Original Article

# The relationship among exports, foreign direct investment, and economic growth in Vietnam - A VAR approach

Huynh Thi Dieu Linh[1*], Nguyen Thuy Duong[1], Hoang Thanh Hien[2]

[1]*University of Economics - The University of Danang, No. 71 Ngu Hanh Son, Da Nang, Vietnam*
[2]*International School - Duy Tan University, Building 245 Nguyen Van Linh, Da Nang, Vietnam*

**Abstract:** This study investigates the causality among export, foreign direct investment (FDI) inflows and economic growth in Vietnam using quarterly time-series data from 2000Q1 to 2017Q4. The vector autoregression (VAR) model is employed to explore the relationship among variables in the long term as well as the short term. The results from the Johansen Cointegration test indicated that there was no long-term equilibrium nexus existing between them, so the VAR model would be qualified to apply for the study. Findings from the Granger causality test show that in the short term, there was a bilateral relationship between GDP and Exports, whereas GDP-FDI and Export-FDI are one-way relationships since both GDP and Exports were found by Granger to cause an increase in FDI in Vietnam but not vice versa. The findings of the causality relationship from GDP to exports and FDI and from exports to FDI in the short term imply that promotions in Vietnam's economic growth will boost export activities as well as attract more inward FDI to the country. The results also indicate a current trend of Vietnam's FDI being not really sustainable, as many FDI projects invested in Vietnam take advantage of abundant labor resources, low skills and cheap labor costs, as well as the origin of goods from Vietnam for export, as a result, not significantly contributing to the economic development.

*Keywords:* Exports, FDI, economic growth, Vietnam, VAR.

## 1. Introduction

The mutual relationships among FDI, exports and economic growth are reflected in the fact that FDI projects, which are believed to be an important additional capital in the economic development process, contribute to increasing

the State budget, improve the balance of payments, restructure the economy towards modernization, enhance the technical and technological levels, boosting production industries, develop a market economy, integrate the economy of Vietnam with the world economy, train human resources, and raise living standards for people. On the other hand, economic prosperity promises to bring more profits to investors, making it more attractive and helping attract more foreign investment as well as stimulating exports due to the greater level of product diversity. Growth in the economy boosts productivity, leading to more diversified goods production. As a result, exports of Vietnam become facilitated, thanks to this variety of redundant products. Exports are also believed to provide a vast amount of foreign currency and contribute to economic growth.

Although voluminous literature has been carried out on the causality among trade, FDI, and growth in a wide range of developed and developing countries, there is still a limited number of empirical works on this area, particularly using the time series technique for Vietnam. Moreover, the previous research that has investigated the relationship for the world, as well as Vietnam has provided controversial conclusions. The empirical interactions among these macroeconomic variables are not always one-way but can occur bi-directionally, either negatively or positively, or even when no relationship exists between them. This, in turn, created a huge motivation to conduct a study to reveal the causal nexus among these variables by employing a time-series approach in the case of Vietnam.

The differences between this study in comparison with other empirical papers in the area for Vietnam are that it has applied a VAR technique rather than the gravity method employed in the previous studies. Moreover, this study explores the relationship among three macroeconomic variables rather than just the connections between two variables, which is believed to yield a more comprehensive understanding for policy developers. The time

period employed is relatively recent so it can be seen as a newly updated contribution to the empirical literature for later researchers who are interested in investigating this relationship.
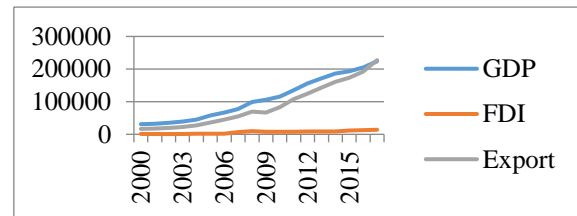


Figure 1: Export, FDI and GDP of Vietnam, 2000-2017 (unit: million USD)
*Source*: Compiled by authors from data of the World Bank.

