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THE IMPACT OF THE RCEP AGREEMENT ON THE EXPORT PERFORMANCE OF INDONESIA'S PROCESSED COCOA

Muh. Asharuddin[*)1], Harianto[**)], Feryanto[**)]

[*)]Postgraduate School, Program Study of Agribusiness Science, Faculty of Economics and Management, IPB University
Jl. Kamper Wing 4, Level 5, Bogor, Indonesia
[**)]Department of Agribusiness, Faculty of Economics and Management, IPB University
Jl. Kamper Wing 4 Level 5, Bogor, Indonesia

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Abstract

Background: The RCEP trade agreement, which has been in effect since 2023, will undoubtedly play a role in facilitate trade flows by reducing barriers, especially for Indonesia's leading commodity exports in the international market.
Purpose: This study analyzes the impact of the Regional Comprehensive Economic Partnership (RCEP) agreement on the export performance of Indonesian processed cocoa commodities in the international market.
Design/methodology/approach: The data used are secondary data in the form of panels from 2018 to 2024, with cross sections in the form of quarters. The research method uses Difference in Difference (DiD) analysis by looking at changes in performance variables assessed based on diversification value (HHI), export value, and export volume after the agreement's implementation.
Findings/Results: The estimation results show that the RCEP trade agreement increases the value by 0.52 units and export volume by 0.68 units, but not diversification. The diversification value of processed cocoa exports in RCEP member countries is lower than that in non-member countries. However, after the implementation period of the agreement in 2023, there are differences in export decisions of member countries.
Conclusion: The RCEP trade agreement implementation positively and significantly affected the value and volume of Indonesian processed cocoa exports in the international market but had no impact on diversification.
Originality/value (State of the art): This study focuses on the impact of the RCEP on Indonesia's processed cocoa export performance. This study uses 25 central destination countries for processed cocoa exports, with 10 countries in the treatment group and 15 in the control group.

Keywords: export performance, processed cocoa, RCEP, trade agreement, cocoa, international market

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[1] Corresponding author:
Email: muhasharuddin@apps.ipb.ac.id

INTRODUCTION

International trade is an important component in efforts to increase state revenues. The World Trade Organisation (WTO), which was formed on January 1, 1995, aims to create free and open trade among member countries. Its existence helps export and import activities with market access and networks with policy transparency in trade practices. This enables each country to encourage production activities due to a broader range, so the income earned will be much greater. Many economic bloc agreements have been established to facilitate trade flows in support of the WTO's vision. One of them is the Regional Comprehensive Economic Partnership (RCEP), which was initiated by Indonesia in 2011 when it became the chair of ASEAN. It has been a long journey until November 15, 2020, when the RCEP agreement was approved at the 37th ASEAN Summit in Hanoi, Vietnam. Members of RCEP include ASEAN countries (Indonesia, Malaysia, Thailand, Vietnam, Singapore, Brunei Darussalam, Laos, Cambodia, Philippines and Myanmar) and five trading partner countries (China, New Zealand, Australia, Korea and Japan).

Indonesia has established many cooperative relationships, especially in supporting the ease of export and import activities. The existence of Indonesia's forms of cooperation are bilateral such as IJEPA (Indonesia-Japan Partnership Agreement), IK-CEPA (Indonesia-Korea Comprehensive Economic Partnership Agreement), IACEPA (Indonesia-Australia Comprehensive Economic Partnership Agreement), for multilateral trade is usually under the auspices of organizations such as the Marrakesh Agreement by the WTO, the General Agreement on Tariffs by the WTO, and the General Agreement on Tariffs by the WTO. by WTO, General Agreement on Tariff and Trade by WTO. With this deeper implementation of RCEP, its members could become the centre of attracting foreign investment, especially from within the region, potentially resulting in higher trade and income gains (Estrades et al. 2023). Regarding tariff reform, a key aspect of the RCEP agreement is reducing or eliminating tariffs among member countries to encourage bilateral trade (Peng, 2024).

