

CHALLENGES AND OPPORTUNITIES FROM IMPACTS OF FDI AND INCOME
ON ENVIRONMENT POLLUTION: ROLE OF FINANCIAL ACCOUNTING
TRANSPARENCY IN FDI FIRMS

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Abstract. Transparency of financial accounting information in FDI firms will have certain impacts on enhancing responsibilities of FDI investments on society, income and environment. The research aimed to evaluate the association of disposable income and environmental pollution on the investments measured using FDI. The research was specific to the Vietnam compared to Indonesian economy. We use both qualitative and quantitative analysis. In Vietnam, qualitative analysis, synthesis, dialectical materialism and statistics explanation method were used. Then, The research was secondary quantitative and the data was accumulated from World Bank. The time frame considered for this study ranged from 1960 to 2018. For statistical analysis, descriptive statistics, stationarity testing, ARDL assessment and Granger Causality have been used. The results unveiled that both disposable income and environmental pollution are found to have significant effect on the FDI of Vietnam and Indonesia. Moreover, the higher transparency level of financial accounting information in FDI firms, the higher CSR in term of business environment and society for FDI firms. We also propose some recommendations for enhancing financial accounting information transparency in Vietnam. For instance, FDI firms need to increase transparency in financial statements, internal and external investor financial accounting reports, income distribution, tax and stakeholder payment obligations, internal price transfer policy, etc. Lat bu not least, the research is limited to 2 above countries and no other country has been evaluated. Therefore, in future more countries can be considered for comparative analysis. In furtherance, more factors can be considered in future that affect Vietnam and Indonesian FDI.

Keywords: income; financial accounting information; transparency; FDI firms; environment pollution; investment; Vietnam, Indonesia

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1. Introduction

Vietnam and Indonesia are among the countries in ASEAN-5 nations having a significant share of FDI inflows over the past few years. According to statistics, many investment from FDI attracted into the above 2 countries. FDI inflows have been observed to be highly essential and influential for the development of a nation specifically of those countries having lack of advancement within their local technologies and effectiveness in

the regulatory capabilities. Whereas there are environmental issues from FDIs in recent years in both countries.

This paper will mainly analyze Vietnam case, using Indonesian data case to compare. In Vietnam, The fact that Vedan Company has violated the Vietnamese environment for 14 years is taken as a typical example to analyze corporate social responsibility. The discharge of untreated waste into the Thi Vai River, Vedan's multi-year avoidance of environmental fees, is seen as an economical way to increase business profits without ignoring environmental norms. Following the Vedan case, the Vietnamese authorities discovered a second Vedan, Miwon - a MSG producer in Viet Tri (Phu Tho), discharging up to 900m³ of untreated wastewater every day to the Red River. And most recently, the Company's waste pipe Formosa Ha Tinh belongs to Formosa Group (Taiwan) with a discharge capacity of 12,000m³ / 1 day and night containing toxins of caffeine, cyanide combining with iron hydroxide, forming a complex form. The mixture (mixel) exceeding the permitted standard caused about 80 tons of mass death of seafood along the coast of 4 North Central provinces from Ha Tinh to Quang Binh, Quang Tri, Thua Thien - Hue, causing serious environmental pollution. Great socio-economic damage, directly affecting production, life and ideology of the people, causing public frustration and receiving great attention from all people.

On the other hand, Indonesia has experienced various development opportunities through the rise and development of its industrial sector based on foreign direct investments (FDI) through various international organisations expanding to the country (Irma, Indah & Nugroho, 2018). This may include various organisations belonging to different sectors that started their operations in Indonesia that, as a result, impacted and facilitated the economic growth of the country in a positive manner. In most of the developing countries where there are highly polluting industries, more tax regulations related to the environmental concerns encourage the inflow of foreign direct investments within those countries.

Hence this paper will solve the following issues:

First, what are environment problems in Vietnam, compared to Indonesia?

Second, what are impacts from FDIs, income on environment pollution in Vietnam and Indonesia?

Third, what are proper recommendations for suitable environment protection programs in Vietnam?

2. Literature Review

Bao et al. (2010) applied a simultaneous equations estimation technique to estimate the scale, technique and composition effects of FDI on China's overall and regional pollution emissions. The estimation results show that FDI in general helps reduce pollution emissions in China, contributing largely to its technique effect. Capturing both the direct and indirect technique effects improves the accuracy in assessing the environmental impact of the FDI. The study also finds that the environmental impacts of FDI vary significantly among different regions and for different pollutants in China.

