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DETERMINANTS OF VIETNAM'S EXPORTS TO ASEAN COUNTRIES IN THE CONTEXT OF THE ASEAN ECONOMIC COMMUNITY

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ABSTRACT

The ASEAN region is emerging as a dynamically developing region, and trade between Vietnam and ASEAN countries has continuously improved over the years. This study investigates the determinants of Vietnam's exports to ASEAN countries from 1997 to 2020. The paper also examines the differences in the directions of the impact in different groups of exported products. Using pooled OLS and panel data methods, the results demonstrate that Vietnam's exports increased as its GDP per capita and importing countries' GDP per capita increased. In contrast, transportation costs proxied by geographic distance were found to have a negative impact on Vietnam's exports. The results assert the positive relationship between exports and real bilateral exchange rate. The ASEAN Trade in Goods Agreement (ATIGA) was found to have no statistically significant influence on Vietnam's exports. These results are vital for trade policy formulation to promote Vietnam's exports to ASEAN countries. Vietnam should promote trade with countries sharing a border to take advantage of transportation costs and reduce potential risks in goods movement. In addition, it is necessary to minimize the effects of fluctuations in the exchange rate in order to further promote Vietnam's exports in the future.

Contribution/Originality: This is the first study to investigate the factors affecting Vietnam's exports to ASEAN countries in the context of ASEAN Economic Community (AEC) integration.

1. INTRODUCTION

Export activities play a critical role in the economic development of many developing countries (Huynh & Hoang, 2019). There are many examples of developing countries around the world that have developed competitive export industries and have generated impressive export-led economic growth, such as South Korea and Taiwan in 1960; Southeast Asian countries such as Thailand, Malaysia and Singapore in 1970; and China in the 1980s. Vietnam has

not been excluded from that trend because in today's world, 'international' goes hand in hand with 'national' or 'domestic' (Deprez, 2018). On this basis, significant research and evaluation of the impact of factors on a country's exports have been carried out, such as those by Rahman (2003); Blomqvist (2004); Wei, Huang, & Yang (2012) and Tang (2003). In general, these studies all point out the main factors affecting the export of a country, including GDP, GDP per capita, population, geographical distance, CPI, FDI, and exchange rate. These are considered to be internal factors of an economy and have been proven through empirical studies to have an impact on a country's export performance. However, a country's exports today are not just affected by internal factors (Le & Phan, 2021). There are externalities that also strongly affect this process, including the trend of economic integration and trade liberalization (Doan & Le, 2019). International economic integration and trade liberalization have promoted closer cooperation between countries around the world in many fields and from different angles, both bilaterally and multilaterally. In particular, regional trade links have become the main aspects of global trade liberalization during recent years.

Vietnam is a developing country with a rapidly changing economy. Economic integration with other countries has brought growth and development, but also poses major new challenges for the national economy (Hoang, Do, & Nguyen, 2021). ASEAN started in 1967 as a regional security arrangement, but trade and economic cooperation between its member states have gained increasing importance in recent years. After 21 years of regional integration, Vietnam has actively participated in ASEAN economic integration, and along with other ASEAN member countries, has built an important foundation for the official ASEAN Economic Community (AEC) that was formed on December 31, 2015. To date, ASEAN countries have become among the most important trading partners and an important driving force for Vietnam to maintain its economic growth over the past few years. ASEAN integration has marked an essential first step towards international economic integration (Vo, Nguyen, & Do, 2021). Regarding trade, statistics from the General Department of Customs indicate that Vietnam's two-way trade turnover with ASEAN has grown by an average of 14.5% per year, from about $3.3 billion in 1995 to $42.1 billion in 2015 (an increase by nearly 13 times). ASEAN has become the second largest trading partner of Vietnam (after China). Regarding Vietnam's exports to ASEAN, the average growth rate has reached 17.1%, bringing export turnover from nearly 1 billion USD in 1995 to 18.3 billion USD in 2015 (an increase by over 18 times). With the increasing role and importance of the Vietnam–ASEAN trade relationship, it is necessary to carefully investigate the influence of the factors on Vietnam's exports to ASEAN countries. However, current studies only refer to trade relations between Vietnam and major markets, including the study by Nguyen (2010) that investigates factors affecting trade flows between Vietnam and other countries from 1991 to 2006. Research by Do (2006) focuses on trade between Vietnam and 23 European countries from 1993 to 2004. In addition, some other studies, such as those by Nguyen (2013); Doanh & Yoon (2008) and Vu (2013), also mentioned this issue. However, these studies only focused on Vietnam's (traditional) trading partners. Meanwhile, the ASEAN region is emerging as a dynamically developing region, and trade between Vietnam and ASEAN countries has continuously improved over the years. This improvement is especially seen after the ASEAN Economic Community officially came into implementation at the end of 2015. There is an expectation of a strong increase in trade between Vietnam and other countries in the region. A permissive set of regional economic structures, such as ASEAN and the AEC, has allowed Vietnam to continue its strategy of state-led development at an international level (Jayasuriya, 2003). Therefore, this study focuses on a general view of the trade relationship between Vietnam and ASEAN countries and the factors affecting Vietnam's exports to ASEAN countries in the context of AEC integration.

