

Article

The Effect of Foreign Direct Investment and Foreign Exchange Reserves on Economic Growth in ASEAN

M. Arief Bukhari Saraan ¹, Suriani Suriani ^{1,*} and Muhammad Nasir ¹

¹ Department of Economics, Faculty of Economics and Business, University Syiah Kuala, Darussalam, Banda Aceh, Indonesia; ariefbs123@gmail.com (M.A.B.S), nasirmsi@usk.ac.id (M.N)

* Correspondence: suriani@usk.ac.id (S.S)

Citations: Saraan, M.A.B., Suriani, S., & Nasir, M., (2023). The Effect of Foreign Direct Investment and Foreign Exchange Reserves on Economic Growth in ASEAN. *International Journal of Finance, Economics and Business*, 2(1), 76-83.

Academic Editor: Farah Roslan.

Received: 22 November 2022

Accepted: 2 March 2023

Published: 31 March 2023

Abstract: This study examines the effect of foreign direct investment (FDI) and foreign exchange reserves on economic growth in ASEAN countries during the 1995-2021 period. This study used the unit panel root test and the Pedroni method to confirm long-term cointegration between variables. Estimation results on modeling Autoregressive Distributed Lag (ARDL) show that FDI does not affect economic growth in the long run. In contrast, foreign exchange reserves have a significant positive relationship with economic growth. The estimation results show that FDI has a significant positive relationship with economic growth in the short run. Besides that, foreign exchange reserves do not affect economic growth in the long run. ASEAN countries need to increase FDI and foreign exchange reserves to encourage economic growth. FDI can positively influence economic growth by means of which the government must cooperate with foreign companies and provide a safe and secure business environment. Foreign exchange reserves must utilize for the real sector, such as manufacturing, infrastructure, energy, education, and research and development, to support economic growth.

Keywords: foreign direct investment; foreign exchange reserves; economic growth.



Copyright: © 2022-2023 by the publisher. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Developing countries tend to need capital to carry out economic development. Mainly funding sources for economic development come from within the country and abroad. Domestic funding sources come from the private sector and the government, while another source comes from foreign investment (Hamid, 1995). One source of development financing that contributes to economic growth is foreign direct investment (FDI) (Azman-Saini et al., 2010). FDI increases productivity by providing new investment through better technology, management expertise, and market share for exports (Roy & Mandal, 2012). ASEAN is a region dominated by developing countries that have strived to achieve and maintain sustainable long-term economic growth since gaining independence. The impact of globalization has also made the investment flow to ASEAN countries increasingly swift. FDI net inflows in ASEAN countries have increased significantly from 2010 to 2021.

In 2010 investment coming into ASEAN was 108 billion dollars and a significant increase to 171 billion dollars in 2017. The highest net inflows of FDI occurred in 2021, with an investment value of 194 billion dollars.

