

## The Impact of Non-State Investment Capital on Economic Growth: ARDL Approach

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### ABSTRACT

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Non-state investment capital plays a crucial role in promoting economic development for countries. However, the effectiveness of this investment source is not always as expected. This study aims to evaluate the impact of non-state investment capital on the economic development of the northern province in Vietnam (Thai Nguyen province). Research based on the theory of investment relationship and economic development has been proposed by many researchers. Time series data from 2000 to 2021 are utilized for this study and ARDL approach is employed. The results show that non-state investment capital has a positive impact on economic development. Additionally, the study uses a VAR model to forecast non-state investment capital until 2030. The findings from this research can serve as a reference for policymakers when making decisions to attract investment. The study makes a valuable contribution in forecasting economic growth based on non-state investment capital.

## 1. INTRODUCTION

Non-state investment capital plays a vital role in the global economy and significantly contributes to the economic growth and development of many countries [1-4]. It enables domestic companies and organizations to diversify their investment portfolios by participating in foreign markets, reducing risks and dependence on a single market, and providing access to new potential markets. Moreover, non-state investment capital allows domestic enterprises to access and utilize advanced resources, materials, and technologies from other countries [5, 6]. This can enhance productivity and competitiveness for local companies. Additionally, it facilitates the expansion of domestic operations and international market access, leading to increased sales volumes, broader customer reach, and enhanced global brand recognition.

When investing in foreign countries, domestic companies often bring advanced technologies and modern management practices, which can elevate technical capabilities and improve the quality of products and services in their home country [7-10]. Non-state investment capital can also serve as an economic diplomacy tool to strengthen relationships with other nations and foster strong economic linkages between countries [11]. However, investing abroad also carries certain risks, such as political, cultural, and financial risks. It is crucial for organizations and individuals engaging in non-state investment capital to have a careful and robust strategy to capitalize on the benefits and mitigate risks during the investment and business operations in foreign countries [12, 13]. Furthermore, as the presence of foreign-invested enterprises grows, there might be issues related to outdated technology usage, leading to increased environmental CO<sub>2</sub> emissions due to overutilization. Additionally, the absence of

a local origin could result in challenges in international cooperation and market development for foreign non-state investment firms.

Thai Nguyen province is the province with the largest proportion of foreign capital investment from 2013 to present. Thai Nguyen considered a bright spot in attracting investment in the industrial sector, Thai Nguyen currently has 135 active foreign investment (FDI) projects, becoming one of the largest and most effective FDI attracting localities in the North provinces [14].

The research gap on the impact of non-state investment capital on Vietnam's economic growth is an important topic in economic and development studies. Although foreign direct investment has significantly contributed to Vietnam's economic development over the past decade, there are still many aspects that need to be examined to better understand its effects and devise optimal policies. One of the unexplored gaps is the interaction between foreign direct investment and Vietnam's domestic economic factors [5]. A clearer understanding of how foreign direct investment interacts with factors such as infrastructure, human resources, economic policies, and management will help shape more effective ways of utilizing foreign direct investment to promote sustainable economic growth. At the same time, there has been no research on the impact of non-state capital on Thai Nguyen province's economic development. Therefore, this study will help provide empirical evidence about this relationship.

There have been some studies on the impact of non-state investment capital on economic growth. However, most of these studies have focused on foreign direct investment (FDI), which is foreign investment made directly into the country [5, 7, 8, 11-13, 15-18]. There has been limited research on foreign direct investment made by the state, also known as state-

owned foreign direct investment (SO-FDI). Therefore, this study aims to assess the impact of state-owned foreign direct investment on economic growth in a province located in the northern mountainous region of Vietnam, specifically in Thai Nguyen province.

