



# Does Social Index Matter to Vietnamese Outward FDI: The Gravity Model Analysis

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## Abstract

**Purpose:** The article extends the gravity model introduced by Tinbergen (1962) and further developed by many scholars such as Zheng et al. (2022), Akhtaruzzaman (2023), Shun-Chiao Chang (2014) and Hui-Ching Hsieh et al. (2019) to assess the impact of macroeconomic factors in Vietnam and its main partner countries on the flow of Vietnam's outward foreign direct investment (OFDI). **Research design, data and methodology:** To analyze the drivers of Vietnam's OFDI into 15 key host countries (which represented 93.9% of Vietnam's total OFDI capital during the study period), the research uses the fully modified ordinary least square method (FMOLS) and the principal component analysis (PCA) technique with unbalanced panel data from 2007 to 2021. **Results:** The regression findings indicate that factors such as social index, the size of the economy, shared borders, and economic integration levels positively influence Vietnam's OFDI flows, while geographical distance negatively affects Vietnamese OFDI. Interestingly, the regression results showed that the economic index (comprised from three components namely inflation rate, unemployment rate, and bilateral exchange rate), has no statistically significant effects on Vietnam's OFDI. **Conclusions:** Based on these findings, the author suggests some recommendations to enhance OFDI flows from Vietnam in the context of its evolving economic integration.

**Keywords :** Outward FDI, Gravity Model, Principal Component Analysis

**JEL Classification Code:** C23, F10, Q43

## 1. Introduction

In the context of integration, alongside attracting inward FDI for domestic economic growth, Vietnamese businesses are increasingly focusing on expanding globally to increase their market share and enhance competitiveness. With the signing of new-generation Free Trade Agreements such as the CPTPP, EVFTA, RCEP, and deeper integration into the ASEAN Economic Community (AEC), Vietnamese companies have gained significant opportunities to boost their outward foreign direct investment (OFDI) activities. By the end of

2022, Vietnam had 1,611 OFDI projects, with total registered capital exceeding 21.75 billion USD. The majority of Vietnam's OFDI is concentrated in sectors such as mining, agriculture, telecommunications, and electricity, with key host recipient countries including Laos, Cambodia, and Venezuela. Despite some initial success, there are several challenges in the OFDI activities of Vietnamese enterprises, especially the inefficiency of many state-owned enterprises projects (SOEs). By the end of 2022, state-owned or state-dominated enterprises (in which the state holds over 50% of charter capital) had invested nearly 11.6

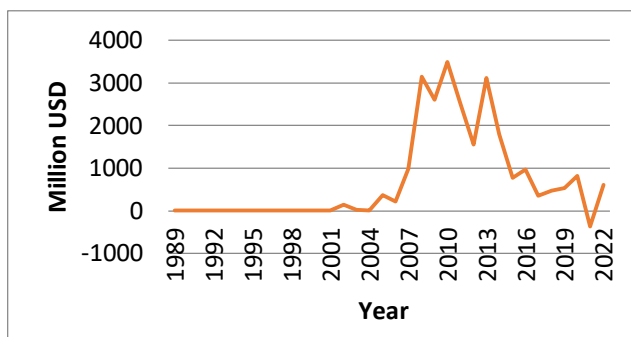
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billion USD abroad, making up 53.3% of Vietnam's total OFDI. However, the performance of these enterprises has not met expectations, with accumulated losses reaching 1.34 billion USD by the end of 2021. The losses from OFDI projects of SOEs increased by 42% compared to 2020, with telecommunications being the hardest-hit sector, accounting for \$293.3 million in losses across 8 projects in 2021. By the end of 2021, a total of 44 projects had accumulated losses of nearly 1.34 billion USD, up by more than 164 million USD from 2020. To improve competitiveness, raising capital for OFDI projects is a top priority. However, while the number of projects has risen, the registered capital has sharply declined since peaking in 2010, leading to a reduction in the average capital size per project. Furthermore, the disbursed capital ratio remains low, under 60% during the 2007-2021 period, resulting in insufficient funds for projects. This makes it difficult for Vietnamese businesses to invest in advanced technologies and capture foreign market share with limited capital. These significant challenges call for a thorough examination of the factors influencing Vietnam's capital outflow, including both pull and push factors. To that end, this study is divided into five parts. The first part is introduction, followed by literature review section. Part 3 will address the research methodology. Research results are mentioned in section 4 and some policy implications are in section 5.