Wartini (2016) mentioned that in order to gain a great profit, FDI can be used by the foreign investor to violate human rights and the environment in the host states. Unfortunately, the government in developing countries often sacrifice the interest of environment to boost economic growth. Hence, it is crucial to have a good policy in FDI as well as environmental protection. State needs to balance the interest of environment and economic growth, since both of them are interdependence. The existence of FDI shall not hinder the political will of the host state to protect the environment. However, it is essential to enhance the role of the host state government to have a good policy of FDI in order to protect the environment. Then, Abdouli and Hammami (2017) show that the increases in FDI inflows and capital stock enhance the economic growth process in MENA countries. On the other hand, our findings demonstrated that economic growth in MENA countries reacts negatively to the environmental degradation. These empirical insights are of particular interest to policymakers as they help build sound external and environmental policies to sustain economic growth.

Besides, this issue has been paid more attention at both micro and macro levels. From the macro perspective, there have been some concerns with regards to the governmental policies and the international community. However,

from the micro level perspective, the tactics of organisations towards attracting foreign direct investments (FDIs) regardless of the environmental costs in terms of its damage has been taken into consideration (Moosa and Moosa, 2019). Based on the study conducted by Abdouli and Hammami (2017), increase in FDI inflows leads towards the environmental degradation in terms of increasing pollution through these business operations. Moreover, it has also been observed that the degradation of the physical environment rises through the increase in per capita income level and decreases when the per capita income is relatively higher. It shows a significant relationship between the rise in income level and the degradation of the environment. However, the role of FDI within the development of a country is evident in terms of its economic growth but simultaneously it creates a negative impact on the safety concerns of the environment (Shahbaz, Nasir & Roubaud, 2018; Vigliarolo, 2020).

But at the same time, it also provides a severe damage to the physical environment through business activities primarily within the supply chain functions and production of goods. In the light of the study conducted by Tasri and Karimi (2019), FDI has an indirect impact on the environmental pollution where this impact might be heterogeneous. The rationale behind this impact of FDI on the environmental pollution is based on the aim these FDIs have is to maximize profitability that do increases the productivity but bring serious issues within the environment (Widiatedja, 2019). FDI impacts the environment in two distinct ways that include through increasing pollution that is one of the negative impacts and the second way is based on the positive impact on the environment through using efficient technologies and management practices in order to improve the environmental quality (Prasetyawati, 2020).

Different studies highlight that the significant role of FDIs in stimulating productivity as it is considered to be one of the essential sources of raising capital that leads towards the technological advancement within these host countries that are used for prevention of the environment from hazardous consequences of pollution. However, the argument still remains within the previous studies in terms of the positive and negative impacts of foreign direct investments on the environmental pollution (Agustina and Flath, 2019; Mehta et al., 2019; Gomeztrujillo, and Gonzalezperez, 2020, Kormishkina et al., 2020; Khan et al., 2020).

Therefore, it can be considered through the previous studies conducted that there are both direct and indirect impacts of foreign direct investments (FDIs) on the physical environment and the income level of people living in that environment.

2.1 Theoretical Framework

There are some theories that describe the impact of foreign direct investments (FDIs) on the environmental pollution and income in terms of their relationship with each other. One of those theories include Green Economics Theory that talks about the sustainable development of a country without impacting the environment negatively and also utilizing green practices within the industrial sector for the betterment of the physical environment.

Green Economics Theory

Green economics theory is related to the development of a country based on sustainability ensuring the implementation of green practices within the business sectors of the country in order to prevent the environment from hazardous consequences. According to the study conducted by Law et al (2016), green economics theory is based on the methodology of economics that is highly focused on the harmonious interaction between human activities and its impact on the nature in terms of meeting the needs of both of these aspects. In the context of this theory, growth and development of an economy are driven by public and private sectors and also the foreign investments that contribute towards the growth of an economy.