## 2. LITERATURE REVIEW

In Vietnam, in 2021, amidst the complex and unpredictable developments of the Covid-19 pandemic, thanks to the leadership and guidance of various levels, sectors, localities, business communities, and the people, the total investment capital for the development of the whole society increased compared to 2020. The total investment capital for the development of the whole society in 2021 was estimated at nearly 52.1 trillion dong, a rise of 8.5% compared to 2020, accounting for 41.4% of the Gross Regional Domestic Product (GRDP). Of this, the domestic economic sector reached 33.6 trillion dong, an increase of 12.7% compared to the same period; the foreign-invested sector reached 18.4 trillion dong, up 8.5%.

Regarding the scale and structure of foreign investment capital in Thai Nguyen province, it ranked second after foreign direct investment (with the proportion of state foreign investment capital being 33%; foreign direct investment being 59.55%; and the remaining 7.45% being state domestic investment capital). It is evident that state foreign investment capital plays an important role in investing and developing the economy of Thai Nguyen province. The economic activities of the private sector from outside have contributed to the development of infrastructure (roads, water systems, and production facilities). Additionally, the issue of employment is also of great importance as businesses' investments account for up to 15.24% of the capital. Employment in the province has improved thanks to the investments made by private domestic enterprises. The associated services have also developed with the participation of businesses and households in the local economy.

Continuing from there, the share of non-state investment capital is expected to decrease as it burdens the state investment capital. Particularly, the use of Official Development Assistance (ODA) or loans for the economic development of the province will be reduced due to the participation of state foreign investment capital [1]. Especially, if projects and infrastructure are privatized, it will help the province mobilize more funds from the public and reduce the debt burden for the province. In reality, the capital from private individuals also accounts for an average proportion of about 17.67% of the total investment capital in Thai Nguyen province in 2021. This is a positive sign of the potential to mobilize socialized investment capital.

By diversifying sources of investment, the province can rely less on state funds and explore other funding options, which can contribute to a more balanced and sustainable development strategy. Additionally, socializing projects and infrastructure can attract private sector participation, leading to increased efficiency and effectiveness in resource utilization [2]. However, it's essential to ensure that socialized projects and infrastructure initiatives adhere to proper regulations, standards, and transparency to prevent potential issues in the implementation and management process. The province should continue to create a favorable business environment

and strengthen its capacity in project management and oversight to maximize the benefits of socialized investments.

There have been many studies around the world evaluating the role of non-state investment capital (mainly FDI) in economic growth. Alam and Shah [11] impact of FDI on a panel of ten OECD member countries over the period 1985-2009. The results indicate that market size, labor costs and infrastructure quality yield significant coefficients associated with FDI for the group of countries studied. A short-run two-way relationship is established between market size and short-run labor costs; Meanwhile, infrastructure quality causes market size and labor costs in the short term. For long-term deviations of FDI from equilibrium, market size, labor costs, and infrastructure quality all bear the overall burden in the short run to reestablish equilibrium. Iamsiraroj [19] studies the relationship between foreign direct investment (FDI) and economic growth using 124 cross-country data for the period 1971-2010. The estimated results show that the overall impact of FDI has a positive relationship with growth and vice versa; while labor force, trade openness and economic freedom are other key determinants of FDI, thereby stimulating further income growth.

Absolutely, the increased utilization non-state investment capital indicates the potential for independent development of domestic businesses and the economic activities of the province [14]. As Thai Nguyen province experiences a higher proportion of non-state investment capital, its level of dependency on foreign countries decreases. This increased self-reliance in terms of economic capabilities, technology, and human resources allows the province to be more proactive and less reliant on Foreign Direct Investment (FDI) and state capital [2, 3, 14]. By reducing the reliance on FDI and state capital, the province can maintain and develop its economy while being less vulnerable to the potential negative impacts of fluctuations in international investment flows. Moreover, as the share of state-owned foreign companies increases, it helps to limit the predatory practices of some FDI enterprises, which aim to dominate the domestic market by engaging in price dumping or unfair competition. This is another positive aspect worth noting about the reinforcement of state foreign investment capital. By diversifying the sources of investment and enhancing the role of state foreign investment, the province can foster a more competitive and robust domestic business environment. This, in turn, contributes to sustainable economic growth, technological advancement, and human resource development, ultimately leading to a more resilient and self-sufficient economy. However, it is essential for the province to strike a balance and manage its investment policies effectively to maximize the benefits of different sources of capital while mitigating potential risks and challenges.

