered that FDI does have a significant and positive impact on economic growth. Buchanan et al. (2012), on the other hand, concluded that EG has a negative impact on FDI. They explain this finding by increasing labor costs and capital accumulation as a result of rising living standards. Sabir et al. (2019) highlighted that EG encourages FDI inflows to underdeveloped countries but prevents FDI inflows to developed countries. Authors argue that this conclusion is related to the fact that foreign investors usually place more emphasis on human capital than on growth in developed countries.

Undeniably, the relationship between FDI and EG can be beneficial in both ways. This hypothesis is based on the idea that the steady growth of national income in the host country creates an income effect that leads to an increase in demand for new goods and, in turn, to an increase in potential profits, attracting FDI. However, the literature on cause-and-effect relationships is ambiguous. In early literature, Nair-Reichert and Weinhold (2001) argued that FDI unilaterally causes growth. On the other hand, Basu et al. (2003) established a bidirectional causal relationship between FDI and EG in an open economy in the short and long term. However, although the short-term causal relationship is bidirectional in relatively isolated economies, the long-term causal relationship stems from EG to FDI. Later, Liu et al. (2009) also reported a bidirectional causal relationship between FDI, trade, and economic growth, whereas Roy and Mandal (2012) showed that

an inverse causal relationship traced from EG to FDI and Chanegriha et al. (2020) claimed that in most countries, there is no explicit evidence for a causal relationship between foreign direct investment and economic growth.

For transition economies, Belaşcu et al. (2018) and Comes et al. (2018) reported that FDI is one of the main contributors to the successful economic transformation and rapid economic growth in some of the Central and East European Countries (CEEC). However, the empirical literature focusing on the Former Soviet Countries remains scarce. Lack of literature and inconsistencies within the existing studies raise questions regarding the nature of the FDI-EG relationship and thus addressing these gaps requires a nuanced approach that accounts for regional and country-specific factors with long-term dynamics.

**Domestic Investment and Economic Growth**

Kowalski (2000) and Adams (2009) are some of the few earlier studies highlighting the importance of domestic investment for economic growth. The majority of existing literature, such as Kowalski (2000), Villa (2008), Omri and Kahouli (2014), and Shabbir et al. (2020), stated that domestic investment is a prolific sign of economic growth, facilitating swifter growth, through increased productivity, capital creation, and exports. Considering that domestic investment has a significant impact on numerous economic factors, Bakari (2017) argued that domestic investment is a tool for achieving economic development guiding the national investment decisions in establishing an appropriate climate for wealth maximization. Nevertheless, despite its importance, literature examining the impact of domestic investment on economic growth is limited, and the findings of these studies are inconclusive (Bakari, 2018; Belloumi and Alshehry, 2018; Shabbir et al., 2020).

Empirically, Shabbir et al. (2020) found the domestic investment to have a positive and significant impact on economic growth for Pakistan, whereas Belloumi and Alshehry (2018) reported negative bidirectional causality between non-oil GDP growth and domestic capital investment for Saudi Arabia. Similarly, Lean and Tan (2011) used the vector error correction model (VECM) and found a negative relationship between domestic investment and economic growth from 1970 to 2009 in Malaysia. Later, in a similar study, Mohamed et al. (2017) examined the relationship between economic growth, FDI inflows, and DI in Malaysia during 1970–2008 using VECM. Their findings showed the existence of bidirectional causality between DI and economic growth. For a panel of Middle East and North African countries, Omri (2014) examined the relationship between FDI, domestic capital, and economic growth using simultaneous-equation models and growth models. Using the generalized method of moments (GMM) estimator, the author found bidirectional causality between domestic capital and economic growth from 1990 to 2010. Bakari (2018), on the other hand, reported a negative relationship between domestic investment and economic growth in the long- term and a positive association in the short- term in Algeria during 1969-2015.

Earlier, Qin et al. (2006) demonstrated that economic growth causes DI rather than the other way around, whereas Villa (2008) found the direction of causation from domestic investment to economic growth in Italy. Using a multivariate cointegration approach, Tang et al. (2008) studied the relationship between economic growth, FDI, and domestic investment in China. The authors revealed a more pronounced effect of domestic investment on economic growth than FDI, suggesting that China should prioritize increasing national savings for DI rather than attracting foreign investment. Similarly, Adams (2009) also reported a positive and significant impact of DI on economic growth in Sub-Saharan Africa. Omri and Kahouli (2014), using a dynamic GMM estimator, reported significant and positive link between DI and economic growth in high, middle, and low-income countries. Bayar (2014) arrived at similar result for Turkey. Despite the number of existing studies, there is hardly one study, investigating the importance and impact of DI on economic growth in Former Soviet Union economies. Despite DI is recognized as a driving factor of growth, the research is limited, with equivocal and context dependent findings. Hence, these ambiguous causal relationships, along with a lack of focus on transition countries, particularly the FSU region, implies the need for more targeted studies.

**Foreign Direct Investment and Domestic Investment**

The empirical literature on the association between foreign direct investment and domestic investment is quite ambiguous. Hence, there is no consensus on whether FDI crowds in or out domestic investment. Smarzynska Javorcik (2004) argued that FDI could have positive spillover effects on DI through joint ventures rather than fully owned foreign enterprises. Besides, the economic structure and domestic policies toward FDI

predetermine the dominance of positive or negative effects across countries and time. For instance, liberalization and the conduct of efficient macroeconomic policies can improve the prospect of FDI crowding in domestic investment. Agosin and Machado (2005) found mixed empirical results, where a positive effect of FDI on domestic investment was detected in Asia, a negative impact in Latin America, and a negligible effect was observed in Africa. Their results varied from country to country due to the policy differences, the types of FDI, and the competitiveness of domestic firms. For sub-Saharan Africa, Ndikumana and Verick (2008) suggested that FDI crowds in domestic investment, where private investment becomes a driver of the domestic business climate development in African economies, leading to significant gains. Later, Ang (2009) emphasized that FDI has a positive effect on domestic investment in Malaysia, whereas Eregha (2012) reported a negative association for developing countries during 1970–2008 using the system panel cointegration method.