Source: Foreign Investment Agency, <https://fia.mpi.gov.vn/en/>

**Figure 1:** outward FDI in Vietnam during the 1989-2022 period

## 2. Literature Review

Research on the determinants of outward FDI has received the attention of many scholars worldwide. Studies on macro-level determinants of OFDI flows generally fall into three main categories: those grounded in the Eclectic Theory, those applying the Investment Development Path (IDP) model, and those utilizing the Gravity Model. The Eclectic Theory analyzes OFDI by considering both push factors originating from the home country and pull factors from host countries. In contrast, the IDP model primarily

focuses on how home country push factors drive OFDI flows. In recent years, the Gravity model has gained increasing popularity as a tool for analyzing the determinants of OFDI across nations. This model was proposed by Tinbergen (1962) and developed by many scholars (such as Shun-Chiao Chang, 2014; Zheng, 2022). Originally derived from physics, the Gravity model was first introduced into economics to assess the factors influencing bilateral trade between nations. This model posits that trade volume between two countries is positively associated with the size of their economies and inversely related to the geographical distance separating them. In recent years, a few studies (Goh et al., 2013; Akhtaruzzaman, 2023) have developed the gravity model to assess factors affecting OFDI flows. With the Gravity model, in addition to push and pull factors, bilateral factors between the home and the host countries are also considered (such as factors of geographical distance, and import-export turnover between two countries, combined GDP). Some notable studies using the Gravity model are listed as follow:

Peter J. Buckley et al. (2018) used panel data to study the motivations behind China's OFDI through the following variables: motivation to repurchase assets strategically; cultural similarity; GDP per capita; GDP growth; geographical distance; inflation; market openness; political risk. The authors confirmed that policy liberalization, cultural similarity, market size, geographical distance, inflation, and market openness have a positive influence on China's OFDI. The incentive to acquire strategic assets, however, has no impact on China's OFDI. Soo Khoo Goh and Koi Nyen Wong (2013) used panel data for the period 1999-2008 to evaluate the impact of market size and government policies on Malaysia's outward FDI. The research results confirmed that foreign market size, real exchange rate (RER), international reserves, and trade openness have a positive influence on Malaysia's outward FDI. Meanwhile, Carmen Stoian et al. (2013) studied the influence of institutional factors on OFDI activities. The main variables in the study are technological development level, GDP per capita, Inward FDI, and institutional variables (exchange rate policy, enterprise restructuring policy, equitization, overall institutional reform, and competition). The authors confirmed that GDP per capita and IFDI have a positive effect on OFDI capital flows. Meanwhile, the technological development level of the host countries has negative impact on OFDI capital flows. Regarding large-scale privatization, corporate restructuring, or trade liberalization alone, there is no visible impact. Ivar Kolstad and Arne Wiig (2012) studied China's OFDI capital flows in the period 2003-2006. The authors confirmed that China's OFDI capital flows tend to focus on large markets and countries with abundant natural resources but weak institutions. Chen. J.E et al. (2019) studied the factors that