Based on the study topic, this theory has a vast implementation within the business sector specifically businesses coming from foreign investors in terms of making them realize the significance of the natural environment and

the harm it is getting through these business activities. According to the study conducted by Falatehan and Bahtiar (2019), adoption of green initiatives by the use of advanced and clean technology, productivity can be increased within these businesses and its processes brought through FDIs for raising capital and income level and also it can impact the environment in a positive manner. The concern for environmental safety has increased within the contemporary business settings that make it essential for the industrial sector towards reducing environmental pollution and to make the economy progress through sustainable practices (Swainson & Mahantym, 2018). Therefore, it can be considered that this theory is highly significant in terms of making a country go towards sustainable development through FDIs.

2.2 Hypotheses

According to the discussion on the studies conducted before this research, the following proposition has been made.

H: FDIs have significant impact on environment pollution in both countries

Research Method

For Vietnam, we use both qualitative and quantitative analysis. In Vietnam, qualitative analysis, synthesis, dialectical materialism and statistics explanation method were used.

For Indonesia, the current study has aimed towards determining the influence of income and environmental pollution on FDI in Indonesia. With this regard to this, the time series of disposable income, CO emission and FDI have been gathered. The time series from 1960 to 2018 has been collected in the current study.

Autoregressive Distributed Lag (ARDL)

The study is devoted to determining the influence of environmental pollution and income on FDI of Indonesia. In this regard, there was a need to determine the association among the variables. In statistics, different analysis techniques are being used for the purpose of determining the short term and long term association between the variables. One of the essential statistical analysis technique which is preferably used for determining the long term association between the variables is concerned with autoregressive distributed lag technique. With reference to the findings of Nkoro (2016), it has been described that the ARDL approach is considered as one of the preferable techniques for determining the long term association during the econometric assessment. Further, it is also being discussed that the ARDL approach forms the basis with the iterative maximising of marginal log in order to predict one time series from the other. In realisation of this, the standard log function has also been presented as followed:

$G_t = \beta + \alpha DI_t + \alpha CO_t + \epsilon_t$. In the expression above, G_t can be described as the log for FDI while ϵ_t is assumed as error terms. Further, α is considered to be as parameter estimate.

Granger Causality

It is evident that long term and short term association both are required to determine while comprehending whether the time series predict the other time series. However, it has also been discussed that long term association is mainly determined through models like VAR and VECM. In terms of determining the short term association, the most appropriate and widely used statistical model is concerned as Granger Causality. With reference to the findings of Barnett (2014), Granger Causality is a preferably applied analysis technique that is distinct because of determining the short term association. Further, the long term association between the time series can also be determined by utilising Granger Causality.

4. Results and Analysis

4.1 Vietnamese case

According to the investment sector and statistics in Vietnam:

In 2018, 18 fields were invested by foreign investors, in which the processing and manufacturing sector attracted much attention from foreign investors with a total capital of 16.58 billion USD, accounting for 46.7% of total registered investment capital. Real estate business ranked second with total investment capital of 6.6 billion USD, accounting for 18.6% of total registered investment capital. Wholesale and retail field ranked third with a total registered investment capital of 3.67 billion USD, accounting for 10.3% of total registered investment capital

According to investment partner:

In 2018, there were 112 countries and territories having investment projects in Vietnam. Japan ranked first with a total investment capital of 8.59 billion USD, accounting for 24.2% of total investment capital; South Korea ranked second with a total registered investment capital of 7.2 billion USD, accounting for 20.3% of total investment capital in Vietnam; Singapore ranked third with a total registered investment capital of 5 billion USD, accounting for 14.2% of total investment capital ...

According to the investment location:

In 2018, 59 provinces and cities were invested by foreign investors, of which Hanoi was the locality attracting the most foreign investment capital with a total registered capital of 7.5 billion USD, accounting for 21.2% of the total capital. invest. Ho Chi Minh City ranked second with a total registered capital of 5.9 billion USD, accounting for 16.7% of total investment capital. Hai Phong ranked third with a total registered capital of 3.1 billion USD, accounting for 8.7% of total investment capital (source: www.dautunuocngoai.gov.vn date access: 19/11/2020).

For beginning 9 months of 2020:

According to the investment sector:

18 fields were invested by foreign investors, in which the processing and manufacturing sector ranked first with total investment capital of nearly 9.9 billion USD, accounting for 46.6% of total investment capital. registration.

The field of electricity production and distribution ranked second with total investment capital of over 4.3 billion USD, accounting for 20.6% of total registered investment capital. The real estate, wholesale and retail sectors with total registered capital of nearly 3.2 billion USD and 1.3 billion USD, respectively. The rest are other fields.

