

# Impact of CPO Export Ban Policy on Cooking Oil Market Integration in Indonesia

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## ABSTRACT

The purpose of this study is to analyze the impact of the CPO export ban policy on price movements and the integration of the cooking oil market in Indonesia. The data used is secondary data. Data sourced from PIHPS Indonesia. The data were analyzed using a univariate approach and the Johansen Cointegration Test approach. The analysis results show that the price of cooking oil has fluctuated in the movement for the period before the policy. At the same time, the period after the policy indicates a stable price movement for each market level. The results of the Johansen Cointegration Test show, that there is an integrated market relationship period before the policy. Meanwhile, the period after the policy shows a relationship that is not well integrated between markets. It is concluded that the impact of the CPO export ban policy has a significant effect on the movement of cooking oil prices in Indonesia. Still, the policy does not have a significant effect on the decline in cooking oil prices between markets. Then the policy has no impact on market integration. This means that Indonesia's CPO export ban policy is not effective against the integration of the cooking oil market in Indonesia.

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## 1. INTRODUCTION

Food is the main basic human need that must be met at all times. Food has a very important meaning for a nation, the availability of food that is smaller than the needs can cause instability so that it can cause turmoil in food prices ((Anggraini et al.,

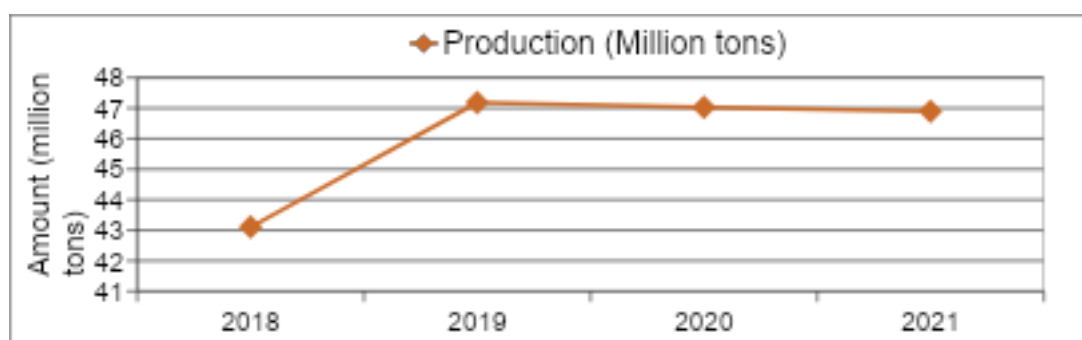
2022)). According to Faradilla et al. (2021), low food availability compared to their needs can create economic instability. If food security is disrupted, it will also result in social and political turmoil.

Therefore, it is necessary to regulate price fluctuations so that price fluctuations can be

controlled, so that changes in the prices of strategic food groups included in volatile foods can realize food security stability in Indonesia in the future. Food commodities are stapling/strategic food products that are traded to stabilize prices and food supply such as; rice, cayenne pepper, red chili, shallots, garlic, beef/buffalo, chicken meat, chicken eggs, granulated sugar, cooking oil, other commodities determined by the Government. Cooking oil that is commonly consumed in Indonesia is produced from crude palm oil

(CPO). So, if there is an increase in the price of raw materials for the cooking oil industry (CPO), then the price of cooking oil in the market will also increase, in other words, the prices of cooking oil is directly proportional to the domestic CPO price (Putri Aulia et al., 2022). CPO production in Indonesia itself began to decline in 2019. The data can be seen in Figure 1 that CPO production in 2021 decreased by 0.9 percent from 2020 or the production was only 46.89 million tons.

**Figure 1.** CPO Production Chart in Indonesia



Source: GAPKI (2022)

CPO is one of the variables that provide the largest response to fluctuations in cooking oil prices, so if you want to suppress the price of cooking oil in the domestic market. The government needs to reduce the price of raw materials from cooking oil, namely CPO (Sundoro & Putlia, 2021). According to Nafisah & Amanta (2022), the high price of cooking oil in Indonesia has been, in the

spotlight from the fourth quarter of 2021 until the beginning of the first quarter of 2022. So, the Government needs to make efforts to adjust anticipatory measures to the results in price forecasting, and also intervene in market distortions caused by imbalances in market forces (Fitri et al., 2020). According to Adinugroho et al. (2021), Cooking oil is a commodity that affects inflation in rural

Indonesia, this is influenced by the high demand for cooking oil among rural communities which causes a high disparity in cooking oil prices. According to Sadiyah (2021) to overcome high price disparities and product availability throughout the region, it is necessary to integrate the management of the parent market network. The decline in the growth of the transportation and warehousing services sector must receive special attention from the government so as not to interfere with the distribution and trade of food staples. In addition to the integration of market networks, it is also necessary to improve stock management and food logistics.