determine the investment location of Malaysia's OFDI capital flows with panel data from 34 host countries in the period 2000-2009, with confirmation that the important factors that have a positive influence on OFDI are the market size of the host countries and geographical distance. Meanwhile, Sheng Ma et al. (2020) used panel data for the period 2005-2018 to evaluate the location advantage that China chose to carry out OFDI, especially in ASEAN countries. The authors confirmed that China's OFDI often focuses on ASEAN countries with large potential markets and low tax rates, favorable business environments, rapid urbanization rates, and low labor costs. Meanwhile, Carmen Stoian and Alex Mohr (2016) used data from 29 emerging economies over 17 years (1995-2011) to evaluate factors affecting OFDI in emerging economies. Key variables include protectionism, level of corruption, competitive advantage, company ownership advantage, urbanization rate, and gaps in regulations and laws of the host countries. The authors confirmed the positive relationship between regulatory gaps in the home country, ownership advantages, and OFDI for emerging economies. Khanindra (2013) uses panel data from 56 developing countries in the period of 1996-2010 to evaluate factors affecting OFDI capital flows in developing countries, including main variables: Level of economic development; trade openness; political risks; technological innovation; monetary power, with the conclusion that political risk hurts OFDI while investment in science and technology has a positive impact. The authors also stated a need to balance domestic and international investment through appropriate policies and governance reforms depending on the specific sector. Shun-Chiao Chang (2014) uses the gravity model to evaluate the factors affecting China's OFDI. Key variables in the study: China's OFDI, GDP, population, distance, relative exchange rate, unemployment rate, poverty rate, SMP effect, SAR effect, patents, exports fuel, ore and metal exports, and dummy variables (border, language). The authors confirmed that GDP, SMP effect, SAR, common language, and fuel exports have a positive impact on promoting OFDI, but the distance variable has no impact on China's OFDI capital flows. Xiaoxi Zhang and Kevin Daly (2011) studied factors affecting China's Outward FDI with panel data during the period 2003 - 2009, by using the gravity model with the following variables: OFDI, exports, imports, GDP per capita, average exchange rate, inflation, GDP growth, IFDI/GDP ratio, and the ratio of ore and metal exports to commodity exports. The research results confirmed that China's OFDI is positively related to international trade, market size, economic growth, integration level, and natural resources. In a recent study, Jiyong Chen, Yishuang Liu, and Wei Liu (2020) used extended gravity model to analyze the impact of the host countries environment on China's OFDI. With panel data of

66 countries participating in the BRI (Belt and Road Initiative) from 2007-2018, the authors confirmed that the favorable business environment and level of integration have a positive influence on OFDI capital flows of China into BRI participating countries. Zheng et al. (2022) studied the effects of institutional distance, combined GDP, borders, bilateral exchange rates, WTO accession, and unemployment rate on OFDI flows from developing countries. The authors confirmed that institutional distance, the proportion of people at working age, and combined GDP have a positive influence on countries' OFDI capital flows. Yonghui Han et al. (2022) study the impact of sister-city relationships between China and partner countries on China's OFDI capital flows, with confirmation that partnerships between sister cities and BRI (with participation in the Belt and Road Initiative), and combined GDP promote China's OFDI. Akhtaruzzaman (2023) studied how host countries' factors influence OFDI flows in Korea. The study used the entropy weighting method and the gravity model with the main variables such as institutional variables, infrastructure, technology, economic openness, combined GDP, and the proportion of people at working age. The authors asserted that there is a positive relationship between macroeconomic performance, formal institutions, infrastructure, technology, and OFDI intensity. Strong formal institutions, along with the quality of infrastructure and technology, have a positive impact on the relationship between macroeconomic performance and OFDI intensity.

