

FACTORS AFFECTING THE EXPORT OF CRUDE PALM OIL INDONESIA

Alfret Reynalto¹⁾ and Ernah¹⁾

¹⁾Departement of Agricultural Social Economic, Faculty of Agriculture, Padjadjaran University
ernah@unpad.ac.id, reynaltoalfret@gmail.com

ABSTRAK

Crude palm oil (CPO) is one of the leading export commodity that has contributed greatly to the Indonesian economy. The majority of CPO production is exported to various destination countries such as India, China, Pakistan, the Netherlands, and Malaysia. The proportion of Indonesian CPO exports was 80-75%, and domestic consumption was only 20-15% of total production. Indonesian CPO exports still show an increasing trend. This study aims to identify the factors that affect Indonesian CPO exports using the data from 2002-2017. This research used the multiple linear regression method of Ordinary Least Square (OLS). The results showed that CPO production, CPO prices in the international market, CPO prices in the domestic market, crude oil prices in the international market, the exchange rate of rupiah, and export rates had a significant effect on Indonesia's CPO export.

Keywords : Exchange rate of rupiah, Market, Production, Price.

INTRODUCTION

The plantation is one of the agricultural sub-sectors that have great potential in Indonesia. The plantation sub-sector is one of the largest sources of foreign exchange for Indonesia through exports to various destination countries (Brad, Schaffartzik, Pichler, and Plank, 2015). Ten of Indonesia's primary export commodities are determined by the Ministry of Trade, four of which are commodities included in the plantation sub-sector of rubber, palm oil, cocoa, and coffee.

One of the leading commodities from the Indonesian plantation sub-sector is palm oil. This commodity grows optimally in a tropical climate (Hender et al., 2018; Rulli et al., 2019). Oil palm (*Elaeisguineensis* Jacq) plantations have high economic value since it can be processed into several processed materials such as crude palm oil (CPO) and palm kernel oil (PKO) (Deila and Ernah, 2018). CPO is the oil extracted from oil palm fruit mesocarps, where as,

PKO is the oil extracted from seeds or palm kernel (Fauzi, 2012). CPO derivative products are more diverse than PKO; therefore, demand for CPO is higher than PKO (Pahan, 2008; Hashim et al., 2012). CPO is currently the main contributor in the oleochemical industry since it has many advantages, including the relatively low price, and can be processed as an alternative fuel (Mariati, 2009).

The development of the palm oil industry and its processed products in Indonesia, has accelerated after the strengthening of the National Private Large Estate and Smallholder Plantation which was developed from 1980 to 1995 (PASPI, 2016). The increase in the oil palm plantations area is directly proportional to the increase in CPO production. In 2017, Indonesia 12 million ha of oil palm plantations, which produces 34.46 million tons of CPO, making Indonesia one of the largest CPO producing countries in the world (Kementan, 2017). Indonesia has an absolute and comparative advantage

because it is more efficient in producing CPO compared to other countries (Salvatore, 1997). Most of Indonesia's CPO production is exported to various destination countries. The proportion of Indonesia's CPO exports of 80-85% of its production and the remaining 15-20% is absorbed by the downstream industry (PASPI, 2016). The demand for CPO in the domestic market is lower than in the international market. Indonesia's domestic downstream industry is still dominated by the oleofood industry, which mainly processes CPO into the final product in the form of cooking oil and margarine.

The domestic consumption of CPO shows an increasing trend. In 2002 Indonesia's domestic CPO consumption was 1.68 million tons or 17.55% of its total production. It increased in 2017, Indonesia's CPO consumption increased to reach 6.04 million tons or 17.09% of its total production. Since 2011 Indonesia has been pushing the downstream industry in the country through three downstream pathways, namely the downstream channel of the oleofood, oleochemical, and biofuel industries (PASPI, 2016). It aims to increase domestic consumption of CPO, to reduce dependence on international markets to absorb CPO production. The downstream pathway that has considerable potential and is currently under development is the downstream biofuel path through the mandatory biodiesel policy.