## 2. Literature review

As indicated in theoretical hypotheses, the three macroeconomic factors, namely exports, FDI and economic growth should place a mutual effect on each other and have become interesting subjects for economic researchers. However, a multitude of empirical studies on the causality among these variables revealed several heterogeneous and inclusive results and these diversities were thought to be caused by the variety in sample countries, differences in time periods and the econometric method employed in each research.

The interaction among trade, FDI, and economic growth for Greece using annual data of real GDP, FDI flows, and real export revenue over the period 1960-2002 was investigated by Dritsaki et al. (2004). With the calculated lag time equal to 3, the results from cointegration analysis revealed that these variables had a long-run equilibrium and then the VAR model including the Error Correction mechanism was used to estimate the long term and short term nexus. The Granger causality test, using the F statistic as a testing criterion, suggested that there was a causal connection among studied variables, which were a two-way relationship between exports and economic growth, and a one-way nexus from FDI to GDP and from FDI

to exports. Therefore, under the government policy of open-door economic growth, trade and the FDI of Greece appear to be jointly reinforcing. Since there were a limited number of studies about causality among trade, foreign direct investment and economic growth in the Asian region, Liu et al. (2009), in one of the few studies in this research area, carried out empirical research to investigate the relationship among these variables for nine Asian countries using the VECM approach method. The annual deflated data of GDP, inward FDI, exports and imports of goods were collected for nine Asian economies, covering the period from 1970 to 2002. Cointegration test statistics reported two cointegrating vectors for each country, indicating the existence of a long run connection with the direction from exports, imports and FDI to GDP in most countries studied. The paper also suggested that trade and FDI were important in affecting economic growth, regardless of the degree of the countries' development, providing that they shared a similar pattern in the FDI-growth and trade-growth relationship. The important implication from this paper was that the expansion of exports and the liberalization of imports and FDI inflows would be closely related to the economic development, so the authorities should focus more on these relationships. Zang and Baimbridge (2012), and Kumari and Malhotra (2014), both conducted studies for a sample of several economies. Zang and Baimbridge (2012) applied the VAR model to identify the causality among GDP, real exports and real imports of South Korea and Japan using quarterly data from 1963 to 2003 for South Korea and from1957 to 2003 for Japan. Contrasting findings were captured in these cases. One long term co-movement from exports to economic growth was detected in the case of Japan while no long term causation was found for South Korea. The outcomes of a short term causality tests found that while there was evidence supporting export-led growth for Japan, South Korea experienced a negative impact of GDP on export growth, implying that the domestic market expanded when the

economy developed. Similarly, Kumari and Malhotra (2014) investigated a comparative study on the interrelationship between GDP and trade for the two fastest-growing economies in Asia, namely China and India, using time-series econometrics techniques. The Johansen Cointegration test was subsequently applied and revealed that there was no presence of a long run nexus among variables. The author used the Toda-Yamamoto approach to find the directions of the causality and the empirical findings depicted that there was a unilateral nexus with the direction from GDP to exports for India, while a bilateral connection between GDP and exports was detected in the case of China. The study suggested that China had a better performance in comparison with India due to the difference in the policies they pursued.

There were also some studies that evaluated the mentioned relationship in Vietnam using various methods but still comprised inclusive results. Xuan and Xing (2008) conducted a research using the Gravity approach that primarily focused on the contribution of FDI in promoting export growth in Vietnam. The data were collected from various sources which included the actual FDI disbursed from 5919 FDI approved projects and the export value to and from 23 FDI countries of Vietnam covering the period 1990-2004. The results from the Random effects method revealed a reciprocal impact between FDI and exports and that FDI was crucial in promoting exports and that the country tends to export more to countries which had made a large investment in Vietnam. The Robustness test, which was performed to confirm the result, concluded that FDI flows into Vietnam significantly contributed to export promotion in Vietnam. Other factors such as the currency devaluation and income were also found to have a large impact on the export performance. Anwar and Nguyen (2010) attempted to study the mutual relationship between FDI and the Economic growth of 61 provinces spanning the period 1996-2005 in Vietnam using a simultaneous equations model. The results from the GMM analysis suggested a

