International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Market Diversification Strategies For Indonesian RPO Exports As A Response To The EU Green Policy

Dita Rosyita[1*], Intan Aisyah[2], Intan Mega Maharani[3]

[1,3] Department of Agribusiness, Universitas Pembangunan Nasional "Veteran" Jawa Timur, Indonesia
[2] Politeknik Negeri Pontianak, Indonesia

*Email: dita_rosyita.agribis@upnjatim.ac.id

Abstract

As the supplier of 58% of the world's palm oil, Indonesia prioritizes national downstreaming by shifting its export orientation toward high-value derivatives like Refined Palm Oil (RPO). However, European Union green policies, such as RED II and EUDR, have emerged as non-tariff barriers, triggering a nearly 40% export volume decline to the region between 2014 and 2025. This study aims to identify potential non-traditional markets for RPO exports and analyze the key factors influencing export to these destination countries. Utilizing data from 2014–2025, the research employs Export Product Dynamic (EPD) analysis and panel data regression across eight non-traditional markets: United States, Malaysia, Saudi Arabia, Turkey, Philippines, Vietnam, South Africa, and South Korea. Results from the EPD analysis reveal that United States, Malaysia, and Philippines occupy "rising star" positions, reflecting strong competitive advantages and market demand. Conversely, Vietnam's market position is identified in a "retreat" phase. Furthermore, panel data regression findings show that Indonesia's GDP and destination countries' GDP have a significant positive impact on export volume. Meanwhile, exchange rates, RPO price, and economic distance do not show a significant effect at the 5% level.

Keywords: Refined palm oil, green policy, market diversification, EPD, gravity model

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

INTRODUCTION

Crude palm oil plays a strategic role in sustaining the Indonesian economy. As the world's largest producer, Indonesia contributes approximately 58% of the global demand for palm oil (Sulaiman et al., 2024). To boost foreign exchange revenues and enhance the commodity's value-added, the government issued Ministry of Trade Regulation No. 26 of 2024 concerning the national downstreaming strategy. This regulatory framework facilitates a paradigm shift in export orientation- transitioning from Crude Palm Oil (CPO) to higher-value processed derivative products including Refined, Bleached, and Deodorized Palm Oil (RBDPO), RBD Palm Olein, oleochemicals, and biodiesel (Ministry of Trade, 2024). The implementation of this policy has significantly reshaped Indonesia's international trade profile, with refined palm oil and cooking oil products now accounting for 70–80% of the total export volume (Ministry of Agriculture, 2025). Despite the strong position of refined palm oil in the global market, its export performance continues to face significant challenges arising from protectionist measures and evolving regulatory frameworks in major destination markets, particularly the European Union.

The European Union (EU) remains one of the five primary export markets for Indonesian palm oil and its derivatives, with a market share reaching 10–15% (Patone et al., 2020). However, Indonesia's market access to this region faces significant challenges due to the implementation of Green Policies—environmentally-based regulations designed to restrict commodities with high environmental impacts. This initiative was initially implemented through the Renewable Energy Directive I (RED I) in 2009, followed by the RED II policy in 2018, which aimed to reduce fossil fuel consumption and palm oil intake (Salvacesa & Ervani, 2025). Furthermore, the EU introduced the European Union Deforestation Regulation (EUDR), requiring exporters to provide evidence that palm oil production and its derivatives are free from deforestation practices (Dewi et al., 2025). TradeMap data indicates that between 2014 and 2025, exports of palm oil and its derivatives, including refined palm oil, to the European Union declined by nearly 40%. This downturn is attributed to environmental policies, which function as non-tariff barriers that that progressively restrict Indonesia's access to the EU market. (Pacheco et al., 2022)

High dependence on traditional markets such as the European Union, amid stringent environmental restrictions, poses a significant threat to the sustainability of Indonesia's refined palm oil (RPO) exports. Therefore, a geographic diversification strategy into non-traditional markets is imperative to mitigate the risk of market concentration. Previous research confirms that trade diversion capacity is a key factor in maintaining the competitiveness of domestic industries (Grumiller et al., 2021), and is

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

highly recommended for developing countries over product diversification (Pacheco et al., 2007). In this regard, the Americas, Asia, and Africa emerge as highly promising destinations due to their growing demand for this commodity. Previous studies predominantly focus on the competitiveness of Indonesian Crude Palm Oil (CPO) and general trade barriers, limited empirical attention has been given to the market diversification of Refined Palm Oil (RPO) specifically targeting non-traditional markets under the recent pressure of EUDR up to 2025 (Bahar & Syamsu, 2023; Haryanti & Putera, 2022; Pradana & Widodo, 2021). Given this urgency, this study aims to identify potential non-traditional countries as primary export destinations using Export Product Dynamics (EPD) analysis and to examine the factors influencing the export performance of Indonesia's RPO within these new markets.