According to Nasution (2021), The government must issue a policy so that producers immediately accelerate the distribution of cooking oil and ensure that there is no stock vacuum at the level of traders and retailers so that thus the price of cooking oil can become more stable and affordable for the community, and still benefit traders, distributors, and proud.

According to Herawati & Harianto (2021), The pattern of price change is not only different between commodities but can also differ between market levels on the same

commodity. According to Siswadi et al. (2020), market integration is a term for identifying a phenomenon in which the markets of goods and services are related to each other, thus forming a pattern of increasing or decreasing the prices of the product. Market integration will provide signals regarding the ability of a product to adjust prices from one market to another, so this will show market efficiency. Meanwhile, Asmarantaka et al. (2018) explained that market integration is a measure of the amount of price change that occurs in the reference market that causes price changes in the following market, one of the indicators of marketing efficiency that shows price efficiency is market integration.

The government has established various regulations to regulate and maintain the stability of food supply and prices, which is in line with Law Number 18 of 2012 which regulates food where the central and regional governments are charged with controlling and responsible for the availability of basic and strategic foodstuffs throughout the territory of the Unitary State of the Republic of Indonesia. Based on this policy, means that basic and strategic foodstuffs must be available in adequate quantities, meet quality standards,

and the price level must be affordable condition for the community. Cooking oil is one of the strategic food commodities that is currently experiencing an increase in demand both for consumption and as an input to the food industry, this increase is one aspect of changing people's lifestyles supported by increasing economic growth. This phenomenon causes cooking oil to become scarce in the country and the price of cooking oil has increased far above the prevailing highest retail price (HET). The phenomenon of scarcity and price of cooking oil that occurs requires the government to take various related policies, but until now the various efforts that have been made are considered ineffective. Based on these problems, it is important to research "The Impact of the CPO Export Ban Policy on Cooking Oil Market Integration in Indonesia". Border and domestic policy are a policy that directly affects spatial price changes, in this case, related to trade policy. Although domestic policy can influence price formation, it can also affect the price relationship between vertical and spatial market integration (Siswadi et al., 2020). The Indonesian government officially temporarily banned the export of raw materials and cooking oil products abroad.

The temporary ban is contained in the Regulation of the Minister of Trade (Permendag) Number 22 of 2022 concerning the Temporary Ban on exports of Crude Palm Oil, Refined, Bleached and Deodorized Palm Oil, Refined, Bleached and Deodorized Palm Olein, and Used Cooking Oil. This Ministerial Regulation entered into force on April 28, 2022, affirmed in a regulation signed by the Minister of Trade (Mendag) Muhammad Lutfi dated April 27, 2022 (MENDAGRI, 2022).

Based on the above problems and these policy steps, the formulation of the first problem from this study is how the impact of the CPO export ban policy on the movement of cooking oil prices in the markets of producers, wholesalers, and retailers in Indonesia. Second, how the impact of the CPO export ban policy on the integration of the cooking oil market on the markets of producers, wholesalers, and retailers in Indonesia. So that the research objectives to be achieved from this paper are first to analyze and evaluate the impact of the CPO export ban policy on the movement of cooking oil prices in the markets of producers, wholesalers, and retailers in Indonesia. Meanwhile, the second research objective is to analyze and evaluate the

impact of the CPO export ban policy on the integration of the cooking oil market in the markets of producers, wholesalers, and retailers in Indonesia.

Then the results of this research are expected to provide benefits to various parties such as. The author is expected to increase knowledge about the impact of a policy, namely the ban on CPO exports on market integration of cooking oil commodities in Indonesia, as well as gain new experience related to research in the field of marketing and policy in trade. Other researchers, it is hoped that they can make the results of this research as material and reference for further research so that they can expand their knowledge and useful information. For the government, it is hoped that the results of this study can provide additional information related to variables in evaluating previous policies so that the future policymaking process can be better at solving problems that are happening.