According to investment partner, Singapore ranked no 1, Korea, China, Japan, Thailand, Taiwan follow.

According to statistics:

Inspection results of the General Department of Environment in 28 Northern provinces in 2017, 2018 and 2019, the proportion of FDI enterprises violating regulations on environmental protection increased over the years. Specifically, in 2017, there were 12/27 violating enterprises, accounting for 44.5%; in 2018, there were 14/25 violating enterprises, accounting for 56% and in 2019 there were 13/19 violating enterprises, accounting for 68%.

The violations often focus on some specific behaviors such as: Failure to make project environmental impact assessment reports as regulated; improper implementation of one of the contents of the environmental impact assessment report; there is no certificate of completion of environmental protection works serving the operational phase of the project; or improperly implementing one of the contents in the approved environmental protection project. (source: www.baotainguyenmoitruong.vn, date access: 19/11/2020).

However, to have an overall overview of the environment issue, we need to perform a SWOT analysis on impacts of FDI and income on environment pollution as following

Strengths:

- FDI has contributed to energy and environment protection in Vietnam in recent years - Vietnam - Germany has been implementing many energy and renewable energy projects. In 2015, the two countries implemented the Renewable Energy and Energy Efficiency Project (4E), phase I (2015 - 2018) with a total value of 3 million euros (3.5 million USD); Phase II (2018 - 2021) is worth 12.16 million euros (14.24 million USD). The main objective of Project 4E is to develop relevant legal, regulatory and institutional conditions and capacities to promote investment in renewable energy and energy efficiency. From 2017, Vietnam and Germany have implemented the Smart Grid Project for renewable energy and energy efficiency, which is expected to end in June 2021. The project assists the Government of Vietnam in implementing the smart grid roadmap, aiming to promote modernization and automation of the national electricity transmission and distribution system.

Weaknesses:

In recent years, There are Violations of foreign enterprises often focus on a number of specific behaviors such as: Failure to make project environmental impact assessment reports according to regulations; improper implementation of one of the contents of the environmental impact assessment report; there is no certificate of completion of environmental protection works serving the operational phase of the project; or improperly implementing one of the contents in the approved environmental protection project. Besides, there are also enterprises that have waste management violations such as: perform periodical waste monitoring inappropriately and incomplete according to regulations; declaring inadequately the transferred hazardous waste in the hazardous waste document; self-dispose of hazardous waste without approval of a competent authority.

Threats:

FDI enterprises investing in Vietnam basically have an average level of production technology, consuming a lot of natural resources, and a large amount of emissions. As of 2017, FDI inflows into Vietnam from developed countries with modern science and technology such as Germany, France, Switzerland, USA, Canada, and Russia are still quite modest. Income from Asia such as: Korea, Japan, Taiwan, Hong Kong, China has own peculiarities. Except for the partners from Korea, Japan, the rest basically have average technology level, public content. High technology comprises very small fraction, with low efficiency, and mainly depends on exploitation of natural resources. It appeared that many FDI projects cause serious pollution, e.g. Hyundai-Vinashin (Khanh Hoa), Miwon (Phu Tho), Tung Kuang (Hai Duong), Vedan (Dong Nai), and, most recently, Formosa (Ha Tinh).

Opportunities:

Although The FDI economic sector is significantly increasing the amount of pollutants and energy consumption in Vietnam, FDI investment can be attracted into renewable energy sectors in order to reduce significant impacts of environmental pollution. Hence, the problem is the state governance of environment quality through FDI projects and better environment technology into the country.

Beside, Vietnam and Germany have cooperated in the renewable energy sector for 10 years and this cooperation is always updated from time to time. To date, Germany has supported development cooperation projects in Vietnam with a total budget of about 1 billion euros (1.17 billion USD), including implemented projects and committed projects.

4.2 Indonesian case

For the attainment of the research objective, this section summarises the results which is based on the descriptive analysis, stationarity testing, ARDL model and Granger Causality.

