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TÁC ĐỘNG CỦA THUẾ QUAN ĐỐI VỚI HOẠT ĐỘNG XUẤT KHẨU CỦA VIỆT NAM TRONG HIỆP ĐỊNH ĐỐI TÁC TOÀN DIỆN VÀ TIẾN BỘ XUYÊN THÁI BÌNH DƯƠNG

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Tóm tắt

Bài nghiên cứu đã áp dụng mô hình trọng lượng cho tập dữ liệu bảng được tổng hợp từ WorldBank và UN Comtrade về xuất khẩu của Việt Nam sang các quốc gia thuộc hiệp định CPTPP (Hiệp định Đối tác Toàn diện và Tiến bộ xuyên Thái Bình Dương) từ năm 2005 đến năm 2021 để xem xét sự tác động của thuế quan và một số nhân tố vĩ mô khác đối với hàng xuất khẩu. Kết quả nghiên cứu chỉ ra rằng thuế quan có tác động lớn và bất lợi đối với hàng xuất khẩu của Việt Nam; cụ thể, nếu giảm thuế quan 1% thì sẽ tăng khối lượng xuất khẩu lên 5.3%. Cũng theo kết quả nghiên cứu, việc tham gia vào CPTPP đã có sự ảnh hưởng tích cực đáng kể đối với việc xuất khẩu và hạ thấp hàng rào thuế quan trong CPTPP có thể cải thiện hoạt động xuất khẩu của Việt Nam và tăng cường hội nhập vào hệ thống thương mại thế giới.

Từ khoá: CPTPP, xuất khẩu, thuế quan.

JEL: F13

THE IMPACT OF TARIFF ON VIETNAM'S EXPORT IN THE COMPREHENSIVE

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AND PROGRESSIVE AGREEMENT FOR TRANS-PACIFIC PARTNERSHIP (CPTPP)

Abstract

This study applies a gravity model to a panel dataset compiled from WorldBank and UN Comtrade to investigate Vietnam's exports to members within CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership) from 2005 to 2021 with a view to calculating the impact of CPTPP partners' import tariffs on exports. The research results indicate that tariffs have a substantially detrimental impact on Vietnam's exports; in detail, if the partners reduced their import tariff by 1%, it will increase the export volume to 5%. The findings suggest that participating in the agreement has significantly highered Vietnam export position and lowering tariff barriers in the CPTPP could improve Vietnam's export performance and strengthen its integration into the world trading system.

Keywords: CPTPP, export, import tariff.

JEL: F13

1. Introduction

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is a new wave of free trade agreements, and Vietnam is one of eleven members. As presented in the 6th CPTPP Commision Meeting (2022), the agreement has created the largest free trade area in the world, with a total GDP of over $10, 567 billion USD, or roughly 13.5% of the world's GDP, encompassing sizable markets spread across numerous continents.

Vietnam's growing openness to foreign business and trade, along with its strategic location in Southeast Asia, has attracted multinational corporations and made it a desirable export destination within ASEAN. According to the General Statistics Office of Vietnam, with a population of over 97 million and a burgeoning middle class, Vietnam offers a substantial market for imports. Vietnam's trade with CPTPP member countries has gradually increased, accounting for about 20% of its overall trade. Key trade partners include Japan, Australia, Singapore, Malaysia, and Canada, with Vietnam experiencing a trade deficit with most countries in this group, except for Canada. Trade with Mexico, Brunei, Chile, New Zealand, and Peru remains relatively minor, but Vietnam consistently maintains a trade surplus with them.

