Evaluation of CPTTP and EVFTA on Vietnam

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Abstract: This paper evaluates the effects of the EU-Vietnam Free Trade Agreement (EVFTA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on Vietnam's trade flow. The study employed a gravity model with two panel datasets. The first one is for the EVFTA and consists of trade activity between Vietnam and 27 European countries over a period of 20 years, from 2000 to 2020. The second dataset consists of trade between Vietnam and seven partner members of the CPTPP, including Australia, Canada, Japan, Mexico, New Zealand, Singapore, and Peru, during the same period. The results show that the EVFTA has a higher positive impact than the CPTPP agreement on Vietnam's total trade flow. In brief, reducing tariffs could increase the trade flow between Vietnam and other members of the two free trade agreements, and the effect of tariffs on Vietnam's trade flow in the EVFTA is higher than that in the CPTPP. The trade flow is also driven by population, per capita gross domestic product (GDP), exchange rates, trade openness, distance, and oil price. Based on the study's results, the author identifies some policy implications for Vietnam to take advantage of the EVFTA and the CPTPP.

Keywords: Trade flow, gravity model, CPTPP, EVFTA, Vietnam.

Subject classification: Economics.

1. Introduction

The effect of preferential trading arrangements (PTA) on economies has been a subject of research and raises many contradictory arguments about whether or not PTAs are beneficial (Baccini, 2019). A PTA is an agreement that allows countries to open their economies up to other nations with liberal trade policies by reducing trade barriers, typically to zero, but keeping them in place for other countries. The two main types of PTA that are mentioned widely in papers and book chapters are Free Trade Agreements (FTAs) and Customs Unions (Krueger, 1997; Park & Park, 2009).

The number of FTAs exploded after the failure of the Doha Development Round (also known as the Doha Round), held by the World Trade Organization (WTO) in 2001 to

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encourage countries around the world to lower trade barriers. In that context, Vietnam successfully took advantage of FTAs to open up its economy and become a high international economic integration country. By 2020, it had joined 13 FTAs, and three more are currently being negotiated as of 2022. However, the two recent new-generation FTAs, namely EVFTA and CPTPP, are regarded as bringing tremendous benefits to Vietnam's economy.

Before the EVFTA negotiations, Vietnam and European countries had signed many bilateral agreements in the 1990s, significantly increasing the trade flow from Vietnam to the EU (Nguyen, 2016). In 2012, Vietnam started negotiating with the EU to have an FTA, which would include the trade of goods and services, investment, and rules of origin. After eight years of negotiation, the EVFTA officially entered into force in August 2020, with a commission to eliminate 99% of all tariffs. In addition, the CPTPP is the other new-generation agreement with the deepest commitment level between members. In 2018, it officially entered into force with six members: Mexico, Japan, Singapore, New Zealand, Canada, and Australia. Then Vietnam joined in January 2019. The members of the CPTPP account for a massive market of 500 million people. They are also expected to contribute around 15% to the global trade of goods and services. Through the agreement, Vietnam has access to major markets such as Asia, America, and Oceania.

Many studies have examined the effects of the CPTPP on Vietnam's trade flow, such as Lu (2018); Vu, Le and Masciarelli (2020); and Le (2021, 2022). However, these papers focused on either the general effects of the CPTPP or on a specific sector. There is a lack of research papers into the fluctuation in countries' trade flows in the context of the CPTPP. The shortage of existing literature that evaluates the effects of tariffs on Vietnam's trade flow, in the enlarged EVFTA and CPTPP with updated members, maybe considered inadequate for policymakers when designing and implementing appropriate policies to take advantage of these two FTAs.

This paper aims to evaluate the effects of the EVFTA and the CPTPP on Vietnam's trade flow, and discusses other contributing factors, and policy implications for Vietnam based on the results.

