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INDONESIA'S PALM OIL EXPORT TO MALAYSIA AND THAILAND

EKSPOR MINYAK SAWIT INDONESIA KE MALAYSIA DAN THAILAND

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ABSTRACT

The economic recovery after the COVID-19 pandemic has significantly increased the demand for palm oil in Indonesia and globally. This study analyzes the regulation and valuation of palm oil trade between Indonesia and Malaysia and Thailand. In addition, the study focuses on Indonesia's exports to her two major countries in Southeast Asia. Based on juridical analysis, relevant stakeholders have enacted several new regulations to ensure the stability and availability of palm cooking oil. The Indonesian central government has enacted several new regulations related to palm cooking oil to ensure availability and affordability in the domestic market as well as to support exports abroad. A Structural Time Series Model (STSM) estimates that the trade value of Indonesian palm oil exports to Malaysia and Thailand will stabilize in 2022. Indonesia's export policy needs to take into account cyclical, seasonal and irregular patterns. Stakeholders should check for irregular factors such as 2020, 2021, the economic crisis, and the COVID-19 pandemic. Competent authorities must consider all aspects, especially international prices and palm oil exports, in order to implement best guidelines in a timely manner and to further review existing regulations. All palm oil stakeholders have adapted to the new regulations introduced by the government to ensure domestic supplies of palm cooking oil are available and affordable, and the remaining palm oil and its derivatives can be exported abroad.

***Keywords**: Juridical Analysis; Structural Time-Series Model (STSM); Indonesia, Malaysia and Thailand (IMT); Palm Oil Export*

ABSTRAK

Pemulihan ekonomi setelah pademi COVID-19 telah meningkatkan permintaan minyak sawit secara sifnifikan di Indonesia dan global. Studi ini menganalisis regulasi dan valuasi perdagangan minyak sawit antara Indonesia dengan Malaysia dan Thailand. Selain itu, kajian ini berfokus pada ekspor Indonesia ke dua negara utama ini di Asia Tenggara. Berdasarkan analisis yuridis normatif, pemangku kepentingan terkait telah menerbitkan beberapa peraturan baru untuk memastikan stabilitas dan ketersediaan minyak goreng sawit. Pemerintah pusat Indonesia telah memberlakukan beberapa peraturan baru terkait minyak goreng sawit untuk memastikan ketersediaan dan keterjangkauan di pasar domestik serta untuk mendukung ekspor ke luar negeri. Model Strutural Time-Series (STSM) memperkirakan nilai perdagangan ekspor minyak sawit Indonesia ke Malaysia dan Thailand akan stabil pada tahun 2022. Kebijakan ekspor Indonesia perlu mempertimbangkan pola siklus, musiman, dan ketidakteraturan. Pemangku kepentingan harus memeriksa faktor-faktor yang tidak biasa seperti tahun 2020, 2021, krisis ekonomi, dan pandemi COVID-19. Otoritas yang berwenang harus mempertimbangkan semua aspek, terutama harga internasional dan ekspor minyak sawit, untuk

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menerapkan panduan terbaik secara tepat waktu dan meninjau lebih lanjut peraturan yang ada. Semua pemangku kepentingan kelapa sawit telah beradaptasi dengan peraturan baru yang diperkenalkan oleh pemerintah untuk memastikan pasokan minyak goreng sawit dalam negeri tersedia dan terjangkau, dan kelebihan produksi minyak sawit dan turunannya dapat diekspor ke luar negeri.

Kata Kunci: Analisis Yuridis; Model Struktural Time-Series (STSM); Indonesia, Malaysia dan Thailand (IMT); Ekspor Minyak Kelapa Sawit