Price is the main factor in trading that determine the decisions of producers and consumers in determining the number of supply and demand (Putra and I Wayan, 2014). Supply is influenced by the price of goods and the price of the substitute (Mankiw, 2003). The price of goods and its substitute is linear with the supply of those goods (Mankiw, 2003). Based on this theory, it can be said that CPO exports are influenced by the development of CPO prices in the international market and the domestic market and the price of oil as a substitute item. CPO consumption for the biodiesel industry by CPO importing

countries is a step to reduce petroleum consumption (PASPI, 2016). The development of CPO prices in the international market from 2002 to 2010 experienced an increasing trend, but in the year 2010 to 2017 experienced a downward trend. In 2002, the price of CPO on the international market was US\$ 390/ton, and in 2010 it increased to US\$ 1290/ton. In 2017, CPO prices on the international market decreased to US\$ 670/ton.

The decline in CPO prices in the international market in recent years and an increase in domestic consumption are affected by the development of the domestic downstream industry did not reduce the performance of Indonesia's CPO exports (Hosseini &Shakouri G., 2016). Indonesia's CPO exports continue to an upward trend. In 2002, Indonesia's CPO export volume amounted to 6.3 million tons and continued to increase until 2017, which reached 27.35 million tons. The upward trend in CPO exports indicates an increase in CPO demand on the international market, which is supported by high demand from five of Indonesia's major CPO importing countries, namely China, Singapore, Malaysia, India, and Pakistan (PASPI, 2016). The purpose of this study is to identify the factors that influence Indonesia's CPO exports.

MATERIALS AND METHODS

This research is an explanatory research that explains the causal relationship between variables through the submission of hypotheses using the same data (Singarimbun and Effendi, 2006). The research design used is the quantitative research design. The data used in this study are secondary data. Secondary data used were time-series data for 2002 to 2017 obtained from relevant institutions or agencies such as the Indonesian Ministry of Agriculture, the Indonesian Ministry of Finance, the Indonesian Ministry of Trade, the Central Statistics Agency (BPS), the Commodity Futures Trading Supervisory Agency (BAPPEBTI), Oil World, and Index Mundi.

The operational variable used in this study are as follows:

1. Indonesian CPO Export (XCPO) is the number of Indonesian CPO exports in one year in the period 2002-2017 expressed in tons. Indonesian CPO production (PCPO) is the amount of Indonesian CPO production in one year in the period 2002-2017 expressed in units of tons.
2. CPO Domestic Consumption (KDCPO) is the amount of Indonesian CPO domestic consumption in one year in the period 2002-2017 expressed in tons.
3. CPO prices on the International Market (HICPO) are the average CPO prices on the international market using the Rotterdam CIF price index in one year in the period 2002-2017 expressed in units of US\$/ton.
4. CPO prices in the Domestic Market (HDCPO) are the average CPO prices in the domestic market using the FOB Belawan index in one year in the period 2002-2017 expressed in units of Rupiah per kilogram (Rp / kg).
5. The price of petroleum on the international market (HIMB) is the average price of petroleum on the international market in one year in the period 2002-2017 expressed in units of US\$/barrel.
6. The Rupiah Exchange Rate (NK) is the average exchange rate of the rupiah of Bank Indonesia against the US dollar in one year in the period 2002-2017 expressed in units of Rp / US \$ 1.
7. CPO Export Tariff (TE) is the average Indonesian CPO export tariff issued by the finance ministry in one year in the period 2002-2017 expressed in percent (%).
8. The Global Financial Crisis (D) is a financial crisis that occurred in 2008-2009, expressed by the dummy value used to divide CPO export categories before the crisis notated by the number 0 when the crisis was denoted by number 1 after the crisis was denoted with number 2.

