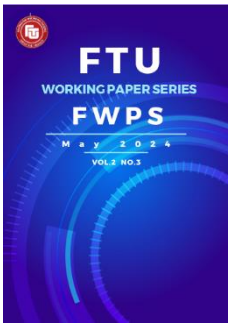

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TÁC ĐỘNG CỦA NHỮNG YẾU TỐ QUYẾT ĐỊNH VÀ EVFTA LÊN XUẤT KHẨU Ô TÔ VÀ PHỤ TÙNG Ô TÔ CỦA VIỆT NAM SANG CÁC QUỐC GIA CHÂU ÂU: TIẾP CẬN THÔNG QUA MÔ HÌNH TRỌNG LỰC

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Tóm tắt

Nghiên cứu này nhằm mục tiêu xác định Hiệp định Thương mại Tự do Liên minh Châu Âu - Việt Nam (EVFTA) và các yếu tố chính ảnh hưởng đến xuất khẩu ô tô và phụ tùng ô tô từ Việt Nam sang các nước Châu Âu. Bài viết dựa trên dữ liệu được thu thập trong 8 năm (2015–2022) của 23 quốc gia trong Liên minh Châu Âu. Tác giả nghiên cứu ảnh hưởng của EVFTA, độ mở thương mại, khoảng cách từ Việt Nam đến nước nhập khẩu và GDP bình quân đầu người của nước nhập khẩu đến kim ngạch xuất khẩu ô tô và phụ tùng ô tô trên nền tảng phương pháp hồi quy bội và mô hình trọng lực. Nghiên cứu kết luận rằng, các yếu tố ảnh hưởng nêu trên đều có

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ý nghĩa thống kê. Tác giả cũng chứng minh tác động tích cực của EVFTA tới giá trị xuất khẩu ô tô và phụ tùng ô tô của Việt Nam sang các quốc gia này, thể hiện rõ qua mức thuế nhập khẩu mới. Độ mở thương mại và khoảng cách giữa Việt Nam với các nước châu Âu được khảo sát có tác động tiêu cực đến giá trị xuất khẩu. Trong khi đó, GDP bình quân đầu người của nước nhập khẩu lại có tác động tích cực.

Từ khóa: EVFTA, ô tô và phụ tùng ô tô, xuất khẩu, Việt Nam, mô hình trọng lực

IMPACTS OF KEY DETERMINANTS AND EVFTA ON VIETNAM'S AUTOMOBILE AND AUTO PARTS EXPORTS TO THE EU NATIONS: A GRAVITY MODEL APPROACH

Abstract

This study aims to identify the European-Vietnam Free Trade Agreement (EVFTA) and key factors affecting the export of automobiles and auto parts from Vietnam to European countries. The paper is based on the data collected over eight years (2015–2022) for a set of 23 nations in the European Union. The author explores EVFTA, trade openness, the distance from Vietnam to importing countries and the GDP per capita of importing countries affecting the export turnover of automobiles and auto parts on the platform of the multiple regression method and the gravity model. The paper concludes that the statistically significant factors mentioned above affect the export turnover from Vietnam to the European nations. The author also demonstrates the positive influence of EVFTA on Vietnam's exporting value of automobiles and auto parts to those nations, which can be evidently witnessed in the new import. Significantly, Trade openness and the distance between Vietnam and the examined European nations have negative impacts on Vietnam's exporting value of automobiles and auto parts to the European countries. Meanwhile, countries with higher GDP per capita can increase the exporting value.