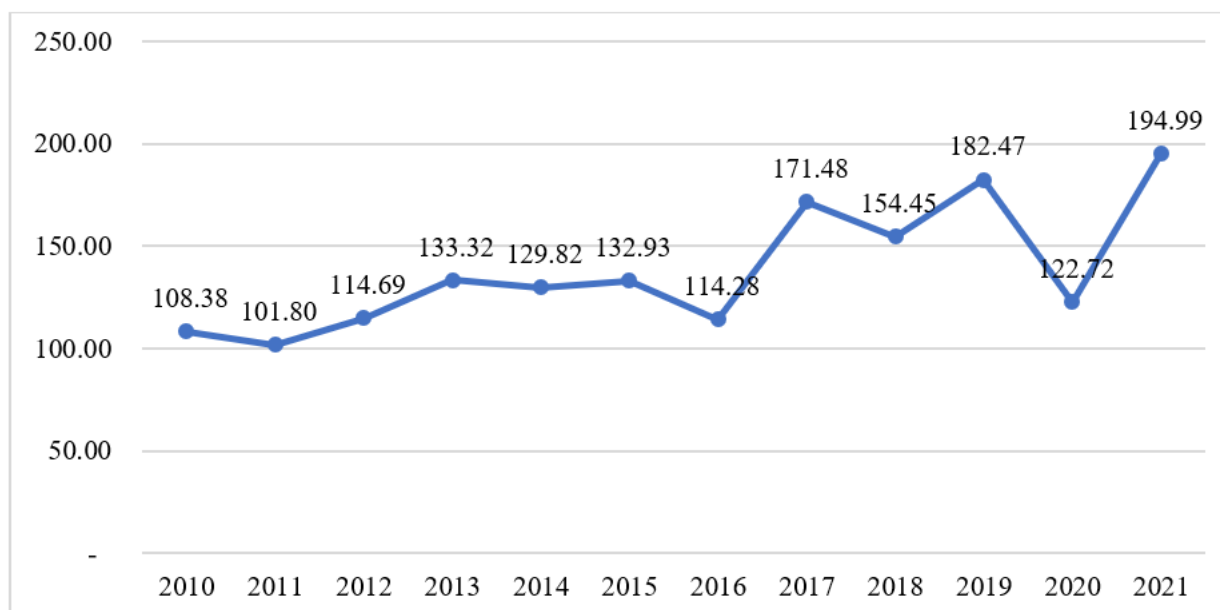


Figure 1. FDI Net Inflows of Funds in ASEAN for 2010-2021.

Source: World Bank (2023)

FDI net inflows in ASEAN countries are expected to provide maximum contribution to economic growth through increased productivity. Sustained economic growth is very important because a growing economy has greater potential to reduce unemployment and alleviate poverty than an economy performing poorly. In addition, an open economy is also a medium for increasing economic growth. An open economy makes market access wider (Nowbutsing, 2014). This broad market access makes international trade transactions even more intense. In order to facilitate international transactions and increase the speed of completion of trade agreements, foreign exchange reserves are needed. The International Monetary Fund (IMF) defines foreign exchange reserves as stocks of external assets owned by a country's monetary authorities (Azar & Aboukhodor, 2017). Foreign exchange reserves consist of foreign currencies, deposits in foreign currencies, foreign bonds, treasury bills, and other government securities.

Almost every country has significant foreign exchange reserves. More than half of the world's foreign exchange reserves are held in the most traded global currency, the US dollar. In 2020, Singapore had the highest foreign exchange reserves of USD 362 billion, followed by Thailand USD 248 billion, and Indonesia USD 131 billion. In general, several studies have examined foreign direct investment and economic growth. Dinh et al. (2019) found that in countries with lower middle-income groups, in the short term, FDI does not affect economic growth, while in the long term, FDI has a positive effect. With the entry of FDI, it is necessary to be equipped with skilled workers to use new technology so that the positive effects of FDI can be created. Nguyen (2020) found that FDI positively and statistically significantly affect Vietnam's economic growth. Ali & Hussain (2017) examines the impact of FDI on Pakistan's economy in the 1991 and 2015 periods using correlation and regression analysis techniques.

The results of their research findings, FDI showed a positive impact on economic growth in Pakistan in 1991 and 2015, which is an added value for society. Ahmad et al. (2019) examine the effect of FDI inflows on the level of welfare in the South Asian Association for Regional Cooperation (SAARC) and ASEAN countries. The study results generally found that FDI has a greater impact on welfare in SAARC countries than in ASEAN countries. Chang & Mendy (2012) studied the impact of FDI in 36 countries in Africa from 1980 to 2009. The result was that FDI had a negative effect on economic growth in Africa. Gherghina et al. (2019) examined 11 Central and Eastern European countries from 2003 to 2016. The results showed that FDI has a negative impact on economic growth.

Duarte et al. (2017) researched the impact of FDI on economic growth in Cabo Verde from 1987 to 2014. Then, Omri et al. (2014) in Europe and Central Asia, Latin America, Caribbean, Middle East, North

Africa, and sub-Saharan Africa. This study's results indicate evidence of a two-way causality between FDI inflows and economic growth. Capital flows into developing countries are needed for both investment and trade purposes. Developing countries use capital inflows to increase investment and economic growth (Ezeji E et al., 2015). Countries reserve foreign currency in the form of US dollars to facilitate international trade and encourage economic growth regardless of a country's size and level of development (Azar & Aboukhodor, 2017).