Analysis of the data used in this study was a multiple linear regression estimation methods Ordinary Least Square

(OLS) using SPSS 21 software. The analysis is used to identify what factors affect CPO exports. The dependent variable in the multiple linear regression equation is Indonesian CPO exports. The free variables were CPO production, CPO domestic consumption, CPO prices on the international market, CPO prices on the domestic market, oil prices on the international market, exchange rates, export tariffs, and the financial crisis global. The equation of multiple linear regression in this study is summarized as follows:

$$\begin{aligned}
 \text{XCPO} = & a_0 + a_1\text{PCPO} + a_2\text{KDCPO} \\
 & + a_3\text{HICPO} \\
 & + a_4\text{HDCPO} + a_5\text{HIMB} \\
 & + a_6\text{NK} + a_7\text{TE} + a_8\text{D} \\
 & + \mu \dots \dots \dots (1)
 \end{aligned}$$

Where:

- XCPO = CPO export
- PCPO = CPO production
- KDCPO = CPO domestic consumption
- HICPO = CPO prices in the International Market
- HDCPO = CPO prices in the Domestic Market
- HIMB = The price of petroleum on the international market
- NK = The rupiah exchange rate
- TE = CPOExport Tariff
- D = Dummy of the global financial crisis
- a₀ = constant
- M = Other variables uncounted
- a₁, a₂, a₃, a₄, a₅, a₆, a₇, a₈ = The coefficient of the independent variable

In the analysis of multiple linear regression, hypotheses, and the feasibility of the model were tested. Hypothesis testing was assessed to test the effect of independent variables on the dependent variable simultaneously (F test) and partial (t-test). The level of significance (α) used in this study was 0.10 or 10%. Criteria for testing simultaneous parameters (Test F) was if the value of significant > 0.10, then all independent variables in one equation together (simultaneously) do not significantly influence the dependent variable. If the value of significant < 0.10 then, all independent variables in one equation

together (simultaneously) significantly influence the dependent variable. The criteria for testing parameters partially (t-test) is if the value of significant <0.10, then the independent variable individually (partial) significantly influences the dependent variable. If the value of significant > 0.10, then the independent variables individually (partial) do not affect the dependent variable. Testing the feasibility of multiple linear regression models was based on the coefficient of determination (R2). The value of R2 is used to measure the level of ability of the model in explaining the variation of independent variables. The coefficient of determination is between zero and one. A small R2 value means that the ability of the independent variables to explain the dependent variable is limited and vice versa. The coefficient of determination (R2) can be calculated using the formula:

$$R^2 = r^2 \times 100\%$$

where:

R^2 = determination coefficient
 r^2 = correlation coefficient

RESULTS AND DISCUSSION

The results of the multiple linear regression analysis is presented in Table 1.

Multiple linear regression models can be formulated using the values of

unstandardized coefficients on each independent variable. The equation is formulated as follows:

$$\begin{aligned} \text{XCPO} = & 22.849,852 + 0,499\text{PCPO} \\ & - 247,021\text{TE} \\ & - 1.176,63\text{HICPO} - 16,866\text{HDCPO} \\ & + 40,546\text{NK} + 5,773\text{HIMB} \\ & + 475.481,93.(2) \end{aligned}$$

Simultaneous parameter testing (Test F) was used to determine the effect of CPO production variables (PCPO), CPO domestic consumption (KDCPO), CPO prices on the domestic market (HDCPO), CPO prices on the international market (HICPO), oil prices on the international market (HIMB), the rupiah exchange rate (NK), export tariffs (TE) and the dummy of the global financial crisis (D) simultaneously against Indonesia's CPO exports (XCPO). The results of simultaneous parameter testing or F test obtain significant values, amounted to 0.001 <0.10 (Table 1). It explains that CPO production, CPO domestic consumption, CPO prices on the international market, CPO prices on the domestic market, oil prices on the international market, the value of the rupiah exchange rate, export tariffs and dummy global financial crisis have a significant simultaneous effect on exports of Indonesian CPO.

Table 1. Results of Multiple Linear Regression Analysis.