Key words: EVFTA, automobiles and auto parts, export, Vietnam, gravity model

1. Introduction

1.1. Overview of EVFTA

The European Union-Vietnam Free Trade Agreement (EVFTA) has been a transformative pact between the EU and Vietnam since its inception in June 2019 and implementation on August 1, 2020. This agreement was signed between Vietnam and 28 European Union's Member States. However, since the Brexit ("British exit" - withdrawal of the United Kingdom (UK) from the European Union (EU) in January, 2020), the EVFTA became a treaty between Vietnam and 27 EU countries. The European Union Vietnam Free Trade Agreement (EVFTA), which has been in place for four years, has paved the way for an increase in trade between the European Union (EU) and Vietnam; this is reflected in record levels of bilateral trade between Vietnam and the European Union (EU) - only just after a year after the agreement took effect Vietnam's export turnover reached 314,8 million U.S. dollars in 2020 (European Commission Directorate-General for Trade European Union, Trade in Goods with Vietnam) - and has marked a significant turning point in the Vietnamese economy, heralding a new era of economic cooperation. As per the terms of this agreement, the gradual abolishment of the majority of customs duties is expected to take place over a 10-year period (VCCI), with approximately 70% of these duties having already been removed since its enforcement in August 2020. Moreover,

the EU commits to open the doors for large displacement cars (over 2500 cm3 for diesel cars, over 3000 cm3 for gasoline cars) by reducing the tariff to 0% after a 9-year period (VCCI). Regarding the auto parts, the import duties shall be deemed to be eliminated within 7 years.

1.2. Background information on Vietnam's Automobile and Auto parts Industry

The automotive industry serves as a key customer for various manufacturing sectors such as metals, mechanics, electronics, and chemicals. Its rapid growth is recognized as a major driver behind the progress of related industries, playing a vital role in the industrialization and modernization of nations.

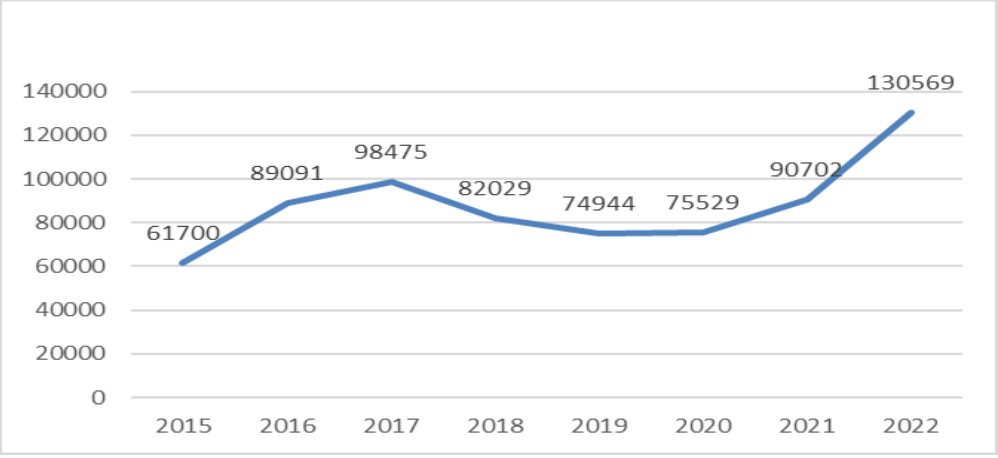
According to the Ministry of Industry and Trade, the automotive industry in Vietnam has over 40 businesses involved in producing and assembling various vehicles, including passenger cars, trucks, coaches and special purpose vehicles, and semi-finished vehicles. Notably, companies such as Thaco and Vinfast are actively participating in global trade and production chains with the EU. However, the presence of major international car manufacturers like Toyota, Honda, Ford, and Hyundai can not be underestimated. These carmakers are attracting various domestic importers and are one of the biggest component suppliers to the country.

The automotive market in Vietnam is rapidly expanding, with cars becoming a common mode of transportation. Despite a maintained trade surplus in international trade in recent years, with a CAGR (compound annual growth rate) of 3.18% from 2018-2022, the automotive and auto parts exports to EU nations have not surpassed imports (CRI,2023). According to the CRI's (Cargo Report Information) forecast, the demand for cars is expected to surge from 700,000 to over 800,000 units by 2030. This number is expected to increase to approximately 1 million vehicles per year from 2025-2030.

1.3. Background information on Automobile and Auto Parts Exports from Vietnam to European nations

Prior to the conclusion of the EVFTA, the EU market group alone accounted for billions of USD in auto parts exports each year. Nevertheless, in comparison to a market of over 500 million people like the EU, the export value was rather modest and EVFTA was expected to increase more significantly (VCCI, 2019).