For transition economies, only a few studies have considered this relationship despite the shortage of capital and grand economic development ambitions. For the Czech Republic, Hungary, and Poland, Mišun and Tomšík (2002) revealed that the impact of FDI on domestic investment is contingent on the economic structure of the host country. They suggested that FDI has a positive effect on DI in export-oriented countries in contrast to domestic market-oriented economies. Their estimates produced mixed evidence of a crowding-in impact on Hungary and the Czech Republic and a crowding-out effect in Poland. Mileva (2008) highlighted the small positive impact of FDI on domestic investment in the long-run in European transition countries with developed financial markets and institutions. Similarly, Jude (2019), more recently, found a crowding-out effect in the short-term and a crowding-in effect in the long-term in 10 Central and Eastern European transition economies. Later, Pilbeam and Oboleviciute (2012) conducted a similar study using the GMM method to capture macroeconomic externalities in 26 European Union (EU) countries. They found no crowding-out effect of FDI on DI for the new EU member-states, but a significant adverse impact of FDI was detected for the leading 14 EU economies.

Prior literature unveils that the relationship between FDI and DI is intricate, with opposing results. Yet, there is some evidence of a crowding-in effect in less developed economies and some evidence of a crowding-out impact in developed countries. Because FDI can have positive and negative effects on domestic investment, in theory, this phenomenon should be examined using empirical methods. Furthermore, methodological differences in econometric approaches and sample selection can lead to divergent conclusions about the nature of the relationship between FDI and domestic investment. This variability calls for a standardized approach to studying this relationship in the context of transition economies to yield more consistent and generalizable findings. Hence, addressing these gaps will enhance our understanding of how FDI can be leveraged to support domestic investment and economic growth.

## METHODOLOGY

The objective of this research study is to analyze the causal relationship between EG, FDI, and DI in 15 FSU countries. These factors are endogenous as FDI depends on EG and DI along with other variables and vice versa (Omri, 2014). Hence, the simultaneous equations model is more appropriate to treat EG, FDI, and DI as endogenous and capture the dynamic interactions. Due to the data characteristics, this study uses a panel autoregressive distributed lag approach (ARDL). The panel ARDL method simultaneously estimates short- and long-term impacts and helps overcome endogeneity issues. By simultaneously estimating the relationships among EG, FDI, and DI, this methodology reduces biases that could arise from omitted variable effects or reverse causality. The inclusion of error correction terms further enhances the model's robustness by allowing for adjustments towards long-term equilibrium after short-term shocks. This approach uses three estimators in the error correction, including the mean group (MG), pooled mean group (PMG), and dynamic fixed effect (DFE). These three estimation methods consider both the long-term equilibrium and heterogeneity of the dynamic adjustment process (Assi et al., 2021). Using the Hausman test, the appropriate estimator is then selected through a trade-off between efficiency and consistency (Blackburne and Frank, 2007).

**Data and Variables**

The main aim of this research is to examine the causal relationship between foreign direct investment, domestic investment, and economic growth in 15 FSU economies. Data are obtained from World Development Indicators and World Governance Indicators of the World Bank. Since the number of observations varied across the variables, this study used the time period with the most observations for all variables, covering the 2002 to 2022 period.

Following the prior literature, per capita gross domestic product is used to proxy for economic growth (Adams, 2009; Tekin, 2012; Iamsiraroj, 2016), FDI is measured as the total foreign direct investment inflows (Mohamed et al., 2017; Belaşcu et al., 2018), and gross fixed capital formation is used to proxy for DI (Bakari, 2018; Lean and Tan, 2011). The total natural resource rents ratio to GDP measures the abundance of natural resource endowments (Cleeve et al., 2015), capturing the economic value derived from resources such as oil, gas, and minerals. This metric is used to assess whether resource endowments contribute to or hinder economic growth. The ratio of total trade (exports + imports) over GDP measures FSU nations' degree of openness to trade with the outside world (Lu et al., 2020). This measure reflects progress towards globalization and economic liberalization, providing insights into how a country's integration into the global economy affects its investment landscape. The external debt to GDP ratio is employed to gauge a country's capacity to pay off foreign debt (Tanna et al., 2018; San and Chin, 2023). The governance dataset was used to symbolize the quality of institutions in FSU countries. As in prior studies, such as Globerman and Shapiro (2002), Daude and Stein (2007), and Buchanan et al. (2012), this study uses principal components analysis (PCA) to extract an aggregate measure of institutional quality in FSU countries due to a strong correlation between the six governance indicators.[1] Table 1 presents detailed information on the variables used in this study.

Table 1 Variables, symbol, measure, and sources

| Variables | Symbol | Measure | Data Sources |
|---|---|---|---|
| Economic Growth | EG | Per capita GDP | World Bank |
| Foreign Direct Investment | FDI | FDI inflows | World Bank |
| Domestic Investment | DI | Gross Fixed Capital Formation to GDP Ratio | World Bank |
| Natural Resource Rents | RES | Total Natural Resource Rents to GDP Ratio | World Bank |
| Trade Openness | TO | Trade to GDP Ratio | World Bank |
| Foreign Debt | DEBT | Total Foreign Debt | World Bank |
| Institutions | INST | Aggregated WGI indicators (PCA) | World Bank |

**Empirical Specification**

The ARDL model is specified as:

$$y_{i,t} = \sum_{j=1}^{p} \lambda_{ij} y_{i,t-j} + \sum_{j=0}^{q} \delta_{ij}' X_{i,t-j} + \mu_i + e_{i,t} \quad (1)$$

where $i = 1, \dots, N$ is the number of panels, $t = 1, 2, \dots, T$ is the number of periods, $X_{i,t}$ is the k x 1 vector of independent variables, $\delta_{i,j}$ are the k x 1 coefficient vectors, $\lambda_{ij}$ are scalars or the coefficient of the lagged dependent variable, and $\mu_i$ is the panel-specific effect. If the variables in equation (1) are allowed to be $I(1)$ and cointegrated, then the disturbances are $I(0)$ for all $i$. Cointegrated variables are sensitive to any change from long-run equilibrium, implying an error correction model where deviation from equilibrium influences short-run dynamics of the variables in the system. Hence, equation (1) can be re-parameterized into the ARDL error correction model.

$$\Delta y_{i,t} = \phi_i \left( y_{i,t-1} - \theta_i' X_{i,t} \right) + \sum_{j=1}^{p-1} \lambda_{ij}^{*} \Delta y_{i,t-1} \sum_{j=0}^{q-1} \delta_{ij}'^{*} \Delta X_{i,t-j} + \mu_i + e_{i,t} \quad (2)$$

where $\phi_i$ is the parameter for panel-specific error-correcting speed of adjustment term. When $\phi_i = 0$, there is no evidence of a long-run relationship. This parameter is expected to be negative and significant ($\phi_i < 0$) to show the existence of a long-run relationship. $\theta_i'$ is the vector that signifies the long-run relationships amongst the variables. To examine the interrelationship between EG, FDI, and DI, each factor is treated as endogenous,