Model	Unstandardized Coefficients		Standardized Coefficients	Significant
	B	Std. Error	Beta	
(Constant)	22849,852	475481,935		,093
PCPO	,499	,091	,544	*,000
KDCPO	-,371	,405	-,151	,380
HICPO	-1176,633	489,109	-,207	**,035
HDCPO	-16,866	7,912	,253	***,056
HIMB	726.297	372.967	,388	***,077
NK	40,546	19,147	,386	***,060
TE	-247,021	83,233	-,146	**,013
D	42087,319	804760,684	,173	,436
R = 0,995 ^a Adjusted R ² = 0,973			F tabel = 55,139	
R ² = 0,991			Sig. = 0,001 ^b	

Dependent Variable: XCPO

* significant at (α) = 0

** significant at (α) = 0.05

*** significant at (α) = 0.10

The results of partial parameters testing (t-test) showed that, CPO production variables, CPO prices on the international market, CPO prices on the domestic market, oil prices on the international market, the rupiah exchange rate and CPO export tariffs had a significant value <0.10 and CPO domestic consumption variables and the global financial crisis had a significant value > 0.10 . These results indicate that CPO production, CPO prices on the international market, CPO prices on the domestic market, oil prices on the international market, the exchange rate of the rupiah, and export tariffs have a partially significant effect on Indonesia's CPO exports. The domestic consumption of CPO and the global financial crisis did not have a significant effect partially on Indonesia's CPO exports.

CPO production has a significance value of 0,000, which means that CPO production had a significant effect partially on Indonesia's CPO exports at a significant level of 0.01 or 1%. The coefficient value of the PCPO variable based on the results of multiple linear regression was 0.499, which shows that CPO production had a positive effect on Indonesian CPO exports. The increase in CPO production by 100 tons will increase Indonesia's CPO exports by 49.90 tons. Hence, it applies to the opposite situation assuming the other variables are considered constant (*ceteris paribus*). These results are in line with the results of research by Mariati (2009), Sudirman and I Dewa (2014), and Maygirtasari et al. (2015), who explained that increasing Indonesia's CPO production would increase Indonesia's CPO exports. Increasing CPO production can be done by increasing productivity. Increased productivity of oil palm plantations can be done through intensification programs. For example, rejuvenation programs in the old plantation by using superior seeds. Also, applying management standards of the professional plantation.

Domestic CPO consumption had a significance value of 0.380, which means

that domestic CPO consumption does not have a significant effect partially on Indonesia's CPO exports. The low significance value of the KDCPO variable indicates that domestic CPO consumption does not significantly affect Indonesia's CPO exports. This can be caused by several factors, including the deficient proportion of CPO domestic consumption compared to exports. The proportion of CPO domestic consumption is only 15-20% of total production. At the same time, CPO exports account for 80-85% of total production so that changes in the volume of CPO domestic consumption do not have a significant effect on Indonesia's CPO export volume. Additionally, the increase in CPO production can provide a higher level of supply to be able to meet demand in the international market through exports and consumption in the domestic market. The coefficient value of the KDCPO variable based on the results of the multiple linear regression was -0.371, which shows that domestic consumption of CPO has a negative effect on Indonesian CPO exports. Increasing Indonesia's domestic CPO consumption by 100 tons will reduce Indonesia's CPO exports by 37.1 tons, also applies to the opposite situation assuming the other variables are considered constant (*ceteris paribus*).

The price of CPO on the international market has a significance value of 0.035, which means that the price of CPO on the international market had a partially significant effect on Indonesia's CPO exports at a significant level of 0.05 or 5%. The coefficient value of the HICPO variable based on the results of multiple linear regressions was -1,176.63, which shows that the price of CPO on the international market had a negative effect on Indonesian CPO exports. An increase in the price of CPO on the international market by US\$ 100/ton will reduce Indonesia's CPO exports by 117,663 tons also applies to the opposite situation assuming the other variables are considered constant (*ceteris paribus*). The negative influence of CPO prices on the international market on CPO

exports is supported by a number of research results by Mariati (2009) which explains that, if the price of CPO on the international market increases, CPO exports will decline due to the quality of Indonesian CPO that still does not meet international market standards.