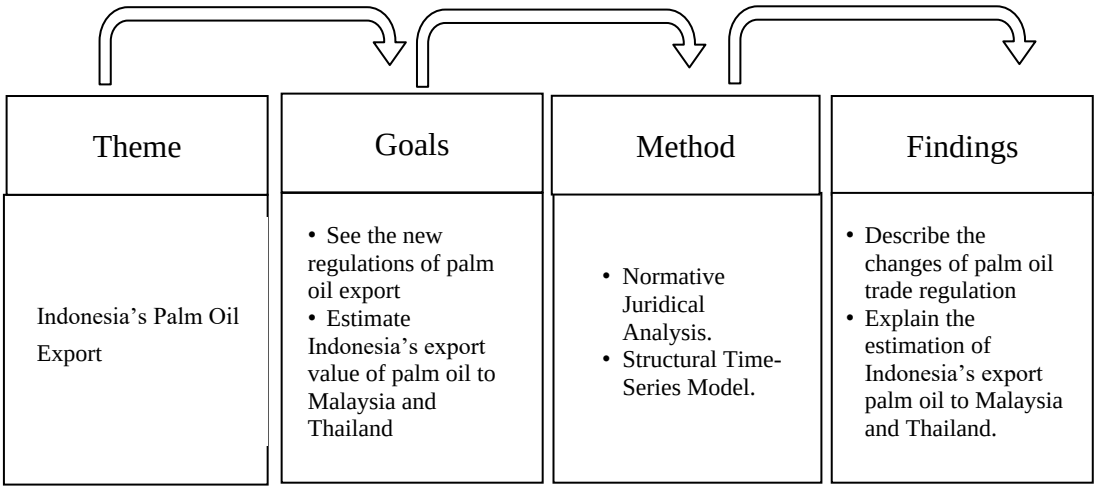
INTRODUCTION

Food is a basic human need the most important and its fulfillment is part of the human rights guaranteed in the Constitution of the Republic of Indonesia 1945 (UUD 1945) as the basic component for creating good quality of human resources. The state is obliged to provide the availability, affordability, and fulfillment of food consumption that sufficient, safe, good quality and nutritionally balanced for national and regional levels to individuals evenly (Law No.18 of 2012 concerning Food). Based on the Presidential Regulation Number 59 of 2020 concerning amendments to Presidential Regulation Number 71 of 2015 about the Determination and Storage of Basic Necessities and Essential Goods, cooking oil as derivative products of palm oil is a part of industrial basic necessities together with sugar and wheat flour.

Palm oil is one of the agricultural sector that give significant contribution to Indonesia economy. Palm oil sector absorb 4.2 million direct labor, 12 million indirect labor, 2.4 million people's farmer and engaging 4.6 million labor (BPDPKS, 2022). Palm oil also the biggest vegetable oil that consumed all over the world with 82.51 MT compared to other vegetable oil (Statista, 2021). Two main country in Southeast Asia that import palm oil from Indonesia is Malaysia and Thailand. The palm oil (HS code 15) export trend from Indonesia to Malaysia and Thailand increase 39% and 33% from the year 2019 to 2021. The highest Indonesia's export of palm oil to Malaysia in 2021 about USD 1.12 billion and to Thailand in 2020 about USD 81 million. So this export destination countries is important to be maintain and estimate in the future.

However, there is a significant increase of palm oil price. The international crude palm oil price increase about 49.8% in the year 2021 compared with 2020 and about 53.6% in the period of January-April 2022 compared with same period 2021 (World Bank, 2022; Indexmundi, 2022). Same thing happens for cooking oil price in Indonesia, where there is significant increase of packed cooking oil in March 2022 from Rp.18,060/liter become Rp. 19,700/liter compared with February 2022 (Katadata, 2022). Also the domestic consumption of palm cooking oil increase 9.4% on March 2022 compared with February 2022 (GAPKI, 2022). This situation makes the Government of Indonesia need to adjust some of the regulation and estimate future palm oil price to make sure the palm cooking oil is available with affordable price because this product is part of important commodities with strategic value. To the best of writer knowledge, there is less research exists regards Indonesia's palm oil export to Malaysia and Thailand using normative juridical analysis and structural time-series model. There is a room of contribution to be added for new references in the research paper and give new insides to palm oil stakeholders.

RESEARCH METHODS



Source: Author, 2022 (Modified from Jati, et al., 2019)

Figure 1. Research Paper Conceptual Framework

Figure 1 shows the process in conducting research related to Indonesia's Palm Oil Export to Malaysia and Thailand. Starting with the several changes of Indonesian regulations related to palm oil. The objectives of this research are: (1.) to see what is the new regulations of palm oil export, (2.) to estimate the Indonesia's export value of palm oil to Malaysia and Thailand. Furthermore, the research model uses: (1.) Normative Juridical Method, and (2.) Structural Time-Series Model (STSM) Method. Last but not least, hopefully the result of this research can describe the changes of palm oil trade regulation is to adapt the recent situation and keep on changing through time, also describe the estimation of Indonesia's export of palm oil to Malaysia and Thailand.