LITERATURE REVIEW

Industrial Downstreaming and Refined Palm Oil (RPO)

The transformation of national downstreaming policy represents a strategic effort to restructure exports, shifting the focus from raw commodities to high-value derivative products. This policy is mandated by the Ministry of Trade Regulation No. 26 of 2024 concerning national downstreaming strategies. In the agribusiness sector, palm oil is one of the key commodities undergoing this export structural shift. Currently, the orientation of palm oil exports is directed toward increasing the export of its derivative products, such as Refined Palm Oil (RPO). As a refined product, RPO is considered to possess a more competitive economic value compared to Crude Palm Oil (CPO) (Ministry of Trade, 2024).

Non-Tariff Trade Barriers and the European Union's Green Policy

The dynamics of current international trade indicate a shift in protectionist instruments from conventional tariff barriers to environmental-based non-tariff barriers (Sakti & Mahani, 2023). This phenomenon is evidenced by the enactment of the European Union's green policy, specifically through the Renewable Energy Directive II (RED II) and the European Union Deforestation Regulation (EUDR) (European Commission, 2023). Both regulations require exporters to guarantee that the marketed products are free from deforestation practices (European Commission, 2023; Sakti & Mahani, 2023). For Indonesian trade, this policy acts as an external shock that can diminish the export performance of strategic commodities, particularly palm oil and its derivatives, as they are categorized as high ILUC-risk (indirect land-use change) commodities (Haryanti & Putera, 2022).

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Furthermore, the stringent green standards set by developed markets often indicate a trade asymmetry that pressures the position of developing nations (Sakti & Mahani, 2023). he implementation of the EUDR, for instance, imposes substantial compliance costs on exporters in developing countries. Previous empirical findings demonstrate that following the enforcement of RED II and EUDR, there was a significant decline in Indonesia's palm oil export market share across major European Union destinations, including the Netherlands, Italy, and Spain. This situation has subsequently reduced the export volume of CPO and its derivatives while simultaneously decreasing Indonesia's export revenues (Rosyita et al., 2025; Mutia et al., 2024).

Market Diversification Strategy

High dependence on a primary export market leaves a country's export performance highly vulnerable. Regulatory changes and internal shocks within the destination country can directly impact demand and disrupt national export stability (Saputra & Handoko, 2025). To address this issue, market expansion through geographic diversification strategies serves as a vital and crucial step. Allocating export destinations across various new regions has proven effective in maintaining sales volume stability while securing national foreign exchange revenues when primary markets encounter regulatory barriers (Saputra & Handoko, 2025).

Within the context of the Indonesian palm oil industry, aggressive penetration into non-traditional markets offers a tangible solution to mitigate the impacts of the European Union's green protectionism. As export channels to Western and Southern Europe narrow due to RED II and EUDR mandates, the export flow of palm oil derivatives, particularly Refined Palm Oil (RPO), must be gradually redirected toward alternative regions characterized by positive economic growth and more accommodating regulations (Tarigan & Zulham, 2023). Empirical studies demonstrate that non-traditional regions—such as Southeast Asia, the Middle East, and North America—are currently developing into potential new destinations with substantial market absorption capacity (Rifin et al., 2023; Tarigan & Zulham, 2023). Consequently, diversification into non-traditional markets is no longer merely an alternative option, but an imperative defensive strategy to ensure the long-term sustainability of Indonesian palm oil exports.