The purpose of this paper is to answer two main questions: (i) What are the determinants of Vietnam's export value to ASEAN countries? (ii) What are the differences in the directions of the impact that these determinants cause for exports in the case of each product group? Based on the analyses, the paper will suggest some useful solutions for the Vietnamese government to improve exports to ASEAN countries.

2. LITERATURE REVIEW

2.1. Theoretical Foundations

Exporting and importing are two activities that form the international trade flow and cannot be separated. Assuming countries A and B have a commodity exchange relationship with each other, the quantity of goods exported by country A to country B is also the quantity of goods imported by country B from country A. Therefore, studying the determinants of a country's exports does not only involve that particular country, but is also directly related to the importing country. Research by Dao (2008) simulated the determinants affecting international trade flow with three main groups of factors and is detailed in Figure 1.

The group of factors affecting the supply of the exporting country (showing the production capacity of the exporting country) includes economy size (GDP) and population size. The group of factors affecting the demand of the importing country (representing the purchasing power of the importing country's market) also includes economy size (GDP) and population size. The group of attractive/hindering factors includes policies to manage or encourage the export/import distance between two countries (usually in two aspects: geographical distance and the economic development level gap). All three groups of factors play an important role in the exchange and circulation of goods between countries. They have both a suction (importing) and a repulsive (exporting) effects that increase the speed and efficiency of the movement of goods.