1.1. *Normative Juridical Method*

Legal knowledge and science begins with philosophical thinking, theoretical/conceptual and practical scientific development, and is so complex that it ultimately aims to be one of quality solutions. It can be realized in a concrete form. Publish products to the public for a living (Sonata, 2014). There are several legal approaches that can be used in prescriptive legal analysis. A legal approach is one of the best ways to explore and analyze existing regulations related to palm oil trading, analyzing how agreements relate to the legal issues raised (Ibrahim, 2008).

1.2. *Structural Time-Series Model (STSM) Method*

The palm oil export value of a country is a variable that can be classified as a Volatile Variable Goods (VVG) that is difficult to model. So, it is better to use a model that simple and can explain the dynamics of the changes in VVG. One of the best solution to get an accurate and precise short-term prediction is to decompose and project in Structural Time-Series Model (STSM) (Harvey and Peters, 1990). Indonesia's palm oil export to Malaysia and Thailand prediction can be estimated by Structural Time-Series Model (STSM).

The advantage of using STSM compared to the historical average export is that STMS is more structured. STSM decomposition consists of 4 components (Harvey and Peters, 1990; Durbin and Koopman, 2001) :

i.) Trend Components (τ_t) that follow the random walk process.

$$\tau_t = \mu_t + \tau_{t-1} + n_t, n_t \sim N(0, \sigma_\eta^2) \quad \text{.....} \quad (1)$$

$$\mu_t = \mu_{t-1} + \upsilon_t \sim N(0, \sigma_\upsilon^2) \quad \text{.....} \quad (2)$$

Where τ_t is the trend component, μ_t is the slope that can be stochastic, and n_t is the error of τ_t, and U_t is the error of μ_t.

ii.) The seasonal component of the specification (γ_t) follows the trigonometric model.

$$\begin{bmatrix} \gamma_{j,t} \\ \gamma_{j,t}^* \end{bmatrix} = \begin{bmatrix} \cos\lambda_j & \sin\lambda_j \\ -\sin\lambda_j & \cos\lambda_j \end{bmatrix} \begin{bmatrix} \gamma_{j,t-1} \\ \gamma_{j,t-1}^* \end{bmatrix} + \begin{bmatrix} \omega_t \\ \omega_t^* \end{bmatrix} \quad \text{.....} \quad (3)$$

for $j = 1,...,[s/2]$; $t = 1,...,T$. Where γ_t is a seasonal component, ω_t is an error of γ_t.

iii.) Cycle Component (ψ_t) whose models resembles Seasonal Components.

$$\begin{bmatrix} \psi_{j,t} \\ \psi_{j,t}^* \end{bmatrix} = \rho\psi \begin{bmatrix} \cos\lambda_c & \sin\lambda_c \\ -\sin\lambda_c & \cos\lambda_c \end{bmatrix} \begin{bmatrix} \psi_{j,t-1} \\ \psi_{j,t-1}^* \end{bmatrix} + \begin{bmatrix} K_t \\ K_t^* \end{bmatrix} \quad \text{.....} \quad (4)$$

for $t = 1,...,T$. Where ψ_t is the cycle component, ρ_ψ and λ_c are damping and frequency factors with values $0 < \rho_\psi < 1$ and $0 < \lambda_c < \pi$ while K_t and K_t^* are not mutually correlated $N(0,\sigma k^2)$.

iv.) Irregularities Component/error terms (ε_t).

If all components are summed then it becomes:

$$y_t = \tau_t + \gamma_t + \psi_t + \varepsilon_t \quad \text{.....} \quad (5)$$

So, y_t is the export value of the palm oil predicted by the component of trend (τ_t), seasonal (γ_t), cycle (ψ_t) and irregularities (ε_t). This model is estimated using the method of Maximum Likelihood Estimation (MLE) and estimate components generated from Kalman filter (Harvey & Peters, 1993). The software used in this model is OxMetrics Stamp version 7.

The type of data used in this research are 120 monthly palm oil export value data from Indonesia to Malaysia and Thailand on the period of M1-2012 until M12-2021. The data taken from Indonesian Statistics (Badan Pusat Statistik).