Thus, scholars worldwide have studied the factors affecting OFDI from many perspectives, both from the push and pull factors as well as the bilateral factors (gravity model). Meanwhile, the studies in Vietnam on OFDI are still at the initial level, with very little systematic research. Some initial studies by Quang et al. (2018) used an extended IDP model to assess the influence of macro factors such as GNP growth, trade openness, exchange rate, and investment in science and technology on Vietnam's OFDI capital flow. The authors confirmed that inward FDI and investment in science and technology have a positive influence on OFDI. Meanwhile, the average national income per capita and exchange rate are not statistically significant. Dao Duy Thuan (2021) also used an extended IDP model to assess the factors affecting Vietnam's OFDI to ASEAN countries in the period 2005-2020. The author asserted that GDP per capita, FDI inflows, the openness of the economy (measured by total import and export turnover), and the accession to the ASEAN market (AEC) have a positive influence on Vietnam's OFDI. Meanwhile, the exchange rate and budget investment in science and technology have no impact on Vietnam's OFDI capital flow into ASEAN countries. Vo Thanh Thu et al. (2020) studied the factors affecting the OFDI capital flow of Vietnam into the Cambodian market. The authors affirmed that the

development of infrastructure, cultural factors, policies, and market size have a positive influence on the OFDI capital flow from Vietnam into Cambodia. It can be said that the gravity model has been widely used in the world but is still relatively new in the context of Vietnam's OFDI. According to the author's research, no work in Vietnam uses the Gravity model to comprehensively assess the influence of push, pull and bilateral factors on OFDI activities in Vietnam. Therefore, the author uses the gravity model to evaluate the influence factors from the home country, the host countries, and bilateral factors on the OFDI of Vietnam during the period 2007-2021 (after the accession of Vietnam as the WTO member).

### 3. Research Methods

To evaluate the factors affecting OFDI in Vietnam, the Gravity model proposed by Tinbergen (1962) and developed by many other researchers mentioned in the literature review was used. Mathematically, the gravity model of OFDI capital flows from country *i* to partner country *j* can be written as an equation as follow:

$$OFDI_{ij} = \frac{GDP_i * GDP_j}{Dis_{ij}}$$

Where OFDI represents the flow of FDI from country *i* to country *j*, while GDP is national income and Dis is the geographical distance between country *i* and *j*. Based on Shun-Chiao Chang (2014), the research model is proposed as follow:

$$OFDI_{ijt} = \alpha + \alpha_1(GDP_i * GDP_j) + \alpha_2(Ecoin_{ijt}) + \alpha_3(Soin_{ijt}) + \alpha_4(DIS_{ijt}) + \alpha_5(BORDER) + \alpha_6(WTO) + \varepsilon_{it}$$

Where  $OFDI_{ijt}$  is the OFDI of country *i* invested in country *j* in year *t*; GDP is the annual gross domestic product of countries; Ecoin and Soin respectively represent the economic index and social index of countries. The variable DIS is the distance of the partner countries to Vietnam. Dummy variables BORDER and WTO are used to determine whether two countries share a common border or have joined the WTO. The data for the study were taken from 2007 to 2021. The author chose the research period starting from 2007 because this is the year Vietnam joined the WTO - an important milestone for Vietnam in economic integration. In addition, the author converted all variables in the model to logarithmic form to minimize model defects such as heteroskedasticity.