ARDL Model Assessment

In this following section, the effect of CO2 emission as a proxy to physical environment and disposable income is tested using ARDL model. The results in Table 3 indicates that the optimal lag order chosen automatically by E-Views is (2,1,4). The results in the mentioned table further indicates that FDI's flow in the case of Indonesia is significantly dependent on its lagged values [B= 0.578; p-value= 0.000< 0.01] and [B= 0.263; p-value=0.008< 0.01] respectively. The effect is further computed to be positive. In addition, the long-run effect of CO2 emission captured using the variable at level is positive and significant [B= 1.243; p-value= 0.01< 0.05]. This implies that in the long-run, more pollution in Indonesia results in more FDI. However, if the short-run effect is computed, it is negative [B= -1.108; p-value= 0.01< 0.05]. Therefore, more pollution in the short run in terms of CO2 emission would lead to decrement in the FDI's flow in Indonesia. Another variable which has been tested in this study is DI or disposable income and its long-run effect is calculated to be positive [B= 7.977; pvalue=0.048< 0.05]. Therefore, increment in the country's disposable income would lead to increment in the investment in the Indonesian region. On the contrary, in the short-run, the effect is computed to be negative, however, till the second lag, the effect is apparently insignificant. Hence, the short run effect and association is minimal. Moreover, the overall variance that DI, CO2 emission and lagged values is explaining is computed to be 86.33% which following the adjustment is reduced to 83.01%. In furtherance, the overall model is also significant and this inference has been draw on the basis of f-statistics (p-value< 0.05). Given this, the model is controlled for the problems or serial correlation or heteroscedasticity with the use of White errors (see Table 1).

Table 1. ARDL Model of the study

Variable	Selected Model: ARDL(2, 1, 4)			
	Coefficient	Std. Error	t-Statistic	Prob.*
FDI (-1)	0.578***	0.107	5.403	0.000
FDI (-2)	0.263***	0.094	2.790	0.008
CO2 Emission	1.243**	0.461	2.694	0.011
CO2 Emission (-1)	-1.108**	0.452	-2.451	0.019
DI	7.977**	3.894	2.048	0.048
DI (-1)	-4.102	5.292	-0.775	0.443
DI (-2)	-5.873	4.723	-1.243	0.222
DI (-3)	18.342***	5.746	3.192	0.003
DI (-4)	-15.464***	4.839	-3.196	0.003
C	-2.885**	1.336	-2.160	0.037
R-squared	86.33%		F-statistic	25.973
Adjusted R-squared	83.01%		Prob (F-statistic)	0.000

***: indicating significant at 1%; **: indicating significance at 5%

Granger Causality

For the purpose of evaluating the causality between the variables, Granger causality has been employed. The results presented in Table 4 depicts that CO2 emission and DI possess bi-causality because both the directions are computed to be statistically significant (p-value< 0.1). In addition, the effect of DI on FDI is computed to be statistically significant [F-statistics= 2.482 with p-value= 0.06< 0.1]. However, in the short run, it is found that CO2 emission does not granger cause FDI. It has been asserted because the p-value is computed to be higher than 10%. (see Table 2).

Table 2. Assessment of Causality

Propositions	F-Statistic	Prob.
CO2 Emission does not Granger Cause DI	2.251*	0.078
DI does not Granger Cause CO2 Emission	4.704***	0.003
FDI does not Granger Cause DI	1.471	0.231
DI does not Granger Cause FDI	2.482*	0.061
FDI does not Granger Cause CO2 Emission	0.409	0.801
CO2 Emission does not Granger Cause FDI	1.933	0.126

***: indicating significant at 1%; **: indicating significance at 5%; *: indicating significance at 10%

5. Discussion

According to Environmental Performance Index (EPI) of the Center for Environmental Law and Policy, Yale University (USA), built to assess the ranking position, air quality of countries in the world, published annually. In the EPI index includes 10 component indexes classified into 2 groups: environmental health and ecosystem sustainability. These are indicators related to air pollution and the quality of the environment.

According to this quote, in 2012, the EPI of Vietnam was 79/132 countries, and by 2018 it had dropped to 132 out of 180 countries. If calculated according to the two groups of air pollution and environmental quality indexes, Vietnam ranks 159 - 161.

The reason for the increasing number of cases of violating regulations on environmental protection of FDI enterprises is partly due to the loophole of the legal system. Typically, there is a lack of inconsistency in the provisions of the Law on Environment and Investment Law, Law on Environmental Protection and Law on Construction, between the Law on Environmental Protection and the Law on Water Resources. Other reasons such as the collection and transportation of hazardous waste have not met the needs of businesses; or to attract investment in industries suitable to functional subdivisions of industrial parks, industrial clusters.