2. Literature review

2.1. Effect of FTA on trade

As the Doha Round failure highlighted the need for more effective international economic integration, FTAs are regarded as the second-best option (Vu, 2016). An FTA could be a multilateral or bilateral agreement between countries to create a free trade area by reducing barriers to importing and exporting products between themselves (Trong et al., 2021). Numerous studies have attempted to examine the effect of FTAs on international

trade. One of the most common arguments in their favor is the ability to boost trade between countries. Baier and Bergstrand (2009) argued that two countries entering into an FTA could increase their bilateral trade for "trade creation" and "trade diversion". *Firstly*, "trade creation" occurs when domestic production shifts to a lower-cost producer in another FTA member country, therefore promoting trade between member countries (Katsioloudes and Hadjidakis, 2007; Nguyen, 2011). *Secondly*, "trade diversion" occurs when a country removes tariff and non-tariff barriers with other FTA members. This can make it possible for the members to divert imports from previous non-member exporters with low costs to higher-cost FTA members. Although the welfare of member nations could worsen due to "trade diversion" (Katsioloudes and Hadjidakis, 2007; Nguyen, 2011; Vu, 2016), Baier and Bergstrand (2009) stated that this process still creates more trade flow between FTA members.

To examine the above theory, several empirical studies have begun assessing the FTA average treatment effect on trade by adding a dummy variable to represent the presence of an FTA, to the gravity model. However, the results of the coefficient estimation are flimsy, insignificant, and vary enormously (Ghosh and Yamarik, 2004; Begović, 2011; Tinbergen, 1962; Frankel, 1997; Clausing, 2001).

2.2. EVFTA and CPTPP

A variety of research papers have been written on the impact of the EVFTA on both Vietnam's and European countries' economies using many methods; most results have shown a positive effect of this agreement on economic sectors (Hadjinikolov and Zhelev, 2018). Many papers analyzed the impact of reducing customs duties on the country's economy. They focused on various factors that affect Vietnam's growth and development, such as domestic demand, trade, and investment, and pointed out the country's opportunities and challenges. Philip et al. (2011) and Brauer, Tuan and Frey (2014) computed a simulation model to evaluate how reducing customs duties in the EVFTA affects Vietnamese exports and imports. Philip et al. (2011) conducted quantitative and qualitative methods to assess the effects of the EVFTA on leading sectors of Vietnam's exports and imports. The analysis showed that the EVFTA could increase average Vietnamese exports and imports by 4% and 3.1%, respectively. Hadjinikolov and Zhelev (2018) used the SMART model to examine the effect of the EVFTA on Bulgaria's economy. They pointed out that Vietnamese imports of Bulgarian products could increase by roughly USD 15 million when trade liberalization fully enters into force.

Besides the export and import sectors, other papers concentrate on the specific trade flow of Vietnamese exported products, including fruit, garments, and pharmaceuticals. Vu (2016) assessed the ex-ante effect of tariff reduction on Vietnam's imports of medications under the EVFTA by applying the SMART model. The result showed that pharmaceutical imports from the EU could increase by 3% under the EVFTA. Moreover, the latter's trade

creation effect had a higher impact than that of trade diversion, leading to an increase in Vietnam's welfare. Trong et al. (2021) examined the effect of the EVFTA on bilateral fruit exports and imports. The research employed the WITS-SMART model to assess the tariff reduction effects and showed that tariff elimination could raise the export flow faster than the import flow, bringing about a change in the export-import structure in Vietnam. They also acknowledge the limitations of the SMART model, which failed to consider the impact of other FTAs and the reaction of EU member countries.

Most of the empirical research outlined above uses the CGE or SMART models, but there is a lack of papers using the gravity model and panel data to evaluate the EVFTA impacts. Before the EVFTA negotiations, Do (2006) assessed the bilateral trade between Vietnam and 25 European countries by applying a gravity model with panel data. Do (2006) concluded that economic size and exchange rates could affect bilateral trade and suggested that signing an FTA between Vietnam and the 25 nations was necessary. Nguyen (2016) employed a gravity model to anticipate the effect of EVFTA on Vietnam's trade by using a panel dataset of 28 European countries from 1997 to 2013. He showed that tariff elimination positively affects bilateral trade between Vietnam and the EU and he pointed out that a 1% reduction in tariffs would increase the total trade flow for each party by 0.52% and 0.95%, respectively.