Several empirical studies were conducted to observe the relationship between foreign exchange reserves and economic growth. Kruskovic & Maricic (2015) examines the relationship between foreign exchange reserves and economic growth in developing countries. The results of this study are that foreign exchange reserves positively impact economic growth, but high economic growth does not support an increase in foreign exchange. Developing countries tend to try to increase FDI cash inflows, but this is not easy to achieve. Developing countries must try to generate internal resources and encourage development assistance from external parties because promoting economic growth by leveraging foreign exchange reserves is time-consuming. Lin (2011) concluded that foreign exchange reserves lead to economic growth only in developing countries but not in developed ones. Developing countries cannot absorb foreign resources because their financial markets are not well-developed and sustainable.

Nathaniel & Oladiran (2020) examines the effect of the accumulation of foreign exchange reserves on economic growth in Nigeria from 1980 to 2005. The study's results on the accumulation of foreign exchange reserves negatively impact Nigeria's economic growth. The accumulation of foreign exchange reserves should be channeled for development needs and invested in the real sectors of the economy, such as manufacturing, infrastructure development, energy sector development, education, and research and development, which can accelerate innovation and lead to growth. Based on the several studies reviewed above, it shows the inconsistency of the results from previous studies. Therefore, this study wants to provide a new perspective on the influence of FDI and foreign exchange reserves in ASEAN countries. Based on the previous explanation, this study will use analysis with the model Autoregressive Distributed Lag (ARDL). The structure of this research is an introduction, materials and methods, results, discussion, and conclusions.

2. Materials and Methods

2.1. Materials

This study examines the effect of foreign direct investment and foreign exchange reserves on economic growth in ASEAN countries. The variables used in this study include economic growth as the dependent variable. Foreign direct investment and foreign exchange reserves are independent variables. The data structure used is panel data in the form of annual data for 1995-2021 (27 years) in 6 ASEAN member countries, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam. Secondary data is used in this study. The total observations amounted to 162 observations. Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on managing an enterprise resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. Foreign exchange reserves comprise special drawing rights, reserves of IMF members held by the IMF, and foreign exchange holdings under the control of monetary authorities. Gold holdings are excluded. Data are in current US dollars. Economic growth is the annual percentage growth rate of GDP at constant local currency market prices. The Aggregate is based on constant 2015 prices, expressed in US dollars. Data were collected through the World Bank Indicator.

2.2. Methods

The initial testing stage carried out in this study is the panel data stationary test using the panel unit root test. The panel unit root test carried out in this study is Fisher ADF (Maddala & Wu, 1999). Then, do a cointegration test using the Pedroni test. Suppose the cointegration test results show cointegration in each variable equilibrium in the short run towards the long run. The analysis technique used in this study is Autoregressive Distributed Lag (ARDL), a dynamic model in econometrics that captures the passage of time in dependent values in the past. The Autoregressive Distributed Lag (ARDL) analysis technique depends on values in the past.

ARDL combines distributed lag (DL) and autoregressive (AR) approaches. Lag describes the use of previous values to predict future values. DL is a regression technique that uses data from past and present independent variables, while the AR approach uses one or more previous data from the dependent variable. ARDL models can distinguish between immediate and long-term reactions to the factors investigated. The advantages of the ARDL model are as follows: (a) ARDL does not pay attention to the stationary level of data in the same order, but this method cannot be used if the data used is stationary at level 2; (b) can observe a small number of samples or observations. Long-run and short-run estimates in ARDL can be obtained simultaneously, preventing autocorrelation problems. The following is an explanation of the ARDL model (Jannah et al., 2022):

$$\Delta Y_{i,t} = \beta_{i,0} + \sum_{i=0}^n \beta_{1i} \Delta Y_{i,t-1} + \sum_{i=0}^n \beta_{2i} \Delta X_{i,t-1} + \varphi_{1i} Y_{i,t-1} + \varphi_{2i} X_{i,t-1} + \varepsilon_t \quad (1)$$