## 3. METHODOLOGY

### 3.1 Research model

Based on the research objectives and previous studies, the study presents an ARDL research model with key variables such as GDP growth and non-state investment [20, 21]. The model is presented as follows:

$$\Delta GDPG_t = \alpha + \beta \sum_{j=1}^n IOS_{m-j} + \rho \sum_{i=1}^k POP_{t-i} + \omega IOS_m + \delta POP_t + \varepsilon_t$$

The content of the research variables is described in Table 1.

**Table 1.** Description of variables

Variable Name	Content	Reference
Dependent variables		
GDPG	GDP growth (% over the same period);	Roşoiu [20]
Independent variables		
IOS	Percentage of non-state investment capital (%)	Roşoiu [20]
POP	Population	Adams [21]
FDI	Foreign Direct Investment	Roşoiu [22]

Source: Prepared by the authors (2023).

### 3.2 Data collection

With the goal of evaluating the impact of non-state capital on economic growth. The author carried out data collection based on the database of the statistical office of Thai Nguyen province, Vietnam, with indicators from the period 2000 to 2021 (Data collected on Thai Nguyen province statistical report). The research variables in this study were collected from annual statistical reports. Using yearly data, time series data analysis was conducted in this study to assess the impact of non-state investment capital on economic growth.

### 3.3 Data analysis

#### Unit root test

With time series data, variables in regression analysis need to ensure stationarity. Therefore, stationarity testing is mandatory with time series data. One of the popular tests is unit root test. According to Gujarati [23] time series is said to be stationary when its mean, variance, and autocovariance (at different lags) remain constant regardless of the point in time the series is observed. A stationary series tends to revert to its mean, and the fluctuations around the mean will be consistent. In other words, a non-stationary time series will have a changing mean, variance, or both over time. There are several methods to test for the stationarity of a time series: the Dickey-Fuller test (DF), the Phillips-Perron test (PP), the augmented Dickey-Fuller test (ADF), and graphical inspection of the autocorrelation function.

#### Cointegration test

After checking the stability of the time series variables and determining the lag length to be used in the model, the next step is to assess whether all the variables included are cointegrated. Cointegration refers to regression models with I (1) data. There could be two or more variables integrated at order 1, denoted as I (1), and a certain linear combination of these variables is integrated at order 0, denoted as I (0). If this is the case, the I (1) variables are said to be cointegrated. When two or more I (1) variables are cointegrated, they must follow a long-term equilibrium relationship, even though they may deviate significantly from that equilibrium in the short run.

The Johansen method is widely used to test for cointegration based on statistical properties of maximum likelihood and eigenvalues. Johansen test for cointegration in a Vector Autoregression (VAR) representation provides us with the efficient asymptotic estimates of cointegrating vectors

( $\beta$ ) and adjustment parameters ( $\alpha$ ). This study has time series data that are integrated of order I (1) at level and integrated of order I (0) in their first differences. Since the Johansen cointegration test can be applied to series integrated at the same order I (1) and their differences integrated at order I (0), this research can safely proceed with this test.

#### ARDL analysis

Economic variables can have relationships in both the short term and the long term. Specifically, variables that are examined after differencing are considered in the short-term relationship. Therefore, variables that have not been differenced will be considered for evaluation in the long term. However, in the ARDL model, calculations and examinations will be conducted to determine whether there exist both short-term and long-term relationships.