Various studies show that fluctuations in the price and availability of palm cooking oil significantly impact producers, consumers, and market balance. Chik et al. (2023) revealed that fluctuations in palm oil prices directly impact the price of cooking oil in the market, where

the withdrawal of subsidies can increase prices by up to 48.9%, so government intervention is needed to control the impact. Priwiningsih & Abidin (2022) highlighted that the scarcity of cooking oil stocks in Indonesia forced the government to impose a ban on CPO exports to maintain domestic supply, even though this policy affected the balance of the palm oil industry market. Haq (2024) added that the CPO export ban since April 2022 has succeeded in increasing the availability and lowering the price of cooking oil in the country, but this policy has a negative impact on producers, exporters, and workers in the palm oil industry. In addition, Purbawa et al. (2023) found that the ideal price of packaged cooking oil for consumers is in the range of Rp 19,500, but severe scarcity causes prices to exceed acceptable limits. Therefore, price control and government intervention are urgently needed to maintain the stability of cooking oil prices that are acceptable to the public, while protecting the sustainability of the national palm oil industry.

Agastya et al. (2023) noted that the surge in cooking oil prices has a domino effect, causing an increase in the price of other goods that use cooking oil as a raw material. The ban

on crude oil exports through Trade Minister Regulation No. 11 of 2022 was also discussed, but it was considered unsustainable in the long term due to potential protests from CPO-importing countries. Research by Wibowo et al. (2023) shows that the CPO export ban has a significant impact on the domestic and global markets, where domestic prices fell by 16.77% in May 2022, while global prices rose by 2.03% due to supply shortages, and after the ban was lifted, global prices fell by 12.57% in June 2022. Efendi et al. (2024) revealed that Indonesia's export tax policy in 2024 to control cooking oil prices actually reduces the competitiveness of CPO exports compared to Malaysia as the main competitor. Amir et al. (2022) highlighted various factors that affect palm cooking oil prices, such as production volume, GDP, consumer price index, export tax, exchange rate, and soybean oil prices, which also have an impact on international CPO prices and export volumes. The government's efforts to maintain price stability, including subsidies and export bans, are part of the policy intervention. Helbawanti et al. (2022) found that the derivatives market and the CPO spot market are not integrated in the long term, with the derivatives market

functioning to provide future price information to reduce uncertainty. Meanwhile, Siregar et al. (2015) noted that although the intervention policy initially caused market distortions such as hoarding and price mismatches, the negative impact was reduced when the government improved distribution and ensured the availability of cooking oil in Indonesia.

## **2. METHOD, DATA, AND ANALYSIS**

The type of data used in this study is secondary data (time series) in the form of daily data on cooking oil prices in Indonesia in three types of markets, namely producers, wholesalers, and retailers. The period taken is divided into two, namely the period before the establishment of the CPO export ban policy starting on March 14 to April 27, 2022, and the period after the CPO export ban policy was determined to start on April 28 to June 11, 2022, so that the number of data observations in this study was as much as 90 days. The data used is sourced from the Indonesian Strategic Food Price Information Center (PIHPS, 2022) with the website address used <https://hargapangan.id/>.

The data analysis used in this study is descriptive statistical analysis and quantitative analysis. Descriptive Statistical analysis was used in the form of univariate analysis to answer the

purpose of the first study. According to Hardani et al. (2020), univariate analysis is used to analyze the quality of a variable in a period, by presenting data in the form of a table of frequency distribution, measures of central tendency, and measures of variability. The equation constructed to look at the coefficient of diversity is as follows:

$$CV = \frac{Sd}{\bar{X}} \quad (1)$$

Where subscript CV is the coefficient of variation, subscript Sd is the standard deviation (standard deviation) of the price of cooking oil (Rupiah/kg), and subscript  $\bar{X}$  is the average price of cooking oil (Rupiah/kg).

The quantitative analysis used was in the form of the Johansen Cointegration Test approach to answer the purpose of the second study, namely by identifying the impact of the CPO export ban policy on the integration of the cooking oil market at three market levels empirically. The data is estimated using Microsoft Excel 2010 and EViews 10 Software. Before estimating with the Johansen Cointegration Test, the data is first validated with several tests such as the Stationarity Test using the Augmented Dickey-Fuller Test (ADF Test).

$$\Delta P_t = \alpha_0 + \gamma P_{t-1} + \sum_{i=1}^j \alpha_i \Delta P_{t-i+1} + \varepsilon_t \quad (2)$$

Where subscript Pt is the first derivative (First difference) for the variable tested, subscript t is the period, subscript j is the lag length, and subscript  $\varepsilon_t$  is the error term.

