THE IMPACT OF PARTICIPATING IN THE REGIONAL COMPREHENSIVE ECONOMIC PARTNERSHIP AGREEMENT AND POTENTIAL EXPORT MARKETS FOR VIETNAM'S RICE

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ABSTRACT

This paper examines factors affecting Vietnam's rice export value to countries participating in the Regional Comprehensive Economic Partnership (RCEP) agreement. The method used panel data to create an augmented gravity model, which investigated Vietnam's rice export to RCEP partners-12 major countries that imported rice. In addition, this research forecasts Vietnam's rice export value per capita in each RCEP partner using the autoregressive model. This analysis was based on three scenarios – when the RCEP agreement was reached and signed, the rice import tariff from Vietnam will be reduced by 100%, 50%, or 20% year-on-year. The study showed that among RCEP members, Vietnam still has plenty of potential markets as import tariff cuts have been applied in Singapore, Brunei, Korea, Japan, and Malaysia. To make efficient use of the potential benefits of rice exports, Vietnam needs to increase the value of rice with the following implications: encouraging rice production of high quality, adjusting Vietnam's export market to potential markets, and adopting market-oriented policies for international trade cooperation.

Keywords: Regional Comprehensive Economic Partnership (RCEP) agreement, rice export value, tariff reduction, potential markets.

INTRODUCTION

Following the Doi Moi economic policy reforms in 1986, Vietnam has transitioned into becoming a market economy and has established substantial trade liberalization policies. The country has entered into several bilateral and regional trade agreements (RTAs) over the years. Currently, Vietnam is a partner to 16 free trade agreements (FTAs), including the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP). The RCEP agreement, launched in November 2012 and concluded in 2020, consists of the 10 ASEAN members and the six existing ASEAN free-trade partners - Australia, China, Japan, South Korea, New Zealand, and India. It is the world's largest trading bloc, accounting for nearly half of all global trade. The RCEP agreement intends to gradually eliminate tariff and non-tariff barriers (NTBs) in all merchandise activities to launch a free trade zone. RCEP member countries have more than 3.4 billion people with a total Gross Domestic Product (GDP) at purchasing power parity (PPP) of 49.5 trillion USD; RCEP members generate nearly 39% of the world's GDP. In general, Vietnam is perceived as a net beneficiary of the RCEP agreement. Further, regional integration has the potential to lift Vietnam's per capita income by nearly 4% (Petri and Plummer 2012). Vietnam's exports to RCEP countries amounted to 58.1 billion USD, accounting for around 44% of the country's total exports (Nguyen 2018).

Rice plays an imperative part in stabilizing Vietnam's national macro-economy; 60% of the

labour force depends on this sector. Vietnam transitioned quickly from being a rice importer in 1968 to becoming the world's third-biggest rice exporter; indeed, it exported 1.4 million tonnes of rice in 1989 alone (Pingali et al. 1997). Therefore, rice has become a major source of export earnings and significantly contributes to the sustainable economic development of Vietnam's rice sector, which helps to exploit Vietnam's advantage with RCEP member countries. However, the export of Vietnam's rice products to RCEP members still faces many restrictions and challenges. These include high tariffs, NTBs, and low prices. Indeed, Vietnam is up against existing competitors such as India, Thailand, and Myanmar, among the RCEP members. In this context, it is necessary to assess the magnitude of the impacts of important factors affecting, and determinants of, Vietnam's rice export value in RCEP members' markets and explores potential markets in RCEP countries to which Vietnam can export rice at a high value, and where tariffs will be decreased or eliminated in the future.

RESEARCH METHODOLOGY

Augmented gravity model

The augmented gravity model equation for this study can be written as follows:

$$ln\frac{REV_{it}}{POP_{jt}} = \beta_0 + \beta_1 \ln\left(\frac{RGDP}{POP}\right)jt + \beta_2 + lnProd_{it} + \beta_3 lnDist_{ij} + \beta_4 ln\left(\frac{Agri\_Land}{pop}\right)jt + \beta_5 lnEx\_price_{ijt} + \beta_6 lnTariff_{jt} + \beta_7 DV_{jt} + \varepsilon_{ijt} \quad (2)$$

Where i, j, and t stand for exporting country, importing country, and year, and $\varepsilon_{i,j,t}$ is the error term. $\frac{REV_{it}}{POP_{jt}}$ indicates the ratio of export value to the total population of the importing country. RGDP shows the real GDP of the importing country. We have taken the ratio of the country's population to its RGDP as one of the independent variables. $Prod_{it}$ indicates Vietnam's rice production. $Dist_{ij}$ is the bilateral distance between the capital cities of Vietnam and the importing country. $\left(\frac{Agri\_Land}{pop}\right)_{jt}$ indicates the ratio of the total agricultural area of the importing country to the total population of the importing country. $Ex\ price_{ujt}$ is the unit export price from Vietnam to the importing country. Tariff is taken as the average of the simple import tariff on Vietnam's rice exports. DV is a dummy variable; its value is one if the importing country is an ASEAN member and zero otherwise.