Before the implementation of CPTPP, import tariffs imposed on our products had a significant impact on Vietnam's export situation. The country faced high tariff barriers on its exports, particularly when trading with developed nations. These tariffs hindered Vietnam's export competitiveness by making its goods more expensive for foreign buyers. The agricultural sector, in particular, faced challenges due to high tariffs on products such as rice, coffee, and rubber. This resulted in a trade deficit with major trading partners like the United States and the European Union. However, Vietnam managed to negotiate lower tariffs with some countries,

such as Japan and South Korea, through free trade agreements. Despite these efforts, the export landscape was characterized by a heavy reliance on low-cost manufacturing and primary commodity exports, limiting Vietnam's ability to move up the value chain. The reduction of tariff barriers through the CPTPP presented an opportunity for Vietnam to improve its export performance by accessing new markets and enhancing its competitiveness on a global scale. Numerous experts in Vietnam and other nations are discussing how the CPTPP would affect each nation's export. Studies by Armstrong (2011), Cooper and Manyin (2013), Maliszewska, Olekseyuk, and Osorio-Rodarte (2018), etc. One of the key benefits of the CPTPP for Vietnam is reducing or eliminating tariffs on goods exported to other member countries. The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) has had a significant impact on Vietnam's tariff situation. Under the agreement, Vietnam has gained access to reduced or eliminated tariffs on its exports to member countries. This has improved the competitiveness of Vietnamese goods by making them more affordable in international markets. The CPTPP has opened up new opportunities for Vietnam to expand its export markets and diversify its export destinations. By reducing tariff barriers, the agreement has contributed to Vietnam's integration into the global trading system and has played a key role in enhancing the country's export performance.

Past researches on the overall impact of tariffs on the export of any member within CPTPP investigated a limited time phase or have yet to provide a robust set of results. Therefore, this study will provide a broader view on the impact of CPTPP tariff reductions on total exports by expanding the dataset from 2005-2018. Also, by applying various regression techniques with average tax as the primary variable and various controlling variables, we aim to yield optimally comprehensive findings on the subject matter. We also capture the impressive growth of export turnover of Vietnam within the agreement by applying a time-related dummy variable.

2. Literature review

Nowadays, countries are more closely linked through trade, and developed and developing nations are lowering trade barriers to encourage more foreign trade. As a result, in this era of trade openness, the question for the researchers is to define the elements that influence the export performances among nations. To solve this problem, the authors decide to give a brief introduction of classical and recent research that will explain factors stimulating trade performances and answer the question of its magnitude between countries.

Apparently, free trade agreements (FTAs) and tariff reduction helped countries to promote trade. Okabe (2015) with the assistance of gravity model proved that AKFTA and ACFTA encouraged trade of emerging ASEAN countries. Pham and his partners (2018) also showed the significant impact of joining new generation FTAs on improving trade, especially the export market in Vietnam. Among various FTAs that Vietnam pursues, CPTPP holds a significant position. Hoan (2020) stated that GDP of CPTPP accounted for 15.84% of Vietnam’s total

import-export turnover and additionally, CPTPP represents Vietnam's first FTA with Peru, Canada, and Mexico, wherein Canada and Mexico stand as the 11th and 14th largest economies globally. Additionally, according to quantitative studies of Le (2016), Vietnam took advantage of FTA incentives to access and boost exports in ASEAN, Japan, and South Korea markets, although exporting to the US and the EU market have always had higher growth rates. Duong (2016) applied the gravity model to examine that by signing EVFTA, Vietnam's exports to the EU will increase as a result of the tariff cuts, emphasizing the negative effects of tariff on exports.

Although most of the research found that FTAs have significantly positive effects on trade, some proved the opposite side at the beginning of FTAs. According to Frankel (1997), the change in trade in ASEAN impacted by their free trade agreement AFTA is quite small. DeRosa (1995) with the help of the CGE model demonstrated that the MFN (Most-Favoured Nation) tariff even boosted trade between ASEAN members more than AFTA did. Using SMART simulation, Rashmi Banga (2019) found that exports of Malaysia after joining CPTPP only rose 0,2% compared to other members since they already had FTAs with major partners in CPTPP such as Japan, Singapore. Malaysia's trade balance will be less negatively impacted by staying out of the CPTPP, and it will also have the much-needed policy space to develop its industry and trade policies.