Where Y_t is variable for the dependent, β_0 is a constant, and β_1 and β_2 are the short-run coefficient, and φ_1 and φ_2 are the long-run coefficient, and ε_t is disturbance. The benefit of ARDL is its capacity to detect dynamics in the long and short run. On the basis of equation (1) above, the short and long-run relationship equations representing the ARDL model in this study are as follows:

$$\Delta EG_{i,t} = \beta_{i,0} + \sum_{i=0}^n \beta_{1i} \Delta EG_{i,t-1} + \sum_{i=0}^n \beta_{2i} \Delta FDI_{i,t-1} + \sum_{i=0}^n \beta_{3i} \Delta FER_{i,t-1} + \beta_{4i} EG_{i,t-1} + \beta_{5i} FDI_{i,t-1} + \beta_{6i} FER_{i,t-1} + \varepsilon_t \quad (2)$$

Where EG is economic growth in percent units, FDI is foreign direct investment net cash flow in dollars and FER is foreign exchange reserves excluding gold in dollars. β_1, β_2 and β_3 are the short-run coefficients and β_4, β_5 and β_6 are the long-run coefficients.

3. Results

3.1. Stationary Test

Table 1 reports the results of the ADF unit root test. The ADF unit root test is applied to the intercept and trend. The stationary test results show that the variables FDI and EG are stationary at the level except for FER, which is not stationary. However, at the first difference, all variables show stationary.

Table 1. Result of Stationary Testing.

Levels	FDI		FER		EG	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Fisher ADF	39.0682 (0.0065)***	87.4025 (0.0000)***	20.4282 (0.4314)	43.0864 (0.0020)***	35.7604 (0.0164)***	93.7021 (0.0000)***

Note: ***, **, * significant at 1%, 5% and 10%.

3.2. Cointegration Test

The cointegration test in this study uses the Pedroni test. The results of the Pedroni test indicate that there has been cointegration or long-run equilibrium of each of the variables used in this study. The results showed that seven of the test results showed significance. The next step after the cointegration test is carried out is an analysis of the ARDL model formed both in the short and long run.

Table 2. Result of Cointegration Testing.

Cointegration Test	Statistics	Prob.	Weighted Statistics	Prob.
v-Statistics panel	-1.4225	0.9226	-1.1129	0.8671
rho-Statistic panel	-2.2210**	0.0132	-0.7540	0.2254
PP-Statistics panel	-5.4638***	0.0000	-4.5822***	0.0000
ADF-Statistics panel	-3.7416***	0.0001	-2.1309**	0.0165
Group rho-Statistics	-0.9001	0.1840		
PP-Statistics Group	-4.8641***	0.0000		
Group ADF-Statistics	-3.3369***	0.0004		

Note: ***, **, * significant at 1%, 5% and 10%.

3.3. Long-Term Estimation Results

The results of the long-run ARDL estimation analysis can be seen in Table 3 below:

Table 3. Result of ARDL Estimation in Long Term.

Variable(s)	Coefficient	Std. Error	t-statistics	Prob.
FDI	-3.65E-11	6.5E-11	-0.5612	0.5757
FER	3.22E-11	1.55E-11	2.0698**	0.0405

Note: ***, **, * significant at 1%, 5% and 10%.

Table 3 displays FDI has a p-value of 0.5757 > alpha 10%. It shows that FDI does not affect economic growth in the long run. While Foreign exchange reserves (FER) as an independent variable with a p-value of 0.045 < alpha 5% indicates that in the long term, it has a significant and positive effect on economic growth. More specifically, every increase in foreign exchange reserves by 1 dollar in the long term will increase ASEAN's economic growth by 3.22E-11 percent. Increasing foreign exchange reserves has advantages for the economy because foreign exchange reserves are used for foreign trade. Foreign exchange reserves are crucial to maintaining economic stability in economic crises (Guzman et al., 2018).