RESEARCH METHOD

The empirical analysis in this study used secondary data from several reputable international and national repositories, including the United Nations Commodity Trade

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

(UN Comtrade), TradeMap (ITC), the World Bank, CEPII (*Centre d'Études Prospectives et d'Informations Internationales*), and the Indonesian Central Bureau of Statistics (BPS). The selection of non-traditional markets—specifically the United States, Malaysia, Saudi Arabia, Turkey, Philippines, Vietnam, South Africa, and South Korea—is predicated on their status as secondary export destinations that have maintained consistent trading activities throughout the 2014–2025 observation period. To evaluate the structural shifts in Indonesia's export dynamics following the implementation of the European Union's "Green Policies" (Renewable Energy Directive II/RED II and the EU Deforestation Regulation/EUDR), the longitudinal data are segmented into two distinct periods. The pre-policy period spans from 2014 to 2019 (six years), while the post-policy period covers 2020 to 2025 (six years). This comparative framework is designed to systematically map the shifts in the comparative advantage and export competitiveness of Indonesian Refined Palm Oil (RPO) within non-traditional market destinations.

The analytical framework employed in this study integrates both descriptive and inferential methods. Specifically, the Export Product Dynamics (EPD) matrix is utilized to characterize Indonesia's export positioning and evaluate the potential of non-traditional markets as strategic trade destinations. The EPD matrix classifies commodity dynamics based on two fundamental dimensions: business strength, represented by the relative market share (X-axis), and market strength, measured through market demand growth (Y-axis), within the targeted non-traditional countries. This analytical approach categorizes Indonesia's export performance into four distinct quadrants based on the intersection of competitiveness and market dynamics.

$$\text{X-axis} = \frac{\sum_{t}^{n}=1 \left(\frac{Xij}{Xt}\right)t \times 100\% - \sum_{t}^{n}=1 \left(\frac{Xij}{Xt}\right)t-1 \times 100\%}{T}$$

$$\text{Y-axis} = \frac{\sum_{t}^{n}=1 \left(\frac{Wij}{Wt}\right)t \times 100\% - \sum_{t}^{n}=1 \left(\frac{Wij}{Wt}\right)t-1 \times 100\%}{T}$$

Notes:
Xij : Export value of Indonesian refined palm oil to destination country j
Xt : Total export value of Indonesia to destination country j
Wij : World export value of refined palm oil to destination country j
Wt : Total world export value to destination country j

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

j : Export destination countries (United States, Malaysia, Saudi Arabia, Turkey, Philippines, Vietnam, South Africa, and South Korea)
t : Observation period from 2014 to 2025
T : Total number of periods

Panel data regression analysis is employed as the inferential statistical method to identify the key determinants influencing Indonesia's refined palm oil exports to non-traditional markets. This approach allows for the simultaneous observation of both cross-sectional and time-series dimensions, thereby providing a more robust estimation of the factors driving export performance. The specified panel data regression model is formulated as follows:

$$Vol_{it} = \alpha + \beta 1\ GDPI_t + \beta 2\ GDP_{it} + \beta 3\ EXR_{it} + \beta 4\ PRICE_{it} + \beta 5\ EDIS_{it}$$

Notes:

Vol_{it}	:	The export volume of Indonesian Refined Palm Oil (RPO) to non-traditional market i in year t (expressed in thousand metric tons)
$GDPI_t$	:	Indonesia's Gross Domestic Product in year t (expressed in billion USD)
GDP_{it}	:	The Gross Domestic Product of non-traditional destination country i in year t (expressed in billion USD)
EXR_{it}	:	nilai tukar negara non-tradisional i pada tahun-t (US Dolar)
$PRICE_{it}$	:	harga ekspor refined palm oil dari Indonesia ke negara non-tradisional i pada tahun ke t (ribu US Dolar/ ton)
$EDIS_{it}$	:	jarak ekonomi Indonesia ke negara non-tradisional i pada tahun ke t (ribu US Dolar)

This study employs economic distance as a proxy for distribution costs and trade barriers. Economic distance is operationalized by calculating the the geographic distance between Indonesia and the destination country and the destination country's GDP (Head & Mayer, 2014). This metric provides a more comprehensive representation of market accessibility and trade resistance than geographic distance alone. Regarding the inferential analysis, panel data regression is conducted using three primary estimation approaches: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM) (Gujarati & Porter, 2009). To identify the most robust and

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

appropriate model for the dataset, a systematic three-stage selection process is implemented (Widarjono, 2018).