RCEP has a clear trade creation impact in sales of all companies compared to the service sector, with goods exports increasing most significantly (Li et al. 2017). This economic bloc includes countries with a total population of 3.4 billion people, equivalent to 47.2% of the world's total population, and has a total GDP of US$21.3 trillion. The RCEP region also covers 60% of Indonesia's total trade value and 40% of Foreign Direct Investment (FDI) entering Indonesia. This is a strong basis for empowering RCEP to stimulate greater economic growth in Indonesia. Based on the Law. RI No. 24 of 2022 on the Regional Comprehensive Economic Partnership Agreement (RCEP) is the foundation and legality of RCEP that will be applied. The objective stated in the Law is to enhance economic cooperation in the region through a modern, comprehensive, high-quality, and mutually beneficial agreement by creating an open trade and investment area. Indonesia has high potential to use RCEP as a medium to support Indonesia's leading export commodities in the agricultural sector.

Cocoa is one of Indonesia's leading plantation commodities, according to the Directorate General of Plantations. Cocoa exports have been carried out for a long time and can contribute to adding foreign exchange to the country. The existence of Indonesian cocoa for global needs is vital because Indonesia is a supplier. Indonesian cocoa makes a significant contribution every year to the needs of processing industries such as domestic and others. What needs to be considered in cocoa exports is not to focus too much on exporting only one type of processing. Diversification in the international market is an important part of dealing with market risks and a form of measurement of the success of downstreaming, which is a government work program. Diversification is needed to provide market concentration in other processed cocoa commodities so that it can be introduced as Indonesia's identity in the cocoa industry. High-quality agricultural products with regional characteristics have a unique, distinct, and significant comparative advantage-they have an irreplaceable position and advantage in the international market (Long, 2021).

Based on data calculations from Trade Map, Indonesia's processed cocoa exports to the RCEP countries tended to grow from 2018 to 2024. RCEP accounts for approximately 21-40% of processed cocoa export volume and 29-36% of processed cocoa export value. This indicates that only 14 countries control one-third of Indonesia's processed cocoa. Intensification and diversification of cocoa production in key producing regions, such as Africa, are crucial. This presents an opportunity that can be optimally utilized to generate income and contribute to national growth (Bisseleua

et al. 2018). However, previous research stated that ACFTA trade liberalization did not improve Indonesian cocoa products' trade performance and competitiveness because the country concentrated on cocoa beans (Lubis & Nuryanti, 2016).

The main distinction of this study compared to previous research lies in its specific focus on analysing the impact of RCEP on the export performance of Indonesia's processed commodities. Since RCEP was only implemented in 2023, earlier studies have not extensively examined the actual effects of this trade agreement. Therefore, this study evaluates the RCEP implementation and can be used as a reference to assess how much the agreement contributes positively to Indonesia's exports. Trade agreement policies are not the main determinants that impact exports' value, volume and diversification. Many factors influence the flow of trade internationally, including the size and amount of a country's exports and imports. GDP, economic distance and commodity prices have a significant effect on the quantity of Indonesian fisheries exports (Wicaksana et al. 2022). Variables such as GDP and cocoa production play an important role in cocoa exports. SPS measures do not de facto impact trade as suggested by some studies; they can increase trade and market access in agricultural products if exporting countries take the necessary steps to ensure a dequate compliance with these measures before exporting (Assoua et al. 2022).

Others' research focuses on exchange rates, competitiveness, and globalisation as trends or variables that can affect trade flows (Dubravska & Sira, 2015). In the agricultural sector, many researchers use gravity models to investigate trade flows between origin countries and major trading partners or economic blocs. The results concluded that factors such as economic size, market size, openness, population, distance, and exchange rate have a positive effect on trade potential (H. Xu et al. 2023). The position of Indonesia in the international market is important as it is a major supplier of processed cocoa commodities. A region that includes major producing and consuming countries, such as consuming countries' cocoa, RCEP creates opportunities for producing countries, such as Indonesia, to expand market access for downstream cocoa products such as cocoa paste, cocoa butter, cocoa powder and chocolate product.

As shown in Table 1, the export values of each commodity to both RCEP and non-RCEP countries fluctuated over time, with a notable increase observed in 2024. Previous studies indicate that Indonesian cocoa is among the commodities with high potential for welfare enhancement. However, despite Indonesia's participation in the RCEP framework and its comparative advantage, the country may not necessarily direct its exports predominantly to the RCEP region. This condition reflects weak cooperation in promoting intraregional trade. Nevertheless, the implementation of RCEP has the potential to alter this dynamic by providing preferential treatment that could encourage Indonesia's exports to become more regionally oriented (Dermoredjo et al. 2021). This finding is particularly noteworthy since Indonesian cocoa has already penetrated markets across multiple continents. Accordingly, this study aims to provide empirical evidence regarding Indonesia’s export decisions in the aftermath of RCEP implementation.