In addition to FTAs and tariffs, there are still some factors having great influences on the trade balance, specific in export between countries. Uysal and Mohamoud (2018) gave an insight into the determinants affecting exports of seven East African countries with secondary data between 1990 and 2015. According to the study, the workforce, exchange rates, and foreign direct investment have a positive relationship, while inflation negatively correlates with export performance. Meanwhile, GDP is the only variable that has no impact on the export value of East African countries.

Khan and Kalirajan (2011) used the gravity model to investigate how trade costs affected export in Pakistan. The authors selected 79 countries of Pakistan’s trade partners for empirical analysis from 1994 to 2004. According to the findings, between 1999 and 2004, Pakistan's exports to some of its partner countries increased mostly due to falling "explicit and implicit beyond the border" trade costs and rising demand in these countries. On the other hand, in 2004, ‘behind the border’ trade costs within Pakistan were negatively correlated with export performances, particularly for India and China.

Tu and Giang (2018) investigated the elements influencing Vietnam's exports. The Hausman-Taylor estimated method and mixed table data from 70 significant export partners of Vietnam from 2001 to 2013 are used in this study. The research results indicate that Vietnam’s GDP, the partner’s GDP, the population, the importing country, and the trade openness of the importing country are the factors that positively impact Vietnam’s exports. Meanwhile, export costs have a reverse impact.

Ha and Le (2019) also studied the impact of participation in the case of Vietnam when joining CPTPP. With quantitative methods to forecast the impact of Vietnam's CPTPP participation on the increase in exports, the results show that the average growth in Vietnam's export turnover increases by 1.9% compared with the non-CPTPP scenario.

Hoan (2020) evaluated the elements of Vietnam's exports to CPTPP countries by using the gravity model to panel data between 2003 and 2016. In addition to the conventional variables such as distance between parties and economic size; the model also takes into account the exchange rate, bilateral tariff, income gap, and foreign direct investment (FDI). The findings demonstrate how economic size (GDP), income gap, bilateral tariffs, FDI, and exchange rate have an impact on Vietnam's exports to the CPTPP. Economic size, exchange rate, and income gap are among the factors that significantly affect Vietnam's exports to the CPTPP.

Yang and Martinez-Zarzoso (2014) examined the influence of free trade agreements on the export turnover of their participants from 1995 to 2010 using a gravity model. In the study, variables such as GDP, population, common border, language, and free trade agreement ACFTA have a huge effect on a country's merchandise exports.

After conducting reviewing on past research, we conclude that past studies focused on limited timeframes or lacked robust results. Therefore, this study aims to offer a more comprehensive understanding of the effects of tariff reductions within the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on the export performance of Vietnam. This study will provide a broader perspective by expanding the dataset from 2005 to 2018. By employing various regression techniques and considering the average tax as the primary variable along with other control variables, we aim to generate a comprehensive set of findings on the subject. Additionally, we will examine the remarkable growth of Vietnam's export turnover within the CPTPP by incorporating a time-related dummy variable into our analysis. This research aims at addressing the following questions:

1) What is the impact of tariff on Vietnam's overall export turnover before and after the implementation of CPTPP's Agreement?

2) What is the difference between Vietnam's overall exports turnover before and after the implementation of CPTPP's Agreement?

3. Theoretical framework

The present study aims to utilize the gravity model as a theoretical framework to examine the effects of tariffs on Vietnam's exports to countries that are members of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). Our study analyzes various determinants influencing trade patterns, including GDP, population size and the liner shipping connectivity index of CPTPP partners. The objective is to provide empirical evidence on the significance and magnitude of each determinant, with a particular focus on tariff burdens. Also, by

adding the time-related dummy variable, the model helps to make comparison between pre- and post- 2018.

The gravity model has been extensively utilized in international economics to examine and comprehend the characteristics of bilateral trade flows among nations. This theoretical framework is rooted in the Newtonian notion of gravity. It utilizes the comparison that the exchange of goods and services between two nations is impacted by their respective economic magnitudes and geographical separation. This is equivalent to how the gravitational pull between two entities is contingent upon their masses and the spatial distance that separates them. The gravity model (Walter, 1954) can be written as:

$$F_{ij} = G \cdot \frac{M_i M_j}{D_{ij}}$$

In this formula G is a constant, F stands for trade flow, D stands for the distance and M stands for the economic dimensions of the countries that are being measured.