RESULT AND DISCUSSION

Overview of Indonesian Refined Palm Oil Export Performance to Non-Traditional Countries

The high export concentration of Indonesian refined palm oil within a limited number of primary destination countries poses significant international trade risks. Fluctuations in the economic conditions or policy shifts within these partner nations directly impact Indonesia's overall export performance. In the context of refined palm oil trade, Indonesia currently faces substantial challenges arising from the European Union Deforestation Regulation (EUDR), which affects key traditional markets such as the Netherlands, Spain, and Italy (Dewi et al., 2025). This regulation requires that all products entering the EU market be certified as deforestation-free, while simultaneously imposing more stringent environmental sustainability standards specifically targeting crude palm oil and other palm-oil derived products. The implementation of this policy has intensified non-tariff barriers, thereby increasing the risk of trade disruptions and the potential rejection of Indonesian exports within traditional markets (Pacheco et al., 2022). Therefore, diversifying into non-traditional markets represents a critical strategic shift to reduce Indonesia's structural reliance on the European Union. To illustrate this dynamic, the shifting export volumes and market shares across the selected non-traditional countries during the 2014–2025 period are presented in Figure 1.

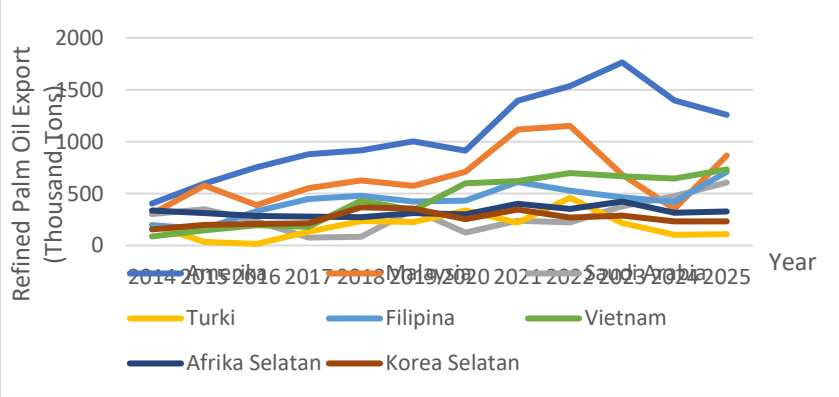


Figure 1. Export volume of Indonesian refined palm oil to non-traditional markets, 2014–2025 (in thousand metric tons)
Source: (UN Comtrade, 2026)

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

The export performance of Indonesian refined palm oil to eight non-traditional countries during the 2014–2025 period showed a fluctuating trend. On average, the export volume of Indonesian RPO to these markets increased by 24% annually, equivalent to 477.23 thousand metric tons. The United States emerged as the most dominant destination in terms of both volume and growth compared to other countries, with an average volume of 1,127 thousand metric tons and an annual growth rate of 13%. This indicates that the U.S. market holds significant potential as a primary trading partner for Indonesian refined palm oil. Conversely, Turkey recorded the lowest average export volume among the non-traditional countries, at 284 thousand metric tons per year. Nevertheless, Turkey's export volume continued to grow by 22% annually, making it a noteworthy candidate for further export market expansion. The significant increase in several non-traditional markets, particularly post-2020, indicates a shifting market orientation by domestic industry players as an adaptive response to environmental restrictions in the European region.

Figure 1 also illustrates that Indonesian RPO exports recorded the most significant growth in the United States and Malaysian markets. The export volume to the United States increased markedly post-2020, rising from 900 thousand metric tons to 1.7 million metric tons in 2023. A significant increase also occurred in the Malaysian market; despite being a major producer, Malaysia frequently imports RPO from Indonesia to meet domestic industrial demands and re-export purposes. Meanwhile, Vietnam, Philippines, and Saudi Arabia showed a more stable trend throughout the observation period. This consistent demand reflects growing domestic consumption driven by industrial expansion, positioning these countries as highly potential targets for long-term market expansion. Conversely, markets in Turkey, South Africa, and South Korea tended to stagnate, with average volumes remaining below 400 thousand metric tons per year. Logistics constraints, geographical distance, fierce competition with other producers, and high distribution costs are suspected to be the limiting factors restricting the massive entry of Indonesian RPO into these regions (Iposs, 2025; Ekonomi Bisnis, 2021).

Based on the graphical data, the export volume of Indonesian refined palm oil to the eight destination countries showed a showed upward trend in 2021. This condition was driven by the post-COVID-19 recovery of economic activities and international trade (Fa'izah & Prasetyo, 2025). Additionally, the rising export prices of palm oil and its derived product further stimulated the increase in Indonesian RPO exports. On the other hand, since the implementation of the RED II and EUDR policies, the requirements for palm oil products and their derivatives to enter the European Union market have become

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

increasingly rigorus. Consequently, the Indonesian government has begun shifting its export focus toward other regions, such as the United States, Asia, Africa, and the Middle East.