Regarding the CPTPP agreement, more papers have examined its effect on country members' trade because it officially entered into force two years before the EVFTA implementation. Le (2022) states that the CPTPP could be a good opportunity for Vietnam to increase export turnover to the main markets, including Australia, Canada, and Japan. In this study, Le claimed that the trade flow between the CPTPP member states increased significantly, accounting for around 20% of Vietnam's total trade with the world from 2001 to 2018. Vu, Le and Masciarelli (2020) predicted the CPTPP agreement's effects on Vietnam's fisheries exports. The results showed that the export turnover of this sector increased because of the CPTPP implementation. However, as with the EVFTA, there are a limited number of studies using the gravity model to evaluate the effects of the CPTPP agreement on bilateral trade. Le (2021) employed a gravity model to predict the impact of tariff reductions in the CPTPP on Vietnam's trade flow. Le argued that Vietnam's total trade and export turnover could increase by 0.0978% and 0.1102%, respectively, when tariffs are cut by 1%.

3. Methodology

3.1. Model explanation

This study applies the gravity model to examine the effect of FTAs on bilateral trade flow. Tinbergen (1962) utilized this for the first time to examine how various factors affect trade flow. He used a basic gravity model, which mentioned two independent variables - gross domestic product (GDP) and the distance between countries - to calculate their

effects on trade. He used the GDP factor to represent the size of an economy and the distance factor as a restricted trade variable.

After Tinbergen's model, economists developed the gravity model by adding new variables to it, such as the population variable, to create a more accurate representation of the size of economies (Do, 2006; Nguyen, 2016; Le, 2021). These new models were referred to as an extension of the gravity model. This study employed a gravity model to examine the effect of each FTA on the bilateral trade between Vietnam and partner countries of the EVFTA and the CPTPP. Tariff variables were used as the main factors to study and compare the extent of the impact of the two FTAs on Vietnam's bilateral trade. In addition, the following new variables were added to the gravity model:

1. Per Capita Gross Domestic Product (PCGDP measured in USD) represents the size of a country's economy, which is calculated by the GDP divided by the country's total population. Theoretically, when a country's economy increases or the household income rises, the trade volume would increase. Thus, increasing GDP per capita is expected to positively affect trade flow between countries.

2. The size of the population (POP) is a factor that can affect a country's production capacity. The populations of both exporting and partner countries are expected to affect the total trade positively.

3. Real Effective Exchange Rate (REER) is the real exchange rate between a country's currency and other partner (i.e., foreign) currencies. When the REER increases, the foreign currency appreciates. Therefore, from Vietnam's perspective, imports become expensive, negatively affecting the domestic import turnover. In contrast, Vietnam's currency in terms of the partner currencies depreciate, making Vietnamese exports cheaper. Theoretically, an increase in the REER would positively affect export turnover and negatively impact the turnover of imports in Vietnam. The effects of an increase in the REER on total trade flow depend on whether an export increase or import decrease is dominant.

4. Trade openness (OPEN measured in USD) is calculated by the total import and export turnover divided by the total gross domestic product. Economists have recognized the positive effects of open international trade since the classical theories of international trade of David Ricardo and Adam Smith were published. Economists noted that the higher the trade openness, the more demand for international trade. Hence, trade openness would positively affect the bilateral trade between countries.

5. Distance (DIS measured in kilometers) between a country and its trading partners is a factor that represents transportation cost. It is usually calculated by the straight-line distance between countries' economic centers (major financial cities). Theoretically, the further the distance between countries, the more expensive the transportation costs, which as a consequence negatively affects trade turnover.

6. Oil price (OIL) is a variable representing how global events affect trade turnover. It is expected trade turnover decreases with rising oil prices.

All the variables above are measured by taking the logarithm and the expected sign of the regression coefficients.