generally reinforcing bidirectional relationship between FDI and economic growth in Vietnam, although it was not be adapted for each and every region. In addition, the author even took into consideration the indirect impact of FDI on the economy, through the absorptive capacity of the host country, which were human capital and financial markets. The outcome revealed a negative interaction between FDI and the development level of the financial market, implying that the effect of FDI on economic development in Vietnam would be greater if there were more investment in resources in education, the financial market and technology. Sothan (2016) conducted an empirical paper on the long-term relationship among FDI, exports and economic growth for 21 Asian countries, including Vietnam, by applying panel cointegration and causality test and data of FDI, exports and real GDP from 1980 to 2013. It was argued that a panel unit root test would lead to the enhancement in power of the results. Hence, in this research, an ADF test using the Fisher test, produced by Maddala and Wu (1999) was chosen. The general findings implied that FDI seemed to behave differently across economies and that FDI and exports contributed crucially to the long term development.

## 3. Model and data specification

### 3.1. Model specification

In presenting the causal linkage among exports, FDI and economic growth of Vietnam, this paper has employed the VAR model to analyze time-series data covering the period of 2000-2017. In an economic relationship, the variables not only affect the other ones in one direction, they are even affected by their past values. Therefore, VAR is more appropriate since it investigates the two-way relationship among these macroeconomic factors and also takes their lagged values into consideration. The main stages included in this research are: stationary checking for three variables, the Johansen test for Cointegration and the VAR

Granger causality test to reveal the direction among variables. In addition, an impulse response function is also carried out to detect the significant impact that the variables have on one another.

An n-variable vector autoregression of order p, called VAR(p), is a system of n equations, with each equation describing the dynamics of one variable as a function of the previous p lags of every variable in the system, including its own p lags. The VAR model expresses the evolution of its endogenous variables based on its own past values, the past values of the other model variables, and an error term.

Following the study of Dritsaki et al. (2004), and Acaravci and Ozturk (2012), three variables, which are exports (EX), Foreign Direct Investment (FDI) and Gross Domestic Production (GDP), are chosen to study the causal relationship between exports, foreign direct investment and economic growth. The VAR model of this study is an expansion of the bivariate model applied in the study of Ludosean, (2012) and this tri-variate VAR model includes three-time series variables: LnGDP, LnFDI, LnEX with the p-lag written as:

$$LnGDP_t = \alpha_0 + \Sigma^p_{j=1}\alpha_{1j}LnGDP_{t-j} + \Sigma^p_{j=1}\alpha_{2j}LnFDI_{t-j} + \Sigma^p_{j=1}\alpha_{3j}LnEX_{t-j} + \varepsilon_{1t}$$

$$LnFDI_t = \beta_0 + \Sigma^p_{j=1}\beta_{1j}LnFDI_{t-j} + \Sigma^p_{j=1}\beta_{2j}LnGDP_{t-j} + \Sigma^p_{j=1}\beta_{3j}LnEX_{t-j} + \varepsilon_{2t}$$

$$LnEX_t = \delta_0 + \Sigma^p_{j=1}\delta_{1i}LnEX_{t-i} + \Sigma^p_{j=1}\delta_{2j}LnGDP_{t-j} + \Sigma^p_{j=1}\delta_{3j}LnFDI_{t-k} + \varepsilon_{3t}$$

In which: $\alpha_0$, $\beta_0$ and $\delta_0$ are the free terms coefficients; $\alpha_j$, $\beta_j$, and $\delta_j$ are variables coefficients; p is the lag length; and $\varepsilon_{1t}$, $\varepsilon_{2t}$ and $\varepsilon_{3t}$ are residuals that are not serially correlated.