In the formula, the nation's Gross Domestic Product (GDP) reflects its economic size and market demand, influencing domestic and international trade. The gravity model highlights the negative impact of distance on trade due to increased costs and barriers. Scholars have expanded the model by including additional variables such as economic progress, trade impediments, infrastructure, cultural values, and political relationships, providing a comprehensive framework to understand global trade patterns and interactions.

4. Research design

4.1. Data collection

This study utilizes a sample dataset comprising export activities from Vietnam to other countries participating in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) during the period from 2005 to 2021. The export turnovers of Vietnam to CPTPP countries are extracted from UN Comtrade. The weighted average import tariff imposed on Vietnam, the real GDP with 2015 as base year, the population, and the linear shipping connectivity index of CPTPP countries are extracted from the World Bank. These figures can be automatically extracted by the online software provided by the World Bank and UNCTAD upon request or collected manually.

4.2. Data cleaning and processing

Prior to analysis, the data was cleaned and processed to ensure the accuracy and completeness of the data. The data cleaning process is conducted by taking the logarithmic form of the variable EXP and POPcptpp to normalize skewed and highly skewed data distributions and stabilize. By performing the above-mentioned technique, the dataset is now ready for analysis.

4.3. Variables

4.3.1. Dependent variable

Export turnover is a crucial indicator that measures the value of goods and services a nation exports to foreign countries. It reflects economic performance, global market demand, competitiveness, and trading policies. High export turnover signifies a strong economy and international presence, while a decline indicates a weak economy. UN Comtrade data on this subject matter is included in our dataset.

4.3.2. Independent variables

Based on the theories previously proposed, we suggest the following study on Vietnam's export and CPTPP, using CPTPP partners' import tariffs as the main element and several additional factors based on the gravity model:

(1) Tariff rate (applied, weighted mean, all products) is the rate of taxes and fees imposed by foreign customs on the value of imported products. A lower tariff rate will lead to a higher volume of export of a country.

(2) Gross domestic product (GDP) shows the total monetary or market value of all finished products and services created inside a country's borders during a specific time period. According to economic theory, the larger the size of the economy or the greater the income level, the higher the export volume.

(3) Population size (POP) is a factor that directly impacts the production capacity of a country from different angles. As the population of the partner countries increases, so does the number of goods imported as a result of increasing product consumption.

(4) The Liner shipping connectivity index (LSCI) indicates how well countries are connected to global shipping networks. A nation's ability to access the world market is largely dependent on its transport infrastructure, particularly on regular shipping services to export manufactured commodities to gain profit.

(5) Time-related dummy variable: As Vietnam participated in CPTPP in 2018; since then, the export position in the global market is expected to make tremendous progress.

4.4. Estimation methods and model

4.4.1. Research model

We decided to adopt the model specification proposed by LE, Thi Anh Tuyet (2021) for our study. However, we made the following modifications to the original model: including factors pertaining to the CPTPP partners only and taking the natural logarithmic form of only a few variables. Also, we added a dummy variable to separate the dataset into before and after

the year the agreement is signed to conduct exhaustive comparison. The model of import tariff and other factors affecting trade between Vietnam and CPTPP countries as follows:

$$\mathbf{lnEXP = \beta_0 + \beta_1 TRFcptpp + \beta_2 GDPcptpp + \beta_3 POPcptpp + \beta_4 LSCIcptpp + \beta_5 Dummy + ui}$$

where,

lnEXP: Export turnover of Viet Nam to the CPTPP partner in year t (taken logarithmic form)

TRFcptpp: Weighted average import tariffs of CPTPP countries placed on goods from Vietnam in year t

GDPcptpp: The real GDP of CPTPP countries in year t

POPcptpp: The population of CPTPP countries in year t (taken logarithmic form)