[1] The correlation results between the world governance indicators and the calculated institutions measure indicate positive and significant correlation, on average 0.93 ($p$=0.001).

and the following simultaneous equation models are formulated. The three-way interdependency between EG, FDI, and DI are empirically examined using these equations:

$$LnFDI_{i,t} = \beta_0 + \beta_1 LnEG_{i,t} + \beta_2 LnDI_{i,t} + \beta Z_{i,t} + \varepsilon_{i,t} \quad (3)$$
$$LnEG_{i,t} = \beta_0 + \beta_1 LnFDI_{i,t} + \beta_2 LnDI_{i,t} + \beta Z_{i,t} + \varepsilon_{i,t} \quad (4)$$
$$LnGDI_{i,t} = \beta_0 + \beta_1 LnFDI_{i,t} + \beta_2 LnEG_{i,t} + \beta Z_{i,t} + \varepsilon_{i,t} \quad (5)$$

where $i = 1, \dots, N$ indicates the country (15 FSU countries) and $t = 1, \dots, T$ represents the time period (2002–2022); $LnEG_{i,t}$ is the log of economic growth; $LnFDI_{i,t}$ is the log of foreign direct investment inflows, $LnDI_{i,t}$ denotes the log of domestic investment; $Z_{i,t}$ indicates the group of control variables, including the log of natural resource rents, trade openness, log of foreign debt, and institutions.

## RESULTS

Table 2 provides the descriptive statistics for the dependent and independent variables used in this study. All variables (economic growth, foreign direct investment, domestic investment, natural resources, and foreign debt) except for trade openness and institutions are in logarithms.

Table 2 Descriptive statistics

| Variable | Obs. | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Economic Growth (EG) | 315 | 5.921 | 1.18 | 0.105 | 6.964 |
| Foreign Direct Investment (FDI) | 315 | 5.847 | 1.043 | 1.099 | 6.91 |
| Domestic Investment (DI) | 315 | 11.607 | 2.137 | 0.115 | 13.797 |
| Natural Resources (NR) | 315 | 5.824 | 1.111 | 0.140 | 6.91 |
| Trade Openness (TO) | 315 | 495.116 | 320.956 | 1.001 | 102.5 |
| Foreign Debt (DEBT) | 315 | 4.039 | 2.65 | 0.218 | 6.653 |
| Institutions (INST) | 315 | 0.221 | 2.324 | -3.991 | 5.249 |

The pairwise correlation matrix in Table 3 presents correlations between the selected variables, economic growth, foreign direct investment, domestic investment, natural resources, trade openness, foreign debt, and institutions, respectively. Based on the pairwise correlations, economic growth has a positive and statistically significant relationship with domestic investment, natural resources, and foreign debt. Foreign direct investment results show a positive correlation with foreign debt, while the correlation results for domestic investment demonstrate a positive association with natural resources, trade openness, and institutions.

Table 3: Correlations Matrix

| Variables | EG | FDI | DI | RES | TO | DEBT | INST |
|---|---|---|---|---|---|---|---|
| EG | 1.000 | | | | | | |
| FDI | -0.037 | 1.000 | | | | | |
| DI | 0.227* | 0.006 | 1.000 | | | | |
| RES | 0.363* | 0.044 | 0.140* | 1.000 | | | |
| TO | 0.013 | 0.012 | 0.162* | 0.211* | 1.000 | | |
| DEBT | 0.220* | 0.107* | -0.085 | 0.365* | 0.100* | 1.000 | |
| INST | -0.054 | -0.042 | 0.197* | -0.315* | -0.129* | -0.755* | 1.000 |

The unit root tests in Table 4 are used to examine whether the variables used in this study are stationary or nonstationary. The three most commonly used unit root tests, Levin et al. (2002), Im et al. (2003), and Dickey and Fuller (1981), under the null hypothesis of nonstationarity, are performed at the 1%, 5%, and 10% significance levels. The unit root tests, Table 4, show that all the data series are stationary at level, implying that the data series can be used in their actual position as our model is not spurious.

Table 3: Unit Root Tests

| Variable | Levin-Lin-Chu | Im-Pesaran-Shin | Augmented Dickey-Fuller |
|---|---|---|---|
| | Level | Level | Level |
| Economic Growth | -3.5037*** | -7.1217*** | -10.8351*** |
| Foreign Direct Investment | -5.4872*** | -7.6578*** | -12.1978*** |
| Domestic Investment | -4.6547*** | -7.5666*** | -11.5879*** |
| Natural Resources | -6.6376*** | -7.2644*** | -11.4510*** |
| Trade Openness | -6.4323*** | -7.5864*** | -11.4018*** |
| Foreign Debt | -6.1564*** | -6.1114*** | -8.7867*** |
| Institutions | -7.3018*** | -6.9846*** | -10.1900*** |

To test the existence of a long-run relationship between EG, FDI, and DI, the Kao and Pedroni panel cointegration tests have been performed for the FSU countries in Table 5. Based on the Pedroni test results (Pedroni, 2004), there is cointegration among the series ($p$- values < 0.01). Likewise, Kao test (Kao, 1999) results also indicate the existence of cointegration ($p$- values < 0.01). Both significant test statistics provide strong statistical evidence that panel cointegration exists amongst EG, FDI, and DI for the FSU countries. This priori cointegration evidence supports further investigation of cointegration properties and short- and long-term relationships between the three variables of interest.