To comprehensively evaluate the impact of FTAs, the author constructed a gravity model with the dependent variable being the total trade flow of Vietnam between the FTAs' country members. The explanatory variables are the six factors mentioned above: i.e., per capita gross domestic product (PCGDP), population (POP), exchange rate (ER), openness (OPEN), oil price (OIL) and distance (DIS).

$$Ln TRADE_{c,d,t} = \beta_0 + \beta_1 Ln(PCGDP_{c,t} * PCGDP_{d,t}) + \beta_2 Ln(POP_{d,t} * POP_{c,t}) + \beta_3 TR_{d,t} + \beta_4 TR_{c,t} + \beta_5 LnDIS_{c,d} + \beta_6 Ln(OPEN_{c,t} * OPEN_{d,t}) + \beta_7 LnER_{c,d,t} + \beta_8 LnOil_t + \varepsilon_{c,d,t}$$

Where:

c: Vietnam d: Partner countries

$TRADE_{c,d,t}$ (USD): Trade flow between Vietnam and country d at time t.

$TR_{c,t}$ and $TR_{d,t}$ (%): Tariff rate from imported products of Vietnam and country d, respectively, at time t.

$PCGDP_{c,t}$ and $PCGDP_{d,t}$ (USD): Per capita gross domestic product of Vietnam and per capita gross domestic product of country d at time t.

$POP_{c,t}$ and $POP_{d,t}$ (People): Population of Vietnam and population of country d at time t.

$OPEN_{c,t}$ and $OPEN_{d,t}$ (%): Trade openness of Vietnam and country d at time t.

$DIS_{c,d}$ (kilometer): Distance in kilometers between Vietnam and country d (time-invariant).

$ER_{c,d,t}$: Exchange rate between Vietnam and country d at time t (Country d's currency in terms of Vietnamese currency).

Oil_t (USD per barrel): The average annual OPEC crude oil price at time t.

$\varepsilon_{c,d,t}$: Error term

3.2. Data selection

This study evaluates the effect of the EVFTA and the CPTPP on Vietnam's total bilateral trade using two panel datasets. The first relates to the EVFTA and consists of 567 observations of Vietnam and the 27 European countries (during the 2000 to 2020 period), namely Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, and Sweden. The second panel data consists of 147 observations of Vietnam and the seven partner members of the CPTPP, including Australia, Canada, Japan, Mexico, New Zealand, Peru, and Singapore during the same period.

This study uses the same data collection method from secondary data in two panel datasets. The bilateral trade flow computed in U.S. dollars is calculated by the aggregate export and import turnover in the same year. The import and export turnover between Vietnam and partner countries is the annual data taken from the UN Comtrade database website. The tariff rate (TR) is the weighted average tariff (%) from the World Bank database. The gross domestic

product per capita (PCGDP in USD), the population figure and the trade openness (OPEN) of Vietnam and other countries are collected from the World Bank's website. The exchange rate variable (partner countries' currency in terms of the Vietnamese currency) is calculated using the official exchange rate of Vietnam (local currency units relative to the USD) divided by the official exchange rate of the partner country (local currency units relative to the USD). Vietnam and other countries' official exchange rate data are taken from the World Bank's database. The geographical distance in kilometers between countries is the straight-line distance between their capitals, obtained from the website chemical-ecology.net. The average annual OPEC crude oil price data (in USD per barrel) is taken from www.Statista.com.

3.3. Description of data

Tables 1 and 2 show the description of the panel dataset for the EVFTA and the CPTPP. They show that the trade flow in the CPTPP is higher than in the EVFTA, with their mean figures being 21.01693 and 18.89517 respectively, although the EVFTA has more country members. There is no significant difference between partner countries' tariff rates in each of the FTAs (at the mean of 5.74% in the EVFTA and 4.01% in the CPTPP). However, the gap between the minimum and maximum tariff rates of foreign countries in the CPTPP is higher than in the EVFTA. The import tariff of Vietnam is approximately twice as high as that of European countries, at the mean of 12.33474% and 5.739048%. This fact is also true for Vietnam and CPTPP members. The variables LnTrade, LnPOP, TRc in Table 1 and TRd in Table 2 fluctuate remarkably due to their high standard deviations. In Table 3, unit-root test results are presented.