Table 1: Vietnam automobiles and auto parts export value (HS8303 and HS8308) to EU nations



Source: Trademap

Vietnam's involvement in the EVFTA agreement at the end of 2020 stimulated the automobiles and auto parts export to EU nations. Compared to the average export turnover of 6 years in advance of the execution of EVFTA, which is 80,295 thousand dollars, the export value has increased by 62% to reach its new peak in 2023.

1.4. Significance of the study

The enactment and execution of the EVFTA present prospects for the expansion of automobile and auto parts exports and stimulate the development of Vietnam's automotive industry. To be specific, the elimination and reduction of tariffs play an important role in the effectiveness of the agreement. It is crucial that the impact of the tariff reduction on Vietnam's automotives and auto parts export value to European nations be evaluated with the appearance of other factors to have a comprehensive evaluation. Therefore, the authors choose the research topic "Impacts of Key Determinants and the EVFTA on Vietnamese Automobile and Auto Parts Exports to Listed European Nations: A Gravity Model Approach".

1.5. Research objectives

This study aims at achieving the following goals:

First, evaluate the impact of the important determinants and the tariff reduction under EVFTA on Vietnam's automotive exports (specifically automobiles and auto parts).

Second, proposing solutions to maximize positive effects and minimize negative impacts on automobiles and auto parts export from Vietnam to European nations.

2. Literature review

2.1. Empirical studies

First, the authors explore the previous study about the impact of FTAs on automobile and auto parts exports.

The aims of FTAs are to reduce or remove tariffs and trade barriers, and to guarantee free trade amongst parties to the treaty. Regarding the automotive industry, the biggest car manufacturers have been utilizing FTAs' tariff preferences to further expand their market and seek for additional growth.

During the 43rd Association of Southeast Asian Nations (ASEAN) Summit in Indonesia, the Philippines-Korea Free Trade Agreement, which has been negotiated since 2021, was signed. Under the agreement, South Korea will gradually remove tariffs on roughly 94.8 percent of Philippine goods, while the Philippines will gradually lift tariffs on approximately 96.5 percent of imports from Korea. The FTA will benefit the South Korean auto industry as it will eliminate a 5-percent tariff on imported Korean cars immediately upon its implementation and reduce a 30-percent tariff on auto parts to zero over a five-year period. The WTO Center (2023) considered the FTA between the Philippines and Korea as a timely economic boost because South Korea has extensive experience and competitiveness in a number of industries that the Philippines has an interest in including the automotive one.

That is how FTAs facilitate car exports by giving the major car manufacturers the opportunity to further expand their market and facilitate trade by tariff preferences. In the case of Viet Nam - a developing country where the automotive industry is not a strength, however, FTAs can still help Vietnam make a shift from exporting low-tech products and primary goods to more sophisticated high-tech goods including electronics, machinery and vehicles (Dezan Shira & Associates, 2019). According to the study, there are two ways to achieve this: first, by expanding trade networks and finding more diverse sourcing partners, importing intermediate goods at a lower cost from partner nations, which should increase Vietnam's export competitiveness. The second strategy is by partnership with foreign businesses that can transfer the technology and know-how required in the transition to higher-value production.

A study by Archanun Kohpaiboon and Nobuaki Yamashita (2015) about the FTAs and the Supply Chain in the Thai Automotive Industry shows that the most significant shift in Thailand's automotive sector in the last ten years has been the growing significance of ASEAN-10 nations as Thailand's export market for auto parts.

Another observed changes here are, firstly, the shift in export composition emphasis from auto parts to CBU vehicles. The second shift is that locally produced automobiles now cater to not only the domestic market but also the regional market. In particular, regional vehicle trade has been made easier by the preferential tariffs provided under FTAs signed with Australia and ASEAN. On the contrary, they discovered that when it comes to auto parts, regional trade is not significantly impacted by these FTAs. Due to the low tariff margin, the auto parts industry has a low FTA utilization rate, and changes in auto parts exports in Thailand are not largely close to the presence of FTAs.