**Table 1:** Variables Descriptions

Variables	Unit	Indexes	Describe	Sources	Previous research
OFDI	Million USD	-	Vietnam's OFDI into partner countries annually	Ministry of Planning and Investment ( <a href="http://www.mpi.gov.vn">www.mpi.gov.vn</a> )	
GDP	Million USD	-	Gross Domestic Product by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Khanindra (2013), Akhtaruzzaman (2023), Shun-Chiao Chang (2014)
DIS	Kilometers	-	Distance between countries	<a href="http://www.cepii.fr/cepii/en">http://www.cepii.fr/cepii/en</a>	Peter J. Buckley et al. (2018), Chen. J.E et al. (2019), Shun-Chiao Chang (2014)
BORDER		-	The dummy variable takes 1 when the two countries share a common border, otherwise it takes 0	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Shun-Chiao Chang (2014), Zheng (2022)
WTO		-	The dummy variable takes the value 1 when the country is a WTO member and takes the value 0 in years the country is not yet a WTO member.	WTO ( <a href="https://www.wto.org">https://www.wto.org</a> )	Xiaoxi Zhang, Kevin Daly (2011), Jiyong Chen, Yishuang Liu, Wei Liu (2020), Zheng (2022)
INF	%	Economic Index	Inflation rates of partner countries by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Peter J. Buckley et al. (2018), Xiaoxi Zhang, Kevin Daly (2011)
EXR			Exchange rates of VND and currencies of partner countries by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Zheng (2022), Shun-Chiao Chang (2014)
UNEM	%		Unemployment rate in partner countries by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Shun-Chiao Chang (2014), Zheng (2022)
URB	%	Social index	Urbanization rate in partner countries by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Carmen Stoian, Alex Mohr (2016), Sheng Ma et al. (2020)
POV	%		Poverty rate in the partner countries by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Shun-Chiao Chang (2014), Zheng (2022)
DR	%		Percentage of people of working age in the partner countries by year	World Bank ( <a href="https://data.worldbank.org/">https://data.worldbank.org/</a> )	Akhtaruzzaman (2023), Zheng (2022)

Source: Compiled by the author

To construct the indexes (economic index, social index), the author uses the Principal Components Analysis technique (PCA). This is a commonly used technique to reduce dimensionality data (reducing the number of variables in the model) by creating new variables while still retaining the basic characteristics of the original component variables. The result of using the PCA technique is to convert variables into components. The main parts of socio-economic indicators are presented in Table 2 as follows:

**Table 2:** Principal component analysis results

Indexes	Variables	Value	Proportion	Cumulative value	Cumulative Proportion
Economic Index	INF	1.22	0.4066	1.12	0.4066
	EXR	0.82	0.2733	2.04	0.68
	UNEM	0.96	0.32	3.00	1.000
Social index	URB	1.37	0.4566	1.37	0.4566
	POV	0.88	0.2933	2.25	0.75
	DR	0.75	0.25	3.00	1.000

Source: Calculated on SPSS

To evaluate the factors affecting the outward FDI capital flows of Vietnam according to the gravity model, we need to collect the data from Vietnam and from recipient countries. Based on the availability of data, the author selected the group of 15 countries receiving the most investment capital from Vietnam to collect data during the 15-year period from 2007 to 2021. These 15 countries account for nearly 94% of total outward FDI capital of Vietnam during the 15-year time span. Therefore, the research results are valuable in determining the factors affecting the outward FDI capital flow of Vietnam into the main investment recipient countries of Vietnam (including the push factors from Vietnam, the full factors from recipient countries and bilateral factors).

**Table 3:** Top 15 Recipient Countries of Vietnam's Outward FDI  
Unit: Million USD, %

Nations	Registered capital	Proportion of OFDI capital of Vietnam
Laos	5273.9	24.86%
Cambodia	2916.2	13.75%
Venezuela	1825.1	8.60%
Russia	1626.8	7.67%
Myanmar	1470.6	6.93%
Peru	1276.7	6.02%
Algeria	1261.5	5.95%
USA	1197.4	5.64%
Malaysia	853.2	4.02%
Australia	540.6	2.55%
Singapore	498.6	2.35%
Tanzania	356.3	1.68%
Mozambique	345.9	1.63%
Germany	248.6	1.17%
Cameroon	230.7	1.09%

Source: Vietnam Statistical Yearbook 2021

To determine the sign and magnitude of the coefficients of the explanatory variables, the fully modified ordinary least squares method (FMOLS) was used. The fully modified ordinary least squares method is considered a suitable panel data estimator due to its ability to overcome common problems of endogenous bias and series correlation. To select a suitable regression model, the study conducted Levin, Li & Chu (LLC), ADF and PP-Fisher tests to check the model's defects. At the same time, to ensure the reliability of the results, the author also conducted a robustness check of the model.