LSCIcptpp: Transport Connection index of CPTPP countries in year t

Dummy: Dummy variable denoting the years before and after 2018

Table 1. A summary of the variables in the model

Variable	Definition	Unit	Expected Signs	Data source
lnEXP	Export turnover of Vietnam to CPTPP countries in year t (Taken logarithmic form)	USD	/	UN Comtrade
TRFcptpp	Weighted average import tariffs of CPTPP countries placed on goods from Vietnam in year t	%	-	Worldbank
GDPcptpp	The real GDP (constant 2015) of CPTPP countries in year t	Billion USD	+	Worldbank
POPcptpp	The population of CPTPP countries in year t	Million people	+	Worldbank
LSCIcptpp	Transport Connection index of CPTPP countries in year t	Index	+	Worldbank
Dummy	Dummy variable denoting the years before and after 2018	Index	+	Author

Source: Author's compilation

4.4.2. Estimation method

We utilize the table data structure combining time-series data to analyze variations over time. Various regression techniques (Pool OLS, FEM, REM, GLS) are used to quantify factors impacting Vietnam's trade with CPTPP members. First, the pure regression model (Pool OLS) uses the least squares method, assuming constant coefficients regardless of spatial and temporal specific effects, which may lead to inaccurate results. Additionally, FEM captures individual-specific effects but removes time-constant variables; while REM allows for different intercept coefficients and considers random errors. The Hausman test helps choose between FEM and REM models.

After choosing FEM or REM, we will test for defects and apply GLS to address the statistics problems in presence in the model.

5. Results and Discussions

5.1. Descriptive statistics and correlation coefficients

5.1.1. Description of statistics

Table 2 provides the results of summary statistics for the variables. As Table 2 presents, the variables TRFcptpp, LSCIcptpp and GDPcptpp had high standard deviation. It means that these variables fluctuate very strongly.

Table 2. **Descriptive statistics of the variables**

Variable	Observations	Mean	Std. Dev.	Min	Max
lnEXP	170	20.3756	2.07961	13.3034	23.7401
TRFcptpp	170	2.1293	1.6278	0.01	8.33
GDPcptpp	170	938.6195	1255.318	12.57487	4580
POPcptpp	170	16.6405	1.6209	12.8123	23.7401
LSCIcptpp	170	100.1338	97.08517	24.39017	437.3267
Dummy	170	-5	4.9134	-13	3

Source: Author's calculation

5.1.2. Variables correlation

Table 3 presents the Pearson correlation coefficient between the variables and uses the

Variance Inflation Factor (VIF) method to detect whether the model has multicollinearity or not. Based on Table 3, it is noticed that all the correlation coefficients are less than 0.8 and all VIF values of independent variables are less than 10, hence, the collinearity between the variables is not a concern, as suggested by Gujarati and Porter (2009).

Table 3. Correlation matrix of the variables

Variable	TRF cptpp	GDP cptpp	POP cptpp	OPEN cptpp	LSCI cptpp	VIF
TRFcptpp	1.000					1.37
POPcptpp	0.2046	1.000				1.83
GDPcptpp	0.0184	0.6148	1.000			1.67
LSCIcptpp	-0.2168	-0.3220	-0 3285	1.000		1.25
Dummy	-0.3923	0.0550	0.0912	0.1412	1.000	1.21
			Mean VIF			1.47

Source: Author's calculation

5.2. Estimation results

In this part, the results of the hypothesis testing are presented based on OLS, FEM, REM and GLS estimations. As Mnasri (2015) argues , estimating with such different models is beneficial in order to understand biases that arise from ignoring different aspects of endogeneity.

5.2.1. OLS

For the OLS regression, Table 4 shows that the overall R-squared is relatively high (0.7414) and the Prob > F = 0.0000, which indicates that the model is appropriate and the chosen parameters are good estimators of performance.

However, after conducting post-estimation testing, the model was inflicted with multiple defects violating the assumptions of OLS. Therefore, this model gives biased and ineffective results.