Table 4: Panel Cointegration Tests

| Kao cointegration test | Statistic | *p*-value |
|---|---|---|
| Modified Dickey-Fuller- *t* | -4.9692 | 0.0000 |
| Dickey-Fuller- *t* | -9.8002 | 0.0000 |
| Augmented Dickey-Fuller- *t* | -2.4546 | 0.0071 |
| Unadjusted modified Dickey-Fuller- *t* | -17.9384 | 0.0000 |
| Unadjusted Dickey-Fuller- *t* | -14.4027 | 0.0000 |
| Pedroni cointegration test | Statistic | *p*-value |
| Modified Phillips-Perron- *t* | 2.9980 | 0.0014 |
| Phillips-Perron- *t* | -6.2406 | 0.0000 |
| Augmented Dickey-Fuller- *t* | -6.7119 | 0.0000 |

Table 6 provides short- and long-run pooled mean group (PMG), mean group (MG), and dynamic fixed effects (DFE) models of ARDL estimator during 2002-2022. To demonstrate the existence of a significant long-run association, the adjustment coefficient must be statistically significant and negative ($\beta$= -0.848; $p$= 0.000). The estimates confirm that a significant short- and long-term relationship exists between economic growth, FDI, and domestic investment in FSU countries. Given the Hausman test results for empirical comparison, the estimates of PMG are considered for further discussion. The test statistic for PMG and MG estimators indicates that PMG is the more efficient model under the null hypothesis (Chi2=7.57; $p$=0.271). The test of difference statistic for PMG and DFE models also shows that PMG is more efficient than the DFE model (Chi2=84.45; $p$=0.000). The regression estimates in the PMG model indicate that FDI has a positive and significant impact on EG in the short-run ($\beta$= 0.224; $p$= 0.002), while the effect of DI is significant and negative ($\beta$= -0.117; $p$= 0.002) in FSU countries. This positive effect of FDI is consistent with the neoclassical growth theory and spillover hypothesis as foreign capital complements domestic savings, boots productivity in the short-term and provides access to advanced technologies, managerial expertise, and international markets. However, this relationship changes in the long-run, where the coefficient for DI becomes positive and significant ($\beta$= 0.228; $p$= 0.006) while FDI becomes negative ($\beta$= -0.154; $p$= 0.015), implying the existence of a switching effect between FDI and DI. This result also aligns with the accelerator theory of investment, which posits domestic investment eventually drives economic growth through capital formation and productivity improvements (Shabbir et al., 2021). The long-run coefficient for FDI and DI means that a unit increase in FDI could reduce EG by (-0.154) unit, whereas a unit increase in DI surges EG by (0.228) unit, holding other factors constant. The adverse impact of FDI on EG is perhaps due to prevalent institutional obstacles, insufficient absorptive capacity, or diminished competition. Besides, FDI also tends to cause domestic market distortions when foreign entities receive significant benefits from host economies, resulting in a negative association with EG (Iamsiraroj and Ulubaşoğlu, 2015). Hayat (2018), on the other hand, linked the negative FDI-EG relationship with the size of the natural resources sector, where the expansion of the natural resources sector causes a negative stimulus. As per the control variables, RES, OPEN, and DEBT have a positive and significant impact on EG in the long-run, signifying the role of resource endowments, economic openness to trade, and foreign borrowings.

Table 5: Economic Growth: PMG, MG, and DFE Estimations

| Variables | PMG | MG | DFE |
|---|---|---|---|
| | Coef. | Coef. | Coef. |
| ***Long-Run Coefficients*** | | | |
| Foreign Direct Investment | -0.154** (0.015) | -0.167 (0.434) | -0.090 (0.288) |
| Domestic Investment | 0.228*** (0.006) | -0.017 (0.837) | 0.103** (0.029) |
| Natural Resources | 0.457*** (0.000) | -0.380 (0.408) | 0.207** (0.028) |
| Trade Openness | -0.0001 (0.0001) | -0.0003 (0.393) | -0.0003 (0.181) |
| Foreign Debt | 0.170*** (0.038) | -0.062 (0.769) | 0.145*** (0.002) |
| Institutions | 0.323*** (0.045) | -0.248 (0.538) | 0.125*** (0.027) |
| *Adjustment Coefficient* | -0.848*** (0.000) | -1.161*** (0.000) | -1.110*** (0.000) |
| ***Short-Run Coefficients*** | | | |
| Constant | 0.669*** (0.000) | 11.072*** (0.000) | 4.007*** (0.000) |
| Foreign Direct Investment | 0.224*** (0.002) | 0.145 (0.312) | 0.046 (0.476) |
| Domestic Investment | -0.117*** (0.002) | -0.034 (0.654) | -0.040 (0.258) |
| Natural Resources | 0.027*** (0.769) | 0.368** (0.043) | 0.129* (0.095) |
| Trade Openness | -0.0003*** (0.181) | 0.0003 (0.197) | 0.0004 (0.828) |
| Foreign Debt | -0.091* (0.052) | -0.008 (0.940) | 0.050 (0.221) |
| Institutions | -0.207*** (0.000) | 0.116 (0.597) | -0.064 (0.159) |
| Number of Countries | 15 | 15 | 15 |
| Number of Observations | 300 | 300 | 300 |
| Hausman Test | MG VS PMG | PMG VS DFE | |
| Chi2 | 7.57 | 84.45*** | |
| Prob. > chi2 | (0.271) | (0.000) | |

Notes: The number of observations falls from 315 to 300 as the first-order lag of the dependent variable is included in the equation. ***, **, and * signify that *p*-value < 1%, *p* value < 5% and *p* value < 10%, respectively. Standard errors are in parenthesis.

Table 6: Foreign Direct Investment: PMG, MG, and DFE Estimations

| Variables | PMG | MG | DFE |
|---|---|---|---|
| | Coef. | Coef. | Coef. |
| ***Long-Run Coefficients*** | | | |
| Economic Growth | -0.147 (0.100) | 0.403 (0.432) | -0.051 (0.592) |
| Domestic Investment | 0.089** (0.041) | -0.273 (0.510) | 0.022 (0.658) |
| Natural Resources | 0.332** (0.000) | 0.432 (0.154) | 0.218** (0.038) |
| Trade Openness | -0.00008 (0.753) | 0.001 (0.391) | -0.0005 (0.853) |
| Foreign Debt | 0.127** (0.017) | 0.427* (0.053) | 0.033 (0.507) |
| Institutions | 0.065 (0.342) | 0.637* (0.080) | 0.045 (0.468) |
| *Adjustment Coefficient* | -0.828*** (0.000) | -0.733*** (0.000) | -1.042*** (0.000) |
| ***Short-Run Coefficients*** | | | |
| Constant | 2.670*** (0.000) | 0.315 (0.913) | 4.683*** (0.000) |
| Economic Growth | 0.113*** (0.007) | -0.016 (0.915) | -0.0009 (0.989) |
| Domestic Investment | -0.067** (0.028) | -0.004 (0.933) | -0.024 (0.500) |
| Natural Resources | -0.210* (0.069) | -0.127 (0.523) | -0.181** (0.019) |
| Trade Openness | 0.0002 (0.296) | 0.001 (0.688) | 0.0009 (0.657) |
| Foreign Debt | -0.025 (0.546) | -0.034 (0.750) | 0.044 (0.283) |
| Institutions | -0.019 (0.590) | -0.105 (0.621) | 0.010 (0.827) |
| Number of Countries | 15 | 15 | 15 |
| Number of Observations | 300 | 300 | 300 |
| Hausman Test | MG VS PMG | PMG VS DFE | |
| Chi2 | 0.74 | 4.08** | |
| Prob. > chi2 | 0.993 | 0.046 | |

Notes: The number of observations falls from 315 to 300 as the first-order lag of the dependent variable is included in the equation. ***, **, and * signify that *p*-value < 1%, *p* value < 5% and *p* value < 10%, respectively. Standard errors are in parenthesis.