Table 1. The value of Indonesian processed cocoa exports to RCEP and non-RCEP countries (Thousand US$)

Period	1803 (Cocoa Paste)		1804 (Cocoa Butter, Fat and Oil)		1805 (Cocoa Butter)		1806 (Chocolate Product)	
	RCEP	Non RCEP	RCEP	Non RCEP	RCEP	Non RCEP	RCEP	Non RCEP
2018	119.983	36.574	120.159	703.889	73.284	72.818	33.795	10.717
2019	107.939	34.135	122.799	662.649	54.174	87.144	35.678	11.999
2020	75.432	61.972	126.817	664.173	82.701	111.620	31.120	12.942
2021	108.281	49.025	131.260	536.987	107.426	146.451	56.196	13.977
2022	114.658	68.529	141.399	494.937	114.033	187.226	58.536	18.359
2023	111.630	62.899	143.779	483.645	102.465	180.865	45.357	20.276
2024	263.757	57.868	298.778	1.383.619	145.249	309.567	61.000	17.299

This study employs a quantitative approach to analyse the impact of the RCEP agreement on the export performance of processed cocoa. Examining the impact of RCEP is expected to provide an evaluation and deeper insights into the benefits gained by Indonesia from the trade agreement. The quantitative approach is chosen as it allows for objectively measuring relationships between variables using panel data. The dataset is structured as a quarterly time series covering the period 2018–2024, which enables the analysis of changes in the export performance of processed cocoa over a consistent time horizon. Through the implementation of RCEP, market channels for goods, services, and investment will expand, and export barriers will be reduced, both Tariff and non-tariff. Indonesia can contribute to the regional value chain, where there is ease of obtaining raw materials and facilitative rules of origin. Indonesia, as a cocoa bean-producing country, will benefit from the rules of origin regulations in exporting processed cocoa products.

Therefore, this study focuses on the impact of Regional Comprehensive Economic Partnership (RCEP) on the export performance of Indonesia's processed Cocoa. The evaluation of export performance focuses on three aspects, namely diversification through the HHI, export volume, and export value.

METHODS

The type of data used in this study is secondary data. Indonesian processed cocoa variables with four HS codes in the form of four digits, namely 1803 (cocoa paste), 1804 (butter, cocoa butter and oil), 1805 (cocoa powder) and 1806 (chocolate products). The selection of HS codes is due to the fact that these products are intermediate cocoa products and finished cocoa products, and Indonesia has great opportunities in these commodities. Table 2 shows that the data obtained for the variables come from various internationally trusted sources. The performance variables are reviewed from three aspects, namely value, volume and diversification through HHI.

This study employs panel data covering the period from 2018 to 2023. The data are collected on a quarterly basis, resulting in 700 observations for each variable. This study uses 25 major countries that import processed cocoa from Indonesia into the international market. The selection of 25 countries is based on the value of Indonesia's processed cocoa exports of 95% to these countries. The Treatment group is countries that are members of the RCEP agreement, including China, Australia, Malaysia, Philippines, Japan, Thailand, Singapore, New Zealand, Vietnam, and Korea. The Control group is the main importing countries of Indonesian processed cocoa that are not members of the RCEP agreement, including India, the USA, Estonia, the Netherlands, Canada, Russia, Brazil, Mexico, Spain, South Africa, Pakistan, France, UAE, Turkey, and Germany.

To see the diversification of processed cocoa products using the Herfindahl-Hirschman Index (HHI). This analysis method is usually used to see the number of company shares in a particular industry and its market structure from monopoly to perfect competition (Baye & Prince, 2022). Some studies have also used this model to look at product diversification. The following is the HHI formula (Sleuwaegen et al. 1986):

$$HHI = \sum_{i}^{n} Si^2$$

Description: Si (Market share of processed cocoa export products in RCEP member countries)); n (number of processed cocoa products in RCEP countries).