Hypothesis:

$H_0: \gamma = 0$ ; time series data containing root units is non-stationary

$H_0: \gamma \neq 0$ ; time series data is stationary

The determination of optimal lag is used to see the extent to which a variable reacts to another variable, the optimal lag can be determined based on the values of the Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC), and Hannan-Quinn Criterion (HQC). But in determining this optimal lag, AIC criteria are used:

$$AIC(k) = T \ln \left( \frac{SSR(k)}{T} \right) + n \ln(T) \quad (3)$$

Where subscript T is the number of observations, subscript k is the lag length, subscript SSR is the residual Square Sum, and subscript n is the number of estimated parameters.

Then a cointegration test was carried out with the Johansen Cointegration Test approach, this method uses testing on the Trace Test (TS), and Maximum Eigenvalue (ME) with the following equations:

$$\begin{aligned} \lambda_{trace}(r) &= -T \ln(1 - \lambda_1^2) \\ \lambda_{max}(r, r+1) &= -T \ln(1 - \lambda_{r+1}) \end{aligned} \quad (4)$$

Where subscript T is the number of observations used, subscript  $\lambda$  is the estimation of the value of the eigenvalue order of the matrix  $\Pi$ , and subscript r is the vector sum of the vector cointegrations on the null hypothesis.

Hypothesis:

$H_0: r \leq 0$  = No co-integration relationship

$H_0: r \leq 1$  = There is at most one co-integrated relationship

### 3. RESULT AND DISCUSSION

The world demand for palm oil is expected to continue to increase. This increase in demand is driven by new emerging markets such as Indonesia, India, and China. This new market has high economic growth and use of biodiesel, driving palm oil demand by up to 4 percent. This high growth in the new market is due to the low consumption of oil per capita, the low supply of other vegetable oils, and the high expenditure on food (Muna et al., 2020).

Kusnandar (2022), the value of Indonesia's palm oil (CPO) exports in 2021 increased by 54.61 percent or around US\$ 28.52 billion from the previous year. The value of Indonesia's palm oil exports increased due to the increasing price of CPO on the world market. The high demand for palm oil (CPO) in the world has caused the domestic price of palm oil (CPO) in Indonesia to increase due to the transmission of prices from the world market to the domestic market. This has an impact on the high price of palm oil-based cooking oil (CPO). The increasing price of cooking oil in Indonesia is also due to the high demand for cooking oil which is not offset by the supply or supply of cooking oil itself. The high price of cooking oil causes unrest in the community because cooking oil is one of the food commodities that is

needed by the community. This problem requires the government to take policy steps to stabilize the price of cooking oil. The first step taken by the government was to set the highest retail price (HET), but amid the rampant export of cooking oil raw materials (CPO) due to the high world CPO price, this policy was ineffective.

The HET applied is not balanced with domestic cooking oil stocks so the price of cooking oil remains high amid high public demand for cooking oil. After going through several studies and evaluations, the government repealed the HET policy. The next step is for the government to take a policy related to the temporary ban on CPO exports. However, this policy still receives comments from the public, because with this policy, the price of domestic CPO will decrease. After all, the stock of domestic CPOs becomes a surplus. some observers think that this policy can harm oil palm farmers in general. But that is the step that must be taken by the government to effectively control cooking oil in Indonesia. The following are the results of an analysis related to the impact of the temporary ban on CPO exports both before and after the policy was implemented in Indonesia.