First Order Autoregressive Model

To obtain the objective for the forecast of rice exporters, we estimated values for each market. Therefore, the data set changes from including panel data to having time series data. To develop the forecasting model, we applied the first-order autoregressive model, denoted as AR (1), with a lag of one year of independent variables in the model. The data for bilateral distance is time-invariant, the import tariff is fixed according to the time, and then we build the scenarios for tariff reduction. We used the results obtained from Gravity Model to calculate the predicted export value per capita by forecasting future data. According to Gul (2011), the estimated coefficients from the equation are used in simulations to predict the volume of trade between any pair of countries, provided that systematic data on GDP, distance, population, etc. are available. The simulated value of bilateral trade is then compared with the observed values to infer the bilateral trade potential. By using this methodology, we can classify those countries in which Vietnamese rice has the potential to expand trade and focus on increasing value in potential markets instead of increasing quantity in exploitative markets.

Data collection

All the data for the current study were obtained from authorized data sources: United Nations

Commodity Trade Statistics Database (UN COMTRADE), World Bank Development Indicators (WDI), Food and Agriculture Organization (FAOSTAT), Institute for Research in the International Economy (CEPII). For econometric analysis, authors collected data for 12 markets that are members of RCEP and each significantly affected Vietnam's rice export over 17 years (2006–2022).

RESULTS AND DISCUSSION

Results of Analysing Factors Affecting Vietnam's Rice Export Value in RCEP Markets

From **Table 1**, we can clearly identify how the factors (independent variables) that affect Vietnam's rice export value per capita (dependent variable) in RCEP markets.

Table 1. Explanatory variables and estimation results.

Explanatory Variables	Dependent variable: Vietnam's rice export value per capita	
	Coefficients	Panel-corrected Std. Err.
Log (importer's real GDP per capita)	1.740*	0.442
Log (exporter's production rice)	5.886**	2.734
Log (Bilateral distance)	-0.842***	0.434
Log (importer's agricultural land per capita)	-0.952*	0.257
Log (export price)	1.551***	0.867
Import tariff	-0.010*	0.003
ASEAN dummy	3.181*	0.745
Constant	-125.628*	46.127
R-squared	0.5041	
Observation	204	
Markets	12	

***0.01, **0.05, *0.1 significance level respectively. Source: Authors' compilation by using Stata 14.1.

The estimation showed that the factors affecting Vietnam's rice export value per capita had both positive and negative effects. Positive effects included those of the importers' real GDP per capita, exporter's production, export price, and ASEAN membership. The negative effects included of geographical distance, importer's agricultural land per capita, and import tariff rate.

The importer's real GDP per capita is the consumer's individual income, which is considered the purchasing power of the importing market. The estimated results indicated that this was suitable for Vietnamese rice export, with a 1% increase in the real GDP per capita in rice-importing countries. The rice import value per capita from Vietnam could increase by 0.0174 USD, with other variables remaining constant. The empirical results showed a positive and significant relationship between Vietnamese rice export value and the income of the trading partner; this implies that countries with higher real GDP per capita (Japan, Korea, China, Singapore, and Australia) can pay more for rice from Vietnam.

In the case of Vietnam's rice production, the results indicated an increase in production significantly affected Vietnam's rice exports, holding other variables constant. As we

evaluated Vietnam's rice production situation, climate change has resulted in a decline in rice production, technological improvements and the mechanization of Vietnam's rice sector can improve its production capacity in the future.

As expected, the results showed that increases in the distance between exporters and importers could lead to decreases in the import value of rice per capita, which means that more logistics and higher transportation costs could discourage countries from importing rice. The estimation indicated that with a 1% incremental increase in the geographical distance between the capitals of exporting and importing countries, Vietnam's rice import value per capita could decrease by 0.0084 USD, holding other variables constant. This explains why Vietnam has tended to primarily export rice to RCEP trade partners; transportation costs are lower compared to those for non-RCEP trade partners.