As presented in Table 3, the classification of export diversification based on the Herfindahl–Hirschman Index (HHI) distinguishes between high, medium, and low levels of diversification. To examine the impact of the RCEP agreement, this study employs the Difference-in-Differences (DiD) method. Initially introduced by John Snow in 1855 to evaluate the effects of interventions in the health sector, the DiD approach allows for estimating both treatment effects and time effects on a variable. The DiD model can be used to determine changes in a variable due to time effects, policy effects or the interaction of the effects of both (Card & Krueger, 1994) in (Sihombing, 2022). A method to estimate the average effect of a treatment on the group receiving the treatment. This method can be applied to two types of observational data: cross-sectional, where different individuals are observed at different points in time, and panel data, where the same individuals are observed over time (Stata Corp, 2023). Through Difference in Difference (DiD), the impact of the agreement can be seen quantitatively through the estimation of research results. The estimation model in this study, which has been adjusted with other independent variables, is as follows:

$$\ln YExpit = \beta_0 + \beta_1 lnRCEP + \beta_2 lnT_{2023} + \beta_3 lnRCEP*T + \beta_4 lnGDPit + \beta_5 lnNonTarif + \beta_6 lnExct + \beta_7 lnPrice1803 + \beta_8 lnPrice1804 + \beta_9 lnPrice1805 + \beta_{10} lnPrice1806 + \varepsilon it$$

Description: YExpit (Processed cocoa export performance (export quantity, export value, HHI value)); β_0 (Intercept); β (Constant of each independent variable); RCEP (Country member in RCEP agreement (Dummy, 0 = Non, 1 = Member)); T_{2023} (Time of RCEP country enactment (Dummy, 2018-2022 = 0, 2023 = 1)); RCEP*T (Member country at the time of agreement entry into force (Dummy)); Non-Tariff (Non-Tariff Measures (Dummny)); GDPit (GDP value of importing country (US$)); Exchange (Average exchange rate of the importing country's currency (US$)); Price1803 (Cocoa paste commodity price (US$/kg)); Price1804 (Cocoa butter, fat and oil commodity price (US$/kg)); rice1805 (Cocoa powder commodity price (US$/kg)); Price1806 (Commodity price of chocolate products (US$/kg)); i (Importing country (destination country of Indonesian processed cocoa exports)); t (Time (Cross Section)); ln (Natural logarithm); Ɛit (Error).

This research reviews the volume and value of processed cocoa exports based on the aggregate of the four processed cocoa products it exports. This is because diversification is calculated from the export value of these four commodities. The price of each processed cocoa is included in the research model to examine the interaction between products acting as substitutes or complements. Non-tariff variables are represented by dummy units because the implementation of Non-Tariff Measures (NTMs), even if one or two, still requires adjustments from the exporting country. Lastly, export tariffs imposed by importing countries is unavailable, only data for the most recent period is available.

As illustrated in Figure 1, this study framework categorizes Indonesia's processed cocoa exports into treatment and control groups and further evaluates the impact of the RCEP agreement on export diversification, export value, and export volume. The Regional Comprehensive Economic Partnership (RCEP) is expected to contribute to more regionally integrated trade flows. Cocoa has long represented Indonesia's national identity and stands as one of its leading plantation sectors. In this study, we divide Indonesia's processed cocoa exports to major importing countries into control and treatment groups. We classify ten RCEP members as the treatment group and place the remaining 15 major importers from various continents in the control group. Through the RCEP agreement, we anticipate improvements in export performance, reflected in greater diversification, higher export value, and increased export volume. By analyzing the agreement's impact, we evaluate the implementation of RCEP and provide a basis for the government to formulate policy recommendations, particularly to strengthen downstreaming and enhance the export potential of Indonesian cocoa.

RESULTS

Policies in trade agreements are an integral part of Indonesia's processed cocoa export trade in the international market. This certainly supports and impacts the freedom of trade between member countries. The existence of RCEP, which began in 2023, makes it easier for member countries to trade with each other and meet the needs of their citizens. Horizontal diversification is an activity to diversify export commodities, while vertical diversification is defined as an effort to expand marketing areas through the discovery of new markets (Ula & Affandi, 2019). Diversification of processed cocoa exports shows horizontal diversification calculated using the Herfindahl-Hirschman Index. The index shows the numbers shown in Table 4.