3.4. Short-Term Estimation Results

The results of the short-term ARDL estimation analysis can be seen in Table 4 as follow:

Table 4. Result of ARDL Estimation in Short Term.

Variable(s)	Coefficient	Std. Error	t-statistics	Prob.
D(FDI)	3.23E-10	4.95E-11	6.525***	0.0000
D(FDI(-1))	2.84E-10	1.90E-10	1.498	0.1366
D(FER)	-7.23E-11	4.50E-11	-1.608	0.1104
D(FER(-1))	-3.54E-12	3.42E-11	-0.103	0.9178
COINTEQ01	-0.723479	0.096724	-7.480***	0.0000

Note: ***, **, * significant at 1%, 5% and 10%.

Table 4 captures that FDI in the short term has a significant and positive effect with a p-value of 0.000 < alpha 1%. More specifically, every USD 1 increase in FDI in the short term will increase ASEAN's economic growth by 3.23E-10 percent. On the other hand, Foreign exchange reserves (FER) as an independent variable with a p-value of 0.1104 > alpha 10% and 0.9178 > alpha 10% indicates that it has no effect on economic growth in the short term. The government must cooperate with foreign companies and provide a safe and secure business environment to bring a positive effect from FDI inflows. Because FDI brings innovation, the government should also focus on efficiently allocating resources. It will help companies to innovate and ultimately generate economic growth. The negative and significant error correction term (ECT) value explains that economic growth has an equilibrium relationship from the short to the long run. It means that the economic growth is convergent with a speed to correct the disequilibrium of -0.7234 or 72 percent (absolute), which takes 1.38 years.

4. Discussion

This study found that FDI does not affect economic growth in the long run. A similar finding is reported by Alvarado et al. (2017). In this study, FDI does not affect economic growth in Latin American countries with upper-middle incomes. Likewise, Louzi & Immortal (2011) showed that FDI does not affect economic growth in Jordan. FDI cannot increase economic growth if more transparent policies and job creation do not support it. Therefore, the country's investment climate should be enhanced through appropriate measures such as creating more transparent trade policies and a more flexible labor market, and establishing an appropriate regulatory framework. On the other hand, research results show that foreign exchange reserves significantly affect economic growth in the long run. The result indicates a positive effect of foreign exchange reserves on economic growth in Pakistan (Khan et al., 2015). Bentum-ennin (2014) found that foreign exchange can promote economic growth in the long run. High foreign exchange reserves can

increase international confidence. Therefore, ASEAN member countries must increase their foreign exchange reserves because accumulating them is very helpful for economic growth.

The estimation results in the short term showed that FDI has a significant and positive impact on economic growth in ASEAN. The result of this study is supported by Raza et al. (2021), Iamsiraroj (2016), and Raza & Karim (2018). In the short term, FDI brings in new technologies, innovative ideas and increases human capital, which can enhance economic growth. The estimation results show that foreign exchange reserves in ASEAN countries do not impact economic growth. The results are conducted by Oladunjoye & Akinbobola (2018). In the short term, developing countries use foreign exchange reserves to pay off foreign debt and to transact imports (Jalunggono et al., 2020). Foreign exchange reserves have no effect on economic growth if they are not used in activities in the real sector, such as manufacturing, infrastructure, energy, education, and research and development. The implication resulting from this research is that ASEAN countries must use foreign exchange reserves for development in the real sector such as manufacturing, infrastructure, the energy sector, education, and research and development to influence economic growth.

5. Conclusions

This study concludes that FDI does not affect economic growth in the long term. However, foreign exchange reserve has a significant positive relationship with economic growth in the long run. In the short term, FDI affects economic growth, while foreign exchange reserves do not affect economic growth. The implication resulting from this research is that ASEAN countries must work cooperatively with foreign companies and provide a safe and secure business environment guaranteed to bring a positive impact from FDI inflows. Because FDI brings innovation, the government must also focus on allocating its resources efficiently because it will help companies innovate and ultimately generate economic growth. Another implication is that ASEAN countries must use foreign exchange reserves for development in the real sector, such as manufacturing, infrastructure, sector energy, education, research, and development, to influence economic growth in the long term. Suggestion for further research needs to add other macroeconomic variables that can influence ASEAN economic growth.