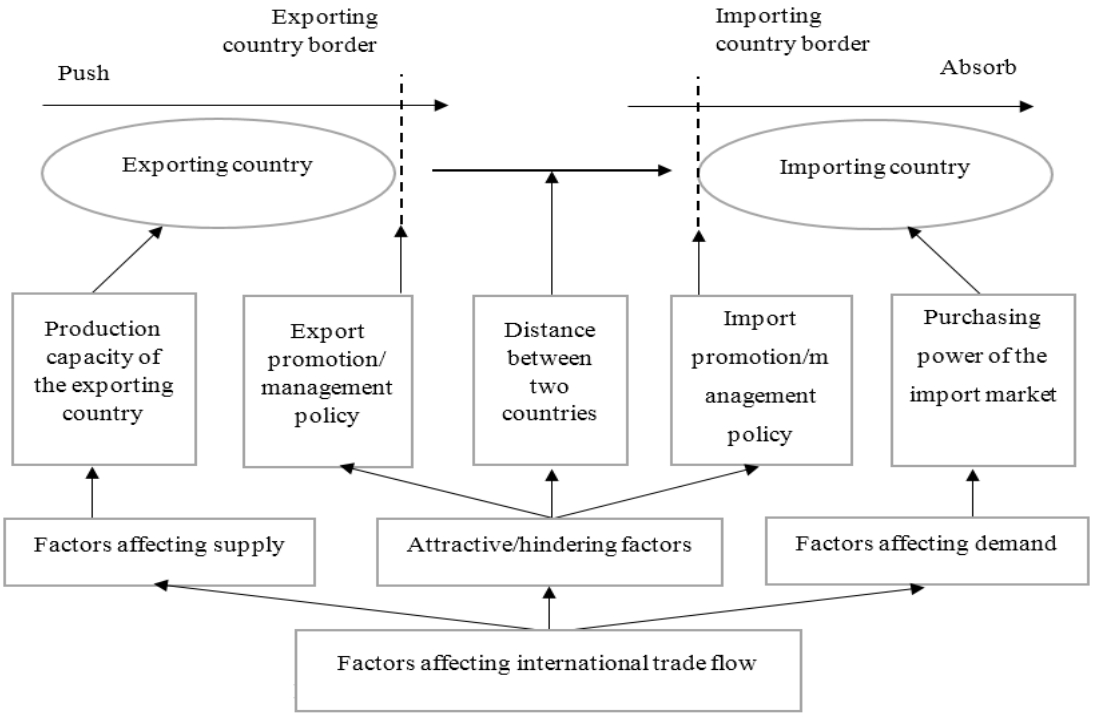

Figure 1. Gravity model in international trade.

Source: Dao (2008).

2.2. Method and Data

Based on the above theory and on some similarities in natural, economic and social conditions with Vietnam, the model estimates and tests the factors affecting Vietnam's exports to ASEAN in the context of AEC integration as follows:

$$\text{Ln}EX_{ijt} = \beta_0 + \beta_1 * \text{Ln}(POP_{it} * POP_{jt}) + \beta_2 * \text{LnGDPbq}_{it} + \beta_3 * \text{LnGDPbq}_{jt} + \beta_4 * \text{LnER}_{ij} + \beta_5 * \text{LnEDIS}_{ij} + \beta_5 * \text{LnDISij} + \beta_6 * \text{LANDLOCK} + \beta_7 * \text{ATIGA} + u_{ijt}$$

Where:

EX_{ijt} is the exported turnover of goods of Vietnam to country *j* in year *t*.

β_0 is the constant.

$GDPbq_{it}$ and POP_{it} are GDP per capita and population of Vietnam in year *t*, respectively.

$GDPbq_{jt}$ and POP_{jt} are GDP per capita and population of country *j* in year *t* respectively.

ER_{it} is the average real exchange rate between Vietnam and partner country *j* in year *t*.

$EDIS_{ijt}$ is the economic gap between Vietnam and country *j* in year *t* (measured by the difference in GDP per capita between the two countries, in absolute value).

DIS_{ij} is the geographical distance between Vietnam and country *j*.

$LANDLOCK_{jt}$ is a dummy variable with a value of 0 if the partner country is landlocked and a value of 1 if the importing country of Vietnam's goods is bordered by the sea.

$ATIGA_{ijt}$ is a dummy variable with a value of 1 from 2010, after the ATIGA officially took effect.

β_i is the coefficient showing the impact of factor *i* in the model.

u_{ijt} is the random error.

This model estimates the dependent variable based on the total export turnover of Vietnam's goods, or the export turnover of a specific commodity group. For each model, the independent variables are changed to determine the factors affecting the export turnover of each specific commodity group. In the analytical model for each specific group of goods, there are cases where the observations receive a value of 0 (i.e., the dependent variable has no data in a certain year during the study period). However, this does not mean that there is no trade relationship between the two countries. Therefore, to overcome this, the dependent variables without data are converted from EX_{ijt} to $Ln(1+EX_{ijt})$. The pooled OLS method is used to estimate the research model. However, because the observations here vary in both time and space (panel data), the fixed effects model (FEM) and random effects model (REM) are also used for analysis. If the pooled OLS method considers all the coefficients to be unchanged in different space and time conditions, the FEM has the advantage of being able to solve the problem of unobserved variables over time that could affect the dependent variable. With the REM, we can include time-invariant variables in the model, and it allows us to infer econometric results of a larger population from a small sample of data. Therefore, the FEM and REM are suitable to generate econometric results. After the results are available, appropriate tests are conducted to select the appropriate model for the study. The model is estimated with the data from 1997 to 2020. The data on exports was collected from the Vietnam General Custom Office, the data for GDP in current USD were collected from the General Statistics Office of Vietnam (GSO), and the population was collected from the World Bank. The data for economic integrations were collected from different sources. The data for geographical distance are from Dao (2008), and the exchange rate data were collected from the International Monetary Fund (IMF). The expected signs for the variables in the estimated model are presented in Table 1.