Table 2. Variable and data sources

Variable	Data Source
Export Value	Trade Map
Export Volume	Trade Map
Non Tariff	Market Access Map
GDP	International Monetary Fund (IMF)
Exchange Rate	International Monetary Fund (IMF)
Commodity Price	Trade Map

Table 3. HHI Value Justification

HHI Value	Diversification Level
<1.500	High Diversification
1.500-2.500	Medium Diversification
>2.500	Low Diversification

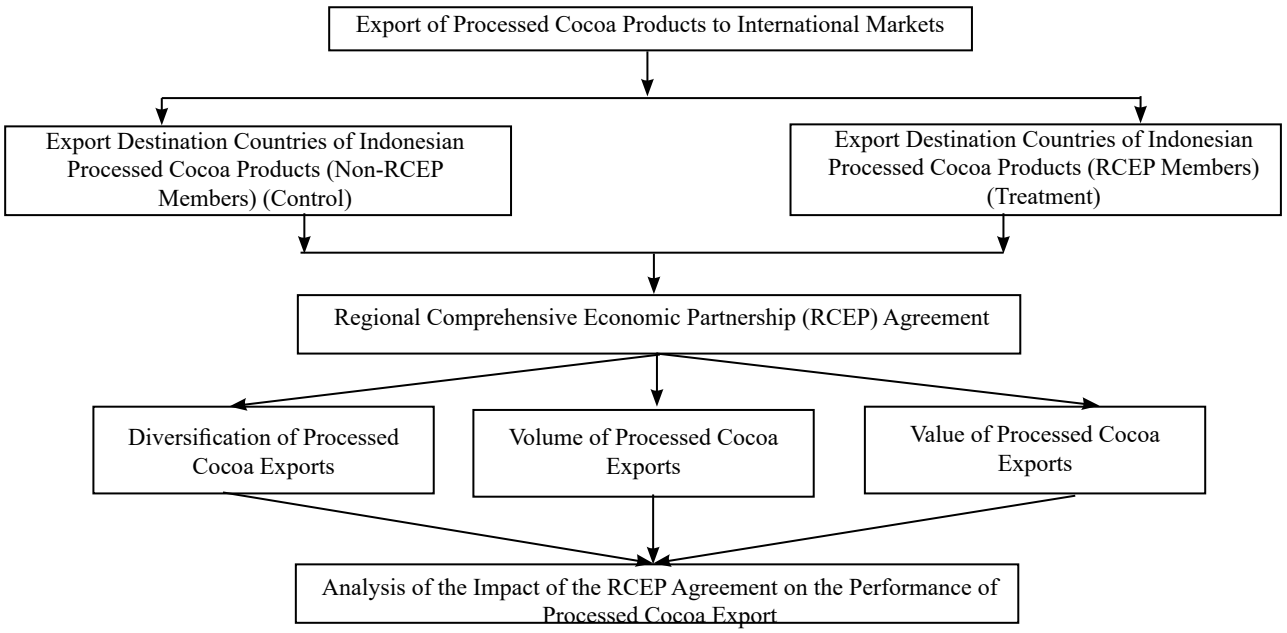

Figure 1. Analytical framework for assessing the impact of the RCEP agreement on indonesia's processed cocoa exports

Table 4. Descriptive statistics of HHI value (diversification) of Indonesia's processed cocoa

Country	Before RCEP Entry into Force				After RCEP Entry into Force			
	Mean	Sd. Dev	Min	Max	Mean	Sd. Dev	Min	Max
China	3.394	384	2.874	4.194	3.396	111	3.248	3.542
New Zealand	6.203	2.019	3.424	9.705	6.591	1.678	3.913	8.529
Korea	4.462	1.543	2.658	8.208	3.025	479	2.584	4.015
Australia	6.225	783	4.510	7.322	6.039	672	5.146	7.038
Jepang	8.031	886	6.526	9556	6.562	857	5.785	8.458
Malaysia	4.088	1.038	2.761	6.341	5.525	1.041	3.847	6.566
Philippines	5.188	506	4.472	6.529	5.034	225	4.789	5.372
Singapore	3.846	1.162	2.562	7.015	4.159	596	3.394	5.094
Thailand	5.222	677	4256	6.932	4.923	799	3.803	6.221
Vietnam	5.606	625	4.595	7.079	5.225	474	4.649	5.851