**Table 1.** Results of Statistical Analysis of Cooking Oil Price Description Before CPO Export Ban Policy

Variable	Obs	Min	Max	Mean	St. Dev	CV
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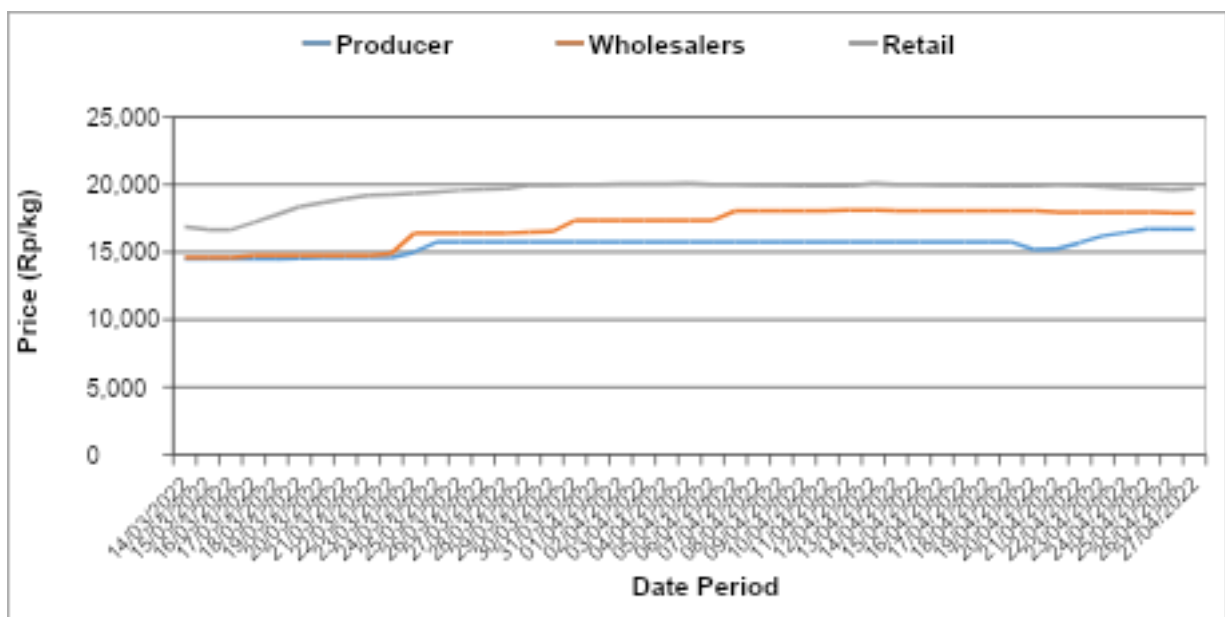
Producer	45	Rp 14,500	Rp 16,700	Rp 15,529	613.353	0.039
Wholesalers	45	Rp 14,600	Rp 18,100	Rp 16,932	1306.826	0.077
Retail	45	Rp 16,650	Rp 20,100	Rp 19,447	942.822	0.048

#### 4. Source: Processed data (2024)

Based on the results of the data analysis in Table 1, it can be seen that the price of cooking oil in Indonesia in the period before the implementation of the policy of temporarily banning CPO exports. The lowest price of bulk cooking oil in the producer market is IDR 14,500, in the wholesaler market it is IDR 14,600, and in the retail market, it is IDR 16,650 while the highest price in the producer market is IDR 16,700, in the wholesale market it is IDR 18,100, and in the retail market it is IDR 20,100. the average price of cooking oil in

the producer market is IDR 15,529, in the wholesaler market it is IDR 16,932, and in the retail market, it is IDR 19,447. The CV value of the movement of cooking oil prices before the implementation of the temporary ban on CPO exports, it can be seen that the most volatile cooking oil prices are in the wholesaler market with a CV value of 0.077 or 7.7% higher than the producer market and retail market, for more details can be seen in figure 2 of the price movement before the implementation of the temporary ban policy on CPO exports.

**Figure 2.** Oil Price Movement Before CPO Export Ban Policy



Source: Processed data (2024)

Based on Figure 2, it can be seen that the red line or the price of cooking oil in the wholesaler market shows a volatile trend of movement in the period before the policy of temporarily banning CPO exports. It can also be seen that the price transmission from the wholesaler market to the retail market tends not

to be transmitted perfectly, compared to the price transmission from producers to wholesalers, this can be seen from the difference in the average price of cooking oil from the producer level to the wholesaler is IDR 1,403 while from wholesaler to retail is IDR 2,515 higher than the relationship between the producer market and wholesalers.

**Table 2.** Results of Statistical Analysis of Cooking Oil Price Description After CPO Export Ban Policy

Variabel	Obs	Min	Max	Mean	St. Dev	Cv
Producer	45	Rp 15,600	Rp 16,700	Rp 16,233	527.127	0.032
Wholesalers	45	Rp 16,750	Rp 18,200	Rp 17,695	371.708	0.021
Retail	45	Rp 18,050	Rp 20,500	Rp 18,993	733.745	0.039

Source: Processed data (2024)

After knowing the movement or development of cooking oil prices before the temporary ban on CPO exports in Indonesia was implemented. The following are the results of an analysis related to the development of cooking oil prices after the implementation of the temporary ban on CPO exports.