Author Contributions: Conceptualization, M.A.B.S., S.S., and M.N.; methodology, M.A.B.S.; software, S.S.; validation, M.A.B.S., S.S., and M.N.; formal analysis, S.S.; investigation, M.A.B.S.; resources, M.A.B.S.; data curation, S.S. and M.N.; writing—original draft preparation, M.A.B.S.; writing—review and editing, M.A.B.S., S.S., and M.N.; visualization, S.S.; supervision, S.S.; project administration, S.S.; funding acquisition, S.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: The authors would like to thank Universitas Syiah Kuala, Aceh, Indonesia, for supporting this research and publication. We would also like to thank the reviewers for their constructive comments and suggestions.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Ahmad, F., Draz, M. U., Su, L., Ozturk, I., Rauf, A., & Ali, S. (2019). Impact of FDI inflows on poverty reduction in the ASEAN and SAARC economies. *Sustainability (Switzerland)*, *11*(9), 1–24. <https://doi.org/10.3390/su11092565>
- Ali, N., & Hussain, H. (2017). Impact of foreign direct investment on economic growth of Pakistan. *American Journal of Economics*, *7*(4), 163–170. <https://doi.org/10.18535/ijstrm/v9i08.em03>
- Alvarado, R., Iñiguez, M., & Ponce, P. (2017). Foreign direct investment and economic growth in Latin America. *Economic Analysis and Policy*, *56*, 176–187. <https://doi.org/https://doi.org/10.1016/j.eap.2017.09.006>
- Azar, S. A., & Aboukhor, W. (2017). Foreign exchange reserves and the macro-economy in the GCC countries. *Accounting and Finance Research*, *6*(3), 72–87. <https://doi.org/10.5430/afr.v6n3p72>