Table 1: Description of Panel Data for EVFTA Panel Data

Variable	Obs	Mean	Std.Dev.	Min	Max
LnTrade	560	18.895	2.104	12.388	23.092
TRd	567	5.739	.41	4.32	6.48
TRc	513	12.335	3.355	9.44	16.82
LnPCGDP	567	10.02	.782	7.391	11.725
LnPop	567	34.094	1.362	31.071	36.63
LnOpen	567	9.706	.541	8.595	11.295
LnOil	567	4.201	.402	3.594	4.819
LnDist	567	9.028	.091	8.872	9.262
LnER	567	10.003	.237	9.479	10.259

Table 2: Description of Panel Data for CPTPP Panel Data

Variable	Obs	Mean	Std.Dev.	Min	Max
LnTrade	147	21.017	1.968	15.374	24.411
TRd	142	4.067	3.438	0	15.57
TRc	133	8.685	3.586	4.98	15.29
LnPCGDP	147	10.036	.923	7.571	11.13
LnPop	147	35.345	1.252	33.362	37.069
LnOpen	147	9.21	.799	7.687	11.133
LnOil	147	4.201	.403	3.594	4.819
LnDist	147	9.066	.605	8.207	9.85
LnER	147	8.444	1.575	4.797	9.979

Table 3: Unit-root Test Results

Variable	EVFTA		CPTPP	
	I(0)	I(1)	I(0)	I(1)
LnTrade	/		-3.67***	
LnPCGDP	-12.09***		-4.78***	
TRd	-2.67***		-4.002***	
TRc	/		/	
LnPop	-2.87***		-0.179	-2.47**
LnDist	/		/	
LnER	-14.44***		-3.87***	
LnOpen	-3.69***		-2.135**	-6.98**
LnOil	-0.677	-6.45***	-0.345	-32.88***

For diagnostics, the Levin-Lin-Chu unit-root test was used for all variables in the two datasets. The results from table 3 show that almost all variables are stationary at level I(0) or at first difference I(1), except for some variables that failed to test because the unit-root test requires strongly balanced data. The outcome is not surprising as some of the variables have unit roots, and series that are stationary at different levels and with some at first the differences are not problematic.

3.4. Empirical results

Economists typically employ the fixed effects model (FEM), the random effects model (REM), and the ordinary least squares model (Pooled OLS) to examine panel data. To choose a suitable model, it is necessary to consider the data's characteristics and the test results.

Firstly, the fixed effects model (FEM) and the random effects model (REM) are performed. After that, the Hausman test is used to choose between random effects and fixed effects model. Fixed effects regression is used if the P-value result is less than 0.05. If the outcome is greater than 0.05, then the random effects regression is chosen. The process continues by using the Breusch and Pagan Lagrangian multiplier test to select between the Pooled OLS model and the REM model. The REM is used if the P-value is less than 0.05 and the Pooled OLS regression if it is higher than 0.05. The test results show that the random effects model should be used to estimate the panel dataset of the EVFTA and the fixed effects model employed for estimating the CPTPP dataset.

The next step is to test for heteroscedasticity, multicollinearity, and autocorrelation on error terms. In the panel dataset for the EVFTA, there are no autocorrelation and multicollinearity problems, but a heteroscedasticity issue appears. For the CPTPP dataset, while multicollinearity is not found, the problems of heteroscedasticity and autocorrelation are presented. Many papers have used the feasible generalized least squares (FGLS) estimation and the OLS with panel-corrected standard errors (PCSE) to overcome these issues. However, Beck and Katz (1995), Hoechle (2007) and Reed and Webb (2010) calculated the FGLS and PCSE estimators and showed that when nations (N) are less than years (T), the preference is to use the FGLS estimation. When $N > T$, FGLS could not implemented, the PCSE estimation is used. However, the latter requires the model to have no autocorrelation problem.