## 4. RESULTS AND DISCUSSION

### 4.1 Descriptive

Data collected from the statistical yearbook of Thai Nguyen province from 2000 to 2020. The average value of non-state capital investment is 16 trillion VND. In which the largest is 25.1 trillion and the smallest is 5.2 trillion. State capital investment (IS) averaged 5.2 trillion, of which the largest was 8.4 trillion and the smallest was 3.7 trillion. The average population of the province is 1.15 million people. The average gross domestic product value of the province is 70.5 trillion VND, of which the largest is 125.8 trillion VND and the smallest is 23.7 trillion VND. The details of the variables are described in Table 2.

**Table 2.** Descriptive variables

Variables	Mean	Std. Dev.	Min	Max
IOS	15968.96	6010.373	5226.4	25198
IS	5209.954	1580.358	3746.25	8441.1
POP	1158814.1	89312.272	1055535	1323150
GGDP	70490.642	36132.717	23774.2	125808

Source: The result from STATA software

### 4.2 Stationary test

With time series data, to ensure reliable and non-spurious regression, testing for stationarity should be applied to the study variables [23]. The most commonly used test for unit root is the Augmented Dickey-Fuller test, which will be conducted in this study. Prior to conducting the stationarity test, the variables will be transformed using logarithms to achieve proportionality before analysis.

The variables in the model exhibit stationarity at different orders. The variables LnIOS, LnPOP, and LnGDP are stationary at the first difference (see Table 3). Given this characteristic, the use of the ARDL method is appropriate.

The stationary variables will be included in the analysis of the ARDL model to examine the short-term and long-term relationship between foreign direct investment and economic growth in Thai Nguyen province. The automatic optimal lag selection feature, applied using STATA 15 software, will reduce the burden of identifying the optimal lag. After running the ARDL model, tests for the sustainability of the ARDL model, such as the Pesaran, Shin, and Smith bounds test, will be conducted.

**Table 3.** The stationary test results

Variables	ADF-Stats	P-Value
LnIOS	-1.303	0.6276
LnPOP	1.103	0.9952
LnGDP	-1.945	0.311
Sai Phân Bậc Nhất		
LnIOS	-3.05	0.0305
LnPOP	-3.031	0.0321
LnGDP	-4.264	0.0005

Source: The result from STATA software

### 4.3 Cointegration test result

The selected ARDL models indicate that coefficients of the error correction term (adjustment coefficients) with values less than 0 are statistically significant. This coefficient indicates the time required for the relationship to adjust back to its equilibrium state. Furthermore, a negative adjustment coefficient also suggests the existence of cointegration among the study variables. The results of the Pesaran et al. [24] bounds test at the end of the result table also demonstrate the presence of cointegration in the models. Therefore, the use of ARDL models is deemed appropriate as they exhibit statistically significant error correction coefficients and indicate cointegration among the variables.

### 4.4 ARDL result

After the stationarity test for the variables was performed, the ARDL model was performed and the results in Table 4 were obtained.

**Table 4.** The ARDL result

	(1)	(2)	(3)
Variables	ADJ	LR	SR
LnGDP <sub>t-1</sub>	-0.212** (0.0597)		
LnIOS <sub>t-1</sub>		15.32*** (2.406)	
LnPOP <sub>t-1</sub>		-1.815* (0.652)	
ΔLnIOS			2.546** (0.489)
ΔLnPOP			-0.259*** (0.0166)
Constant			-39.74*** (6.064)
Observations	11	11	11
R-squared	0.998	0.998	0.998

Source: The result from STATA software

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The results of the ARDL regression analysis indicate that non-state investment capital (IOS) has a positive and statistically significant impact on economic growth both in the short run and the long run (positive beta coefficients). On the other hand, the population (POP) has a negative and statistically significant impact on economic growth in both the short run and the long run (negative beta coefficients). In summary, the findings suggest that foreign direct investment positively contributes to economic growth, while population growth has a negative effect on economic growth, both in the short and long term.