5.2.2. FEM/REM

We use the FEM and REM to overcome the disadvantages of POOL OLS, The "Hausman test" was employed to select between the " REM and FEM" models. The test results of two models show that the Random Effect model will better control the variables than the Fixed

Effect model.

Then, we tested auto-correlation and heteroskedasticity defects for REM and detected that there are both defects present in REM. Moreover, the coefficient signs are not consistent with our hypotheses. Thus, we do not use the results of the "FEM and REM" model for empirical discussion and decided to apply the GLS method to resolve the defects and optimize the model.

5.2.3. GLS

We choose to estimate the coefficients in the linear regression model using the Generalized Least Squares (GLS) approach in order to address the issues of outliers, heteroskedasticity, and bias in data. The GLS model was suggested by Menke, W. (2015) for dealing with both issues, heteroskedasticity and cross correlation.

The model with the GLS method is appropriate (Prob>F = 0%). All 5 variables are statistically significant (at significance level 5%), implying that all independent variables have explanatory power for the dependent variables. Besides, using options *panels(h)* and *corr(ar1)* in STATA, the method resolved heteroskedasticity and serial auto-correlation that was detected in previous models. **Hence, we determined GLS to be the best fit to apply for the baseline model and appropriate for further discussions.**

5.2.4. Regression with Dummy variable

The Dummy variable enabled us to differentiate observations that occurred prior to 2018 (represented by negative values) from those that occurred afterwards (represented by positive values). This methodology facilitated comparative analyses to examine potential variations or shifts between the two time periods. Running the regression, we found that the Dummy variable is statistically significant and its coefficient complies with our hypothesis; therefore, ready to be analyzed.

5.3. Discussion of the findings

Based on the results, Table 4 shows that the POOL OLS, REM and GLS methods provide almost the same results that import tariffs of CPTPP countries have a negative impact on the export turnover from Vietnam to these countries but with different significant levels. These findings also prove the robustness of the model and proposed hypotheses; therefore the results are now ready for further discussions and analyses.

Table 4. Model estimation results with different methods

Independent variables	**Dependent variables**
	lnEXP

	POOL OLS	FEM	REM	GLS
TRFcptpp	-0.0787215	-0.0141034	-0.0507783	-0.0529655**
POPcptpp	-0.2995628***	1.577554***	0.8259444***	0.533359***
LSCIcptpp	0.0383803***	0.0220939	0.0106477***	0.0353741***
GDPcptpp	0.0004663***	-0.0018027	0.0001924	0.0002848***
Dummy	0.0937985***	0.1352553***	0.0933406	0.1086865***
const	13.90465***	-4.355887	5.396478***	10.38165***
Obs	170	170	170	170
R-squared	0.7414	0.0751	0.6770	-

*(Estimations using OLS, FEM, REM and GLS methods with ***/**/* denoting the statistical significance at 1%, 5% and 10%)*

According to the GLS method, with other unchanged conditions, when the average import tariff of the CPTPP countries decreases by 1%, Vietnam's export turnover to the CPTPP countries increases by 5%. The level of significance at 5% implies that the relationship between partners' import tariff and export revenue is so strong. This positive export turnover effect could be ascribed to the fact that Vietnam's products can satisfy the market of CPTPP countries.

For other variables including GDPcptpp, POPcptpp, LSCIcptpp, the GLS and OLS estimations show the same signs of the relationship between these variables and lnEXP, proving the result consistency of the model. However, the GLS estimation is tested to be more accurate and appropriate. Hence, we have the following results based on the results of GLS regression analysis.

First, the variables LSCIcptpp have a positive impact on Vietnam's exports to CPTPP countries are statistically significant at 5%. Thus, these variables showed consistent results with expectations from the originally proposed model. With other constant conditions, when the Liner Shipping Connection Index of CPTPP countries increases by 1 unit, Vietnam's export turnover to CPTPP countries increases by 3.5%, respectively. This increase is primarily attributed to the effect of modernization in transportation that can benefit the importing activities

in these countries.