In the EVFTA dataset, 28 nations are surveyed over 20 years ($N > T$), and there is no autocorrelation phenomenon. Hence, the author of this paper chose the PCSE estimation to overcome the heteroscedasticity presented in the regression. In contrast, the CPTPP dataset has only eight countries surveyed over 20 years ($N < T$), so the FGLS estimation is preferred for solving the heteroscedasticity and autocorrelation issues. The results after corrections are shown in Table 4:

Table 4: Final Coefficients' Results after Corrections

Independent Variables	EVFTA dataset	CPTPP dataset
$TR_{d,t}$	0.1696*	-0.0280**
	(0.0957)	(0.0128)
$TR_{c,t}$	-0.0862***	-0.0496***
	(0.0172)	(0.0127)
$Ln(PCGDP_{c,t} * PCGDP_{d,t})$	1.0464***	0.7291***
	(0.0495)	(0.1659)
$Ln(POP_{d,t} * POP_{c,t})$	1.3121***	0.8289***
	(0.0321)	(0.1083)
$Ln(OPEN_{c,t} * OPEN_{d,t})$	0.9986***	0.4642***
	(0.0932)	(0.1187)
$LnDIS_{c,d}$	-1.2171***	-1.8881***
	(0.2871)	(0.3045)
$LnER_{c,d,t}$	1.2980***	0.1643
	(0.4088)	(0.1173)
$LnOil_t$	-0.6070***	-0.0330
	(0.1063)	(0.0878)
_cons	-45.390***	-3.4088
	(4.5518)	(4.3897)
Observations	507	128

Note: 1. *, ** and *** denote significance at the 10%, 5% and 1% levels respectively

2. Standard errors presented in brackets underneath the coefficients

4. Findings

Table 4 presents the coefficients of the explanatory variables with their significance levels and the standard errors in the two datasets. Through the statistical tests, the OLS was conducted with the panel-corrected standard errors (PCSE) test for the EVFTA dataset and the feasible generalized least squares estimation (FGLS) was used for the CPTPP dataset. However, the results of the coefficients in the two regressions are robust and have the same expected sign despite the distinct methods of approach. The number of observations in the first column is much higher than in the second one, with 507 compared to 128. This is because there are 28 country members in the EVFTA and only eight in the CPTPP (during the period covered by the study). Besides, almost all the variables' coefficients in the EVFTA are higher than in the CPTPP. Thus, in general, the impact of the EVFTA on Vietnam's total trade flow is higher than the CPTPP agreement.

Overall, the trade flow is driven by tariff rates, population, per capita GDP, exchange rate, trade openness, distance, and oil price. What stands out in Table 4 is that the statistically

significant variables (at 5% and 1% significant levels) in the two regressions have, as expected, the same sign. Also, the negative coefficients of tariff variables mean that the reduction of tariff barriers in the two agreements would increase Vietnam's trade flow. The results show that increasing the impedance variables, including LnDIS and LnOil, negatively affects trade flow. The LnPCGDP, LnOpen, LnPOP, and LnER variables positively impact on trade, consistent with the theory and other empirical papers.

To evaluate the effects precisely of the two FTAs on Vietnam's trade flow, the impact of each explanatory variable needs to be assessed. A closer inspection of Table 4 shows that the tariff variables in the two regressions have a negative sign, except for the insignificant tariff variable for countries in the EVFTA (the TRd variable). The negative correlation between tariffs and trade flow is evidence to reaffirm the past theories and papers, which supported the view that the implementation of FTAs could enhance trade flows between country members by reducing tariff barriers (Tinbergen, 1962; Baier and Bergstrand, 2007, 2009; Kohl, 2014; Lakatos and Nilsson, 2016). In particular, the EVFTA results demonstrate that when the tariffs in Vietnam decreased by 1% and the rest of the variables remained fixed, the total trade flow in Vietnam would increase by 0.0862%. From a theoretical view, this result further supports the theory of tariffs, as pointed out by Scitovszky (1942). His theory claims that a 1% decrease or increase in tariffs could lead to changes in a country's export and import turnover. In addition, this result is consistent with the empirical paper by Nguyen (2016), which examined the impacts of the EVFTA on Vietnam's trade but during a different period of time. The author has also found that the effect of the EVFTA from 2000 to 2020 differs from the years 2001 to 2018. This difference could be explained by the fact that this particular study omitted data from the United Kingdom because of Brexit. Although this study employed a different estimation to Nguyen (2016), it also failed to estimate the effect of tariff reduction in European countries due to the insignificant coefficient.