The importer's agricultural land per capita shows the capacity of importing countries to generate agricultural products, including rice. Therefore, the more importing countries can cultivate rice themselves, the less they import from Vietnam. Countries in the RCEP agreement that have little or a decreasing trend of, agricultural area per capita could become potential markets. The results showed that holding other variables constant, a 1% decrease in the agricultural area per capita in the importing country would lead to an increase of 0.0095 USD in individual consumption of Vietnam's rice in that country. The agricultural area per capita in most of Vietnam's RCEP rice trading partner countries is small-less than 0.4 ha per person. Australia and New Zealand are exceptions, with higher cultivable land per capita, but this trend has been decreasing; moreover, these countries have cultivated cereals such as wheat more than rice. This result could be helpful in choosing potential trading partners when Vietnam wants to boost its rice export value in RCEP partner countries.

Vietnam's export price in this model had a positive effect on Vietnam's rice export value per capita. The result indicated that a 1% increase in export price would lead to an increase of 0.0155 USD in individual consumption of Vietnam's rice, with other variables remaining constant. Consumers in RCEP markets are willing to pay a great price for high-quality rice from Vietnam. Therefore, Vietnam needs to focus on enhancing the quality of its rice, adding value to the rice that is processed, and establishing a brand name in RCEP markets in order to achieve a high export price, which would directly and positively affect rice exports.

The simple average of import tariffs was taken as another independent variable in the model. The results from the model showed that the coefficient of bilateral tariff has a negative sign. The estimated result indicated that a 1% decrease in import tariff would lead to an increase of 0.01 USD in individual consumption of Vietnam's rice in that country, keeping all other variables constant. For this reason, participation in the RCEP agreement is necessary for tariff reduction and elimination in the future.

The positive effect of the ASEAN dummy variable shows that ASEAN member countries imported rice at higher export values from Vietnam compared with other, non-member countries. This indicates that individual consumption of Vietnam's rice among ASEAN members is higher than among non-members, at 3.181 USD, holding other variables constant. One reasonable explanation is that ASEAN members have similar cultures and consumer behaviors. For instance, people in ASEAN countries tend to consume much more rice than other cereals such as wheat in their daily lives.

Results of Forecasting Potential Export Markets for Vietnamese Rice

Reducing tariffs not only affects tax policies in general but also transforms national economic structures and modernizes the social economic policies of states (Huy and Chang 2013). Therefore, in this study, we built scenarios for implementation in the RCEP agreement:

Baseline Scenario: No reduction in rice import tariffs for trading partners in the RCEP.

Scenario 1: Rice import tariff reduction of 100% (tariff elimination) for trading partners in the RCEP for the 5-year period from 2023.

Scenario 2: Rice import tariff reduction of 50% for trading partners in the RCEP for the 5-year period from 2023.

Scenario 3: Rice import tariff reduction of 20% each year for trading partners in the RCEP for the 5-year period from 2023.

From the different levels of tariff reduction, we predicted Vietnam's export value per capita, as derived from the estimated results (**Table 1**).

Thus, we can identify important potential markets for Vietnamese rice in each RCEP country in the future.

The Baseline Scenario results in **Table 2** showed that among the 12 RCEP markets for Vietnam's rice, the top five individual consumption markets are included Singapore, Brunei, Malaysia, Indonesia, and Japan. Consumers in these markets have spent more on Vietnam's rice than in other markets. These five markets could be considered as having the most potential if RCEP negotiations cannot reduce import tariffs through 2027. The Philippines, Laos, New Zealand, and Australia could be promising markets for Vietnam's rice exports.

Table 2. Export value per capita by each market in the future (Baseline).

Unit: USD/person

Country	2023	2024	2025	2026	2027	Rank
Australia	2.49	2.79	3.08	3.35	3.61	9
Brunei	11.10	11.33	11.55	11.75	11.95	2
Cambodia	1.69	1.83	1.98	2.13	2.27	12
China	1.89	2.10	2.31	2.52	2.74	10
Indonesia	4.42	4.62	4.82	5.01	5.19	4
Japan	4.19	4.40	4.60	4.80	5.00	5
South Korea	1.69	1.88	2.07	2.25	2.44	11
Laos	4.32	4.39	4.45	4.52	4.58	7
Malaysia	6.39	6.61	6.82	7.02	7.21	3
New Zealand	3.20	3.50	3.79	4.09	4.38	8
Philippines	3.96	4.13	4.32	4.50	4.69	6
Singapore	17.48	17.89	18.37	18.95	19.78	1

Source: Author's simulation results.

If tariff reduction is not possible through the RCEP agreement, South Korea is not a promising destination for Vietnam's rice exports because the South Korean Government has set the tariff barrier high to protect its domestic production of rice. China and Cambodia are also not promising markets because they are not willing to pay for the good-

quality, high-value rice from Vietnam, whose strategy focuses on exporting high-value rice in the future.