The mandatory condition of VAR was that the including variables must be stationary. Then, the cointegration among variables was implemented to determine whether there is a long-term relationship among them. The Jonhasen testing method is chosen to test the cointegration in this paper. If cointegration exists among the variables, then the VECM model will be applied to the research, otherwise the VAR model will be used. The empirical test result in this study shows that no cointegration

relationship was detected among the variables with the chosen lag length, so the VAR model is used to study the next sections. Finally, the Granger causality test was employed to figure out the direction of the short-term relationship among variables.

*3.2. Data*

The data used are in the form of quarterly time series data, which covered the period from 2000Q1 to 2017Q4 in Vietnam. Export data in US dollars are collected from the exports of the merchandises section in monthly socio-economic reports from the General Statistics Office (GSO) of Vietnam, while FDI data for Vietnam in US dollar are also compiled from

Vietnam's GSO. The figures for the GDP variable are also summarized from the Monthly socio-economic reports from Vietnam's GSO, and is the real GDP in Vietnam dong (VND). All the data is reverted to a 2010 constant price, and will finally be transferred to a natural logarithm to eliminate the linear trend of the data, increase the stability and include the proliferation of time series data.

## 4. Results

### 4.1. Unit root test

The estimated results of the ADF unit root test of each variable are presented in Table 1 for both the level and the first difference.

Table 1: ADF unit root test

| Variables | On level | | First Difference | | Conclusion |
|---|---|---|---|---|---|
| | t(ADF) | p-value | t(ADF) | p-value | |
| LNEXP | -2.7865 (4) | 0.2074 | -2.0913** (3) | 0.035 | I(1) |
| LNFDI | -2.8167 (1) | 0.1964 | -14.11*** (0) | 0.000 | I(1) |
| LNGDP | -2.1292 (4) | 0.5202 | -3.125*** (3) | 0.002 | I(1) |

*Notes:* (1) ***,** indicate significance at 1% and 5% respectively. (2) Numbers inside the parentheses denote the lag determined using Akaike's AIC method.
*Source*: Authors' estimation.

The results indicated that no time series variables are stationary on their level. It is then suggested that the stationarity test should be carried out at a higher difference order. Hence, these time series must be differenced to see if stationarity is achieved after the first differencing. When the first-differenced level of all three variables is preceded, which are symbolized as LNFDI1, LNEX1, LNGDP1, the

null hypothesis of the non-stationary of the ADF Unit Root Test is rejected for variables LNFDI at the 1% level and for LNEXP and LNGDP at the 5% level of significance. In sum, all series are not stationary on a level but turn into stationarity when the first difference is taken, meaning that LNFDI1, LNEX1 and LNGDP1 are stationary.

Table 2: Lag length selection

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | 25.31924 | NA | 0.000101 | -0.686746 | -0.586390 | -0.64715 |
| 1 | 51.48888 | 49.11839 | 5.96e-05 | -1.215042 | -0.813617* | -1.05665 |
| 2 | 68.57642 | 30.49469* | 4.65e-05* | -1.463890* | -0.761396 | -1.18671* |
| 3 | 77.26157 | 14.69794 | 4.72e-05 | -1.454202 | -0.450639 | -1.05823 |
| 4 | 84.81189 | 12.08051 | 4.98e-05 | -1.409597 | -0.104964 | -0.89484 |
| 5 | 89.90722 | 7.682178 | 5.70e-05 | -1.289453 | 0.316249 | -0.65590 |
| 6 | 98.29265 | 11.86862 | 5.94e-05 | -1.270543 | 0.636227 | -0.51820 |

*Source*: Authors' estimation.

### 4.2. Lag length selection

There are several criteria used to select the lag length. This study applied the most popular way, which is most used by time series researches with a small sample. AIC as the primary criteria to choose the number of lags (the one with the minimum value of AIC). Therefore, in this research, the lag length equaling to 2 would be the most appropriate selection. The result is presented in Table 2.