Short- and long-term PMG estimations for FDI, EG, and DI are presented in Table 7. The Hausman test statistic is not significant ($\beta$=0.74, $p$=0.993) for PMG and MG estimates, whereas it is significant for PMG and DFE estimates ($\beta$=4.08, $p$=0.046), implying that the PMG estimator is more efficient than MG and DFE methods under the null hypothesis. Hence, the regression results obtained from PMG method are provided. The short-run results document the positive and significant impact of EG on FDI. In contrast, the coefficient for DI shows a negative association with FDI. However, this association changes in the long-run, and the DI becomes a positive and significant factor contributing to FDI ($\beta$=0.89, $p$=0.041). This result implies that growing domestic investment may symbolize higher returns on investment, improved infrastructure, and an enticing business environment, attracting foreign investors to reap the benefits (Bouchoucha and Bakari, 2019). On the other hand, EG becomes insignificant, indicating the absence of any linkage to FDI in the long run. The coefficients for natural resources and foreign debt also show a positive and significant association with FDI. Since many FSU countries are endowed with natural resources, it is not surprising that resource extraction processes absorb a substantial amount of FDI in these countries. As per foreign debt, external debt can enhance the domestic credit to the private sector, leading to financial development and increased FDI (Agyapong and Bedjabeng, 2020). Though both external debt and FDI can help grow the capital formation

rate for economic growth, FDI is often preferred to external debt as it requires servicing regardless of the asset's performance.

Table 8 provides regression results for DI. The Hausman test statistic indicates the efficiency of PMG estimation in contrast to MG and DFE methods. The short-run estimations show that FDI and EG are negatively and significantly associated with DI. The coefficient for EG indicates that if EG increases one unit, DI decreases by (-0.254) unit, whereas the same unit increase in FDI is reflected by (-0.338) unit reduction. There has been continuous debate about whether FDI crowds in or out DI and the adverse effects of FDI on DI show the existence of a substitution effect in the short-run. However, this effect changes over time. The long-run results indicate the presence of a positive and significant relationship between FDI, EG, and DI in FSU countries. The coefficients denote that one unit increase in FDI and EG leads to (0.353) and (0.684) unit surge in DI in the long-run. These elasticities signify that FDI has a crowding-in effect on DI. Prior empirical studies, such as Kurtović et al. (2022) and Jude (2019), emphasized that crowding out impact is likely to fade within three years of FDI as the integration of foreign entities to the local economy and adjustment of domestic firms take time, eventually producing a beneficial effect for DI. The control variables TRADE and INST are also positive and significant ($\beta$=0.544, $p$=0.00; $\beta$=0.129, $p$=0.030), indicating that deeper international economic integration and higher quality of institutions initiate higher DI. DEBT is negative significant ($\beta$=-0.342, $p$=0.000), implying that foreign borrowings reduce the incentives for domestic investment.

Table 7: Domestic Investment: PMG, MG, and DFE Estimations

| Variables | PMG | MG | DFE |
|---|---|---|---|
| | Coef. | Coef. | Coef. |
| ***Long-Run Coefficients*** | | | |
| Foreign Direct Investment | 0.353*** (0.001) | 0.029 (0.954) | 0.136 (0.357) |
| Economic Growth | 0.684*** (0.000) | 0.153 (0.671) | 0.432*** (0.005) |
| Natural Resources | 0.178 (0.166) | -4.934 (0.288) | 0.303* (0.081) |
| Trade Openness | 0.544*** (0.000) | 1.883 (0.186) | 0.502*** (0.000) |
| Foreign Debt | -0.342*** (0.000) | -2.289 (0.258) | -0.029 (0.726) |
| Institutions | 0.129*** (0.030) | -4.308 (0.310) | 0.346*** (0.000) |
| *Adjustment Coefficient* | -0.912*** (0.000) | -1.053*** (0.000) | -1.094*** (0.000) |
| ***Short-Run Coefficients*** | | | |
| Constant | 2.442*** (0.000) | 8.826** (0.019) | 4.070*** (0.008) |
| Foreign Direct Investment | -0.338** (0.029) | -0.487** (0.033) | -0.156 (0.160) |
| Economic Growth | -0.254*** (0.000) | -0.075 (0.644) | -0.189 (0.105) |
| Natural Resources | -0.363** (0.010) | -0.034 (0.854) | -0.199 (0.134) |
| Trade Openness | -0.028 (0.818) | -0.088 (0.424) | -0.012 (0.885) |
| Foreign Debt | 0.167* (0.092) | 0.160* (0.051) | 0.066 (0.348) |
| Institutions | -0.050 (0.711) | 0.045 (0.821) | -0.152* (0.050) |
| Number of Countries | 15 | 15 | 15 |
| Number of Observations | 300 | 300 | 300 |
| Hausman Test | MG VS PMG | PMG VS DFE | |
| Chi2 | 2.22 | 185.84*** | |
| Prob. > chi2 | 0.898 | 0.000 | |

Notes: The number of observations falls from 315 to 300 as the first-order lag of the dependent variable is included in the equation. ***, **, and * signify that $p$-value < 1%, $p$ value < 5% and $p$ value < 10%, respectively. Standard errors are in parenthesis.

The Dumitrescu and Hurlin Granger non-causality test results are presented in Table 9. The results show the existence of bidirectional causality between EG and FDI. This signifies that not only does FDI stimulate economic growth, but a growing economy also attracts more FDI. The EG and DI were found to have unidirectional causality, where DI causes EG, demonstrating the positive retaliating interaction of DI and EG. This finding is surprising because, prior studies often report a bidirectional relationship, where economic growth tends to promote domestic investment through increased revenues, new business opportunities, and higher profits, which can then be reinvested into the economy. This relationship might reflect the presence of structural issues, such as weak financial institutions, lack of investor confidence, and/or inadequate infrastructure, in translating economic growth into broader investment opportunities. The test statistics for FDI and DI denote bidirectional causality from FDI to DI, meaning that both DI and FDI cause each other in FSU countries. This result unveils the presence of a mutually reinforcing cycle of growth, where FDI and DI work

in tandem to catalyze economic expansion in the FSU. These estimates are significant, and the null hypothesis of no causality is rejected at a 5 percent significance level.