Scenario 1 is an ideal in which the RCEP agreement will entirely eliminate tariffs. It would be a sharp increase in rice export value per capita in East Asian markets if the tariff is eliminated in 2023. When we consider each

country more closely, Singapore and Brunei are still potential markets. On average, a consumer in Singapore will be prepared to pay more than 17 USD in the year 2023 and nearly 20 USD in the year 2027. In the Brunei market, a consumer will be willing to pay over 11 USD per year from 2023 to 2027. Meanwhile, Japan and Korea are emerging potential markets for Vietnam's rice exports (**Table 3**). This is because the Japanese and Korean governments have set high tariff barriers (over 300% in

Japan's case and 500% in Korea's). Japan and Korea consider rice an important crop with political significance; as such, these countries will always find ways to protect their domestic production of it. If the import tariff for rice were eliminated through the RCEP agreement, consumers from Japan and South Korea would tend to buy rice from Vietnam instead of buying their own rice domestically, as they are willing to pay for good quality, high-value rice from Vietnam.

Table 3. Scenario 1: Vietnam rice export value per capita.

(Unit: USD/person)

Countries/Year	2023	2024	2025	2026	2027	Rank
Australia	2.49	2.79	3.08	3.35	3.61	10
New Zealand	3.20	3.50	3.79	4.09	4.38	9
Brunei	11.10	11.33	11.55	11.75	11.95	2
Cambodia	1.72	1.86	2.00	2.15	2.29	12
Philippines	4.39	4.56	4.75	4.93	5.12	7
Indonesia	4.50	4.70	4.90	5.08	5.27	6
Laos	4.37	4.44	4.50	4.57	4.62	8
Malaysia	6.75	6.97	7.18	7.38	7.58	4
Singapore	17.48	17.89	18.37	18.95	19.78	1
Japan	7.25	7.45	7.65	7.85	8.05	3
South Korea	6.72	6.91	7.10	7.28	7.47	5
China	2.53	2.73	2.95	3.16	3.38	11

Source: Author's simulation results.

In **Table 4** illustrates Scenario 2, in which the import tariff is reduced by 50%. The growth of Vietnam's rice export value per capita in East Asian markets is smaller compared to that in ASEAN, Australia, and New Zealand markets.

In Scenario 2, if the RCEP agreement legislated a 50% tariff reduction, the top five potential markets for Vietnam's rice exports would be Singapore, Brunei, Malaysia, Japan, and Indonesia.

Table 4. Scenario 2: Vietnam rice export value per capita.

(Unit: USD/person)

Country/Year	2023	2024	2025	2026	2027	Rank
Australia	2.49	2.79	3.08	3.35	3.61	10
New Zealand	3.20	3.50	3.79	4.09	4.38	9
Brunei	11.10	11.33	11.55	11.75	11.95	2

Country/Year	2023	2024	2025	2026	2027	Rank
Cambodia	1.70	1.85	1.99	2.14	2.28	12
Philippines	4.17	4.35	4.53	4.72	4.91	7
Indonesia	4.46	4.66	4.86	5.04	5.23	5
Laos	4.34	4.41	4.48	4.54	4.60	8
Malaysia	6.57	6.79	7.00	7.20	7.40	3
Singapore	17.48	17.89	18.37	18.95	19.78	1
Japan	5.72	5.92	6.12	6.32	6.53	4
South Korea	4.20	4.39	4.58	4.77	4.95	6
China	2.21	2.42	2.63	2.84	3.06	11

Source: Author's simulation results

In Scenario 3, depicted in **Table 5**, if the RCEP agreement mandated a gradual tariff reduction of 20% each year, East Asian markets would flourish rapidly. More specifically, the Japanese and Korean markets would have the highest growth. The top five potential markets for Vietnam's rice exports would be Singapore, Brunei, Japan, Malaysia and Korea.

Table 5. Scenario 3: Vietnam rice export value per capita.

(Unit: USD/person)

Country/Year	2023	2024	2025	2026	2027	Rank
Australia	2.49	2.79	3.08	3.35	3.61	10
New Zealand	3.20	3.50	3.79	4.09	4.38	9
Brunei	11.10	11.33	11.55	11.75	11.95	2
Cambodia	1.70	1.84	1.99	2.15	2.29	12
Philippines	4.04	4.31	4.57	4.85	5.12	7
Indonesia	4.44	4.66	4.87	5.07	5.27	6
Laos	4.33	4.41	4.48	4.56	4.62	8
Malaysia	6.46	6.75	7.04	7.31	7.58	4
Singapore	17.48	17.89	18.37	18.95	19.78	1
Japan	4.80	5.62	6.43	7.24	8.05	3
South Korea	2.70	3.89	5.08	6.28	7.47	5
China	2.02	2.35	2.69	3.03	3.38	11

Source: Author's simulation results.