RESULTS AND DISCUSSION

2.1. Normative Juridical Method Analysis Result

Based on Normative Juridical Method, the relevant stakeholders made several new regulations to ensure the stability and availability of cooking oil (palm oil products) especially for the domestic market. Indonesian Central Government made several new regulations related to palm cooking oil, such as: (i) the Regulation of the Minister of Trade No. 12 of 2022 concerning the third amendment to the Regulation of the Minister of Trade No. 19 of 2021

concerning Export Policies and Regulation, (ii) the Regulation of the Minister of Trade No. 15 of 2022 concerning Stipulation of the Export Benchmark Prices for Agricultural and Forestry Products Subject to Export Duty, (iii) the Regulation of the Minister of Industry No. 10 of 2022 concerning the amendment to the Regulation of the Minister of Industry No.8 of 2022 concerning the Supply of Bulk Cooking Oil for the Needs of the Community, Micro Businesses, and Small Businesses within the Framework of Financing by the Palm Oil Fund Management Agency (Badan Pengelola Dana Perkebunan Kelapa Sawit/BPDPKS).

The Normative Juridical analysis shows that Indonesia's central government made several new regulations in 2022 because of the dynamic situation of domestic and international. On March 17, 2022, the Regulation of the Minister of Trade No. 12 of 2022 concerning the third amendment to the Regulation of the Minister of Trade No. 19 of 2021 concerning Export Policies and Regulation has been enacted. One of the purpose of this policy is to increase the ease of doing business and to arrange the export of crude palm oil and derivatives products. This regulation is changing the three previous regulation, which are: (i) the Regulation of Minister of Trade No.8 of 2022 concerning the second amendment of the Regulation of the Minister of Trade No. 19 of 2021 concerning export policies and regulations, (ii) the Regulation of Minister of Trade No. 2 of 2022 concerning the amendment of the Regulation of the Minister of Trade No.19 of 2021 concerning export policies and regulations, (iii) the Regulation of Minister of Trade No.19 of 2021 concerning export policies and regulations.

The Regulation of Minister of Trade No.19 of 2021 concerning export policies and regulations revoke 29 regulation of Minister of Trade and 2 Decree of the Minister of Industry and Trade of Republic of Indonesia. There are total 407 pages and 51 chapters with the detail of appendix that has HS code, product description, and requirements to exports. This regulation is one of the derivative regulation of Omnibus Law/the Act No.11 of 2020 concerning Job Creation where the Central Government of Indonesia want to do the debureaucratization and deregulation of trade-related laws in Indonesia.

On March 28, 2022, Central Government of Indonesia enacted the Regulation of the Minister of Trade No. 15 of 2022 concerning Stipulation of the Export Benchmark Prices for Agricultural and Forestry Products Subject to Export Duty. This regulation consist of 10 chapters and 85 pages including appendix related to list of RBD palm oil brands in branded packing. There are total 766 local palm cooking oil brand and 1184 international palm cooking oil brand produced by Indonesian company listed in this regulation. In Chapter 1 of the regulation mentioned that the determination of Export Benchmark Price (Harga Patokan Ekspor/HPE) is based on the reference price set on the average price over the last period before the determination of export benchmark price. Moreover, in chapter 2 shows that the Export Duty Tariffs for palm oil commodities, Crude Palm Oil (CPO), and its derivative products based on reference prices at the cost-weighted average Cost of Insurance Freight (CIF) Crude Palm Oil (CPO) from Rotterdam, stock exchange Malaysia, and the Indonesian commodity stock exchange.

Moreover, on March 18, 2022, The Minister of Industry release regulation No.8 of 2022 concerning the Supply of Bulk Cooking Oil for the Needs of the Community, Micro Businesses, and Small Businesses within the Framework of Financing by the Palm Oil Fund Management Agency. The purpose of this regulation is to ensure the availability and affordability of cooking oil for the community, micro-enterprises, and small businesses.