#### 4. Results

To select the appropriate regression model, the study uses Levin, Li & Chu (LLC), ADF-Fisher, and Philips-Perron-Fisher tests for all variables (except dummy variables and distance variables). The results of these tests are shown in the following table:

**Table 4:** Result of Stationarity Test of Panel Data Series

Variable	LLC	ADF-Fisher	PP-Fisher	Stationary
LOFDI D(LOFDI)	-0.15 [0.43] -16.45[0.00]	25.44 [0.15] 122.45[0.00]	22.84[0.59] 166.64[0.00]	No Yes
LGDP D(LGDP)	-0.28[0.13] -22.86[0.00]	3.18[0.62] 234.49[0.00]	6.82[0.24] 231.57[0.00]	No Yes
LECOIN D(LECOIN)	-0.11[0.51] -212.19[0.00]	4.10[0.43] 225.63[0.00]	5.19[0.21] 121.62[0.00]	No Yes
LSOIN D(LSOIN)	-0.06[0.44] -12.89[0.00]	22.92[0.39] 223.81[0.00]	18.22[0.48] 121.87[0.00]	No Yes

Note 1: The data in square brackets are p-values

Note 2: LOFDI, LGDP, LECOIN, LSOIN are logarithmic values of OFDI, GDP, economic index and social index.

Source: Calculated on Stata

The results of the tests show that all the variables in the model are nonstationary, but the first difference between the variables is stationary. The results of the cointegration test are presented in table 5:

**Table 5:** Cointegration Test Results

Test	Coefficient	Probability	Weight statistics	Probability
PP test	-1.23*	0.00	-6.45*	0.00
ADF test	-2.62*	0.02	-4.63*	0.00

Source: Calculated on Stata

The results of the ADF test and PP test show that there is no pseudo-regression relationship between the variables in the model. After conducting tests to select the model, the study uses FMOLS technique to determine the relationship between variables in the model. The results of the FMOLS regression test are as follows:

**Table 6:** Regression Model Results

Dependent variable	Explanatory variables	Coefficient	p-value
OFDI	Combined GDP ( $GDP_i * GDP_j$ )	0.12	0.02*
	DIS	-0.52	0.01*
	Ecoin	0.22	0.15
	Soin	0.34	0.01*
	BORDER	0.12	0.03*
	WTO	0.06	0.02*

Source: Calculated on Stata

The regression model results show that combined GDP as a proxy for economic size has a significant and positive impact on Vietnam's OFDI capital flows. A 1% increase in combined GDP would increase OFDI from Vietnam to key destinations by 0.12%. The geographical distance coefficient between Vietnam and partner countries shows a negative relationship, meaning closer countries will have an advantage in attracting FDI from Vietnam. For the economic index, the coefficient is positive but not statistically significant. Therefore, it can be affirmed that variables such as inflation rate, unemployment rate, and bilateral exchange rate as a single index namely economic indicator do not play an important role in promoting /decreasing Vietnam's OFDI. This result is consistent with previous studies by Thanh Thu (2020), and Dao Duy Thuan (2021) on factors affecting Vietnam's OFDI in some key areas such as ASEAN and Cambodia. For social indicators (including poverty rate, proportion of people of working age, and urbanization growth), the impact of social indicators is positive and statistically significant. When the social index increases by 1%, the OFDI from Vietnam to the main destinations can increase by 0.34%. In addition, the coefficients of the dummy variable are all positive and statistically significant. The regression results show that the degree of globalization (represented by the WTO variable) is less effective than proximity (represented by the Border variable) in promoting Vietnam's OFDI capital flows.

To test the reliability of the model, the study uses another estimation technique, DOLS (Dynamic Ordinary Least Squares), and tests the model with single independent variables. The results of the regression model using the DOLS technique show that the signs of the coefficients in the regression model are similar to the results of FMOLS. This shows the fit of the model.