Sulistyanto and Roberto (2011) explained that export prices had a negative effect on CPO exports, and the volume of CPO exports is elastic to the development of CPO prices on the international market. The supply theory states that an increase in prices will cause an increase in the number of goods offered so that the price of CPO on the international market has a positive influence on Indonesia's CPO exports. The results of the regression analysis show the opposite, where the price of CPO on the international market has a negative influence on Indonesia's CPO exports. The theory of demand states that falling prices will cause an increase in demand for these goods. CPO price conditions that are experiencing a downward trend from 2010-2017 caused an increase in demand for Indonesian CPO on the international market so that Indonesia's CPO exports have increased.

The price of CPO on the domestic market has a significance value of 0.056, which means that the price of CPO on the domestic market has a partially significant effect on Indonesian CPO exports at a real level of 0.10 or 10%. The coefficient value of the HICPO variable based on the results of the multiple linear regression was -16.86, which shows that the price of CPO on the domestic market has a negative effect on Indonesian CPO exports. This has the understanding that an increase in CPO prices on the domestic market by Rp 100/kg will reduce Indonesia's CPO exports by 1,686 tons, also applies to the opposite situation assuming other variables are considered constant (*ceteris paribus*). These results are supported by the study of Maygirtasari et al. (2015), which explained that a decrease in CPO prices in the domestic market would reduce CPO exports. The negative effect of domestic

prices on CPO exports corresponds to the theory of supply. Based on the theory of supply, rising prices of goods will increase the supply of goods. The decline in CPO prices in the domestic market will divert CPO supply from the domestic market to international markets.

The price of petroleum on the international market has a significance value of 0.077, which means that the price of petroleum on the international market has a partially significant effect on Indonesia's CPO exports at a real level of 0.10 or 10%. The coefficient value of the HIMB variable based on the results of multiple linear regression was 726,297, which shows that the price of petroleum on the international market has a positive effect on Indonesia's CPO exports. The increase in oil prices on the international market of US\$ 100/barrel will increase Indonesia's CPO exports by 72,629.7 tons, also applies to the opposite situation, assuming the other variables are considered constant (*ceteris paribus*). These results are consistent with the theory of supply, which explains that, the more expensive the price of substitute goods, the higher the supply of goods to these goods. Therefore, the increase in the price of petroleum will increase the CPO supply as a substitute item in the biodiesel industry and will encourage an increase in Indonesia's CPO exports.

The rupiah exchange rate has a significance value of 0.060, which means that the rupiah exchange rate has a partially significant effect on Indonesia's CPO exports at a real level of 0.10 or 10%. The coefficient value of the NK variable based on the results of multiple linear regression was 40,546, which shows that the value of the rupiah exchange rate has a positive effect on Indonesia's CPO exports. Depreciation of the rupiah exchange rate of Rp 100/US \$ will increase Indonesia's CPO exports by 4,054.6 tons, also applies to the opposite situation assuming other variables are considered constant (*ceteris paribus*). The US dollar exchange rate has experienced a strengthening (appreciation) of the Rupiah

of Rp 100/US \$ will increase Indonesia's CPO exports by 4054.6 tons also applies to the opposite situation assuming other variables are considered constant (*ceteris paribus*).