Second, with other constant conditions, when the population of CPTPP countries increases by 1%, Vietnam's export turnover with CPTPP countries increases by 0.533%. This finding is consistent with previous literature; and is aligned with our expected results. When population increases, the country's domestic gross market will likely rise, leading to the increase in import activity. Therefore, the result will have a positive impact on Vietnam's exports.

Third, the variable of the GDP of the partner country is positively correlated with Vietnam's export turnover to the CPTPP countries. When other factors remain unchanged, the GDP increases by 1 billion USD, Vietnam's export turnover to CPTPP countries increases by 0.0248%. This is consistent with the theoretical basis. When the GDP of CPTPP countries rises, correspondingly rises their total market size, leading to a boost in the total volume of international trade between countries. As a result, Vietnam's exports to CPTPP partners will grow.

Finally, the coefficient of the time-related dummy variable was found to be positive ($\beta = 0.1086865$, $p < 0.05$), indicating a statistically significant positive effect. This suggests that the variable of interest exhibited an increase in the post-period of 2018 compared to the pre-period, highlighting a potential shift or impact associated with the year 2018. These findings are in reality reasonable as Viet Nam has been entitled to greater export activities since the validation of the agreement. The coefficient also signifies a strong divergence of export turnover between the two periods investigated, which further reinforces our belief and motivation to conduct more intensive acts within the CPTPP agreement to gain more prosperity.

6. Conclusion and policy implications

In this paper, we conducted the most extensive research to date on the impact of import tariff imposed by 10 partners within CPTPP on Vietnam export performance by investigating and also yielded robust, as well as rational findings for further analyses and discussions.

As a result of this study's finding, Vietnam's export turnover to CPTPP countries substantially increased when the average import tariff of the CPTPP countries imposed on Vietnam reduced. This is a positive indication allowing Vietnam to expect merchandise trade between Vietnam, especially exports to CPTPP countries will grow quite significantly in near future. Because, depending on each country's commitment, CPTPP countries promise to eliminate 97% to 100% of import tariff lines for commodities coming from Vietnam. As soon as the Agreement takes effect or in accordance with the roadmap, import taxes will be eliminated for almost all of Vietnam's exports to other CPTPP nations. This is the maximum level of commitment for Vietnam from existing FTAs.

When the Liner shipping connectivity index of CPTPP countries increases, Vietnam's exports to CPTPP countries also increase. As can be observed, export from Vietnam to CPTPP

countries depends on transport connections and logistician capability of countries in the CPTPP. In addition, as the population of CPTPP countries rises, it leads to an increase in Vietnam's export turnover with CPTPP countries. Because more people indicates more demand for products, the imported goods may increase. Besides, when Vietnam's GDP rises, correspondingly increases its export turnover to CPTPP countries. This tells the general truth that if the country partners experience economic growth, it will have a positive impact on Vietnam's exports to CPTPP countries since they have a larger market size. Therefore, Vietnam should consider the developed countries as potential partners to maximize our export volume as possible. Finally, the time-related dummy variable shows an enormous increase in the post-period of 2018 compared to the pre-period, highlighting a potential shift or impact associated with the year 2018.

In summary, the CPTPP Agreement will create chances to support Vietnam's export market restructuring. Businesses will be able to enter and take advantage of new markets with huge potential thanks to new FTAs like the CPTPP. The CPTPP Agreement's implementation, however, also faces many difficulties. Vietnam's exported goods need to comply with the origin requirements to benefit from the CPTPP's tariff preferences. On the other side, there is a growing tendency for protecting the domestic production of the importing countries.