**Table 7:** DOLS Estimation Results

Dependent variable	Explanatory variables	Coefficient	p-value
OFDI	Combined GDP ( $GDP_i * GDP_j$ )	0.15	0.07**
	DIS	-0.02	0.02*
	Ecoin	0.04	0.58
	Soin	0.24	0.03*
	BORDER	0.08	0.00*
	WTO	0.05	0.02*

Source: Calculated on Stata

When considering the model with single independent variables, the results of the regression model according to the DOLS test are shown in Table 8.

**Table 8:** DOLS Estimation with Control Variables' Substitution

Dependent variable	Explanatory variables	Coefficient	p-value
OFDI	Combined GDP ( $GDP_i * GDP_j$ )	0.14	0.08**
	DIS	-0.016	0.01*
	INF	0.06	0.84
	EXR	0.15	0.52
	UNEM	- 0.11	0.16
	URB	0.52	0.07**
	POV	-0.13	0.02*
	DR	0.16	0.04*
	BORDER	0.08	0.00*
	WTO	0.05	0.02*

Source: Calculated on Stata

According to the DOLS test results in Table 8, the variables inflation and exchange rate have positive coefficients but are not statistically significant. This is also consistent with the results of the regression model in Table 6. Meanwhile, the speed of urbanization has the positive influence on Vietnam's OFDI capital flows. When the urbanization rate increases by 1%, Vietnam's OFDI capital flows to major destinations can increase by up to 0.52%. This also shows that Vietnam's OFDI will prioritize invest in countries with convenient urban transportation infrastructure, capable of implementing projects and quickly recovering capital. In other words, we need to be careful with OFDI projects in areas with less favorable infrastructure, with potential risks of loss, prolonging investment time like many projects in the fields of hydropower and mining in the last time. Meanwhile, the variable UNEM (unemployment rate) has a negative coefficient but is not statistically significant. The reason for this might be Vietnam's OFDI capital flows tend to invest in labor-intensive industries, but do not require high qualifications of local workers. Therefore, the variable DR (proportion of people of working age) has a positive influence on OFDI capital flows, but the unemployment rate does not play an important role in attracting/reducing Vietnam's OFDI capital flows into the main recipient countries. The regression model results in Table 8 are consistent with the model results in Table 6 and confirm the appropriateness of the proposed regression model.

## 5. Conclusions

The results of regression models using FMOLS and DOLS techniques both show that combined GDP, social indicators, and shared borders have a positive influence on Vietnam's OFDI capital flows to major destinations. In

addition, the level of economic integration and openness (represented by the WTO accession variable) also has a positive influence on Vietnam's OFDI capital flows. Meanwhile, the distance factor hurts Vietnam's OFDI capital flows. This might be due to the fact that Vietnam's OFDI capital flows tend to prioritize neighboring countries such as Laos, Cambodia, and Myanmar, which are three countries in the top 5 countries receiving the largest outward FDI capital from Vietnam. Meanwhile, variables such as the inflation rate, unemployment rate, and bilateral exchange rate represented by the economic index do not play an important role in promoting Vietnam's OFDI capital flows. It can be explained by the fact that OFDI capital flows of Vietnamese enterprises during the research period were mainly carried out by state-owned enterprises, with many priorities to achieve political goals. Therefore, economic factors have not been given due importance in investment decisions. In addition, the Vietnamese government's strict control of the exchange rate, anchoring VND to the US dollar within a narrow band, has caused the insignificant impact of exchange rate fluctuations on OFDI flows during the study period. To promote Vietnam's OFDI capital flows in the coming time, it is necessary to prioritize investments in countries with a high proportion of working-age workers (countries with a young population structure) and a high level of urbanization. There need to be policies to encourage "nearby FDI" to promote Vietnam's OFDI capital flows into neighboring countries such as Laos, Cambodia, and countries in the ASEAN region. In addition, Vietnam needs to strengthen integration and take advantage of the opportunities that FTAs bring to promote Vietnam's OFDI capital flow into partner countries. In addition, management agencies also need to closely monitor the investment efficiency of projects, especially projects implemented by state-owned enterprises.