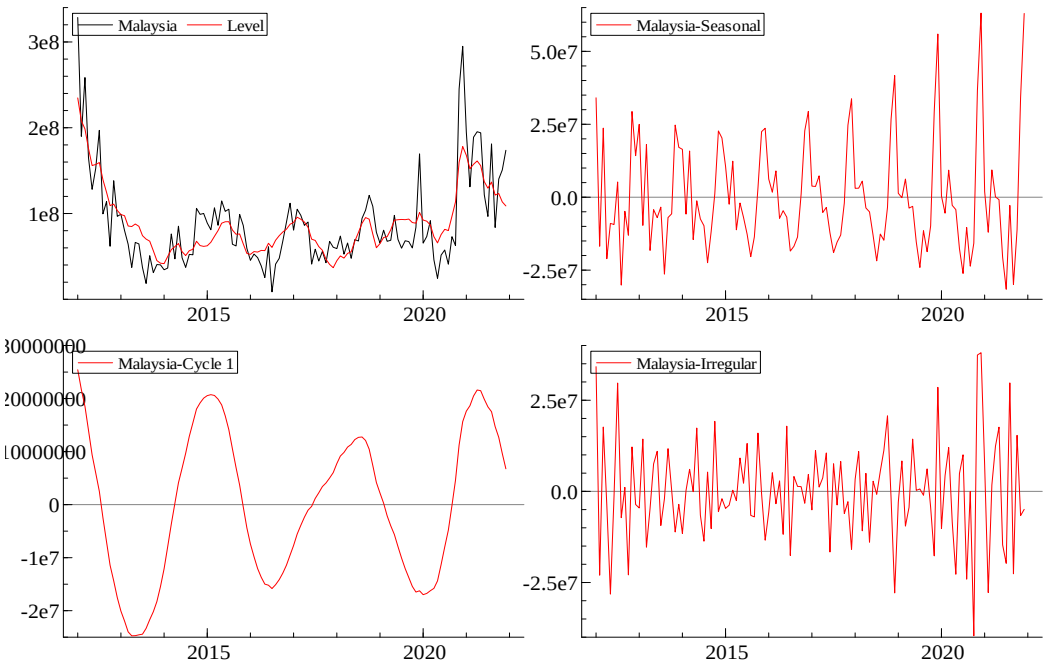
Furthermore, on April 4, 2022, Ministry of Industry enacted the Regulation of the Minister of Industry No. 10 of 2022 concerning the amendment to the Regulation of the Minister of Industry No.8 of 2022 concerning the Supply of Bulk Cooking Oil for the Needs of the Community, Micro Businesses, and Small Businesses within the Framework of Financing by

the Palm Oil Fund Management Agency. There are several points that being revised especially in chapter 10 of the regulation that give more detail information about how to get bulk cooking oil financial fund from BPDPKS. This is due to the fact that palm cooking oil is a strategic commodity industry that related to the livelihood of many people and its availability is an important role in aspects of social and economic.

2.2 Analysis Result from Estimation of Structural Time-Series Model (STSM)

2.2.1. Estimation of Indonesia's Palm Oil Export to Malaysia with STSM

Structural Time-Series Model (STSM) to estimate of Indonesia's palm oil (HS code 15) export to Malaysia shows (see figure 2): (1.) Indonesia's palm oil export value to Malaysia trend derived from low and high seasonal, cycle and irregular components associated with the demand of Malaysian importer and supply of Indonesian exporter as well as fundamental changing in both countries over time, (2.) Seasonal component increased 3 times in a year during festive season (Christmas/New Year and school/office holiday) when the demand of palm cooking oil is relatively higher than other period (Economic Times, 2020), the highest increased is in the end of the year, (3.) Cycle components is increased during 2012-2014, decreased during 2015-2019, and increased during 2020-2021 along with the fluctuation of other commodities like world oil price (Jati, 2022; IMF, 2015). (4.) There is irregular component that shows the model is relatively difficult to estimate especially when the price of palm oil is fluctuates more than usual such as during pandemic COVID-19 and economic crisis in Indonesia in Malaysia.



Source: Processed Primary Data (2022)

Figure 2. Components of Indonesia's Palm Oil Export to Malaysia

Table 1 shows the calculation of Indonesia's palm oil export value to Malaysia. Total export of palm oil from Indonesia to Malaysia in 2021 increased 64% compared to 2020. However, the STSM result shows that in the year 2022 the export of palm oil from Indonesia to Malaysia is decreased 38%. The Coefficient of Variation (CV) estimation (Standard Deviation divided by Average, multiply by 100) is 30.4% from 2019 to 2022. It shows that the palm oil export value from Indonesia to Malaysia relatively fluctuated because the CV result is above 9% (Jati et al., 2021; Ministry of Trade, 2019).