Narayanan et al. (2019) studied Tariff liberalization in the RCEP trade agreement and its impact on India's automobile industry. The study revealed that automobiles and auto-parts are among the industrial sectors whose domestic output is likely to fall with tariff liberalization. India's car and auto part exports are boosted by an RCEP that fully liberalizes tariffs, but only to more recent ASEAN members such as Laos and Vietnam, as well as Australia and the Philippines, whose ad-valorem tariffs are higher compared to India's pre-RCEP. Even with complete tariff liberalization and increased productivity, India cannot increase its net auto parts exports to all RCEP members.

From the aforementioned analysis, it can be seen that the impact of FTAs on the automobile industry varies between countries and is subject to a number of factors.

Second, the authors review the previous paper about the impact of the EVFTA agreement on the automobile and auto Parts exports of Vietnam.

The industry of Automobile and Auto Parts has become increasingly important in the trade relationship between the European Union (EU) and Vietnam, which has seen significant growth. Therefore, it is crucial that the overall picture of exports of automobiles and components be seen clearly. For policymakers and industry stakeholders, foreign investors, and domestic enterprises, it is necessary to understand how EVFTA influences the automobile and auto parts export from Vietnam to the EU to make use of EVFTA and grasp the opportunities. Upon taking effect, the EVFTA was anticipated to drastically improve Vietnam's exports, as “a huge boost to Vietnam's exports” (Hong, 2019).

With regard to tariff commitments, Vietnam and the EU have both agreed on the elimination of import taxes, bringing the import tax to 0%. For cars from Vietnam to Europe, all items have a seven-year reduction schedule. Particularly for auto parts and components both inside and outside of HS87, the zero percent import tax rate will take effect as soon as the EVFTA is implemented (WTO Center).

Such tariff elimination brings positive prospects for automotive manufacturers. On the other hand, the EU market is a highly competitive market with major competitors. In order for Vietnamese enterprises to successfully compete in this market, they must innovate in technological equipment to improve the product quality of assembly lines such as automobiles, motorcycles, and electronic equipment. (Ngoc, N. B., Oanh, B. T. T., & Anh, D. N., 2023).

Notably, there was a remarkable increase in the export value of Vietnam's transportation and spare parts during the first seven months of 2021 when compared to the same period in 2020, prior to the implementation of the EVFTA (Nguyen, 2022). With an increase of more than 200% over the same period in 2020, Vietnamese enterprises can hope that the EU's commitment to reducing import taxes on vehicles and spare parts will have a positive impact on cars and components exports.

2.2. Research gaps

Although earlier studies have provided the understand that the implementation of EVFTA positively influences the export from Vietnam to the EU including automobile and auto parts, there are still a number of knowledge gaps that demand further research.

Since previous studies are qualitative, a more robust quantitative analysis that examines actual export data pre- and post-EVFTA implementation is lacking.

The study is not restricted to the tariff measures of EVFTA on automobiles and auto parts exports. EVFTA is not the sole factor. Other factors that are equally noticeable are also examined including trade openness, the distance from Vietnam to importing countries, and the GDP per capita of importing countries.

2.3. Research question

In this study, the authors will answer two main questions:

First, whether does tariff reduction under the EVFTA agreement positively affect Vietnam’s export value of automobiles and auto parts to the EU nations?

Second, how do other key determinants affect Vietnam’s export value of automobiles and auto parts to the EU nations?

3. Theoretical Framework

3.1. Overview of the gravity model and its applications in international trade.

The initial equation of the gravity model, which relates bilateral trade flows to economic size and distance, has evolved into a logarithmic form to on enhance its suitability for econometric analysis by achieving linearization, facilitating the interpretation of coefficients as

elasticities, and introducing symmetry between exporters and importers. The logarithmic form of the gravity model equation typically appears as:

$$\ln(Trade) = \beta_0 + \beta_1 \ln(GDP_1) + \beta_2 \ln(GDP_2) - \beta_3 \ln(Distance) + \varepsilon$$

Where:

Trade: Bilateral trade flow between countries.