Based on Table 4, prior to the implementation of the agreement, China demonstrated a higher level of diversification compared to other member countries, as indicated by its lower mean value. This suggests that China imported Indonesian processed cocoa with greater variability from 2018 to 2022. Previous studies also indicate that export diversification, as measured by the HHI, positively affects economic growth in the ASEAN region (Amir, 2016), but in this study, none of the countries reached a medium-high level of diversification (> 2.500). This is because the number of products identified is only four commodities, so the lower threshold value for diversification is 2,500. Looking at the justification value, processed cocoa itself has not shown a high diversification value, but in some countries, it has shown a very diverse export diversification trend. Export diversification across destinations can be a strong indicator of a country's capability to export, and most studies focus on export diversification as a strategy that minimises risk and stabilises export levels (Barbieri et al. 2024).

The decision to import processed cocoa after the RCEP agreement in member countries varies. The average value of diversification increased in 2023-2024. In New Zealand, Malaysia, and Singapore, there is a tendency to increase imports of one or two more dominant commodities. These countries can also reduce the value of imports of processed cocoa commodities. Malaysia, for example, which is known

for its chocolate products, is undoubtedly taking the opportunity to import processed cocoa such as cocoa powder and paste. This material will be processed into chocolate products with branding from their country. The development of Indonesian cocoa bean exports to Malaysia from 1991 to 2019 fluctuated and showed a downward trend after 2010. Indonesia's processed cocoa production increased from 25% to 43% (Putro et al. 2023).

This study uses 10 treatment group countries that are members of RCEP, as well as major importers of Indonesian processed cocoa. Table 5 illustrates that the percentage of Indonesia's processed cocoa export volume in 2024 has reached 40% and the main non-member importer countries have continued to experience a decrease in volume since 2023. The main concern lies in the value, which has continued to decline since 2023. This indicates that although the volume of commodities exported to RCEP member countries is high, higher-priced processed cocoa commodities are more frequently exported to non-member countries. The power of trade within the scope of RCEP has been strongly emphasised in the export of processed cocoa. The control group from the 15 leading countries has higher economic capability, and hence, the export value is much higher. It can also be seen that these 25 countries dominate the leading exporters of Indonesian processed cocoa, and only a small percentage of exports to other countries are not included in the object of this study. The future export decision of Indonesian processed cocoa is largely determined by the demand of the 25 major importing countries (China, Australia, Malaysia, Philippines, Japan, Thailand, Singapore, New Zealand, Vietnam, Korea, India, the USA, Estonia, the Netherlands, Canada, Russia, Brazil, Mexico, Spain, South Africa, Pakistan, France, UAE, Turkey, and Germany).

Table 5. Percentage distribution of processed cocoa export volume and value

Period	Volume			Value		
	Treatment Group (RCEP Member) (Kiloton)	Control Group (Non RCEP Member) (Kiloton)	Others	Treatment Group (RCEP Member) (Mil. US$)	Control Group (Non RCEP Member) (Mil. US$)	Others
2018	72.23 (21%)	194.77 (57%)	22%	346.53 (30%)	790.47 (67%)	3%
2019	66.79 (22%)	177.76 (58%)	20%	315.58 (29%)	687.26 (65%)	6%
2020	108.30 (32%)	212.06 (63%)	5%	403.12 (27%)	797.08 (68%)	5%
2021	142.58 (40%)	195.72 (55%)	5%	403.12 (35%)	692.83 (60%)	5%
2022	129.77 (36%)	215.28 (60%)	4%	427.50 (36%)	734.18 (61%)	3%
2023	113.14 (35%)	188.05 (58%)	7%	402.82 (35%)	678.02 (59%)	6%
2024	130.78 (40%)	179.03 (54%)	6%	768.72 (30%)	1.642.45 (65%)	5%

Tabel 6. The impact of RCEP Agreements on the Diversification, Value and Volume

Variabel	HHI		Value		Volume	
	Coefficient	Prob	Coefficient	Prob	Coefficient	Prob
RCEP	(omitted)		(omitted)		(omitted)	
Time	-0.06*	0.10	-0.30	0.20	-0.36	0.11
RCEP*T (DiD)	-0.00	0.97	0.52**	0.03	0.68***	0.00
Exchange Rate	0.06	0.30	-0.18	0.32	-0.38***	0.01
GDP	0.05	0.68	0.38	0.35	0.70**	0.03
Non Tariff	-0.00	0.89	0.05	0.38	0.07	0.20
Price1803	0.04	0.56	-0.46*	0.09	-0.54*	0.06
Price1804	0.06	0.16	0.36*	0.09	-0.05	0.71
Price1805	-0.13	0.18	0.93***	0.00	0.65**	0.03
Price1806	0.24***	0.00	-0.36	0.21	-0.61**	0.04
_cons	7.05	0.08	-2.50	0.82	-4.35	0.61