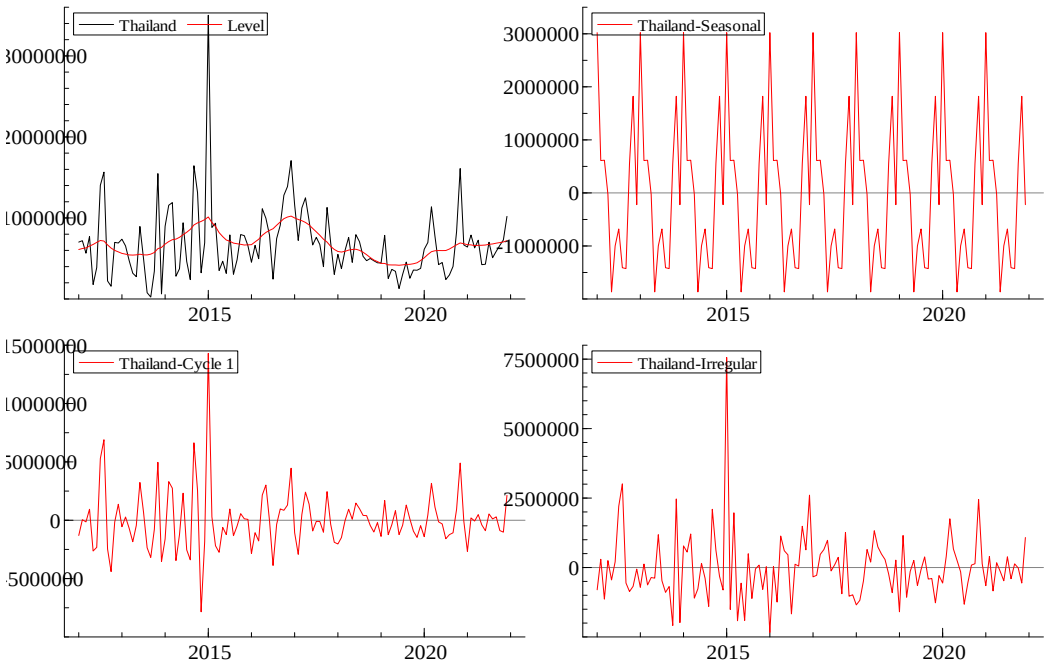
Table 1. Calculation of Indonesia's Palm Oil Export Value to Malaysia

Year	Indonesia's Palm Oil Export to Malaysia (USD)	% Change of Palm Oil Export to Malaysia
2020	1,126,625,448	-
2021	1,852,425,264	64.4
2022*	1,133,658,622	-38.8
Changes 2019 to 2022		0.6
Standard Deviation (SD)		34,752,104
Average (A) 2019 – 2022		114,241,926
Coefficient of Variation (CV) 2019 – 2022		30.4

Source: calculation results of Stamp OxMetrics 7 software (2021), * year 2022 is the estimation

2.2.2. Estimation of Indonesia's Palm Oil Export to Thailand with STSM

STMS model to estimate of Indonesia's palm oil (HS code 15) export to Thailand shows (see figure 3): (1.) Indonesia's palm oil export value to Thailand trend derived from stable seasonal, cycle and irregular components associated with the supply of Indonesian palm oil exporter and demand of Thailand importer as well as fundamental changing in Indonesia and Thailand over time, (2.) Seasonal component increased 2 times and decreased 2 times in a year, the increased is in the third and fourth quarter of the year indicate that festive season also give contribution, (3.) Cycle component increased 2 times in the year 2014 and 2016, one of the reason is that the international price of palm kernel oil increased 24.8% become USD 1,119.7 in 2014 compared with 2013 and increased 44% become USD 1,301 in 2016 compared with 2015 (World Bank, 2022; Indexmundi, 2022), (4.) There is component of irregular that indicates the export of palm oil from Indonesia to Thailand is more difficult to be estimated especially when there is high increase of palm oil price. The effect of pandemic COVID-19 in the year 2020 and economic crisis to Indonesia's palm oil export to Thailand has smaller impact compared to Indonesia's palm oil export to Malaysia.