Export Potential Of Indonesian Refined Palm Oil (RPO) to Non-Traditional Countries

The EPD analysis aims to determine the export market position of Indonesian refined palm oil (RPO) in non-traditional countries. This study categorizes the analysis period into two distinct phases: the pre-green policy period from 2014 to 2019 (6 years) and the post-green policy implementation period from 2020 to 2025 (6 years). This division is intended to capture shifts or diversification in Indonesia's export markets to non-traditional destinations as part of broader export diversification efforts (Grumiller et al., 2021). The EPD analysis identifies export markets across four categories: rising star (an ideal condition characterized by market share expansion and product growth), falling star (a decline in market share amid a growing market), lost opportunity (an increase in domestic market share while total demand growth in the destination country stagnates), and retreat (a simultaneous decline in both market share and product demand) (Hasibuan et al., 2012). Furthermore, the results of the EPD analysis will reflect the competitive advantage or competitiveness of Indonesian commodities in capturing global commodity trade opportunities.

Based on the estimation results of the EPD matrix in Table 1, the export positions of Indonesian RPO in each non-traditional country shifted between the pre- and post-green policy implementation periods. These shifts reflect the dynamics of competitiveness and changes in market growth within the destination countries. During the period prior to the implementation of the green policy (EUDR), most destination countries were positioned in the lost opportunity category, including the United States, Malaysia, Saudi Arabia, Vietnam, South Africa, and South Korea. This position indicates that Indonesia possessed strong competitiveness to penetrate these markets, as shown by the positive value on the shares of country indicator (X-axis). However, the growth of total market demand for RPO products in these destination counties showed a negative trend (Y-axis), meaning that the export destination countries were not yet able to optimally absorb the potential supply from Indonesia (Sari & Widodo, 2019). Meanwhile, Turkey and Philippines were in the retreat position, indicating that both Indonesia's export market share and product growth in the destination markets simultaneously declined. This

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

condition was generally triggered by logistical constraints, geographical distance, and high cross-border distribution costs (Head & Mayer, 2014).

Table 1. Export Positions of Indonesian Refined Palm Oil (RPO) from EPD Analysis

Period	Country	Shares of country (X)	Shares of product (Y)	EPD Position
Pre-green policy	United States of America	2.20249762	-0.008563484	Lost opportunity
	Malaysia	1.9851845	-0.058471028	Lost opportunity
	Saudi Arabia	2.80597882	-0.124203082	Lost opportunity
	Turkey	-0.0010017	-0.000008152	Retreat
	Philippines	-0.0014232	-0.000098477	Retreat
	Vietnam	1.54217505	-2.265748974	Lost opportunity
	South Africa	19.1207947	-3.234878364	Lost opportunity
	South Korea	2.56354683	-0.177503008	Lost opportunity
Post-green policy	United States of America	1.83158059	0.013334028	Rising star
	Malaysia	0.88623338	0.075358567	Rising star
	Saudi Arabia	27.5902405	-0.082313154	Lost opportunity
	Turkey	-0.0282392	0.000005494	Falling star
	Philippines	0.00442475	0.014055733	Rising star
	Vietnam	-0.3241644	-0.0803209	Retreat
	South Africa	-0.0976815	0.1653849	Falling star
	South Korea	-0.0034191	0.0212274	Falling star

Source: Author's Calculation (2026)

Following the implementation of the green policy, several significant shifts occurred in the Export Product Dynamics (EPD) positions of several non-traditional countries. The United States, Malaysia, and Philippines shifted into the rising star position. This position indicates that Indonesian RPO products possessed increasingly stronger competitiveness in these markets, aligning with the growth in market demand within the destination countries (Esterhuizen & van Rooyen, 2021). Meanwhile, Saudi Arabia remained in the lost opportunity position. Turkey, South Africa, and South Korea shifted into the falling star position. This condition demonstrates that although the RPO market

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

share in these countries grew, Indonesia had not been able to optimize those opportunities. This was due to intense competition with competitors, which diminished market potential (Bano & Scrimgeour, 2023). Vietnam became the only export destination country positioned in the retreat quadrant. This position indicates a simultaneous decline in both export market share and RPO product market growth in Vietnam. Based on these results, Indonesia can pursue RPO export diversification toward countries in the rising star position, namely the United States, Malaysia, and the Philippines. The changes in Indonesia's exports to these three countries were generally influenced by several factors, including high post-pandemic demand for vegetable oil, increasing requirements from the food and biofuel industries, and market diversification strategies resulting from the reorientation of palm oil and its derivatives trade toward non-European markets.