Notes: *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

The results of the impact of the Regional Comprehensive Economic Partnership (RCEP) trade agreement on export diversification, value and volume which are the focus of this study represented by the RCEP*T (DiD) variable based on Table 6. statistically show that there is no impact on export diversification, but a significant effect on the value and volume of Indonesian processed cocoa exports. Other research on RCEP states that China and Indonesia have higher forward participations in global value chains, while countries such as Vietnam are in backward participations (S. Xu et al. 2025), it shows that Indonesia plays a higher role in raw materials (upstream) in various industries, but in the cocoa industry it is proven through this research that Indonesia with the RCEP agreement is able to contribute to the value and volume of Indonesian processed cocoa exports in member countries. Other research shows that the long-term impact of RCEP is more significant than its short-term impact (Liu et al. 2025). This will further strengthen the impact of RCEP on processed cocoa commodities for the next few years.

Export Diversification of Cocoa Processed

The RCEP agreement does not have a statistically significant impact on the diversification of Indonesia's processed cocoa exports. However, the negative coefficient indicates a tendency toward increased diversification following the implementation of the policy. The time variable shows a statistically adverse effect, indicating that after the implementation of RCEP, all major importing countries tended to experience a decline in the HHI value by 0.06%. This suggests that the implementation of RCEP has encouraged greater export diversification among major importing countries, although the magnitude of the change remains relatively small. On the other side shows that in this study, the increase in the price of processed cocoa 1806 (chocolate products) actually increases the HHI value by 0.24%, which means a decrease in diversification occurs. When Indonesia's chocolate products experience a price increase, there is a substitution of other processed cocoa products, which reduces the country's import decision for chocolate products. The main importing country replaces it with other processed cocoa products, and this affects the HHI value, which is increasing, meaning that it is increasingly concentrated on one particular processed cocoa commodity.

Value Export of Cocoa Processed

The RCEP trade agreement has been successfully utilised by Indonesia to increase the value of exports, as shown through the prob. of 0.03, which is significant at the 5% level, through the RCEP trade agreement increasing the value of Indonesia's exports in member countries by 0.52%. Conceptually, the presence of this trade agreement not only implies an impact on export performance but also has the potential to stimulate import growth from partner countries (Anggraini et al. 2023). This suggests that trade liberalization through agreements such as RCEP may influence trade flows in both directions, thereby exerting broader consequences on Indonesia's international trade structure. The increase in the real price of processed cocoa exports is an obstacle to the volume of Indonesian processed cocoa exports (Maulana & Kartiasih, 2017), in line with the results of research that at the 10% level the price of processed cocoa 1803 (cocoa paste) will reduce the value by 0.46%. This study showed that an increase in the price of processed cocoa 1804 (cocoa butter) significantly increased the value of Indonesian processed cocoa exports by 0.36 at the 10% level, while the price of processed cocoa 1805 (cocoa powder) significantly increased the value of Indonesian cocoa exports by 0.93 at the 1% level. Cocoa paste is a substitute for cocoa butter and cocoa powder, whereas cocoa butter and cocoa powder function as complementary products.

Volume Export of Cocoa Processed

RCEP agreement also has an impact on Indonesia's export volume with a prob. value of 0.00, which means significant at the 1% level, with the RCEP agreement increasing Indonesia's export volume by 0.68 units in RCEP member countries. Establishing a trade agreement significantly contributes to the increase in intra-regional trade volume, reflecting the tendency of member countries to engage more intensively in transactions with one another. This condition is reinforced by the effectiveness of communication and coordination in optimizing trade flow (Gondwe, 2021). The exchange rate variable has an adverse effect with a coefficient of -0.38 with a prob value of 0.01, which is significant at the 1% level, meaning that an increase in the exchange rate against the US will reduce the volume of Indonesian processed cocoa exports by 0.38. Negative results illustrate that the relationship between