Table 1. Summary of hypotheses of the estimation model.

Variable Name	Expected Sign
$(POP_{it}*POP_{jt})$	+
$GDPbq_{jt}$	+
$GDPbq_{it}$	+
ER_{it}	+
$EDIS_{ij}$	+/-
DIS_{ij}	-
$LANDLOCK_{jt}$ (dummy variable) LANDLOCK = 1 (bordered by the sea) LANDLOCK = 0 (landlocked)	• An importing country with a sea border will increase Vietnam's ability to export goods. • A landlocked importing country will reduce Vietnam's ability to export goods.
$ATIGA_{ij}$ (dummy variable) ATIGA = 1: The ATIGA came into effect from 2010 ATIGA = 0: before 2010	• The effective agreement will increase Vietnam's ability to export goods.

Notes: (+) = effect in the same direction; (-) = reverse effect.

3. RESULTS AND DISCUSSION

Table 2 presents the results of estimating the factors affecting the export turnover of Vietnam's goods to ASEAN by the OLS, FEM and REM methods.

Table 2. Results of estimating the determinants of Vietnam's exports to ASEAN.

Regression Independent Variable	OLS	FEM	REM
Constant	-2.222 (-0.79)	-10.451 (-0.13)	-1.541 (-0.19)
Ln(POPit*POPjt)	0.735*** (11.17)	0.475 (0.20)	0.715*** (3.50)
LnGDPbqit	0.828*** (3.87)	1.113 (1.34)	0.832*** (3.09)
LnGDPbqjt	1.177*** (5.14)	0.339 (0.74)	0.619** (2.15)
LnER	0.029 (0.67)	-0.165 (-1.49)	-0.084 (-1.04)
LnEDIS	-0.064 (-0.28)	0.520** (2.1)	0.516** (2.22)
LnDIS	-2.457*** (-16.07)	-	-2.360*** (-4.85)
LANDLOCK	-1.109*** (-2.83)	-	-1.154 (-1.03)
ATIGA	-0.197 (-0.74)	-0.111 (-0.47)	-0.116 (-0.50)
R-squared	0.799	0.621	0.797
Test value	F = 85.66	F = 52.07	Wald = 301.08
Breusch–Pagan(xttest0) test	P-value = 0.000 < 0.05		
Hausman test	P-value = 0.7131 > 0.05		

Note: **, and *** represent significance levels of less than 5%, and 1%, respectively.
Values in parentheses () are t- or z-test results.

Table 3. REM model on the determinants of export turnover of general goods and of commodity groups.

Independent Regression	Total Export Turnover	Raw or Semi-processed Goods	Processed or Refined Goods
Constant	-1.541 (-0.19)	-2.78 (-0.25)	-1.936 (-0.43)
Ln(POPit*POPjt)	0.715*** -3.5	0.930*** -3.34	0.855*** -8.11
LnGDPbqit	0.832*** -3.09	-0.035 (-0.07)	0.629* -1.84
LnGDPbqjt	0.619** -2.15	1.195** -2.24	0.758** -0.74
LnER	-0.084 (-1.04)	-0.079 (-0.57)	0.195*** -2.84
LnEDIS	0.516** -2.22	0.455 -0.34	0.111 -0.3
LnDIS	-2.360*** (-4.85)	-3.055*** (-4.65)	-2.781*** (-11.37)
LANDLOCK	-1.154 (-1.03)	-2.192 (-1.41)	-2.398*** (-3.84)
ATIGA	-0.116 (-0.50)	0.537 -1.1	1.004** -2.36
Observation number	221	221	221
R-square adjusted $\overline{R^2}$	0.797	0.618	0.672
Test value Wald	301.08	100.79	330.94

Note: *, **, and *** represent significance levels of less than 10%, 5%, and 1%, respectively.
Values in parentheses () are the z-test results.