The direct term exchange rate (IDR/1US\$) has a positive effect on CPO exports. Ginting (2013) explained that, when the rupiah exchange rate depreciate against the US dollar exchange rate, it will increase Indonesia's CPO exports because CPO prices are relatively lower and with the same dollar value will provide a more considerable amount of Rupiah. These results are consistent with the theory that, when the exchange rate depreciates, namely the condition of the value of the domestic currency weakening against the value of foreign currencies, the export volume will decrease (Sukirno, 2003). When the rupiah exchange rate depreciates against the US dollar exchange rate, and the exchange rate of CPO importing countries such as Indian rupees and Chinese Yuan appreciates against the US dollar exchange rate, Indonesia's CPO competitiveness against the importing country has increased. The increase in competitiveness was caused by the CPO price level, which was relatively cheaper for the importing country due to the depreciation of the rupiah exchange rate when the exchange rate of the importing country had appreciated the US dollar exchange rate.

Export tariffs have a significance value of 0.013, which means that export tariffs have a partially significant effect on Indonesia's CPO exports at a significant level of 0.05 or 5%. The coefficient value of the TE variable based on the results of multiple linear regression was -247,021, which shows that the CPO export tariff has a negative effect on Indonesia's CPO exports. This has the understanding that, increasing the CPO export tariff by one percent, will reduce the volume of exports by 247,021 tons, also applies to the opposite situation assuming the other variables are considered constant (*ceteris paribus*). These results are supported by the results of research Susila and Darma (2004) which

states that an increase in export taxes by 1 percent causes a decrease in CPO exports by 0.41 percent. Besides, Munadi (2007) states that a decrease in export taxes will cause an increase in the number of exports.

The export tariff is one of the policy instruments used by the government. When the government wants to keep the price of CPO processed products on the domestic market low when an increase in exports occurs, the government should raise export tariffs to provide a barrier to CPO exports in order to increase the availability of CPO on the domestic market so that prices of processed products in the country are relatively stable and no increase. When the government wants to increase CPO exports to increase the country's foreign exchange, the government should reduce export tariffs to increase competitiveness so that Indonesian CPO prices become relatively lower.

The global financial crisis has a significance value of 0.436 which means that the global financial crisis had no significant effect partially on Indonesia's CPO exports. The occurrence of the global financial crisis will increase Indonesia's CPO exports also applies to the opposite situation assuming other variables are considered constant (*ceteris paribus*). The low significance value and positive effect of the global financial crisis on CPO exports is inversely proportional to the results of Dradjat's study (2011) which states that the global financial crisis (KFG) has a negative impact on CPO exports in the short term since the majority of Indonesia's CPO importing countries such as China, India, and Pakistan was directly affected by the KFG, causing delays and even the cancellation of trade contracts from the importing country. There are differences in the data used in research conducted by Dradjat (2011) with this study. In this study, the data used are series data in units of years while in research Dradjat (2011) used series data units were in months, therefore, there are differences in results where the global financial crisis does not have a significant effect on reducing Indonesia's

CPO exports due to the accumulation of CPO exports in in 2008 and 2009 when the global financial crisis showed an upward trend.

Based on the significant value of the partial parameter testing or t test, it can be seen the factors that most influence Indonesia's CPO exports. The most influential factor in sequential Indonesian CPO exports was the CPO production at level (α) = 0.01, export tariffs and CPO prices on the international market significantly at the level (α) = 0.05, CPO prices on the domestic market, the exchange

rate rupiah, and the price of petroleum on the international market was at the level (α) = 0.10. Domestic consumption of CPO and the global financial crisis has no significant effect because the significance value exceeds the predetermined real level (sig.> 0.10). The multiple linear regression equation based on the most influencing variables is as follows:

$$\begin{aligned}
 \text{XCPO} &= 22.849,852 + 0,499\text{PCPO} - 247,021\text{TE} \\
 &- 1.176,63\text{HICPO} - 16,866\text{HDCPO} \\
 &+ 40,546\text{NK} + 5,773\text{HIMB} \\
 &+ 475.481,93 \dots \dots \dots (3)
 \end{aligned}$$