exchange rates and export volumes is inversely proportional; if the local currency exchange rate strengthens against the US Dollar, the export volume will decrease (Mejaya et al. 2016). The US Dollar as an international currency strongly influences fluctuations in the volume and value of exports. Given the large number of overlapping members in various agreements and extensive economic cooperation, the exchange rates of RCEP countries may be closely connected, forming a structural network of dependencies (Wang et al. 2024). Anticipated exchange rate fluctuations are likely to have a negative impact on trade, with exchange rate uncertainty assessed by standard deviation. Exchange rate findings suggest that depreciation of domestic currency relative to foreign currency increases competitiveness in international markets, leading to higher trade volumes (Khanal et al. 2024).

GDP has a positive and significant effect on Indonesia's export volume, with a coefficient value of 0.70, which is significant at the 5% level. An increase in a country's GDP will be aligned with an increase in export volume by 0.7. This shows that the GDP of each country can affect most of the variation in trade volume (Tiits et al. 2024). Fluctuating GDP growth rates will indicate periods of economic expansion and stabilisation (Xuan, 2025). The value of GDP can be said to be one of the indicators to assess the economy of a country; the more stable and improved the economy in the country, the more likely it is that the country will also increase its spending abroad along with the increase in trade volume. Increase the consumption of its people. Nowadays, many superpowers are the centre of the economy, but in terms of industrial raw materials and also the consumption of their citizens, they are very dependent on the availability of imports. Other research supports that an increase in a country's GDP destination will significantly increase the purchasing power of its population towards marketed products, thus facilitating sustainable growth in export volumes (Zhao et al. 2025).

World prices have a significant impact on export margins due to agricultural price shocks and interest rate shocks, which are associated with a decline in average export volumes and a contraction in world demand (Cavallari & D'addona, 2020). An increase in the price of cocoa paste (HS 1803) reduced cocoa export volumes by 0.54 percent, in line with the rise in the price of chocolate products (HS 1806), which decreased export volumes by 0.61 percent and was significant at the 5 percent level. Conversely, an increase in the price of cocoa powder led to a 0.65 percent rise in export volumes, indicating a differing market response to variations in processed cocoa products.

Managerial Implications

Based on these findings, the RCEP agreement has not significantly impacted Indonesia's processed cocoa diversification. The level of diversification of Indonesia's processed cocoa remains relatively low, although it tends to be higher in RCEP member countries than non-members. Therefore, policymakers need to improve the upstream sector first for processed cocoa raw materials so that the downstream sector can be maximized in the future. The goverment should prioritise the export of chocolate products to promote the downstream development of processed cocoa. In addition, expanding the market for chocolate products, particularly in RCEP member countries, is essential to strengthening Indonesia's competitiveness.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The implementation of RCEP as a trade agreement has a positive and significant effect on the value and volume of Indonesian processed cocoa exports in the international market, but has no impact on the value of diversification. The diversification rate of processed cocoa is very low (high HHI > 2,500) from both RCEP member and non-member countries. After the implementation of the policy in 2023-2024, the decision was made to diversify processed cocoa exports according to the needs of major processed cocoa-importing countries.

There are differences in factors affecting processed cocoa in terms of diversification, value and volume. In terms of export volume, the variables GDP and price 1805 have a positive effect, while the exchange rate, price 1803 and price 1806 have a negative effect. In terms of export value, the prices of 1804 and 1805 have a positive effect, while the prices of 1803 have a negative effect. Finally, diversification is only affected by the price of 1806, and this price decreases the level of diversification.

Recommendations

Based on the findings of this research, further studies are needed to examine the impact of RCEP on other potential export commodities, so that the benefits of this trade agreement can be understood more comprehensively. The government is also expected to encourage export diversification by increasing both the volume and value of chocolate products, which remain relatively limited, while at the same time anticipating the risks of overreliance on a single processed commodity. It is also necessary to measure the competitiveness of each cocoa food in order to maximize its potential.

This is particularly important as major importing countries consistently consider the economic advantages of trading in processed cocoa. Furthermore, downstreaming strategies should focus on enhancing the added value of chocolate products through market expansion in the RCEP region. Since this region also has the potential to become a competitor in chocolate exports, efforts to strengthen competitiveness and provide export policy support are urgently needed to ensure that Indonesia can maximise the opportunities from its participation in RCEP.

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