GDP_1, GDP_2: Economic size (GDP or GDP per capita) of the exporter and importer, respectively.

Distance: Physical distance between countries.

β_0, β_1, β_2, β_3: Coefficients to be estimated.

ε: Error term accounting for unexplained factors and random variations.

The logarithmic transformation allows econometric techniques to estimate the coefficients and test the statistical significance of the variables in explaining bilateral trade flows.

3.2. Definition of automobile and auto parts

Automobile: Automobiles are classified under Chapter 87 of the Harmonized Tariff System (HTS) and are defined as motor vehicles for the transport of persons or goods.

Auto parts: Auto parts, on the other hand, encompass a wide range of components used in vehicles, such as air conditioners, alternators, antennas, batteries, bearings, brake friction material, camshafts, carpets, chassis, compressors, engines, filters, and many more. These auto parts are classified under various HS codes depending on their specific characteristics and functions.

In our research, we use two specific HS codes, which are 8703 and 8708.

The HS code 8703 pertains to motor cars and other motor vehicles principally designed for the transport of persons, excluding those heading 8702.

HS code 8708 covers parts and accessories of motor vehicles falling under headings 8701 to 8705.

3.3. How the tariff reduction under the EVFTA affects the Automobile and Auto Parts Exports from Vietnam to EU countries

Motor cars (HS8703) have a reduction schedule of 7 years. The tariff rate will gradually decline from 10% to 0% within 7 years. Moreover, for auto parts and components (HS8703), the import tax rate of 0% will be applied immediately after the EVFTA has taken effect. Nguyen et al. (2022) suppose that the tariff elimination can support the automotive export of Vietnam to EU nations.

Table 2: Tariff changes

Commodity (HS87)	MFN tax rate in 2012 - 2020	Agreed tax rate
Motor cars (8703)	10%	0% after 7 years since the EVFTA took effect.
Auto parts and accessories (8708)	3-4%	0% right after the EVFTA took effect

Source: WTO Center (2017)

3.4. Other key determinants of trade between Vietnam and the European countries

3.4.1 Trade openness

ESCWAA (2012) defines that a country's trade openness reflects its willingness to engage in international trade. Open economies actively seek opportunities to trade with others, while closed economies limit or discourage such interactions. Trade openness has long been proven to benefit trade in countries.

3.4.2 Distance

Distance in the context of trade refers to the physical and geographic separation between trading partners. Overall, distance in trade refers to the physical and geographic separation between trading partners, and it influences trade through factors such as transport costs, unfamiliarity, and virtual distance, and also significantly affects trade volatility (Arnaud Mehl et al., 2019).

3.4.3 GDP per capita

Gross domestic product per capita calculated as the ratio of GDP to total population is a key economic metric that measures a country's economic output per person. Countries with higher GDP per capita tend to have higher purchasing power, which can increase their demand for imported goods and services.

3.5. Hypothesis

H1: GDP per capita positively impacts Vietnamese automobile and auto parts export to European countries

Individuals with higher disposable income have more money to spend on goods and services, including imported ones. This creates a larger market for foreign exporters. In addition, as incomes rise, people tend to diversify their consumption beyond basic necessities, leading to demand for a wider variety of imported goods, including luxury items and specialized products. Gaalya et al. (2017) have demonstrated the positive impact of GDP per capita on the import of goods.

H2: Distance negatively impacts Vietnamese automobile and auto parts export to European countries

Greater distance between countries entering trade can have negative influences on exports. Lugovskyy & Skiba (2016) found that distance has a negative impact on export performance, as it increases transportation costs and reduces market access. Baldwin & Harrigan (2011) found that export prices are positively related to trade distance, indicating that trade distance might hinder importers from purchasing products.

H3: Trade openness negatively impacts Vietnamese automobile and auto parts export to European countries

Increased competition from imported goods leads to the decline of specific domestic industries, resulting in a subsequent decrease in the demand for those imported goods as production migrates overseas. Furthermore, this negative impact on import demand is amplified by increased trade openness, as measured by a lower tariff rate, which generally reduces imports on both aggregate and disaggregated levels (Gaalya et al., 2017).