The Residual Correlation Test was then employed with the intention to reassure that the chosen lag is optimal for the model. The "Residual Serial Correlation LM Test" is carried out and presented in Table 3 to test the existence of residual correlation. If one is found, the selected lag is unsuitable.

Table 3: Residual serial correlation LM test

| Lags | LM-Stat | Prob. |
|------|---------|-------|
| 1 | 15.26642 | 0.0839 |
| 2 | 11.27601 | 0.2573 |
| 3 | 4.658391 | 0.8630 |
| 4 | 8.670674 | 0.4682 |

*Source*: Authors' estimation.

With the null hypothesis of "No serial correlation", the p-value of the lag chosen from 1 to 2 is larger than 0.05, so the null hypothesis is accepted, which means the residuals are uncorrelated. Hence, the chosen lag is appropriate and the lag interval put into the model is 1 to 2.

### 4.3. Cointegration and Johansen Test

The study of Engle and Granger (1987) showed that, if two variables are individually integrated of order one and cointegrated, then a causal relationship may exist between them in at least one direction. Following that, all the three-time series are non-stationary on their level but appear to be stationary when they are transformed into their first differences. These variables could be consequently integrated into order I, and meet the conditions for examining the cointegration test. In this research, the Johansen Cointegration Test is employed to determine whether there is a long-run equilibrium relationship among time series variables and is presented in Table 4.

Table 4: Johansen Cointegration Test

| **Unrestricted Cointegration Rank Test (Trace)** | | | | |
|---|---|---|---|---|
| **Hypothesized No. of CE(s)** | **Eigenvalue** | **Trace Statistic** | **0.05 Critical value** | **Prob.**\*\* |
| None | 0.109307 | 11.19659 | 29.79707 | 0.9563 |
| At most 1 | 0.044507 | 3.209441 | 15.49471 | 0.9566 |
| At most 2 | 0.000986 | 0.068046 | 3.841466 | 0.7942 |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) | | | | |
| **Hypothesized No. of CE(s)** | **Eigenvalue** | **Max-Eigen Statistic** | **0.05 Critical value** | **Prob.**\*\* |
| None | 0.109307 | 7.987150 | 21.13162 | 0.9045 |
| At most 1 | 0.044507 | 3.141395 | 14.26460 | 0.9369 |
| At most 2 | 0.000986 | 0.068046 | 3.841466 | 0.7942 |

Lag interval (in first differences): 1 to 2.
Trace test indicates no cointegration at the 0.05 level.
Max-eigenvalue test indicates **no cointegration** at the 0.05 level.
\*Denotes rejection of the hypothesis at the 0.05 level .
\*\*MacKinnon-Haug-Michelis (1999) p-value.

*Source:* Authors' estimation.

The Johansen Cointegration approach usually involves two types of test statistics, namely, the trace statistics and the maximum eigenvalue statistics following the research of Johansen (1991). However, both the Trace value and Maximum Eigenvalue from the table above reveal that there is no existence of Cointegration among the studied time series variables, even though they are non-stationary on levels and integrated at the same order I(1). Hence, there would be no long term equilibrium connections among FDI, GDP and EXP in this empirical research in the case of Vietnam. Since the empirical test result in this study shows that no cointegration relationship was detected among the variables with the chosen lag length, so for the rest of this study, the VAR model would be applied to investigate the Granger causal interrelation among these variables. Moreover, the model stability test also indicates that no root lies outside the unit circle, meaning that the VAR model satisfies the stability condition.