The results highlight the significant role of non-state investment capital in the economy of Thai Nguyen province, both in the short and long term. In the short term, FDI contributes to job creation, increases GDP, and promotes related services. In the long term, continued promotion of non-state investment capital helps to rebalance the investment structure in Thai Nguyen province. Reducing dependence on non-state investment capital as a source of investment allows the province to become more proactive in its economic development. Developing based on internal strengths is crucial and essential for achieving sustainable economic growth in the province, not only in the short term but also in the long term. This result is similar to previous research pointing out the important role of investment capital in economic growth country [7-10].

The reverse impact of population growth on economic growth highlights the issue that an increasing population also puts pressure on the economy of the province. As the provincial economy continues to develop, there will be a long-term demand for a high-quality workforce. If the domestic labor force in the province cannot meet the requirements in terms of qualifications and quantity, migration from other provinces or recruiting labor from other regions can help fill the human resource gaps for businesses. In such circumstances, the population becomes an even more significant issue that needs to be addressed, especially concerning the availability of high-quality human resources. This result is similar to previous research pointing out the negative impact of population growth on economic growth [25].

### 4.5 Forecasting the non-state investment capital to 2030

To forecast non-state investment capital in the period from 2023 to 2025 and orientation to 2030. The thesis uses VAR model to forecast. The structural VAR model consists of many equations (system of equations model) and has lags of the variables. VAR is a dynamic model of several time variables. We consider two time series Y1 and Y2. The general VAR model for Y1 and Y2 has the following form:

$$Y_{1t} = \alpha + \sum_1^p \beta_i Y_{1t-i} + \sum_1^p \gamma_i Y_{2t-i} + U_{1t}$$

$$Y_{2t} = \delta + \sum_1^p \delta_i Y_{1t-i} + \sum_1^p \theta_i Y_{2t-i} + U_{2t}$$

In the above model, each equation contains lags (p) of each variable. For a model with two variables, there are 2\*2 slope coefficients and 2 intercepts. Therefore, if the model has k variables, there will be k\*p slope coefficients and k intercepts. As k increases, the number of coefficients to estimate also increases. Some issues in constructing a VAR (Vector Autoregression) model are as follows: No need to determine which variables are endogenous and which are exogenous; the model treats all variables as interrelated and affected by each other; The Ordinary Least Squares (OLS) method can be used for each equation separately to estimate the coefficients; Since the focus of a VAR model is on forecasting, it may not be well-suited for policy analysis.

Please note that VAR is a powerful tool for capturing dynamic relationships among variables but may have certain

limitations and assumptions that need to be considered while using it for specific purposes.

When considering the VAR (Vector Autoregression) model, it is necessary to test for stationarity of the variables in the model. The requirement when estimating a VAR model is that all variables must be stationary. If these variables are non-stationary, then differencing must be applied to ensure stationarity of the series. It becomes even more challenging if a mixture of variables with stationary and non-stationary properties is present, as transforming the data is not a straightforward task.

In the context of stable economic development and the early control of the COVID-19 impact in 2023, businesses can resume their normal operations, leading to more stable revenue sources from enterprises. As a result, forecasts for future years regarding foreign direct investment will be conducted based on historical data using the VAR (Vector Autoregression) model. The forecast results based on the VAR model are presented in Table 5.

**Table 5.** Forecast results of non-state investment capital from 2023 to 2030

	<b>F_LnIOS</b>	<b>F_IOS (Billions VND)</b>
2023	10.16	25,873.88
2024	10.21	27,159.29
2025	10.25	28,233.57
2026	10.28	29,275.66
2027	10.32	30,256.93
2028	10.35	31,174.51
2029	10.37	32,032.55
2030	10.40	32,832.39

Source: The result from STATA software

It is forecasted that by 2025, the value of non-state investment capital will reach 28.23 trillion VND. By 2030, non-state investment capital will reach VND 32.83 trillion. With this forecast result, along with the development orientations of non-state investment capital of Thai Nguyen province. The topic gives some orientations on solutions to help promote the effective impact of non-state investment capital.