On the other hand, the association and effect of CO2 emission as a metric of environmental pollution and disposable income have been evaluated on the FDI of Indonesia. It has been found from the assessment that both the variable have reasonable effect on the inflow of the investment in Indonesia.

Another implication of the study is that improvement in the environmental aspects along with the income can lead to more employment opportunities. This aspect is crucial to be noticed because a country like Indonesia can grow further as developing state with more of its population contributing to the work force. Precisely, FDI, income and pollution are found to be interlinked aspects in the case of Indonesia and improvement in any would affect the other significantly, therefore, plausible policies are required by the government to curb the pollution and spread awareness regarding expenditure and income. Another significant findings is associated with the fact that improvement in the savings strategy, the environment of investments in Indonesia can be promoted. It has been inferred on the basis of significant results.

6. Conclusion

Because FDIs has significant impacts on environment pollution, government agencies need to enhance monitoring and controlling FDIs projects. We will propose some policies in the below section in details.

The study was concerned with determining the influence of income and environmental pollution on FDI in Vietnam and Indonesia. Both disposable income and environmental pollution are found to have significant effect on the FDI of Vietnam and Indonesia. The study has adopted a quantitative approach to comprehend the research phenomenon. The findings of the current study are also well aligned with the prior findings where it has also been discussed that income and environmental pollution significantly affect FDI of a country.

Policy implications:

We need to enforce regulations on pollution prevention and minimization and environmental monitoring, and regulations on emission limits; Enterprises must publicly disclose information on their environment and solutions to treat emissions. In particular, it is necessary to promote the guidance, monitoring and inspection of enterprises in their observance of the law on environmental protection; develop mechanisms and policies to attract investment in the field of waste gas treatment, waste water, solid waste and urban environmental sanitation ...

In renewable energy sector, we also have to continue to develop mechanisms to mobilize resources from all socio-economic sectors to invest in the development of transmission grids (220 kV, 500 kV and higher voltage levels). In the immediate future, to implement a number of transmission grid projects with the function of collecting and releasing the capacity of renewable energy power sources.

Besides, we propose some recommendations for enhancing financial accounting information transparency in FDI firms:

In order to strengthen responsibilities of FDI investments on society and business environment, FDI firms need to increase transparency in income distribution, tax and stakeholder payment obligations, internal price transfer policy, etc.

Over years, the Government of Vietnam and relevant ministries have recently issued or amended many related regulations to remove difficulties, support businesses to operate more efficiently as well as improve the investment climate and increase Vietnam's competitiveness index, thereby attracting foreign investors.

On the other hand, FDI firms need to pay attention more to financial accounting information transparency. For example, Disclosure of information about a firm's structure and ownership rate and dealing with related parties is one of the principles of effective corporate governance. This exposes the connections between companies and helps uncover illegal financial flows, thereby reducing the chance of corruption and other financial violations.

7. Future Research Directions and Limitations

The current study discusses in detail how the FDI of a country is predicted by measures like environmental pollution and income. However, the absence of qualitative evidence indicates one of the major weaknesses of the current research. In this aspect, there is an opportunity for the future researcher to execute this research with the inclusion of some qualitative evidence as it gives new dimensions to the research context. Further, the findings of the current research can only be applied with full confidence in the context of 2 countries. Therefore, future researchers can also study the current research phenomenon from the context of different geographical locations.

References

- Abdouli, M., & Hammami, S. (2017). Economic growth, FDI inflows and their impact on the environment: an empirical study for the MENA countries. *Quality & Quantity*, 51(1), 121-146.
- Agustina, A., & Flath, D. (2019). Agglomeration and Location Decision of Foreign Direct Investment (FDI) in Indonesia. *Jurnal Ekonomi dan Kebijakan Publik*, 10(2), 87-98.
- Apresian, S. R. (2016). Foreign direct investment and environmental degradation: Does pollution haven exists in Indonesia. In *International conference on social politics*. https://www.researchgate.net/profile/Stanislaus_Risadi_Apresian/publication/295857796_FOREIGN_DIRECT_INVESTMENT_AND_ENVIRONMENTAL_DEGRADATION_DOES_POLLUTION_HAVEN_EXIST_IN_INDONESIA/links/56cea3da08ae85c8233e9998/FOREIGN-DIRECT-INVESTMENT-AND-ENVIRONMENTAL-DEGRADATIONDOES-POLLUTION-HAVEN-EXIST-IN-INDONESIA.pdf
- Back, J. (2016). A new look at the FDI-income-energy-environment nexus: dynamic panel data analysis of ASEAN. *Energy Policy*,

91, 22-27.