### 4.4. Granger test

Table 5: Granger Causality test

| VAR Granger Causality Test | | | |
|---|---|---|---|
| Dependent variable: LNGDP1 | | | |
| Excluded | Chi-sq | df | Prob. |
| LNFDI1 | 1.271931 | 2 | 0.5294 |
| LNEX1 | 7.781908 | 2 | 0.0204** |
| Dependent variable: LNFDI1 | | | |
| Excluded | Chi-sq | df | Prob. |
| LNGDP1 | 13.74893 | 2 | 0.0010*** |
| LNEX1 | 20.97927 | 2 | 0.0000*** |
| Dependent variable: LNEX1 | | | |
| Excluded | Chi-sq | df | Prob. |
| LNGDP1 | 10.82554 | 2 | 0.0045*** |
| LNFDI1 | 1.195054 | 2 | 0.5502 |

*Notes*: *, ** and *** denote 10%, 5% and 1% levels of significance, respectively.

*Source*: Author's' estimation.

The Granger causality test in the VAR model is implemented in the study to answer the question: to determine whether or not in the short run, the variation of X occurs by Y and vice versa. Results of the Granger Causality test in Table 5 show a bilateral relationship between exports and GDP, while there are two one-way dynamics with the direction from GDP to FDI and exports to FDI.

At the significance level of 1%, GDP in the short term does Granger-cause exports. Moreover, at the 5% significance level, exports do Granger-cause GDP. This study reveals bidirectional causality between GDP and exports, which is consistent with the finding of Markusen and Venables (1998). In the case of Vietnam, economic growth and exports can mutually reinforce each other through a bilateral relationship, in which, high economic development provides an improvement in technology, production, the labor force and international integration and then promotes exports. In return, an increase in exports could improve productivity, income for consumption, income to reinvest to expand production, and national reserves to stabilize the macro-economy, resulting in economic growth.

At the significance level of 1%, exports in the short term does Granger-cause FDI. This result is consistent with the causality between exports and FDI in the study of Hsiao and Hsiao (2006), as those authors found that the direction of the relationship between FDI and exports is from exports to FDI. Moreover, according to the GSO, in Vietnam, foreign direct investment is more concentrated on manufacturing industry, especially for export sectors such as electronic devices, and technological devices. As a result, an increase in exports would lead to more attraction of FDI into this exporting - manufacturing sector.

The empirical result also indicates that GDP in the short term does Granger-cause FDI, at the significance level of 1%. This result is supported by the growth-led FDI hypothesis that the greater market size or better economic performance of Vietnam also led to the expectation of higher profitability, which then encouraged foreign investors to invest more capital in the country. The result is in line with the investigation of Ludosean (2012) that revealed the same causality

between these two variables and supports the same conclusion when finding a unidirectional causal relationship from GDP to FDI.

### 4.5. Impulse response function

The Impulse response function demonstrates the response of each variable toward an innovation or a shock to not only itself but also other interrelated variables in the system. Figure 2 indicates the responses of FDI to the fluctuation of GDP and exports. The results are consistent with the findings from the Granger causality test that GDP and exports have more effect on FDI than vice versa.
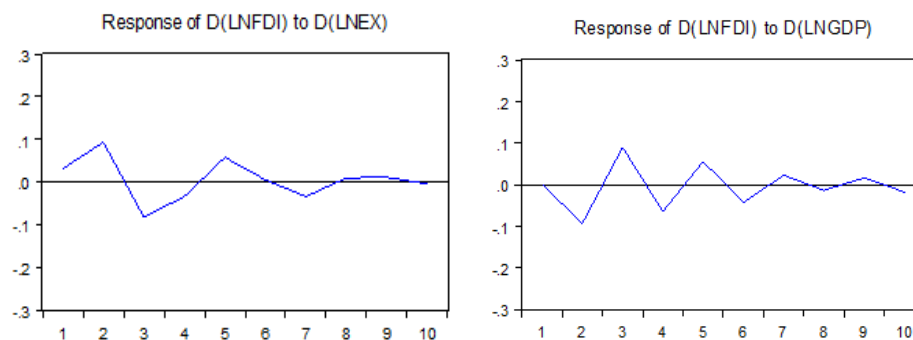


Figure 2: FDI responses to the change in GDP and exports
*Source*: Author's' estimation.