Table 8: Dumitrescu and Hurlin (2012) Granger non-causality test

| Null-Hypothesis | W-stat | P-value | Causality | Direction |
|---|---|---|---|---|
| EG -> FDI | 4.32** | 0.036 | Yes | Bidirectional |
| FDI -> EG | 13.22*** | 0.000 | Yes | |
| EG -> DI | 1.300 | 0.410 | No | Unidirectional |
| DI -> EG | 0.88** | 0.031 | Yes | |
| FDI -> DI | 12.02*** | 0.000 | Yes | Bidirectional |
| DI -> FDI | 3.632*** | 0.001 | Yes | |

Notes: ***, **, and * signify that *p*-value < 1%, *p*-value < 5% and *p*-value < 10%, respectively. The null hypothesis indicates that variables do not Granger cause each other, against the alternative hypothesis that the variables Granger cause each other for at least in one-panel id.

Figure 1 illustrates the causal relationships amongst the three variables of interest in FSU economies. These results corroborate the three-way linkage between economic growth, foreign direct investment, and domestic investment from 2002 to 2022.

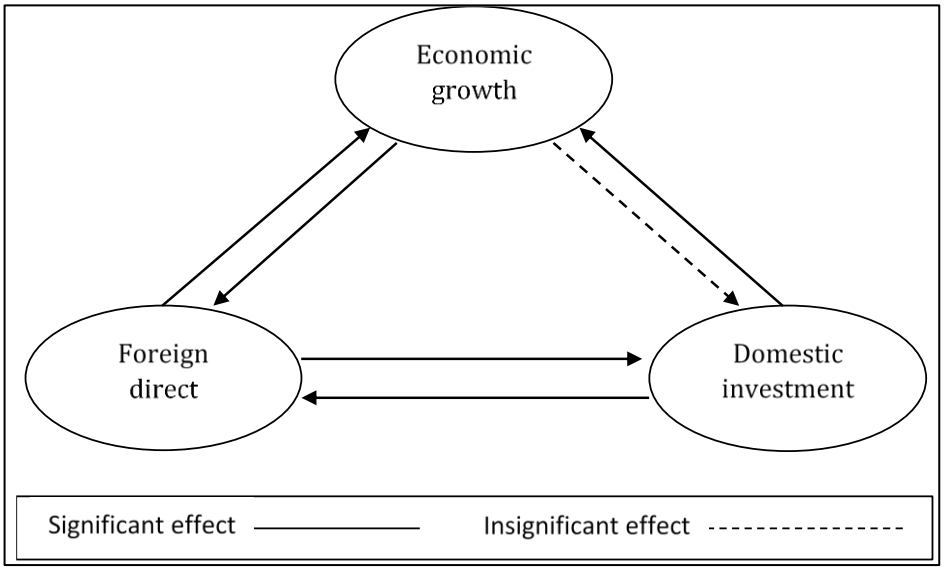


Figure 1 Interrelationships between Economic growth, Foreign direct investment, and Domestic investment in the FSU

## CONCLUSION

This research provides new empirical evidence on the trilemma interrelationship between economic growth, foreign direct investment, and domestic investment in FSU countries during 2002-2022. Besides, the findings of this study help to understand one of the major concerns of transition economies, whether FDI promotes domestic investment, as these countries have a significant need for foreign capital to achieve economic growth ambitions. Though numerous studies are focusing on FDI, EG, and DI, this is one of the few studies to investigate the causal relationship between these factors in transition economies, especially in the FSU.

The Kao and Pedroni panel cointegration tests provide strong statistical evidence that long-run panel cointegration exists amongst EG, FDI, and DI for the FSU countries. The regression results indicate the negative impact of FDI on economic growth in the long-run and the positive relationship between economic growth and domestic investment. The estimates for FDI show no evidence of a significant relationship with economic growth and positive and significant association with DI. As per the estimates of DI, the regression results suggest the existence of a long-run positive relationship with both economic growth and FDI. Likewise, the causality test results indicate the presence of a bidirectional causal association between economic growth and FDI, and a bidirectional causality between FDI and domestic investment. On the other hand, a unidirectional causal relationship is found between DI and economic growth. These findings provide evidence for the validity of the regression results.

These results have several policy implications. First, the FSU economies should monitor the economic conditions and improve and implement new investment reforms relevant to foreign and domestic investors. This could involve efforts to improve the overall institutional quality, ensure corporate governance, reduce external debt flows, and enhance the absorptive capacities of domestic firms. Second, the governments should encourage dynamic cooperation between foreign and domestic investors to help improve the capabilities of local companies and thus attract greater foreign investment. For instance, promoting entrepreneurship by providing incentives to domestic investors is thought to strengthen the competitiveness and presence of local companies in international markets. This could then exhibit the nature of the business environment in FSU countries and serve to be an imperative driving force behind increased foreign investment flows and economic growth. Third, policymakers should concentrate more on economic policies that boost domestic investment, maintain and improve the quality and productivity of foreign investments, as most foreign capital flows seem to be resource-oriented, and develop strategies to support foreign trade. These policy adjustments can be of great significance for FSU nations to build a competitive domestic market, strengthen the capacities of domestic companies, promote entrepreneurship, induce FDI, and sustain economic growth prospects.

## ACKNOWLEDGEMENT

This research was supported by funding from the fundamental project FZ-594221021 "The theoretical and methodological foundations and mechanisms aimed at digitalizing regional innovation environments and enhancing investment attractiveness, particularly in dynamic conditions" under the Ministry of Higher Education, Science and Innovations of the Republic of Uzbekistan, on December 30, 2022. We gratefully acknowledge their support.

## REFERENCES

Adam, H., & Rena, R. (Eds.). (2024). *Polycrisis and Economic Development in the Global South (1st ed.)*. Routledge.

Adams, S. (2009). Foreign direct investment, domestic investment, and economic growth in Sub-Saharan Africa. *Journal of Policy Modeling*, *31*(6), 939-949.

Agosin, M. R., & Machado, R. (2005). Foreign Investment in Developing Countries: Does it Crowd in Domestic Investment?. *Oxford Development Studies*, *33*(2), 149-162.