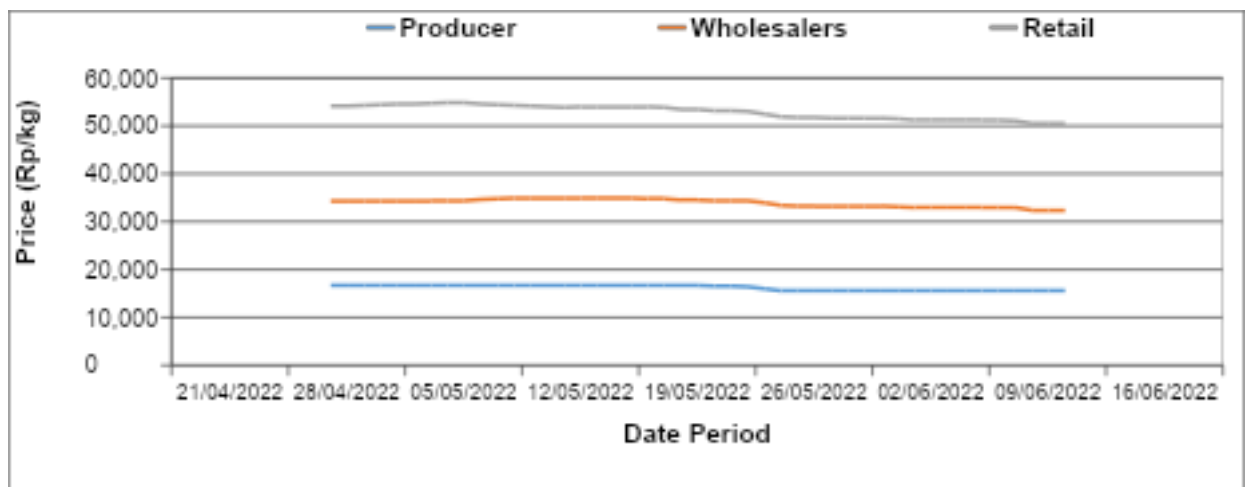
Based on the data from the analysis in Table 2, shows that the lowest price of cooking oil after the implementation of the temporary ban on CPO exports in the producer market is IDR 15,600, in the large trader market it is

IDR 16,750, and in the retail market it is IDR 18,050, for the highest price in the producer market is IDR 16,700, in the wholesaler market it is IDR 18,200, and in the retail market is IDR 20,500. Meanwhile, the average price of cooking oil after the implementation of the temporary ban on CPO exports in the producer market is IDR 16,233, in the wholesaler market it is IDR 17,695, and in the retail market, it is IDR 18,993. Based on the CV value of the cooking oil price movement, it can be seen that at the three market levels, it

shows a stable price movement trend in other words there is no most volatile price trend, it can be seen from the CV tilapia of each market level that is not high different from the CV value of the cooking oil price movement before

the temporary ban on CPO exports was implemented. For clarity, you can see Figure 3 related to the movement of cooking oil prices before the implementation of the policy of temporarily banning CPO exports in Indonesia below.

**Figure 3.** Oil Price Movement After CPO Export Ban Policy



Source: Processed data (2024)

Based on Figure 3, it can be seen that the development of cooking oil prices in the period after the implementation of the policy of temporarily banning CPO exports in Indonesia, shows that the trend of cooking oil prices in the markets of producers, wholesalers, and retail tends to be stable. The price transmission from producers to wholesalers and wholesalers to retail is also stable and perfectly transmitted this can be attributed to looking at the difference in the average price of cooking oil from the three different market

levels. However, overall, the development of cooking oil prices both before and after the implementation of the temporary ban on CPO exports has not shown a significant influence on the decline in cooking oil prices in Indonesia. Evidenced by looking at the difference in the average price of cooking oil at the three market levels, the results of the analysis showed that for the average price of cooking oil in retail there was a price decrease of Rp. 454, while in the producer market and the wholesaler market, there was an increase of Rp.

704 and Rp. 763 respectively after the implementation of the temporary ban on CPO exports.