- Azman-Saini, W. N. W., Law, S. H., & Ahmad, A. H. (2010). FDI and economic growth: New evidence on the role of financial markets. *Economics Letters*, 107(2), 211–213. <https://doi.org/https://doi.org/10.1016/j.econlet.2010.01.027>
- Bentum-ennin, I. (2014). International reserves accumulation and economic growth in the West African monetary zone. *International Journal of Marketing and Economics*, 1(9), 31–56.
- Chang, C.-C., & Mendy, M. (2012). Economic growth and openness in Africa: What is the empirical relationship? *Applied Economics Letters*, 19(18), 1903–1907. <https://doi.org/10.1080/13504851.2012.676728>
- Dinh, T. T.-H., Vo, D. H., The Vo, A., & Nguyen, T. C. (2019). Foreign direct investment and economic growth in the Short run and long run: Empirical evidence from developing countries. *Journal of Risk and Financial Management*, 12(4), 176. <https://doi.org/10.3390/jrfm12040176>
- Duarte, L. D. R. V., Kedong, Y., & Xuemei, L. (2017). The relationship between FDI, economic growth and financial development in Cabo Verde. *International Journal of Economics and Finance*, 9(5), 132. <https://doi.org/10.5539/ijef.v9n5p132>
- Ezeji E, C., Chijindu Promise, U., & Uzoamaka S, C. (2015). Impact of capital inflows on economic growth of developing countries. *The International Journal of Management Science and Business Administration*, 1(7), 7–21. <https://doi.org/10.18775/ijmsba.1849-5664-5419.2014.17.1001>
- Gherghina, Ş. C., Simionescu, L. N., & Hudea, O. S. (2019). Exploring foreign direct investment-economic growth nexus-Empirical evidence from Central and Eastern European countries. *Sustainability*, 11(19), 1–33. <https://doi.org/10.3390/su11195421>
- Guzman, M., Ocampo, J. A., & Stiglitz, J. E. (2018). Real exchange rate policies for economic development. *World Development*, 110, 51–62. <https://doi.org/10.1016/j.worlddev.2018.05.017>
- Hamid, E. S. (1995). Utang luar negeri dan pendanaan pembangunan nasional. *Economic Journal of Emerging Markets*, 6(1), 3–13. <https://doi.org/10.20885/ejem.v6i1.6638>
- Iamsiraroj, S. (2016). The foreign direct investment–economic growth nexus. *International Review of Economics & Finance*, 42, 116–133. <https://doi.org/https://doi.org/10.1016/j.iref.2015.10.044>
- Jalunggono, G., Cahyani, Y. T., & Juliprijanto, W. (2020). Pengaruh ekspor, impor dan kurs terhadap cadangan devisa Indonesia periode tahun 2004–2018. *Jurnal Ekonomi, Bisnis, Dan Akuntansi*, 22(2), 171–181.
- Jannah, S. R., Suriani, S., & Yulindawati. (2022). Effect of labor and foreign Investment on economic growth in Indonesia. *Ekonomi Dan Kebijakan Publik Indonesia*, 9(1), 51–67.
- Khan, F., Haider, A., Shaheen, F., & Zaman, M. (2015). Energy resources, foreign exchange reserves and economic growth: Empirical evidence from Pakistan. *American-Eurasian J. Agric. & Environ. Sci.*, 15(9), 1740–1752. <https://doi.org/10.5829/idosi.aejaes.2015.15.9.12778>
- Kruskovic, B. D., & Maricic, T. (2015). Empirical analysis of the impact of foreign exchange reserves to economic growth in emerging economics. *Applied Economics and Finance*, 2(1), 102–109. <https://doi.org/10.11114/aef.v2i1.653>
- Lin, M. (2011). Foreign reserves and economic growth: Granger causality analysis with panel data. *Economics Bulletin*, 31(2), 1563–1575.
- Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics*, 61(S1), 631–652. <https://doi.org/10.1111/1468-0084.0610s1631>
- Nathaniel, O. O., & Oladiran, A. T. (2020). Foreign exchange reserve accumulation and economic growth in Nigeria. *American Journal of Social Sciences*, 6(2), 15–24.
- Nguyen, H. H. (2020). Impact of foreign direct investment and international trade on economic growth: Empirical Study in Vietnam. *Journal of Asian Finance, Economics and Business*, 7(3), 323–331. <https://doi.org/10.13106/jafeb.2020.vol7.no3.323>
- Nowbutsing, B. M. (2014). The impact of openness on economic growth: Case of Indian Ocean rim countries. *Journal of Economics and Development Studies*, 2(2), 407–427.
- Oladunjoye, O., & Akinbobola, T. (2018). Foreign exchange reserve accumulation and economic growth in Nigeria foreign exchange reserve accumulation and economic growth in Nigeria. *American Journal of Social Sciences*, 273(5), 81–111. <https://doi.org/10.33119/gn/100887>
- Omri, A., Nguyen, D. K., & Rault, C. (2014). Causal interactions between CO2 emissions, FDI, and economic growth: Evidence from dynamic simultaneous-equation models. *Economic Modelling*, 42, 382–389. <https://doi.org/https://doi.org/10.1016/j.econmod.2014.07.026>

-
- Raza, S. A., & Karim, M. Z. A. (2018). Influence of systemic banking crises and currency crises on the FDI-growth nexus: Evidence from China. *Global Business Review*, 19(3), 572–589. <https://doi.org/10.1177/0972150917713883>
- Raza, S. A., Shah, N., & Arif, I. (2021). Relationship between FDI and economic growth in the presence of good governance system: Evidence from OECD countries. *Global Business Review*, 22(6), 1471–1489. <https://doi.org/10.1177/0972150919833484>
- Roy, S., & Mandal, K. (2012). Foreign direct investment and economic growth: An analysis for selected asian countries. *Journal of Business Studies Quarterly*, 4(1), 15–24.