FDI responds to the change in GDP and exports with a gradual decrease in magnitude and tends to stop responding after a period of around 8 quarters. The results make economic sense, as it is unlikely that GDP and exports of around 8 quarters later have significant effects on current FDI. Therefore, the impacts of GDP and exports derived from the VAR model may lose its significance in this study.

### 5. Conclusion

This research provided empirical evidence for evaluating the long term and short term causal association among FDI, exports and economic growth in Vietnam over the period from 2000 to 2017. Firstly, the Augmented Dickey-Fuller test was conducted to check whether the stationarity of variables put into the model are stationary. The result of this test showed that three variables were non-stationary on a level but appeared to be stationary after the first differencing. With the possibility of integration at the same level, the Johansen Cointegration test was then employed to find out the long term equilibrium association among the researched variables. However, both Trace statistics and the Max-eigenvalue from the test stated that there was no long run relationship existing among them. Since the variables were not cointegration, the VAR model and Granger causality tests were applied to study the short-term causal relation among the variables in question. The findings revealed two-way causality between GDP to exports, a one-way causal relationship with the direction from GDP to FDI and exports to FDI, not the reverse.

The results have contributed to the empirical literature, especially for Vietnam and other developing countries in investigating the relationship among exports, FDI and economic growth. This paper also suggested that the government should pay attention to issue policies that boost economic development, promote export activities and attract more inward FDI to Vietnam. The findings of a causality relationship from GDP to exports and FDI and from exports to FDI in the short term implicate that the promotions in Vietnam's

economic growth will help boost export activities as well as attract more FDI. This is because economic growth through expanding international integration activities reasonably for each period would help enterprises to participate more in international activities and exploit and access new export markets. Therefore, exporting firms that can enhance their performance and capacity to become appealing to important partners can capture these opportunities. Since the economic level goes up and productivity increases, firms could take advantage of economies of scale as well as economies of location.

Vietnam is currently a member of 12 bilateral and multilateral free trade agreements, so exports from the country enjoy the preferential treatment of those agreements. Hence, this is one of the factors that attract foreign investors to invest in production in Vietnam and from there export to the world market to enjoy the incentives of "made in Vietnam" goods or having Vietnam's Certificate of origin. The expansion of international cooperation also helps to access valuable investment capital sources, mainly advanced technology applied to the production of technological equipment, as the primary exporting items of the Vietnamese export sector, thus helping to increase output in this sector and ultimately raise the export volume of export firms. Since these firms improve their export activities, trading partners from developed economies could see a great chance to get a high return on investments, which then encourages them to invest more in Vietnam, especially into export companies.

The fact that FDI does not significantly contribute to economic development in the case of Vietnam is because most foreign countries invest in Vietnam largely due to the difference in skills of workers, as this country has abundant labor resources, low skills and cheap labor costs. In addition, most investment capital into Vietnam is not from highly developed countries with outstanding development levels and completely different development levels from

this country. Such a trend of FDI, may come from the fact that the investing countries want to take advantage of Vietnam's large population market or consider Vietnam as an export destination to gain tariff incentives from developed countries for developing countries like Vietnam, as well as taking advantage of the origin of goods from Vietnam to enjoy preferential treatment when being a member of FTAs. The current trend of FDI in this country is not really sustainable, as many FDI projects invested in Vietnam were with backward technology and possibly harmful to the environment, as well as not significantly contributing to the economic development. Therefore, in order to pursue sustainable development, Vietnam needs to attract FDI more selectively, especially capital flows into areas that need priority investment, in line with the economic development strategy and eliminating projects with old and outdated technology. Moreover, for projects with modern technology, the ability of Vietnam to acquire and absorb is relatively limited, thus hindering the country from taking the most advantage of the investment. These issues could make FDI impossible to promote sustainable and long-term development of the economy. Thus, not only Vietnam's government, but also individual enterprises themselves, deeply need to improve the ability to adopt advanced technology by improving the quality of human resources as well as better infrastructure to facilitate the transfer and application of advanced technology from FDI investors.