Determinant Factor of Indonesian Refined Palm Oil Exports To Non-Traditional Countries

Panel data regression analysis aims to determine the effect of independent variables on the dependent variable. The dependent variable used is the export volume of Indonesian refined palm oil to the destination countries, while the independent variables include Indonesia's GDP, destination countries' GDP, real exchange rate, refined palm oil export price, and economic distance. This study utilizes panel data with 8 countries as the cross-sections, namely the United States, Malaysia, Saudi Arabia, Turkey, Philippines, Vietnam, South Africa, and South Korea. The time-series data spans from 2014 to 2025. In panel data analysis, the selection of the best model is conducted using the Lagrange Multiplier test, Chow test, and Hausman test. The Lagrange Multiplier test yielded a Breusch-Pagan probability value of 0.000, suggesting that the model estimation should use the random effect model. In the Chow test, the Cross-section F probability value obtained was 0.00, which is lower than 5% ($0.00 < 0.05$), thereby selecting the fixed effect model as the preferred approach. Next, the Hausman test showed a Cross-section random probability value of 0.78, which is greater than 5% ($0.78 > 0.05$), meaning that the random effect model is the chosen approach. Based on these testing results, the random effect model is selected as the best estimation model.

The next step is testing the classical assumptions on the selected model. The chosen classical assumptions are normality and multicollinearity. The normality test is conducted using the Jarque-Bera test, while the multicollinearity test utilizes the VIF value. Based on the normality test results, the model's residual distribution follows a normal distribution. In the multicollinearity test, the VIF values for each independent

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

variable are found to be below 10. Based on these values, none of the independent variables in the model are correlated with one another, thereby satisfying the non-multicollinearity assumption.

Table 2. Testing Results of Factors Affecting Indonesian Refined Palm Oil Exports to Non-Traditional Countries

Variable	Coefficient	Standard Error	t-Statistic	Prob
GDP_Indonesia	0.00049	0.000132	3.411323	0.0010
GDP_Destination_Country	4.18005	7.740006	5.396066	0.0000
Exchange_Rate	3.73008	3.180008	1.174735	0.2432
Export Price	1.09008	1.210008	0.905254	0.3677
Economic Distance	203.775	3643.095	0.055935	0.9555
C	-3.1808	1.400008	-2.273674	0.0254
R-squared	0.489486	Mean dependent var		99944496
Adjusted R-squared	0.461124	S.D dependent var		2.150008
S.E. of regression	1.580008	Sem squared resid		2.240018
F-statistic	17.25855	Durbin-Watson stat		1.055546
Prob(F-statistic)	0.00000			

Source: Author's Calculation (2026)

Based on the estimation results of the gravity model in Table 2, the factors affecting Indonesian refined palm oil (RPO) exports to non-traditional countries at a 5% significance level are Indonesia's GDP and the destination country's GDP. Meanwhile, the variables of real exchange rate, RPO export price, and economic distance probability values greater than 0.05, indicating that they do not significantly affect Indonesian RPO exports to non-traditional countries. The variables of Indonesia's GDP and the destination country's GDP have a significant and positive relationship with Indonesian RPO exports. Indonesia's GDP variable has a coefficient value of 0.00049, meaning that every increase in Indonesia's GDP by one billion US dollars will increase the export volume of Indonesian RPO to non-traditional countries by 0.00049 thousand tons, assuming other variables are held constant. This result is consistent with research by Esterhuizen and van Rooyen

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

(2021), which suggests that an increase in domestic GDP reflects a greater production capacity of the country to drive export volumes to destination countries.