Balsalobre-Lorente, D., Gokmenoglu, K. K., Taspinar, N., & Cantos-Cantos, J. M. (2019). An approach to the pollution haven and pollution halo hypotheses in MINT countries. *Environmental Science and Pollution Research*, 26(22), 23010-23026.

Bao, Q., Chen, Y., & Song, L. (2010). Foreign direct investment and environmental pollution in China: a simultaneous equations estimation. *Environment and Development Economics*, 16(1).

Brucal, A., Javorcik, B., & Love, I. (2017). Pollution havens or halos? Evidence from foreign acquisitions in Indonesia. 2017 Meeting Papers 306, Society for Economic Dynamics.

Destek, M. A., & Okumus, I. (2019). Does pollution haven hypothesis hold in newly industrialized countries? Evidence from ecological footprint. *Environmental Science and Pollution Research*, 26(23), 23689-23695.

Doytch, N., & Uctum, M. (2016). Globalization and the environmental impact of sectoral FDI. *Economic Systems*, 40(4), 582-594.

Falatehan, F., & Bahtiar, R. (2019). Integration of Environmental and Economic Aspects in Green GRDP Calculation on the Industrial Sector in West Bandung District, Indonesia. *European Journal of Sustainable Development*, 8(3), 152-152.

Gök, A. (2019). Economic Growth and Environmental Impacts of Foreign Direct Investment in Emerging Market Economies. In *Handbook of Research on Economic and Political Implications of Green Trading and Energy Use* (pp. 107-122). IGI Global.

Gomeztrujillo, A. M., & Gonzalezperez, M. A. (2020). What do we know about organizational sustainability and international business. *Management of Environmental Quality: An International Journal*, 31(2), 292-305. <https://www.emerald.com/insight/content/doi/10.1108/MEQ-08-2019-0173/full/html>

Hadi, S., Retno, S., & Yuliani, S. (2018). The Impact of Foreign Direct Investment to the Quality of the Environment in Indonesia. In *E3S Web of Conferences* (Vol. 73, p. 10025). EDP Sciences.

Hadi, S., Retno, S., & Yuliani, S. (2018). The Impact of Foreign Direct Investment to the Quality of the Environment in Indonesia. In *E3S Web of Conferences* (Vol. 73, p. 10025). EDP Sciences.

Huy, D.T.N., Loan, B.T.T., & Anh, P.T. 2020. Impact of selected factors on stock price: a case study of Vietcombank in Vietnam. *Entrepreneurship and Sustainability Issues*, 7(4), 2715-2730. [http://doi.org/10.9770/jesi.2020.7.4\(10\)](http://doi.org/10.9770/jesi.2020.7.4(10))

Huy, D.T.N. (2012). Estimating Beta of Viet Nam listed construction companies groups during the crisis, *Journal of Integration and Development*, 15(1).

Irma, S., Indah, S., & Nugroho, S. B. M. (2018). Impact of economic growth per capita and foreign direct investment on income inequality in Indonesia. In *E3S Web of Conferences* (Vol. 73, p. 10013). EDP Sciences.

Karimi, K., Tasri, E. S., & Sepriana, R. (2019). CO2 Economic Cost Analysis in the Process of Economic Development in Indonesia. *KnE Social Sciences*, 349-359.

Khan, H., Shaheen, I., Ahmad, M., Bakhshaliev, E., Khan, H.U., Kabir, A. (2020). Energy infrastructure and foreign direct investment in China. *Entrepreneurship and Sustainability Issues*, 8(1), 233-248. [http://doi.org/10.9770/jesi.2020.8.1\(16\)](http://doi.org/10.9770/jesi.2020.8.1(16))

Khan, M. A., & Ozturk, I. (2020). Examining foreign direct investment and environmental pollution linkage in Asia. *Environmental Science and Pollution Research*, 27(7), 7244-7255.