Due to the different methods, the estimation results of each model also vary. To select the appropriate model, the study conducted the *Breusch–Pagan(xttest0)* test to choose between the OLS, FEM/REM, and Hausman tests to choose between the FEM and REM. Through this testing, the REM model was found to be the most suitable and reliable. The group continues to use the REM model to assess the impact of the factors on the export turnover of raw or semi-processed goods and processed or refined products to ASEAN countries.

The model estimation results in Table 3 show that many variables have the expected signs. The coefficient of determination multiples ($\overline{R^2}$) is 0.7974, showing that up to 79.74% of the change in export turnover of Vietnamese goods in the ASEAN region is due to the factors included in the model. Considering the group of raw or semi-processed goods and the group of processed or refined goods, the same factors determine 61.68% and 67.27% of the change in export turnover, respectively.

The gross population variable (Ln(POPit*POPjt)) has a positive coefficient, which has high statistical significance when studying the total export turnover and export turnover of each commodity group. This shows that the increasing population of Vietnam and the partner country has a positive impact on exports to ASEAN. This result is consistent with both theory and practice. When this product increases, it means that the size of the population of the exporting and importing countries increases, which boosts both production and consumption demand.

Vietnam's per capita income variable (LnGDPbqit) has a positive effect on exports. When the per capita income of the exporting country increases, the total income of the country increases, or the size of the economy increases. During that time, the exporting country, specifically Vietnam, will have the conditions to improve products, invest in machinery and technology to create high quality goods, enhance aesthetic designs, and engage in reliable consumers of partner countries, thus contributing to the increase in total export turnover. For each group of goods, this variable is not statistically significant for raw or semi-processed goods. Meanwhile, GDPbqit has the same effect and is statistically significant with the group of processed or refined goods. From here, it can also be seen that when Vietnam's average income increases, the country increases exports of processed or refined products, which is consistent with the situation in recent years.

The income per capita variable of a partner country in the ASEAN region (lnGDPbqjt) has a positive impact on trade with Vietnam and with each industry group. This is completely consistent with the theory. When the partner country's per capita income increases, the demand for imported goods also increases. This is a favorable sign for Vietnamese goods to continue to penetrate the markets of ASEAN countries. However, during the research period, Vietnam's main exports to this region were raw or semi-processed products, so the added value is not high, limiting the total export turnover. During the 2006 to 2020 period, Vietnam made great efforts in the production and export of processed or refined products with high added value, contributing to raising the total export turnover. This is the right direction and needs to be further promoted.

The real exchange rate variable between Vietnam and the partner country, although not statistically significant in the group of raw or semi-processed goods, has a positive sign and high significance. This means that the prices of processed or refined products are greatly affected by the exchange rate. When the value of the Vietnamese currency decreases compared to the partner country, the price of Vietnamese goods is relatively cheaper, helping to promote more trade of this commodity group.

The gap in economic development level (lnEDIS) has a positive sign, showing a positive impact on Vietnam–ASEAN goods trade. Thus, a larger gap in economic development between the two countries makes the exchange of goods in general and exports in particular more convenient, which in turn increases the turnover for the exporting country. However, in each group of goods, although the coefficient of this variable is not statistically significant, it has a positive sign or has the same effect as the trend of the total export turnover. Basically, this result is consistent with the proposed hypothesis as well as with previous studies.

Geographical distance (DIS) represents the cost of trade transactions between Vietnam and the partner country, which is statistically significant and has a negative sign. Thus, this variable shows a negative correlation, negatively affecting the export value of Vietnamese goods. This is reasonable in theory and practice because the greater the distance, the greater the cost of transportation and other barriers such as language and culture, which limit the volume of the commercial goods exchanged. This is especially true for the group of raw or semi-processed goods, primarily due to the storage time and the mode of transportation, which greatly affect the quality and value of the products.