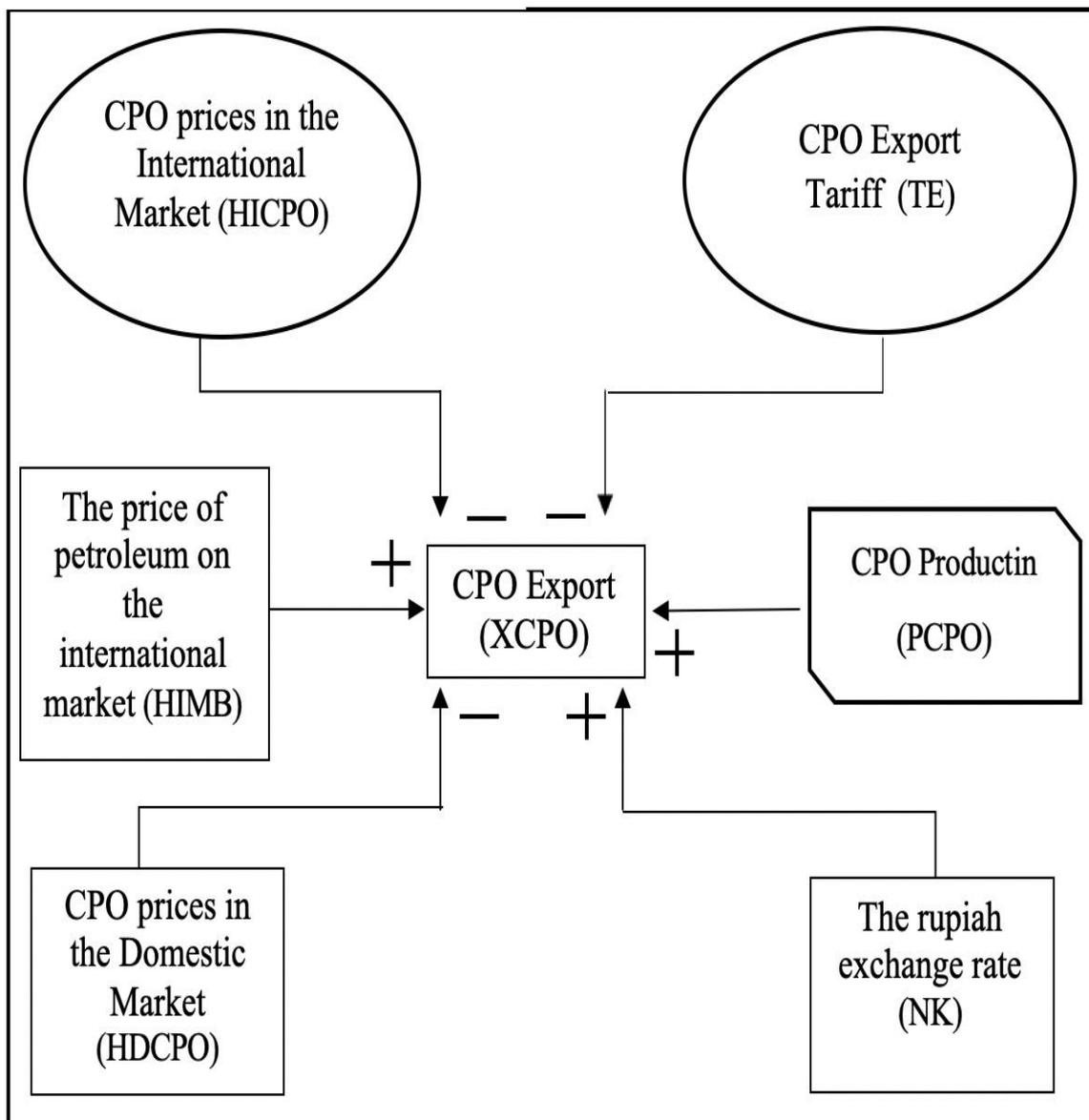


Figure 1. Econometric Structural Model.