Kormishkina, L. A., Kormishkin, E. D., Gorin, V. A., Koloskov, D. A., Koroleva, L. P. (2019). Environmental investment: the most adequate neo-industrial response to the growth dilemma of the economy. *Entrepreneurship and Sustainability Issues*, 7(2), 929-948. [http://doi.org/10.9770/jesi.2019.7.2\(10\)](http://doi.org/10.9770/jesi.2019.7.2(10))

Law, A., De Lacy, T., Lipman, G., & Jiang, M. (2016). Transitioning to a green economy: the case of tourism in Bali, Indonesia. *Journal of Cleaner Production*, 111, 295-305.

Mehta, P., Singh, M., & Mittal, M. (2019). It is not an investment if it is destroying the planet: A literature review of socially responsible investments and proposed conceptual framework. *Management of Environmental Quality: An International Journal*, 31(2), 307-329. <https://www.emerald.com/insight/content/doi/10.1108/MEQ-08-2019-0176/full/html>

Moosa, I., & Moosa, I. A. (2019, August). The Environmental Effects of FDI: Evidence from MENA Countries. In *Economic Research Forum Working Papers* (No. 1321).

Mukoka, S. (2018). An econometric assessment of the impact of inflation on economic growth: A case study of Zimbabwe economy.

Economics, 7(1), 17-22.

Nkoro, E., & Uko, A. K. (2016). Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation. *Journal of Statistical and Econometric Methods*, 5(4), 63-91.

Paparoditis, E., & Politis, D. N. (2018). The asymptotic size and power of the augmented Dickey–Fuller test for a unit root. *Econometric Reviews*, 37(9), 955-973.

Prasetyawati, M. D. (2020). How Foreign Direct Investment and Urbanization Affect The Environment of Indonesia. *Jurnal Litbang Provinsi Jawa Tengah*, 17(2), 147-157.

Rafindadi, A. A., Muye, I. M., & Kaita, R. A. (2018). The effects of FDI and energy consumption on environmental pollution in predominantly resource-based economies of the GCC. *Sustainable Energy Technologies and Assessments*, 25, 126-137.

Ridzuan, A. R., Ismail, N. A., & Hamat, A. F. C. (2016, November). Globalization and Sustainable Development: Evidence from Indonesia. In *Proceedings of Second International Conference on Contemporary Economic Issues* (p. 47).

Sapkota, P., & Bastola, U. (2017). Foreign direct investment, income, and environmental pollution in developing countries: Panel data analysis of Latin America. *Energy Economics*, 64, 206-212.

Sarkodie, S. A., & Strezov, V. (2019). Effect of foreign direct investments, economic development and energy consumption on greenhouse gas emissions in developing countries. *Science of the Total Environment*, 646, 862-871.

Shahbaz, M., Nasir, M. A., & Roubaud, D. (2018). Environmental degradation in France: the effects of FDI, financial development, and energy innovations. *Energy Economics*, 74, 843-857.

Swainson, L., & Mahanty, S. (2018). Green economy meets political economy: Lessons from the “Aceh Green” initiative, Indonesia. *Global environmental change*, 53, 286-295.

Tasri, E. S., & Karimi, K. (2019). Emission Study and Pollution Haven Hypothesis in Economic Development of Developed Country. *KnE Social Sciences*, 260-270.

Udemba, E. N., Güngör, H., & Bekun, F. V. (2019). Environmental implication of offshore economic activities in Indonesia: a dual analyses of cointegration and causality. *Environmental Science and Pollution Research*, 26(31), 32460-32475.

Vigliarolo, F. 2020. Towards an ontological reason law in economics: principles and foundations. *Insights into Regional Development*, 2(4), 784-801. [http://doi.org/10.9770/IRD.2020.2.4\(5\)](http://doi.org/10.9770/IRD.2020.2.4(5))

Wartini, S. (2016). The Impacts of Foreign Direct Investment to the Environment in Developing Countries: Indonesian Perspective, *Indonesian Journal of International Law*, 13(2). <http://dx.doi.org/10.17304/ijil.vol13.2.650>

Widiatedja, I. G. N. P. (2019). FDI on Tourism and the Environmental Damage: What Indonesia’s Trade and Investment Agreements Can Do?. *Yuridika*, 34(2), 303-324.

Zhu, H., Duan, L., Guo, Y., & Yu, K. (2016). The effects of FDI, economic growth and energy consumption on carbon emissions in ASEAN-5: evidence from panel quantile regression. *Economic Modelling*, 58, 237-248.

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