Agyapong, D., & Bedjabeng, K. A. (2020). External debt stock, foreign direct investment and financial development. *Journal of Asian Business and Economic Studies*, *27*(1), 81-98.

Akadiri, A. C., Gungor, H., Akadiri, S. S., & Bamidele-Sadiq, M. (2020). Is the causal relation between foreign direct investment, trade, and economic growth complement or substitute? The case of African countries. *Journal of Public Affairs*, *20*(2), e2023.

Ali, F. A., Fiess, N., & MacDonald, R. (2010). Do institutions matter for foreign direct investment?. *Open Economies Review*, *21*(2), 201-219.

Ang, J. B. (2009). Financial development and the FDI-growth nexus: the Malaysian experience. *Applied Economics*, *41*(13), 1595-1601.

Asamoah, M. E., Adjasi, C. K., & Alhassan, A. L. (2016). Macroeconomic uncertainty, foreign direct investment and institutional quality: Evidence from Sub-Saharan Africa. *Economic Systems*, *40*(4), 612-621.

Assi, A. F., Zhakanova Isiksal, A., & Tursoy, T. (2021). Renewable energy consumption, financial development, environmental pollution, and innovations in the ASEAN + 3 group: Evidence from (P-ARDL) model. *Renewable Energy*, *165*, 689-700.

Bakari, S. (2017). *The Impact of Domestic Investment on Economic Growth: New Evidence from Malaysia*. MPRA Paper 79436, University Library of Munich, Germany.

Bakari, S. (2018). The impact of domestic investment on economic growth new policy analysis from Algeria. *Bulletin of Economic Theory and Analysis*, *3*(1), 35-51.

Basu, P., Chakraborty, C., & Reagle, D. (2003). Liberalization, FDI, and growth in developing countries: A panel cointegration approach. *Economic Inquiry*, *41*(3), 510-516.

Bayar, Y. (2014). Effects of foreign direct investment inflows and domestic investment on economic growth: Evidence from Turkey. *International Journal of Economics and Finance*, *6*(4), 69-78.

Belaşcu, L., Popovici, O., & Horobeţ, A. (2018). Foreign Direct Investments and Economic Growth in Central and Eastern Europe: A Panel-Based Analysis. *Emerging Issues in the Global Economy*. *Springer*, pp. 35-46.

Belloumi, M., & Alshehry, A. (2018). The impacts of domestic and foreign direct investments on economic growth in Saudi Arabia. *Economies*, *6*(1), 1-18.

Blackburne, E. F., & Frank, M. W. (2007). Estimation of nonstationary heterogeneous panels. *Stata Journal*, *7*(2), 197-208.

Blomström, M., Kokko, A., & Mucchielli, J.-L. (2003). The economics of foreign direct investment incentives. *Foreign direct investment in the real and financial sector of industrial countries*. Springer, pp.37-60.

Bouchoucha, N., & Bakari, S. (2019). The Impact of Domestic and Foreign Direct Investment on Economic Growth: Fresh Evidence from Tunisia. *Journal of Smart Economic Growth*, *6*(1), 83-102.

Buchanan, B. G., Le, Q. V., & Rishi, M. (2012). Foreign direct investment and institutional quality: Some empirical evidence. *International Review of Financial Analysis*, *21*, 81-89.

Chakraborty, D., & Mukherjee, J. (2012). Is There Any Relationship Between Foreign Direct Investment, Domestic Investment and Economic Growth in India? A Time Series Analysis. *Review of Market Integration*, *4*(3), 309-337.

Chanegriha, M., Stewart, C., & Tsoukis, C. (2020). Testing for causality between FDI and economic growth using heterogeneous panel data. *The Journal of International Trade & Economic Development*, *29*(5), 546-565.

Cleeve, E. A., Debrah, Y., & Yiheyis, Z. (2015). Human Capital and FDI Inflow: An Assessment of the African Case. *World Development*, 74, 1-14.

Comes, C.-A., Bunduchi, E., Vasile, V., & Stefan, D. (2018). The impact of foreign direct investments and remittances on economic growth: A case study in Central and Eastern Europe. *Sustainability*, *10*(1), 238.

Daude, C., & Stein, E. (2007). The quality of institutions and foreign direct investment. *Economics & Politics*, *19*(3), 317-344.

Dickey, D. A., & Fuller, W. A. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*, *49*(4), 1057-1072.

Eregha, P. B. (2012). The Dynamic Linkages between Foreign Direct Investment and Domestic Investment in ECOWAS Countries: A Panel Cointegration Analysis. *African Development Review*, *24*(3), 208-220.

Farla, K., de Crombrugghe, D., & Verspagen, B. (2016). Institutions, Foreign Direct Investment, and Domestic Investment: Crowding Out or Crowding In?. *World Development*, *88*, 1-9.

Ghazali, A. (2010). Analyzing the Relationship between Foreign Direct Investment Domestic Investment and Economic Growth for Pakistan. *International Research Journal of Finance and Economics*, *47*, 124-131.

Globerman, S., & Shapiro, D. (2002). Global foreign direct investment flows: The role of governance infrastructure. *World development*, *30*(11), 1899-1919.

Hayat, A. (2018). FDI and economic growth: the role of natural resources?. *Journal of Economic Studies*, *45*(2), 283-295.

Herzer, D., & Klasen, S. (2008). In search of FDI-led growth in developing countries: The way forward. *Economic Modelling*, *25*(5), 793-810.

Iamsiraroj, S. (2016). The foreign direct investment–economic growth nexus. *International Review of Economics & Finance*, *42*, 116-133.

Iamsiraroj, S., & Ulubaşoğlu, M. A. (2015). Foreign direct investment and economic growth: A real relationship or wishful thinking?. *Economic Modelling*, *51*, 200-213.

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, *115*(1), 53-74.

Javorcik, B. S. (2004). Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. *American Economic Review*, *94*(3), 605-627.

Jude, C. (2019). Does FDI crowd out domestic investment in transition countries? *Economics of Transition and Institutional Change*, *27*(1), 163-200.

Kao, C. (1999). Spurious regression and residual-based tests for cointegration in panel data. *Journal of Econometrics*, *90*(1), 1-44.

Kopiński, Dominik. (2023). "Spillovers and the Effects of FDI: The Overview." *The Political Economy of Chinese FDI and Spillover Effects in Africa*. Cham: Springer International Publishing, 2023. 47-92.