Based on these results, it can be concluded that the policy of temporarily banning CPO exports in Indonesia has more effect on the trend of price fluctuations and transmission and has no effect on the overall decline in cooking oil prices. The Indonesian government's goal in implementing this policy is because palm oil is an important product in the Indonesian economy. One of its contributions to the country's economy is the largest contributor to foreign exchange. According to Chanthawong et al. (2021), the market integration policy development plan from the government is an important factor as a guideline for the development of the palm oil industry. In addition, CPO is the main raw material in the manufacture of cooking oil. Cooking oil in Indonesia is included in the nine basic needs of the community that must be met in its availability. As a basic food, the availability of cooking oil at affordable prices is not only important for economic stability but can also interfere with social security and will unsettle the community if it is not available. Given the importance of the existence of cooking oil in

Indonesia, CPO as the main raw material for its manufacture must also be guaranteed availability by the Indonesian government.

The government's policy to stabilize the price of food commodities, especially cooking oil, in Indonesia through a temporary ban on CPO exports with the title of the world's largest palm oil (CPO) producer. The government needs to pay attention and conduct studies from various aspects so that the policy can be considered effective and efficient in solving existing problems, especially stabilizing the price of cooking oil without causing new problems. According to Jeong et al. (2023), Stakeholders in the CPO market need to pay attention to the crude oil market to anticipate price changes. This means that regulators must carefully implement CPO market policies because when there is an asymmetrical change in speculation or unbalanced regulation can create market distortions and regulatory arbitrage. The following are the results of the stationarity test of cooking oil price data to see the impact of the temporary ban on CPO exports on the integration of the cooking oil market in Indonesia. Table 3 shows the stationary results of cooking oil price data

before the temporary ban on CPO exports was implemented.

**Table 3.** Description of Data Stationarity Test Results Before and After Policy

Variable (Pricing Tier)	Data Stationarity	
	Before Policy	After Policy
Producer	First Difference 1	First Difference 1
Wholesalers	Level	First Difference 1
Retail	Level	First Difference 2

Source: Processed data (2024)

Based on Table 3 above, it can be seen that the cooking oil price data before the implementation of the policy of temporarily banning the export of CPO on the producer market is not stationary at the level and stationary at the level of first difference 1. Whereas in the wholesale market and the stationary retail market at the level levels, from this result it can be explained that the data on the price of cooking oil in the producer market contains a trend, be it up or down in the long-term period. Meanwhile, the cooking oil price data on the wholesale and retail markets contains trends, either up and down in the short term or other words, it does not contain trends in the long term. the results of the stationary test of cooking oil price data after the

implementation of the CPO export temporary ban policy showed that the cooking oil price data on the producer, wholesaler, and retail markets were not stationary at the level and stationary at the level of First Difference 1 and First Difference 2, respectively. This means that the price of cooking oil after the implementation of the temporary ban policy of CPO exports in each market shows a trend, either up or down in the long term, and does not show an uptrend and downtrend in the short term.

Then after the stationary test of the data is carried out, a test is carried out to determine the optimum lag of each variable. So that in carrying out integration analysis of each variable can be avoided from autoregression or

in other words avoid errors in testing integration relationships.

**Table 4.** Results of Determining Optimal Lag Before and After Policy

Lag	Value AIC	
	Before Policy	After Policy
0	NA	36.612
1	38.964	36.627
2	38.701*	36.865
3	38.993	37.125
4	39.173	37.275
5	39.349	37.142
6	39.338	36.755
7	39.218	36.191
8	38.863	35.357*

Description: \* Indicates lag order selected by the criterion

Source: Processed data (2024)

Based on Table 4 above, it can be seen that the optimal lag suggested by the Akaike Information Criterion (AIC) value criterion criteria for the use of lag in analyzing the integration relationship of the cooking oil market before the implementation of the temporary ban on CPO exports is 2. This means that at the 2nd lag, the cooking oil price data can be used to analyze market integration by avoiding testing errors. Meanwhile, after the policy was implemented, the lag suggested by the Akaike Information Criterion (AIC) value criterion was 8. The following is the

relationship of the integration of the cooking oil market which was analyzed using the Johansen Cointegration Test.

Based on the results of the analysis in Table 5, show that in the period before the implementation of the temporary ban on CPO export, there were two integrated relationships, it can be seen from the statistical trace value that is greater than the critical value of 5 percent or a significant probability value in the hypothesis At most 1 and 2. this means that in the period before the implementation of the policy of temporarily banning the export of

CPO, the relationship between the market of cooking oil producers and the market of large traders of cooking oil and the market relations

of large traders with the retail market of cooking oil are well integrated.