## References

- Akhtaruzzaman, M. (2023). Does institutional quality matter to Korean outward FDI? A gravity model analysis. *KIEP Research Paper, World Economy Brief*, 22-47.
- Buckley, P. J., Clegg, L. J., Voss, H., Cross, A. R., Liu, X., & Zheng, P. (2018). A retrospective and agenda for future research on Chinese outward foreign direct investment. *Journal of International Business Studies*, 49, 4-23.
- Chang, S. C. (2014). The determinants and motivations of China's outward foreign direct investment: A spatial gravity model approach. *Global Economic Review*, 43(3), 244-268.
- Chen, J., Liu, Y., & Liu, W. (2020). Investment facilitation and China's outward foreign direct investment along the belt and road. *China Economic Review*, 61, 101458.
- Das, K. C. (2013). Home country determinants of outward FDI from developing countries. *Margin: The Journal of Applied Economic Research*, 7(1), 93-116.
- Dunning, J. H., Kim, C. S., & Lin, J. D. (2010). Incorporating trade into the investment development path: A case study of Korea and Taiwan. *Oxford development studies*, 29(2), 145-154.
- Eem, C. J., Chin, L., Hook, L. S., & Ngah, W. A. S. W. (2019). Determinants of locational choice of Malaysian outward foreign direct investment. In *Proceedings of the Second International Conference on the Future of ASEAN (ICoFA) 2017-Volume 1: Business and Social Sciences*, Springer Singapore, 445-453.
- Goh, S. K. (2013). Malaysia's outward FDI: The effects of market size and government policy. *Journal of Policy Modeling*, 33(3), 497-510.
- Han, Y., Wang, H., & Wei, D. (2022). The Belt and Road Initiative, sister-city partnership and Chinese outward FDI. *Economic research-Ekonomska istraživanja*, 35(1), 3416-3436.
- Hsieh, H. C., Boarelli, S., & Vu, T. H. C. (2019). The effects of economic policy uncertainty on outward foreign direct investment. *International Review of Economics & Finance*, 64, 377-392.
- Kolstad, I., & Wiig, A. (2012). What determines Chinese outward FDI? *Journal of world business*, 47(1), 26-34.
- Ma, S., Xu, X., Zeng, Z., & Wang, L. (2020). Chinese industrial outward FDI location choice in ASEAN countries. *Sustainability*, 12(2), 674.
- Quang, P. T. (2018). The determinants of Vietnam's Outward Foreign direct investment. *CIEMB International conference*, 440-453.
- Quang, P. T. (2024). Investigating the determinants of macroeconomic factors on outward FDI of Vietnam: the gravity model approach. *Revista de Gestão Social e Ambiental*, 18(8), 1-13.
- Stoian, C. (2013). Extending Dunning's Investment Development Path: The role of home country institutional determinants in explaining outward foreign direct investment. *International Business Review*, 22(3), 615-637.
- Stoian, C., & Mohr, A. (2016). Outward foreign direct investment from emerging economies: Escaping home country regulative voids. *International Business Review*, 25(5), 1124-1135.
- Tinbergen, J. (1962). An analysis of world trade flows. *Shaping the world economy*, 3, 1-117.
- UNCTAD, W. (2020). Impact of the coronavirus outbreak on global FDI. *Investment Policy Monitor*. <https://unctad.org/press-material/impact-coronavirus-outbreak-global-fdi> [accessed 2.5.2023].
- Zhang, X., & Daly, K. (2011). The determinants of China's outward foreign direct investment. *Emerging markets review*, 12(4), 389-398.
- Zheng, B., Wang, Y., Kamal, M. A., & Ullah, A. (2022). The influence of cultural and institutional distance on China's OFDI efficiency: fresh evidence from stochastic frontier gravity model. *International Journal of Emerging Markets*, 17(1), 98-119.