## 5. CONCLUSION

Research on non-state investment plays a crucial role in the development of every country in general. This study has presented the significance of non-state investment capital in economic development. Through data analysis in the Thai Nguyen province of Vietnam, it has been demonstrated that non-state investment capital positively impacts economic growth, not only in the short term but also in the long term. Therefore, in the future, mobilizing capital from outside the state will continue to be essential for sustainable development both at the national level and specifically for Thai Nguyen province.

Although the research has demonstrated the positive impact of non-state investment capital on economic growth, it still faces certain limitations. Firstly, the study was conducted only in one province of Vietnam. This raises questions about whether other provinces would exhibit similar results to Thai Nguyen. Each province may have different policies and natural characteristics, which could lead to varying effects of non-state investment capital on economic growth. Secondly,

the research utilized a VAR (Vector Autoregression) model for forecasting, which is only capable of short-term predictions. Consequently, long-term forecasts may not be as effective using this model. These limitations suggest the need for further research encompassing multiple provinces and employing more robust forecasting methods to gain a comprehensive understanding of the impact of non-state investment capital on the economic growth of Vietnam as a whole.

From these limitations, the authors also provide some suggestions for further research on evaluating the impact of foreign investments on economic growth. Firstly, future studies could expand the sample to include more provinces, allowing for deeper comparisons regarding the effects of foreign investments on economic development. Secondly, additional forecasting methods such as random forest, ANN (Artificial Neural Networks), and others could be applied in future research to enhance the richness of predictions and enable better comparisons of forecasting outcomes.

## REFERECES

- [1] Uddin, M., Chowdhury, A., Zafar, S., Shafique, S., Liu, J. (2019). Institutional determinants of inward FDI: Evidence from Pakistan. *International Business Review*, 28(2): 344-358. <https://doi.org/10.1016/j.ibusrev.2018.10.006>
- [2] Sabir, S., Rafique, A., Abbas, K. (2019). Institutions and FDI: Evidence from developed and developing countries. *Financial Innovation*, 5(1): 1-20. <https://doi.org/10.1186/s40854-019-0123-7>
- [3] Bende-Nabende, A., Ford, J.L. (1998). FDI, policy adjustment and endogenous growth: Multiplier effects from a small dynamic model for Taiwan, 1959-1995. *World Development*, 26(7): 1315-1330. [https://doi.org/10.1016/S0305-750X\(98\)00043-6](https://doi.org/10.1016/S0305-750X(98)00043-6)
- [4] Ho, T.N., Bui, A.T., Nguyen, V.D., Dao, T.K., Nguyen, N.D. (2020). Analyzing the impact of FDI and urbanization on CO<sub>2</sub> emission in Vietnam. *International Journal of Business and Globalisation*, 12(1): 1-19.
- [5] Ngoc, H.T., Tuan, B.A., Duy, N.V., Kien, D.T., Dat, N.N. (2021). Impact of foreign direct investment and urbanisation on CO<sub>2</sub> emissions in Vietnam. *International Journal of Business and Globalisation*, 27(3): 313-332. <https://doi.org/10.1504/IJBG.2021.113276>
- [6] Wattanadumrong, B., Liamprecha, W., Rattanawiboonsom, V. (2023). Exploring the relationship among foreign direct investment, technology transfer and economic growth: A case of the lower northern region in Thailand. *International Journal of Professional Business Review*, 8(7): 116. <https://doi.org/10.26668/businessreview/2023.v8i7.2944>
- [7] Mallampally, P., Sauvart, K.P. (1999). Foreign direct investment in developing countries. *Finance and Development*, 36(1): 34-37. [https://doi.org/10.1007/978-1-349-27738-4\\_2](https://doi.org/10.1007/978-1-349-27738-4_2)
- [8] Borensztein, E., De Gregorio, J., Lee, J.W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, 45(1): 115-135. [https://doi.org/10.1016/S0022-1996\(97\)00033-0](https://doi.org/10.1016/S0022-1996(97)00033-0)
- [9] Sakka, F., Ghadi, M.Y. (2023). Human capital development, special economic zones, and Dubai as case study: A literature review. *International Journal of*