Therefore, to support businesses to better utilize opportunities and promote exports to CPTPP countries, strengthening anti-origin fraud procedures is the first and foremost answer to safeguard Vietnam's export sectors from facing the risks of trade remedies evasion lawsuits. Secondly, the government should continue to organize information campaigns to raise businesses' awareness about FTA incentives, and give them directions on how to benefit from FTA preferences concerning the rules of origin. Thirdly, the Government should prioritize lowering the costs and time required to engage in the market for producers and business investors, as well as improving the environment for business investment to mobilize resources for production. Meanwhile, it is also necessary for the authorities to make an effort to reform and cut through red tape in commodity export processes. Fourthly, creating high-quality goods which meet standards and match the preferences of global markets should also be considered a crucial solution. Therefore, our original products can take a competitive advantage in the markets within the CTTPP nations. Fifthly, the Government should perfect policies to encourage capital investment in logistics infrastructure, and focus on improving logistics infrastructure associated with e-commerce, combining logistics with e-commerce in accordance with current development trends in the world and the region.

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Appendix

Table A1. List of CPTPP partners Vietnam export to

No.	Export flow from	Export flow to	Higher tariff rate	Lower tariff rate
1	Viet Nam	Australia	x	
2		Brunei		x
3		Canada	x	
4		Chile		x
5		Japan	x	
6		Malaysia		x
7		Mexico		x
8		New Zealand	x	
9		Peru		x
10		Singapore	x	

Source: Author's compilation

Table A2. Testing for multicollinearity for OLS

Independent variables	**VIF**	**1/VIF**
TRFcptpp	1.37	0.7317
POPcptpp	1.83	0.5472
GDPcptpp	1.67	0.5976
LSCIcptpp	1.25	0.7976
Dummy	1.21	0.8293
Mean VIF	1.47	

Source: Author's calculation

Table A3. Testing for omitted variables bias for OLS

Ramsey RESET test using powers of the fitted values of EXP	
H0: model has no omitted variables	
F(3, 130)	22.68
Prob > F	0.0000

Source: Author's calculation

Table A4. Testing for heteroskedasticity for OLS

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
H0: Constant variance Variables: fitted values of EXP	
chi2(1)	50.08
Prob > chi2	0.0000

Source: Author's calculation

Table A5. Testing for autocorrelation for OLS

Arellano-Bond test	**z**	**Pr>z**
for AR(1)	5.62	0.0000
for AR(2)	3.17	0.0015
for AR(3)	3.09	0.0020
for AR(4)	5.40	0.0000
for AR(5)	3.37	0.0008
for AR(6)	2.75	0.0060
for AR(7)	2.41	0.0159
for AR(8)	1.91	0.0556
for AR(9)	1.14	0.2549
for AR(10)	1.57	0.1158
for AR(11)	0.83	0.4083
for AR(12)	0.36	0.7216
for AR(13)	-0.89	0.3758
for AR(14)	–	–
for AR(15)	–	–
for AR(16)	–	–
for AR(17)	–	–

Source: Author's calculation

Table A6. Testing for residuals normality for OLS

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Residuals	170	0.0000	0.0000	38.43	0.0000

Source: Author's calculation

Table A7. Hausman test

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	FEM	**REM**	**Difference**	**Std. Dev.**
TRFcptpp	-0.0141034	-0.507783	0.0366749	0.0145424
GDPcptpp	-0.0018027	0.0001924	-0.0019951	0.0012484
POPcptpp	1.577554	0.8259444	0.7516095	0.394956
LSCIcptpp	0.0220939	0.036728	-0.014634	0.0151369
Dummy	0.1352553	0.0933406	0.0419147	0.0256383

H0: difference in coefficients not systematic	
chi2(5)	10.94
Prob>chi2	0.0525

Source: Author's calculation

Table A8. Testing for heteroskedasticity for REM

Breusch and Pagan Lagrangian multiplier test for random effects		
Estimated results	Var	Std. Dev.
lnEXP	4.413882	2.100924
e	0.5477496	0.7401011
u	1.062476	1.030765

H0: Var(u) = 0	
chibar2(01)	124.31

Prob > chibar2	0.0000

Source: Author's calculation

Table A9. Testing for auto-correlation for REM

Wooldridge test for autocorrelation in panel data	
H0: no first-order autocorrelation	
F(1,9)	872.611
Prob > F	0.0000

Source: Author's calculation