The destination country's GDP variable shows a coefficient value of 4.18005, which has a significant effect and a positive relationship. This indicates that an increase in the GDP of non-traditional destination countries by one billion US dollars will increase the export volume of Indonesian RPO by 4.18005 thousand tons, assuming other variables are held constant. This result is consistent with research by Santeramo and Lamonaca (2024), which states that an increase in the GDP of an export destination country will increase the export volume to that country. An increase in a country's GDP reflects economic growth and rising purchasing power of its population, thereby increasing the consumption of goods and services as well. This model has an R-squared value of 0.489486, meaning that the variables of Indonesia's GDP, destination country's GDP, real exchange rate, refined palm oil export price, and economic distance can explain 48.94% of the variation in Indonesia's refined palm oil export volume to non-traditional countries, while the remaining 51.06% is influenced by other variables outside the model.

CONCLUSION

Based on the results of the analysis and discussion in this study, several main conclusions are drawn as follows. On average, the export trend of Indonesian refined palm oil (RPO) to non-traditional destination countries showed a significant increase starting from 2021, with an average annual growth of 24%, or equivalent to 477.23 thousand tons. This implies that Indonesia possesses substantial potential to broaden its market expansion in non-traditional regions. The results of the Export Product Dynamics (EPD) analysis reveal a shift in competitiveness dynamics following the implementation of the European Union's green policy. The United States, Malaysia, and Philippines emerge as the most potential non-traditional destination countries due to their positioning in the rising star quadrant. Conversely, Vietnam is identified as a less potential market as it occupies the retreat position. Furthermore, the estimation results of the panel data regression using the gravity model demonstrate that the variables of Indonesia's GDP and the destination countries' GDP have a positive and significant effect on the export volume of Indonesian RPO to non-traditional destinations. Meanwhile, the variables of real exchange rate, export price, and economic distance do not show a significant effect on the export volume of the commodity.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

REFERENCES

Amurgo-Pacheco, Alberto dan Pierola, Martha Denisse. (2007). Patterns of Export Diversification in Developing Countries: Intensive and Extensive Margins. HEI Working Paper No. 20/2007 . Geneva: Institute of International Studies.

Bahar, S., & Syamsu, R. (2023). Analysis of Indonesian palm oil competitiveness in the global market amidst EUDR implementation. *Journal of International Trade and Economics*, *15* (2), 112–125.

Bano, S., & Scrimgeour, F. (2023). Dynamics of international trade competitiveness in agricultural commodities: An application of Export Product Dynamic (EPD) matrix. *Journal of International Commodity Markets*, 38 (2), 114-129.

Dewi, N. M. N. P., Prameswari, A. A. A. I., & Putri, P. K. (2025). Diplomasi Ekonomi Indonesia terhadap European Union Deforestration Regulation (EUDR) atas Isu Pengelolaan Lahan Sawit. *Diskusi Ilmia Komunitas Hubungan Internasional*, 5 (1), Hal 50-60.

Dewi, S., Restuviani, A., & Hermawan, I. (2025). Hambatan Non-Tarif dan Dampak Kebijakan EUDR terhadap Ekspor Produk Turunan Kelapa Sawit Indonesia. Jurnal Ekonomi Komoditas, 12 (1), 34-48.

Ekonomi Bisnis. (2021, November 7). *Ekspor CPO RI ke Turki loyo, GAPKI: Punya permintaan*. Bisnis.com. https://ekonomi.bisnis.com/read/20211107/12/1463064/ekspor-cpo-ri-ke-turki-loyo-gapki-punya-permintaan#goog_rewarded.

Esterhuizen, D., & van Rooyen, C. J. (2021). Assessing the competitive performance and market dynamics of agribusiness exports in emerging markets. *Agribusiness: An International Journal*, 37 (3), 445-462.

European Commission. (2023). *Regulation (EU) 2023/1115 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation (EUDR)*. Official Journal of the European Union.

Fa'izah, R. L. & Prasetyo, A., E. (2025). Daya Saing dan Determinan Ekspor Crude Palm Oil (CPO) Indonesia dalam Perspektif Lingkungan Berkelanjutan. *Jurnal Kajian Ekonomi dan Bisnis Islam*. Vol 6 No. 11 Hal. 4146-4165.

Grumiller, J., Grohs, H., & Raza, W. (2021). The EU's trade policy and green protectionism: Challenges for developing countries' export diversification. *Journal of World Trade*, 55 (4), 589-612.

Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics* (5th ed.). McGraw-Hill Irwin.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Haryanti, S., & Putera, A. (2022). Impact of RED II policy on Indonesian palm oil derivatives export performance. *Agribusiness Journal*, *10* (1), 45–60.