**Table 5.** Johansen Cointegration Test Results

Hipotesis Nol	Before Policy			After Policy		
	Trace Statistik	Critical Value (5 %)	Prob	Trace Statistik	Critical Value (5 %)	Prob
None	70,26317	35,19275	0,0000*	31,80021	24,27596	0,0047*
At most 1	27,37886	20,126184	0,0044*	8,146916	12,32090	0,2255
At most 2	11,35951	9,164546	0,0189*	0,050085	4,129906	0,8545

Description: \* Reject Ho

Source: Processed Data (2022)

Meanwhile, in the period after the implementation of the temporary ban policy, CPO exports have the opposite relationship or are not well integrated, this can be seen in the statistical trace values at most 1 and 2 which are smaller than the critical value of 5 percent or the probability value is only significant in the none hypothesis. This means that in that period the relationship between the producer market and the wholesaler market and the wholesaler market with the retail market had a relationship that was not integrated. This result illustrates that Indonesia's temporary CPO export ban policy is ineffective in terms of cooking oil market integration, it is suspected that after the implementation of the temporary

ban policy on CPO exports, the availability of domestic palm oil (CPO) supplies increased significantly so that the production of cooking oil also increased.

Based on data sourced from the Indonesian Palm Oil Entrepreneurs Association (GAPKI), Indonesia in 2021 has produced 51.3 million tons of palm oil. The production details consist of crude palm oil (CPO) of 46.88 million tons and crude palm kernel oil (CPKO) of 4.41 million tons. In addition to production, Indonesia's palm oil inventory in 2021 was also supplemented by imports of 59 thousand tons, with an initial inventory of 4.86 million tons. Based on the total inventory, 34.23 million tons of

Indonesian palm oil in 2021 were used for export, with details of refined CPO exports reaching 25.7 million tons, oleochemical exports reaching 4.14 million tons, CPO exports reaching 2.73 million tons, laurate exports reaching 1.48 million tons, and biodiesel exports reaching 0.16 million tons.

Meanwhile, in 2021 palm oil for local consumption only reached 18.42 million tons, with details of local food consumption of 8.95 million tons, local biodiesel consumption of 7.34 million tons, and local oleochemical consumption of 2.12 million tons. GAPKI noted that total local consumption plus Indonesia's palm oil exports in 2021 reached 52.65 million tons. So, of the total figure, the proportion of palm oil for export consumption reaches 65%, while for local consumption it is only 35%. Based on this data, if 60 percent of the total exports are used for local consumption or domestic needs, there is a significant increase in supply at one market level but in the short term, the market has not been able to distribute optimally, which has an impact on the relationship between market levels.

Then there are also Failures of information at every level of the market which is a fundamental problem where Indonesia is an

archipelagic country so market information does not run perfectly from production areas to non-production areas. According to GAPKI, the existing logistics infrastructure in Indonesia to support the transportation of CPOs to cooking oil factories is very inadequate. The poor logistics infrastructure of Indonesia is reflected in the position of national logistics competitiveness which has fallen to be ranked 75th, adding that the cost of CPO transportation or cooking oil reaches 30 percent of the total cost of CPO production itself. That amount is too high when compared to transportation costs in other countries, which only range from 10 percent to 15 percent of the overall cost of production.

## CONCLUSION AND SUGGESTION

Based on the results and discussions that have been explained in the previous section, it can be concluded that the impact of the temporary ban on CPO exports in Indonesia has a significant effect on the trend of fluctuations or stabilization of prices and transmission of cooking oil prices in Indonesia, but the policy does not have a significant effect on the overall decline in cooking oil prices. The impact of the CPO export ban policy on market integration, or in that period the relationship between the producer market and the wholesaler market and the wholesaler market with the retail



market has a non-integrated relationship. This means that Indonesia's temporary ban on CPO exports is ineffective in the integration of the cooking oil market in Indonesia.

Based on these conclusions, the advice that can be given from the author to the government as a policymaker is that the government is expected to be able to periodically evaluate a policy that has been determined for the effectiveness of policymaking in the future, especially policies in the

food sector related to the availability and price of food. By conducting periodic evaluations, the government can see and find out the weaknesses or impacts of these policies on various aspects of the existing people's lives.

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