H4: EVFTA positively impacts Vietnamese automobile and auto parts export to European countries

EVFTA will benefit the automobile industry of Vietnam with a more open market (Hong, 2019) and lead to a better future for Vietnamese automobile and auto parts export to the EU market (Do, 2020). To be specific, the tariff levied on automobiles imported from Vietnam gradually decreased from the MFN level of 10% to 0% in 7 years since the EVFTA took effect and the tariff reduction of auto parts will be 0% right after the EVFTA took effect, which could have boosted the export of those products from Vietnam to such nations. When import taxes are reduced, the final price of imported goods becomes cheaper for consumers in the importing country. This increased affordability leads to a rise in demand for those goods, ultimately translating to higher import demand. Nguyen (2022) shows that tariff reduction on vehicles and spare parts has had a positive impact on Vietnamese cars and components exporters.

4. Methodology

4.1. Data collection and sampling

The EVFTA included Vietnam and 27 countries belonging to European nations. However, this research only focuses on 23 listed European countries due to the availability of transparent information. Thus, with the secondary data of 23 nations for the years 2015 to 2022, the research sample is 23 * 8 = 184 observations. The panel data is strongly balanced without the appearance of missing values. Data for analysis are taken from Macroeconomic factors that come from the Trademap, Distancefromto, VCCI, and World Bank website.

4.2. Estimation method and proposed model

$$lnexp_{it} = \beta_0 + \beta_1 lngdppc_{it} + \beta_2 lndist_{it} + \beta_3 lntradeopen_{it} + \beta_4 evfta_{it} + \varepsilon$$

lnexp**:** The natural logarithm of the exporting turnover of automobiles and auto parts from Vietnam to the European nations

lngdppc: The natural logarithm of the GDP per capita of importing nations i in year t

lntradeopen: The natural logarithm of the percentage of trade to GDP.

lndist: The natural logarithm of the distance from Vietnam to the importing countries

evfta: has the value of 1 if the import tax reduction under EVFTA is in effect, or 0 otherwise

β_0, β_1, β_2, β_3: Coefficients to be estimated.

ε: Error term accounting for unexplained factors and random variations.

Table 3: Description of variables

Variables	Acronyms	Measurement	Sign	Evidence of previous investigations	Data source
Dependent variable					
Export turnover	exp	The exporting turnover of automobiles and auto parts from Vietnam to the European nations in (thousand USD)	N/A		Trademap
Independent variable					
GDP per capita	gdppc	The GDP per capita of importing nations in year t (USD)	+	Gaalya et al. (2017)	World Bank
Distance	dist	The distance from Vietnam to the importing countries (kilometers)	-	Lugovskyy & Skiba (2016), Baldwin & Harrigan (2011)	Distancefromto
Trade openness	tradeopen	The percentage of trade to GDP (%)	-	Gaalya et al., (2017)	World Bank
EVFTA	Evfta	1 if the import tax reduction in EVFTA is in effect, or 0 otherwise	+	Nguyen (2022), Hong (2019), Do (2020)	VCCI

Source: Authors

5. Results and Analysis

First, our groups discover the descriptive statistics table to have a comprehensive view of the variables include in the models.

Table 4: Correlation matrix

	lnexp	lngdppc	lndist	lntradeopen	evfta
lnexp	1.0000				
lngdppc	0.1600	1.0000			
lndist	-0.0279	0.3832	1.0000		
lntradeopen	-0.1886	0.2702	-0.0556	1.0000	
evfta	0.2304	0.1337	0.0000	0.1172	1.0000

Source: Author calculated in Stata17

All the correlation coefficients are smaller than 0.5, which shows that the multicollinearity error will not happen.

The "evfta" variable has the highest coefficient value and it shows the positive sign, supporting hypothesis H4 that the EVFTA has a positive impact on the export of Vietnam automobile and auto parts to the examined European countries.

Other correlation coefficients in the first column are consistent with the aforementioned hypothesis.