In the CPTPP dataset, when the tariffs in Vietnam (TRc) and the CPTPP's members (TRd) decreased by 1% and the rest of the variables remained fixed, the total trade flow in Vietnam would increase by 0.0497% and 0.028%. Le (2021) examined the impacts of the CPTPP agreement on Vietnam's trade flow from 2001 to 2018 but failed to compute the coefficient of Vietnam's tariff variable (TRc) due to the high correlation problem. This study could fill the gap in the paper by Le (2021) by using a different estimation. While the CPTPP's member tariff variable (TRd) has the same negative sign, the effect of TRd on Vietnam's trade, as mentioned by Le (2021), is much more significant than the results of this study (0.0978% compared to 0.028%).

In comparison, the effects of tariffs on trade in the EVFTA are much higher than in the CPTPP. A 1% reduction in Vietnam's tariffs leads to a 0.0862% increase in the trade flow in the EVFTA, which is nearly twice as high as the figure of 0.0497% in the CPTPP. These statistics show the great opportunities for Vietnam's trade thanks to the CPTPP agreement, which is committed to eliminating tariffs from 97% to 100% on goods produced in Vietnam, and the European countries will remove the 99.2% tariff line of Vietnamese exported products when the two FTAs are fully entered into.

The data in Table 4 shows that the exchange rate coefficient in the EVFTA dataset is 1.298 at a 1% significance level. That means when the exchange rate, calculated by foreign currency in terms of the Vietnamese currency, increases by 1%, then Vietnam's total trade flow increases by 1.298% with the European countries. The conventional exchange rate theories could explain the fluctuation of trade flow when the exchange rate changes. If Vietnam's currency depreciates, the country's exports become cheaper, which increases the export turnover. In contrast, a decrease in the exchange rate leads to foreign currency appreciation, and the price of imported goods from other countries rises with a decrease in the import turnover as a result. Hence, the positive sign of the exchange rate variables' coefficients indicates that when Vietnam's currency depreciates, an increase in export turnover overwhelms the import turnover reduction. This claim is consistent with the findings of Tran and Nguyen (2010) when they pointed out that Vietnam is an export-oriented development country, and the Vietnamese government has implemented policies to support export production. The positive coefficient of the exchange rate also indicates that if the government applies the currency devaluation policy, the trade flow with the EVFTA countries will increase, but it will also be necessary to consider other consequences. However, the exchange rate variable result contrasts with the findings of Nguyen (2016), which indicated a significant negative coefficient.

Another important finding in this study is that the price of the crude oil variable negatively affects trade flow. However, only the result in the EVFTA dataset is significant, and this study fails to estimate the effect of the oil price on trade flow between the CPTPP members. The result shows that a 1% increase could decrease trade flow between Vietnam and European countries by 0.607%. This result is consistent with the expectations and could be explained by the uncertainty channel. When the oil price increases, firms and consumers are expected to postpone making purchases and investments due to uncertainty surrounding the future price. A decrease in domestic investment and consumption could decrease the aggregate demand and thus reduce international trade flow. This negative coefficient is also consistent with the results of a paper by Chen and Hsu (2012), who claimed that a drastic change in oil prices could affect international trade significantly. An increase in the oil price not only affects the trade flow but also causes other trade problems, such as budget deficit and inflation. Hence, the Vietnamese government must mitigate the harmful impact of oil price by subsidizing alternative fuels.

The other variables in the two models, including openness, per capita GDP, population, and distance, have expected signs at a 1% significant level. The per capita GDP, population, and trade openness variables have positive coefficients indicating that an increase in these could benefit Vietnam's trade flow. However, these variables have a more significant effect in the EVFTA dataset than those in the CPTPP. The negative sign of the distance variable shows that the transportation costs could negatively affect trade flow. The results of these variables are also consistent with other studies and theories.