Kowalski, E. (2000). Determinants of economic growth in East Asia: A linear regression model. *Honors Projects*, *74*. https://digitalcommons.iwu.edu/econ_honproj/74

Kurtović, S., Maxhuni, N., Halili, B., & Krasniqi, B. (2022). Does outward foreign direct investment crowd in or crowd out domestic investment in central, east and southeast europe countries? An asymmetric approach. *Economic Change and Restructuring*, *55*(3), 1419-1444.

Kwablah, E., & Amoah, A. (2022). Foreign direct investment and economic growth in Sub-Saharan Africa: the complementary role of economic freedom and financial market fragility. *Transnational Corporations Review*, *14*(2), 127-139.

Lean, H. H., & Tan, B. W. (2011). Linkages between Foreign Direct Investment, Domestic Investment and Economic Growth in Malaysia. *Journal of Economic Cooperation & Development*, *32*(4), 48-57.

Levin, A., Lin, C.-F., & Chu, C.-S. J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics*, *108*(1), 1-24.

Liu, X., Shu, C., & Sinclair, P. (2009). Trade, foreign direct investment and economic growth in Asian economies. *Applied Economics*, *41*(13), 1603-1612.

Lu, W., Kasimov, I., Karimov, I., & Abdullaev, Y. (2020). Foreign Direct Investment, Natural Resources, Economic Freedom, and Sea-Access: Evidence from the Commonwealth of Independent States. *Sustainability*, *12*(8), 3135.

Makiela, K., & Ouattara, B. (2018). Foreign direct investment and economic growth: Exploring the transmission channels. *Economic Modelling*, *72*, 296-305.

Mileva, E. (2008). *The impact of capital flows on domestic investment in transition economies*.

Mishrif, A., Khan, A. (2024). Do Free Trade Agreements Facilitate FDI Spillover Effects on Domestic Firms? Empirical Evidence from Oman. *Economies*, *12*(6), 141.

Mišun, J., & Tomšík, V. (2002). Does foreign direct investment crowd in or crowd out domestic investment?. *Eastern European Economics*, *40*, 38-56.

Mohamed, M. R., Singh, K. S. J., & Liew, C.-Y. (2017). Impact of foreign direct investment & domestic investment on economic growth of Malaysia. *Malaysian Journal of Economic Studies*, *50*(1), 21-35.

Morrissey, O., Udomkerdmongkol, M. (2012). Governance, Private Investment and Foreign Direct Investment in Developing Countries. *World Development*, *40*(3), 437-445.

Nair-Reichert, U., & Weinhold, D. (2001). Causality Tests for Cross-Country Panels: a New Look at FDI and Economic Growth in Developing Countries. *Oxford Bulletin of Economics and Statistics*, *63*(2), 153-171.

Ndikumana, L., & Verick, S. (2008). The Linkages Between FDI and Domestic Investment: Unravelling the Developmental Impact of Foreign Investment in Sub-Saharan Africa. *Development Policy Review*, *26*(6), 713-726.

Omri, A. (2014). The nexus among foreign investment, domestic capital and economic growth: Empirical evidence from the MENA region. *Research in Economics*, *68*(3), 257-263.

Omri, A., & Kahouli, B. (2014). Causal relationships between energy consumption, foreign direct investment and economic growth: Fresh evidence from dynamic simultaneous-equations models. *Energy Policy*, *67*, 913-922.

Osei, M. J., & Kim, J. (2020). Foreign direct investment and economic growth: Is more financial development better?. *Economic Modelling*, *93*, 154-161.

Palaniaandy, A., & Chin, L. (2018). I*ntellectual property rights, foreign direct investment and economic growth.* MPRA Paper 118780, University Library of Munich, Germany.

Pedroni, P. (2004). Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the PPP Hypothesis. *Econometric Theory*, *20*(3), 597-625.

Pilbeam, K., & Oboleviciute, N. (2012). Does Foreign Direct Investment Crowd In or Crowd Out Domestic Investment? Evidence from the European Union. *The Journal of Economic Asymmetries*, *9*(1), 89-104.

Qin, D., Cagas, M. A., Quising, P., & He, X.-H. (2006). How much does investment drive economic growth in China?. *Journal of Policy Modeling*, *28*(7), 751-774.

Roy, S., & Mandal, K. K. (2012). Foreign direct investment and economic growth: An analysis for selected Asian countries. *Journal of Business Studies Quarterly*, *4*(1), 15.

Sabir, S., Rafique, A., & Abbas, K. (2019). Institutions and FDI: evidence from developed and developing countries. *Financial Innovation*, *5*(1), 1-20.

San, C. K., & Chin, L. (2023). Impact of Public Debt on Economic Growth: A Quantile Regression Approach. *South Asian Journal of Macroeconomics and Public Finance*, *12*(2), 250-278.

Seyoum, B. (2024). Entrepreneurship, Domestic Investment, and Services. In *State Fragility, Business, and Economic Performance: An Ethiopian Perspective* (pp. 225-274). Cham: Springer International Publishing.

Shabbir, M. S., Bashir, M., Abbasi, H. M., Yahya, G., & Abbasi, B. A. (2021). Effect of domestic and foreign private investment on economic growth of Pakistan. *Transnational Corporations Review*, *13*(4), 437-449.

Shokhrukh, O., Ikboljon, K., & Zamon, X. (2023). The Role of Economic Freedom in the Relationship between Foreign Direct Investment and Economic Growth: Evidence from Former Socialist Countries. *Journal of Economic Integration*, *38*(2), 322-334.

Tan, B. W., & Tang, C. F. (2012). The dynamic relationship between private domestic investment, the user cost of capital, public investment, foreign direct investment and economic growth in Malaysia. *Economia politica*, *29*(2), 221-246.

Tang, S., Selvanathan, E. A., & Selvanathan, S. (2008). Foreign direct investment, domestic investment and economic growth in China: A time series analysis. *World Economy*, *31*(10), 1292-1309.

Tanna, S., Li, C., & De Vita, G. (2018). The role of external debt in the foreign direct investment–growth relationship. *International Journal of Finance & Economics*, *23*(4), 393-412.

Tekin, R. B. (2012). Economic growth, exports and foreign direct investment in Least Developed Countries: A panel Granger causality analysis. *Economic modelling*, *29*(3), 868-878.

Villa, S. (2008). Economic growth, investment and government consumption in Italy: A VAR analysis. *The IUP Journal of Applied Economics*, *7*(4), 23-32.