Wooldridge (2010) argues that when the data is in panel form, one of the three regression estimation models: Fixed Effects Model (FEM), Random Effects Model (REM), and Pooled OLS regression model will be the appropriate choice. Therefore, the authors run the regression model above using three models: Pooled OLS, Random Effects Model (REM), and Fixed Effects Model (FEM). The summary regression results are presented in Table 5 below.

From Table 5, the estimation of the "lngdppc" variable from the three methods has the significance level of 1%. Meanwhile, "evfta" are statistically significant at 5% with the model Pooled OLS and at 1% with RE. The variable "lntradeopen" has a significant level of 1% with the Pooled OLS model and the variable "lndist" is not statistically significant in all methods.

Table 5: Regression result

	Pooled OLS	FEM	REM
lngdppc	1.550***	6.872***	3.761***
	(3.36)	(5.05)	(3.97)
lndist	-6.383	.	-12.50

	(-1.93)	.	(-1.41)
lntradeopen	-2.475***	0.887	-1.719
	(-4.06)	(0.44)	(-1.31)
evfta	1.921**	0.509	1.410***
	(3.30)	(1.16)	(4.05)
_cons	58.54*	-70.37***	88.08
	(2.01)	(-4.22)	(1.11)
N	184	184	184

t statistics in parentheses

** p<0.05, ** p<0.01, *** p<0.001*

Source: Author calculated in Stata17

From Table 5, the estimation of the "lngdppc" variable from the three methods has the significance level of 1%. Meanwhile, "evfta" are statistically significant at 5% with the model Pooled OLS and at 1% with RE. The variable "lntradeopen" has a significant level of 1% with the Pooled OLS model and the variable "lndist" is not statistically significant in all methods.

The authors conduct VIF test to check if the model has multicollinearity or not.

The result from Table 6 shows that the VIF coefficients of all variables are smaller than 2, which demonstrates that the model is free from multicollinearity.

Table 6: VIF check

Variable	VIF	1/VIF
lngdppc	1.32	0.757859
lndist	1.21	0.824386
lntradeopen	1.12	0.892074
evfta	1.03	0.973329
Mean VIF	1.17	

Source: Author calculated in Stata17

The authors conduct the RESET RAMSEY test to check whether the model omits important variables or not. The result shows p-value = 0.7603 > 0.05. Therefore, the model does not omit important variables.

Table 7: Selection of proper model

Test	P -value	Conclusion
F- test that all u_i = 0	0.0000	The FE model is more appropriate than the Pooled OLS model
Hausman test	0.0071	The FE model is more appropriate than the RE model

Source: Author calculated in Stata17

From the result of Table 7, the authors choose the Fixed Effect model.

The authors check for other model deficiency, which includes heteroskedasticity and autocorrelation.

Table 8: Error test

Test	P-value	Conclusion
Breusch - Pagan	0.0000	The model has heteroskedasticity
Wooldridge	0.0002	The model has autocorrelation

Source: Author calculated in Stata17

In order to remedy the error, the authors use the FGLS regression. The FGLS model is commonly used to address the problem of inaccurate estimation due to autocorrelation and heteroskedasticity. FGLS allows the model to accommodate heteroskedasticity and autocorrelation without compromising the accuracy of the estimates (Wooldridge, 2010; Romano & Wolf, 2017). The final regression estimation results of the model are presented in Table 8.

Table 9: FGLS regression

```
Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (0.7402)

Estimated covariances      =        23          Number of obs     =       184
Estimated autocorrelations =         1          Number of groups  =        23
Estimated coefficients     =         5          Time periods      =         8
                                                Wald chi2(4)      =     28.73
```

```
                                                Prob > chi2       =     0.0000

------------------------------------------------------------------------------
       lnexp | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
-------------+----------------------------------------------------------------
      lngdppc|   1.806277   .5344137     3.38   0.001     .7588451    2.853708
      lndist |  -7.328035   3.565137    -2.06   0.040    -14.31557   -.3404959
 lntradeopen |  -1.899692   .6500378    -2.92   0.003    -3.173743   -.6256419
       evfta |   .5543801   .2924758     1.90   0.058     -.018862    1.127622
       _cons |   62.83537   31.45707     2.00   0.046     1.180639    124.4901
------------------------------------------------------------------------------
```

Source: Author calculated in Stata17

Other factors remain constant, at the significance level of 1%, when GDP per capita rises by 1%, the export turnover increases by 1.8%. The finding is consistent with hypothesis H1, which suppose that higher GDP per capita leads to higher import demand from the importing countries and higher export volumes from Vietnam to those countries.