Source: Processed Primary Data (2022)

Figure 3. Components of Indonesia's Palm Oil Export to Thailand

Based on table 2, the calculation of Indonesia's palm oil export value to Thailand decreased 3.6% in the year 2021 compared to year 2020. Nevertheless, the STSM result shows that in the year 2022 the export of palm oil from Indonesia to Thailand is increased 10.7%. The Coefficient of Variation (CV) estimation is 5.2% from 2019-2020 that shows the export value of palm oil from Indonesia to Thailand is relatively stable and easy to predict (the value is below 9%) (Jati et al., 2021; Ministry of Trade, 2019).

Table 2. Calculation of Indonesia's Palm Oil Export Value to Thailand

Year	Indonesia's Palm Oil Export to Thailand (USD)	% Change of Palm Oil Export to Thailand
2020	81,443,422	-
2021	78,476,791	-3.6
2022*	86,837,451	10.7
Changes 2019 to 2022		6.6
Standard Deviation (SD)		353,221
Average (A) 2019 - 2022		6,854,380
Coefficient of Variation (CV) 2019 - 2022		5.2

Source: calculation results of Stamp OxMetrics 7 software (2021), * year 2022 is the estimation

CONCLUSION AND RECOMMENDATION

Cooking oil made from palm oil is a food that important for basic human need and the fulfillment is a part of human rights guaranteed by the Constitution of Republic of Indonesia 1945 (UUD 1945). Cooking oil also part of industrial basic necessities together with sugar and wheat flour based on the existing regulation in Indonesia. Palm oil (as a raw material of cooking oil) is one the agricultural sector that absorb total 16.2 million labor and 2.4 people's farmer (BPDPKS, 2022). So, it is important to know the existing regulation and estimate the palm oil trade in the future.

Based on Normative Juridical Method, new regulation was made to ensure the stability and availability of cooking palm oil, which are: (i) the Regulation of the Minister of Trade No. 12 of 2022 concerning Export Policies and Regulation, (ii) the Regulation of the Minister of Trade No. 15 of 2022 concerning Stipulation of the Export Benchmark Prices for Agricultural and Forestry Products Subject to Export Duty, (iii) the Regulation of the Minister of Industry No. 10 of 2022 concerning the Supply of Bulk Cooking Oil for the Needs of the Community, Micro Businesses, and Small Businesses within the Framework of Financing by the Palm Oil Fund Management Agency. This regulation was made due to the Central Government of Indonesia wants to increase the ease of doing business and practice the debureaucratization and deregulation of trade-related laws in Indonesia. All stakeholders especially in palm oil sector need to follow and learn the new policy so the export of palm oil abroad can be maintain.

Indonesia's palm oil export data to Malaysia in the year 2021 achieved the highest record with total USD 1.12 billion, and palm oil export to Thailand in the year 2020 also achieved the highest number with total USD 81 million. The reasons is that the demand of palm oil in Malaysia and Thailand is increasing after the pandemic COVID-19 on 2020. Total export of palm oil from Indonesia to Malaysia in 2021 increased 64% compared to 2020, but Indonesia's palm oil export value to Thailand decreased 3.6% in the same period.

STSM shows that both Indonesia's palm oil export value to Malaysia and Thailand has 4 components: (i.) Trend, (ii.) Seasonal, (iii.) Cycle, and (iv.) Irregular. The different is the number of seasonal for export to Malaysia increased 3 times, but export to Thailand only increased 2 times in a year. Then, palm oil export to both countries has cycle components increased in the year 2014, but only palm oil export to Malaysia that experienced cycle increased in the year 2020. Also, palm oil export to both countries has irregular components that shows it is difficult to estimate the export of palm oil when there is high fluctuation of palm oil price.

STSM estimation also shows that export of palm oil from Indonesia to Malaysia can be decreased 38% in the year 2022 compared with 2021 with the high CV value 2019-2022 estimation. The relevant stakeholder need to see further this estimation because the momentum of high price of palm oil need to be consider to increase the palm oil export especially to Malaysia. The STSM estimation of Indonesia's palm oil export to Thailand can be increased 10.7% with the stable CV value 2019-2022, this is due to the fact that there is economic recovery in Thailand that make the demand of palm oil is increase. Hopefully the increase of palm oil export can help Indonesia, Malaysia and Thailand (IMT) to develop the business and economic post-pandemic COVID-19 recovery because palm cooking oil is a strategic commodity industry that related to the livelihood of many people and its availability is an important role in aspects of social and economic.

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