According to the three simulated scenarios, we can see that the RCEP agreement presents a good opportunity for Vietnam to export rice to RCEP trading partners. Vietnam will benefit most when its goods reach these markets with low or zero import tariffs. Thus, this benefit will be most evident in markets with already high import tariffs, such as Korea and Japan. In these markets, tariffs are the only barriers to Vietnamese domination over the rice markets.

CONCLUSIONS

The results from the analysis demonstrate that the real GDP per capita of importers, export price of Vietnam's rice production and ASEAN membership have a positive effect on Vietnam's rice export value per capita; the negative effects include distance, agricultural land in the importing country, and import tariff on rice.

The simulated scenario outcomes for rice exports to potential markets in the RCEP conclude that Vietnam still has plenty of potential markets in Singapore, Brunei, Korea, Japan, and Malaysia, particularly if the import tariffs are reduced. Indeed, Vietnam is currently focusing on rice exports to countries with high potential. Fortunately, Vietnam's rice export potential is bright because the country still has the possibility of improving its earnings and reducing import tariffs when the RCEP agreement goes into force. It is likely that Vietnam will export more rice to these potential markets, thus contributing to the increased output and export turnover of this commodity, while diversifying Vietnam's rice export markets.

This study clarifies the opportunities and challenges associated with rice export activities if Vietnam were to participate in the RCEP agreement. We propose a few solutions to help Vietnam take advantage of opportunities and overcome challenges and, hence, be able to quickly increase the value of its rice exports. Based on the study's outcomes, there are three implications of boosting Vietnam's export value: the supply of rice will improve; Vietnam's exporting target markets practices will be adjusted for potential markets; and market-oriented policies for international cooperation in trade will need to be established.

COMPETING INTERESTS

The authors declare they have no conflict of interest, financial or otherwise.

AUTHOR'S INFORMATION AND CONTRIBUTIONS

Trinh Thanh Thao conducted study conception and design, data collection, analysis and interpretation of results, and draft manuscript preparation. Lee Sang-Hyeon instructed research methodology. All authors reviewed the results and approved the final version of the manuscript.

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TÁC ĐỘNG CỦA VIỆC THAM GIA HIỆP ĐỊNH ĐỐI TÁC KINH TẾ TOÀN DIỆN KHU VỰC VÀ CÁC THỊ TRƯỜNG XUẤT KHẨU TIỀM NĂNG CHO GẠO VIỆT NAM

Nghiên cứu này phân tích các yếu tố ảnh hưởng đến giá trị xuất khẩu gạo của Việt Nam sang các nước tham gia Hiệp định Đối tác Kinh tế Toàn diện Khu vực (RCEP). Sử dụng phương pháp dữ liệu panel ước tính mô hình để phân tích giá trị xuất khẩu gạo của Việt Nam sang các đối tác RCEP gồm có 12 quốc gia lớn nhập khẩu gạo. Ngoài ra, nghiên cứu này dự báo giá trị xuất khẩu gạo của Việt Nam đến từng thị trường RCEP bằng mô hình tự hồi quy. Phân tích này dựa trên ba kịch bản, khi đạt được và ký kết hiệp định RCEP, thuế nhập khẩu gạo từ Việt Nam sẽ giảm 100%, 50% hoặc 20% theo từng năm. Kết quả nghiên cứu cho thấy trong số các thành viên RCEP, Việt Nam vẫn còn nhiều thị trường tiềm năng khi việc cắt giảm thuế nhập khẩu đã được áp dụng tại Singapore, Brunei, Hàn Quốc, Nhật Bản và Malaysia. Để tận dụng hiệu quả lợi ích tiềm năng từ xuất khẩu gạo, Việt Nam cần nâng cao giá trị hạt gạo thay vì mở rộng xuất khẩu gạo với các bước thực hiện sau: khuyến khích sản xuất lúa gạo chất lượng cao; điều chỉnh thị trường xuất khẩu của Việt Nam sang các thị trường tiềm năng; thực hiện chính sách định hướng thị trường trong hợp tác thương mại quốc tế.

Từ khóa: *Hiệp định Đối tác kinh tế toàn diện khu vực (RCEP), giá trị xuất khẩu gạo, cắt giảm thuế quan, thị trường tiềm năng.*