At the significance level of 5%, when the distance between Vietnam and a European nation rises by 1%, the export turnover from Vietnam to that nation will decline by 7.32%. The finding is consistent with the hypothesis H2 and is supported by Lugovskyy & Skiba (2016) and Baldwin & Harrigan (2011), who suppose that higher shipping cost and low access to the market will negatively affect the export performance.

Other factors remain constant, at the significance level of 1%, when Trade openness increases by 1%, the export turnover will decrease by 1.89%. The finding is consistent with hypothesis H3, which suppose that higher GDP per capita leads to higher import demand from the importing countries and higher export volumes from Vietnam to those countries.

Because the p-value = 0.058 and the coefficient of 0.5544, the EVFTA has a statistically positive effect on the export performance of automobiles and auto parts from Vietnam to the EU. This is consistent with hypothesis H4. Therefore, it can be concluded that tariff reduction has a significantly positive impact on the export of Vietnam's goods to European nations under the EVFTA. Moreover, Tthe result is consistent with Hong (2019) and Do (2020), which state that EVFTA will be a chance leading to a substantial improvement of Vietnam's automobile and parts export to the EU market.

6. Conclusion

6.1. Summary of main findings and contributions

By using the quantitative method with the application of gravity model, the research study investigates the factors influencing the export of automobiles and auto parts from Vietnam to European countries, with a focus on the European-Vietnam Free Trade Agreement (EVFTA). The findings indicate that higher Gross Domestic Product per capita in the European countries positively influenced Vietnamese automotive exports, while an increase in distance between

Vietnam and the European nations had a negative impact on exports. Moreover, as the European countries exhibited higher trade openness, the reliance on imports from Vietnam in the automotive sector decreased. The European Union-Vietnam Free Trade Agreement (EVFTA) was found to have a potential positive impact on Vietnamese exports thanks to the tariff reduction and exemption.

6.2. Policies and recommendations

Based on the aforementioned research result, the authors have three main suggestions:

Target European countries with higher Gross Domestic Product per capita (GDPPC)

They are nations with high potential for automotive exports. This is conducted by implementing targeted marketing strategies and establishing strategic partnerships. Policies should aim at fostering economic collaborations, promoting investment in key sectors, and facilitating technology transfer between Vietnam and these countries.

Address the negative impact of increased distance between Vietnam and EU nations

This can be achieved through investments in transportation and logistics infrastructure, including the development of efficient trade routes, improving connectivity, and streamlining customs procedures. Additionally, regional distribution centers or warehouses may be established in closer proximity to European markets to reduce lead times and ensure timely delivery of automotive products.

Utilize the European-Vietnam Free Trade Agreement (EVFTA) by providing guidance and support to Vietnamese automotive exporters

Policies should focus on training programs to enhance exporters' understanding of the agreement's provisions, facilitating technology transfers, and establishing monitoring mechanisms to ensure compliance. This includes workshops, seminars, and online resources to educate exporters on the rules of origin, customs procedures, and documentation requirements under the agreement. There should also be a dedicated EVFTA implementation monitoring body or committee to oversee the effective implementation and enforcement of the agreement.

6.3. Limitations and suggestions for future research

Although this study provides valuable insights, further research is needed to address the limitations and explore new avenues.

Firstly, future research should expand the dataset and timeframe to include more recent years and a broader range of countries for a more comprehensive analysis.

Secondly, it is recommended that additional factors that could contribute to the export turnover should be investigated.

Finally, non-tariff measures should also be used to evaluate the impact of the EVFTA.

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