- Professional Business Review, 8(4): 26. <https://doi.org/10.26668/businessreview/2023.v8i4.613>
- [10] Al-Shakrchy, E., Makttoof, H.S., Alnassar, W.I. (2023). Risk premium, interest rate, inflation and FDI in the time of coronavirus: A case study of mena countries. *International Journal of Professional Business Review*, 8(4): e01418. <https://doi.org/10.26668/businessreview/2023.v8i4.1418>
- [11] Alam, A., Zulfiqar Ali Shah, S. (2013). Determinants of foreign direct investment in OECD member countries. *Journal of Economic Studies*, 40(4): 515-527. <https://doi.org/10.1108/JES-10-2011-0132>
- [12] Anyanwu, J.C., Yameogo, N.D. (2015). Regional comparison of foreign direct investment to Africa: Empirical analysis. *African Development Review*, 27(4): 345-363. <https://doi.org/10.1111/1467-8268.12152>
- [13] Gui-Diby, S.L. (2016). Essays on the impact of foreign direct investments in Africa. Doctoral Dissertation, Université d'Auvergne-Clermont-Ferrand I.
- [14] Pham, N.T., Pham, H.T.T. (2020). The role of patent on foreign direct investment: Evidence in Vietnam. *Journal of Distribution Science*, 18(6): 77-82. <https://doi.org/10.15722/jds.18.6.202006.77>
- [15] Dang, D.A. (2013). How foreign direct investment promote institutional quality: Evidence from Vietnam. *Journal of Comparative Economics*, 41(4): 1054-1072. <https://doi.org/10.1016/j.jce.2013.05.010>
- [16] Lucke, N., Eichler, S. (2016). Foreign direct investment: The role of institutional and cultural determinants. *Applied Economics*, 48(11): 935-956. <https://doi.org/10.1080/00036846.2015.1090551>
- [17] Tun, Y.L., Azman-Saini, W.N.W., Law, S.H. (2012). International evidence on the link between foreign direct investment and institutional quality. *Engineering Economics*, 23(4): 379-386. <https://doi.org/10.5755/j01.ee.23.4.2569>
- [18] Anyanwu, J.C. (2011). Determinants of foreign direct investment inflows to Africa, 1980-2007. Abidjan: African Development Bank Group, pp. 1-32.
- [19] Iamsiraroj, S. (2016). The foreign direct investment-economic growth nexus. *International Review of Economics & Finance*, 42: 116-133. <https://doi.org/10.1016/j.iref.2015.10.044>
- [20] Roşoiu, A. (2015). Monetary policy and factor-augmented VAR model. *Procedia Economics and Finance*, 32: 400-407. [https://doi.org/10.1016/S2212-5671\(15\)01410-0](https://doi.org/10.1016/S2212-5671(15)01410-0)
- [21] Adams, S. (2009). Foreign direct investment, domestic investment, and economic growth in Sub-Saharan Africa. *Journal of Policy Modeling*, 31(6): 939-949. <https://doi.org/10.1016/j.jpolmod.2009.03.003>
- [22] Roşoiu, I. (2015). The impact of the government revenues and expenditures on the economic growth. *Procedia Economics and Finance*, 32: 526-533. [https://doi.org/10.1016/S2212-5671\(15\)01428-8](https://doi.org/10.1016/S2212-5671(15)01428-8)
- [23] Gujarati, D.N. (2003). *Basic Econometrics*. New York: McGraw-Hill.
- [24] Pesaran, M.H., Shin, Y., Smith, R.J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3): 289-326. <https://doi.org/10.1002/jae.616>
- [25] Becker, G.S., Glaeser, E.L., Murphy, K.M. (1999). Population and economic growth. *American Economic Review*, 89(2): 145-149. <https://doi.org/10.1257/aer.89.2.145>