5. Conclusion and policy implications

After the Doha Round failure, the number of FTAs signed between countries and territories increased significantly. The EU-Vietnam Free Trade Agreement (EVFTA) and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) are the two new-generation FTAs that bring many benefits to Vietnam. However, there is a lack of papers evaluating the effect of tariffs in each FTA on Vietnam's trade flow. This study employs a gravity model with panel datasets to examine and compare the effects of two FTAs on trade flow to fill the gap.

The results from the two FTAs show that the impact of tariff changes in the EVFTA on Vietnam's trade flow are higher than in the CPTPP agreement. The coefficients of tariff variables have negative signs, which indicate a reverse relationship between tariff and trade flow. A decrease in the tariff rate in the two FTAs could facilitate trade flow in Vietnam. Moreover, the trade flow in Vietnam is also affected by population, per capita GDP, exchange rate, trade openness, distance, and oil prices.

This study finds strong evidence that the trade flows between Vietnam and European countries could increase when exchange rates rise. The positive coefficient of the exchange rate supports the view that Vietnam is an export-oriented development country, and the currency devaluation could benefit the export turnover. The research has also shown that global crude oil prices could negatively affect trade flow.

The other explanatory variables have the same sign as expected and are consistent with previous papers. The distance variable, an impedance imposed on trade factors, has a negative effect. The other variables that positively affect Vietnam's trade flow include trade openness, per capita GDP, and population. However, the coefficients of these variables in the EVFTA are higher, indicating that the latter's effect on Vietnam's trade is generally more significant than in the CPTPP. This study acknowledges the limitations in the methodology when employing a gravity model, including the fact that some variables have insignificant coefficients to explain the trade flow in the two FTAs.

Based on the results, the author would like to identify some policy implications for Vietnam in the context of the EVFTA and the CPTPP. *Firstly*, the positive impact of trade openness on trade flow indicates that the Vietnamese government should open the economy up to a more intense level by entering more FTAs. Trade openness could facilitate Vietnam's exports by penetrating new markets and lowering dependence on the Asian market, which accounts for 50% of export turnover (Le, 2021). However, Vietnamese businesses need to consider the Rules of Origin (RO) in each FTA in order to qualify for premium tariff rates. Exporters should fully understand the quality requirements of products, including the origin of raw materials and the technologies used in production. Vietnam still struggles to overcome this problem because most of the country's exporters are small and medium sized firms heavily dependent on foreign raw materials. Hence, the government should put policies in place to solve the vague understanding of the RO in the export businesses and encourage the production of domestic raw materials.

Secondly, although this study points out that currency depreciation could increase export turnover, this is currently not encouraged. To devalue the domestic currency to gain export benefits, the central bank needs to lower interest rates, causing a money supply increase and thus leading to a surge in inflation. Moreover, many foreign investors would withdraw their financial investments due to the fear of currency depreciation. In the context of the COVID-19 pandemic, many countries increased money supply to subsidize businesses and consumers to overcome the associated financial problems, and inflation has become remarkably high. The central banks in major countries like the U.S. applied contractionary money policies many times to increase interest rates to curb inflation, and Vietnam is no exception. The State Bank of Vietnam needs to raise interest rates to control inflation instead of devaluing the currency to facilitate exports. Moreover, a currency depreciation policy is more likely to be implemented when there is a trade deficit, and, according to the General Statistics Office of Vietnam, the country had a trade surplus of USD 0.02 billion dollars in July 2022.

Thirdly, this study claims that the oil price negatively affects Vietnam's trade flow with countries in the two FTAs for the reasons mentioned above. Because of the Russia–Ukraine crisis, oil prices increased to record levels from 2014, so governments must put mitigation policies in place. The Vietnamese government could reduce the petroleum tax, thus stabilizing domestic oil prices and alternative fuels, such as biogas could be subsidized.

To develop a complete picture of how the EVFTA and the CPTPP impact on Vietnam's trade, future studies are recommended to assess their effects on the trade flow of the main export sectors as well as further study into policy implications of the FTAs. Moreover, it might be possible for future investigations to examine the combined effects of the EVFTA and the CPTPP on Vietnam's economy.

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