The LANDLOCK dummy variable in the REM model shows that the total export turnover is not significant, but it has a negative sign and high statistical significance in the combined OLS. In fact, the transport of Vietnam's exported goods with coastal countries in the ASEAN region is influential. Since Vietnam's shipping still faces many difficulties with old fleets, it has not met the strict requirements of quality and safety standards and pollution prevention of the partner countries, causing a negative impact on the quality of goods and services when exported by sea. This is true in the case of processed or refined commodity groups when the LANDLOCK coefficient in the REM model is statistically significant at a high level.

The coefficient of the ATIGA dummy variable representing the establishment of the AEC has an unexpected negative sign, but this variable is not statistically significant. This shows that, although the preferential agreements on tariff reduction in the ATIGA are expected to help the growth of intra-regional exports, Vietnam has just implemented tax cuts and has not taken advantage of these incentives. Many domestic enterprises are unaware of the AEC, so the growth of export turnover does not have the contribution of this factor. It can be seen that the important partners in ASEAN with which Vietnam currently has a large trade volume are mainly countries that have had a tax elimination roadmap since 2010 (six ASEAN countries except Brunei). This group of countries has almost no favorable factors in terms of tariffs in the following years. The CLMV countries (Cambodia, Laos, Myanmar, and Vietnam) completed the elimination of tariffs in 2020. Thus, the ATIGA has not had an immediate impact on the general merchandise trade of Vietnam and ASEAN partner countries. However, the ATIGA variable has a positive and statistically significant effect on processed or refined products. Therefore, in general, the ATIGA has had a positive impact and it continues to bring the expectation of better general commodity export growth in the future.

4. CONCLUSION

This study evaluated the determinants of Vietnam's exports to ASEAN countries. The econometric model was built on data collected from 10 ASEAN countries, with secondary data for the period from 1997 to 2020. The study shows how these factors affect Vietnam's exports to ASEAN. The model has an adjusted coefficient of determination ($\overline{R^2}$) of 0.7974, showing that up to 79.74% of the change in the export turnover of Vietnamese goods in the ASEAN region is due to the factors included in the model. The variables are statistically significant, and many have the expected sign. In particular, geographical distance is still a negative factor; therefore, Vietnam needs to develop a transportation system and infrastructure to facilitate exports, especially for primary products, which are influenced most negatively by geographical distance. The Vietnamese government should assist exporting enterprises by improving public infrastructure, developing sea transportation and simplifying existing customs clearances.

The analysis shows that the ATIGA has not promoted Vietnam's exports. However, this agreement was shown to have a good effect on the export of processed or refined products. This is completely consistent with the analysis of the current situation of Vietnam's exports. Thus, it can be seen that AEC integration has not had a positive impact on Vietnam's exports immediately, but the potential benefits of tariff reduction still promise a positive impact in the future. Besides the potential benefits, the analysis also shows that AEC integration can have adverse effects on exports. Vietnam has had almost no recent additional beneficial factors from the six ASEAN countries that completely cut tariffs in 2010, while by 2015, Vietnam, Laos, Cambodia, and Myanmar had cut most of the tariffs in the roadmap.

Consequently, partner countries will also take advantage of this opportunity to boost exports and increase international competitiveness.

According to the research results obtained, it is necessary to minimize the effects of fluctuations in the exchange rate in order to further promote Vietnam's exports in the future. In addition, Vietnam should give careful consideration to devaluing the domestic currency because the application of this method may have other negative consequences such as inflation or the retaliation of other countries. Thus, we need to use this policy in a flexible way that is suitable to particular situations as well as with different objects of economic development in different periods. The currency depreciation policy must be replaced by other solutions to make prices cheaper and to enlarge the export market.

Because the factor of sharing a common border has a positive impact on all groups, Vietnam should exploit all markets that it shares a common border with, especially the Laos and Cambodian markets. This would take advantage of transportation costs and reduce potential risks in goods movement. With the common border, there are many advantages, such as reduced distance, similarity of culture leading to similar demands for goods, close neighbor relationships and close political cooperation. These factors easily remove barriers to trade for Vietnam and make exports flow more smoothly to neighboring countries. Continuing to expand and exploit markets in the region, these are trading partners that have a significant influence on Vietnam's exports, effectively utilizing the benefits brought by regional agreements.

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