In summary, Vietnam's government needs to create a stable political and economic environment, improve infrastructure, and issue appropriate management policies. Besides, enterprises should be proactive in enhancing their strengths and capabilities in order to effectively capture the benefits of those policies. Moreover, there is a need for generating more appealing conditions to not only attract valuable FDI investors but also promote the domestic economic sector and ultimately achieve complete development for the nation.

# References

Acaravci, A., & Ozturk, I. (2012). Foreign direct investment, export and economic growth: Empirical evidence from new EU Countries. *Romanian Journal of Economic Forecasting, 2*, 52-67.

Anwar, S., & Nguyen, L. P. (2010). Foreign direct investment and economic growth in Vietnam. *Asia Pacific Business Review, 16*(1-2), 183-202. https://doi.org/10.1080/10438590802511031

Dodaro, S. (1993). Exports and growth: A reconsideration of causality. *The Journal of Developing Areas*, 227-244.

Dritsaki, M., Dritsaki, C., & Adamopoulos, A. (2004). A causal relationship between trade, foreign direct investment and economic growth for Greece. *American Journal of Applied Sciences, 1*(3), 230-235.

Engle, R., & Granger, C.W.J. (1987). Cointegration and error correction: Representation, estimation and testing. *Econometrica, 55*, 251-276. https://doi.org/10.2307/1913236

Giles, J. A., & Williams, C. L. (2000). Export-led growth: A Survey of the empirical literature and some non-causality results. *The Journal of International Trade & Economic Development, 9*(3), 261-337. https://doi.org/10.1080/09638190050086177

Hsiao, F. S., & Hsiao, M. C. W. (2006). FDI, exports, and GDP in East and Southeast Asia - Panel data versus time-series causality analyses. *Journal of Asian Economics, 17*(6), 1082-1106. https://doi.org/10.1016/j.asieco.2006.09.011

Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica: Journal of the Econometric Society*, 1551-1580. https://doi.org/10.2307/2938278

Kumari, D., & Malhotra, N. (2014). Trade-led growth in India and China: A comparative analysis. *Journal of International and Global Economic Studies, 7*(2), 68-88.

Liu, X., Shu, C., & Sinclair, P. (2009). Trade, Foreign direct investment and economic growth in Asian Economies. *Applied Economics, 41*(13), 1603-1612. https://doi.org/10.1080/00036840701579176

Ludosean, B. M. (2012). A VAR Analysis of the Connection between FDI and Economic Growth in Romania. *Theoretical and Applied Economics, 19*(575), 115-130.

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

Markusen, J.R., & Venables, A.J. (1998). Multinational firms and the new trade theory. *Journal of International Economics, 46*(2), 183-203. https://doi.org/10.1016/S0022-1996(97)00052-4

Mustafa, K., Nishat, M., & Kemal, M. A. (2004). Volatility of exchange rate and export growth in Pakistan: The structure and interdependence in regional markets [with comments]. *The Pakistan Development Review*, 813-828.

Sothan, S. (2016). Foreign direct investment, exports, and long-run economic growth in Asia: Panel cointegration and causality analysis. *International Journal of Economics and Finance, 8*(1), 26-37. https://doi.org/10.5539/ijef.v8n1p26

Xuan, N. T., & Xing, Y. (2008). Foreign direct investment and exports: The experiences of Vietnam. *Economics of Transition, 16*(2), 183-197. https://doi.org/10.1111/j.1468-0351.2008.00321.x

Zang, W., & Baimbridge, M. (2012). Exports, imports and economic growth in South Korea and Japan: A tale of two economies. *Applied Economics, 44*(3), 361-372. https://doi.org/10.1080/00036846.2010.508722