Head, K., & Mayer, T. (2014). Gravity equations: Workhorse, toolkit, and cookbook. *Handbook of International Economics*, 4, 131-195.

Iposs. (2025). *Menilik potensi ekspor sawit Indonesia ke Turki*. Iposs. https://iposs.co.id/menilik-potensi-ekspor-sawit-indonesia-ke-turki/

Kementerian Perdagangan. (2024). *Peraturan Menteri Perdagangan Nomor 26 Tahun 2024 tentang ketentuan ekspor produk turunan kelapa sawit*. Kementerian Perdagangan Republik Indonesia. https://jdih.kemendag.go.id/peraturan/peraturan-menteri-perdagangan-nomor-26-tahun-2024-tentang-ketentuan-ekspor-produk-turunan-kelapa-sawit-1.

Kementerian Pertanian. (2025). Analissi Kinerja Perdagangan Komododitas Kelapa Sawit Volume 15 Nomor 1E Tahun 2025. Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal Kementerian Pertanian 2025.

Mutia, F., Sutiarnoto., Tarigan, V. C. E. (2024). Persiapan Pemerintah Indonesia Dalam Menghadapi Embargo Kelapa Sawit Sebagai Dampak Penerapan European Union Deforestation. Free Regulation (EUDR). *Sriwijaya Journal of Private Law*.

Pacheco, P., Schoneveld, G., Dermawan, A., & Komarudin, H. (2022). Governing sustainable palm oil supply chains: The changing role of trade regulations and non-state standards. *Forest Policy and Economics*, 141, 102765.

Patone, C . D., Kumaat, R, J., & Mandeij, D. Analisis Daya Saing Ekspor Sawit Indonesia Ke Negara Tujuan Ekspor Tiongkok dan India. (2020). *Jurnal Berkala Ilmiah Efisiensi*, 20 (3): Hal 22-32.

Pradana, A., & Widodo, T. (2021). Market diversification of Indonesian palm oil: An Export Product Dynamic (EPD) approach. *Economic Development Analysis Journal*, *9* (3), 301–315.

Rifin, A., Siregar, S., & Nauly, D. (2023). Shifting the paradigm: From CPO to refined palm oil exports in response to EU green protectionism. *Indonesian Journal of Agricultural Economics*, *14*(2), 105–119.

Rosyita, D., Maharani, I. M., Astaman, P., Hikmah, A., & Rachmadhan, A. A. (2025). Assessing the Impact of RED II and EUDR on Indonesia's Palm Oil Export Market Share and Market Concentration in the European Union. *Tarjih : Agribusiness Development Journal*, *5*(2), 362–370. https://doi.org/10.47030/tadj.v5i2.1063.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Sakti, R. K., & Mahani, A. (2023). Green protectionism and its implications for developing countries' exports: A case of Indonesia-EU trade dispute. *Journal of Developing Economies*, *8*(2), 140–155.

Santeramo, F. C., & Lamonaca, E. (2024). The effects of non-tariff measures and green policies on global vegetable oil trade. *Food Policy*, 119, 102-115.

Saputra, R., & Handoko, T. (2025). Market diversification strategies for Indonesian palm oil derivatives amid stringency of the EUDR. *Journal of International Trade and Cooperation*, *19*(1), 47–62.

Sari, N., & Widodo, T. (2019). Jarak Ekonomi dan Arus Perdagangan Internasional: Pendekatan Model Gravitasi. *Jurnal Ekonomi dan Pembangunan Indonesia*, 19(2), 145-160.

Sulaiman, A. A., Djufry, F., Syamsuri, P., Setiyanto, A., Bahrun, A, H., Hendrawati, D., Ridha, M, F. (2024). *Sawit Indonesia dalam Dinamika Pasar Dunia*. (2024). Pertanian
Press. https://epublikasi.pertanian.go.id/pertanianpress/catalog/book/99.

Tarigan, A., & Zulham, A. (2023). Shifting export destinations of Indonesian palm oil products: Consequence of EU's RED II and green protectionism. *Jurnal Ekonomi Malaysia*, *57*(2), 115–129.

UN Comtrade. (2026). International Trade Statistics Database: Refined Palm Oil Export Data 2014-2025. United Nations.

Widarjono, A. (2018). *Ekonometrika: Pengantar dan Aplikasinya disertai Panduan EViews*. UPP STIM YKPN.

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.