A country exports commodities to other countries because the country is more efficient than other countries in producing commodities (Simmamora, 1997). The increase in CPO production will increase supply to meet demand in the international and domestic markets that are experiencing an upward trend. The development of the downstream industry that is being carried out by the government will have an impact on increasing domestic consumption. The trend of increasing exports that occurred in 2002-2017 shows that there was an increase in demand for Indonesian CPO in the international market. Increased domestic consumption and CPO exports that are not supported by increased supply through increased production will result in Indonesia experiencing a shortage of CPO supply so that it is unable to meet demand in the international market and the domestic market. This will cause Indonesia as one of the largest producing and exporting countries to import CPO to other countries to increase supply in order to meet the demand for Indonesian CPO in the international market and the domestic market.

The export tariff is the second factor that most influences CPO exports after CPO production. Export tariffs are one factor that can be controlled by the government (Rifin, 2010). Determination of CPO export tariffs by the government should not only look at the development of CPO prices on the international market. The rupiah exchange rate must be one of the indicators for determining tariffs. If the rupiah exchange rate is appreciating and the exchange rate of importing countries such as Indian rupees and Chinese Yuan is depreciating, the competitiveness of CPO will decline. A reduction in export tariffs is needed in order to provide lower prices and increase CPO competitiveness.

The coefficient of determination (R^2) was 0.991 or 99.10% which means that CPO production (PCPO), CPO price on the international market (HICPO), CPO price on the domestic market (HDCPO), oil

price on the international market (HIMB), domestic consumption of CPO (KDCPO), rupiah exchange rate (NK), export tariff (TE), and dummy of the global financial crisis (D) are able to explain Indonesia's CPO exports (XCPO) by 99.10%, while the remainder is 0.90% is explained by other variables not used in this analysis.

Econometric Structural Model of the factors affecting Indonesian CPO exports as a result of multiple linear regression analysis can be seen in Figure 1.

CONCLUSIONS

This study concludes that CPO production, CPO domestic consumption, CPO prices on the international market, CPO prices on the domestic market, oil prices on the international market, the value of the rupiah exchange rate, export tariffs, and the global financial crisis have significant effect simultaneously on Indonesian CPO exports. CPO production, CPO prices on the international market, CPO prices on the domestic market, the price of petroleum on the international market, the exchange rate of the rupiah, and export tariffs partially affected Indonesia's CPO exports.

The domestic consumption of CPO and the global financial crisis did not affect Indonesia's CPO exports partially. The low significance value of CPO domestic consumption is caused by the increase in CPO production which is able to provide a greater level of supply to be able to meet demand in the international market through exports and consumption in the domestic market so that, so that production, changes in the volume of CPO domestic consumption do not significantly influence the export volume of Indonesian CPO. The low significance value of the global financial crisis caused by the series of data used is in units of the year so that the global financial crisis has no significant effect on reducing Indonesia's CPO exports because the accumulation of CPO exports in 2008 and 2009 during the global financial crisis shows an increasing trend. The factors that most influence Indonesia's CPO exports are CPO production and CPO export tariffs.

REFERENCES

- Brad, A., Schaffartzik, A., Pichler, M., & Plank, C. (2015). Contested territorialization and biophysical expansion of oil palm plantations in Indonesia. *Geoforum*, 64, 100–111. <https://doi.org/10.1016/j.geoforum.2015.06.007>.
- Dradjat, Bambang. 2011. Dampak Krisis Finansial Global Dan Kebijakan Antisipatif Pengembangan Industri Kelapa Sawit. *Jurnal Analisis Kebijakan Pertanian*. Vol 9(3) : 237-260.
- Fauzi, Y. 2012. *Kelapa Sawit. Edisi Revisi*. Jakarta. Penebar Swadanya.
- Fuadah, TsamrotulDeilla, danErnah. 2018. Pengelolaan Perkebunan Kelapa Sawit Berdasarkan Prinsip ISPO di PTPN VIII Cikasungka, Jawa Barat. *Jurnal Ilmu Pertanian Indonesia*. Vol 23(3) : 190-195.
- Ginting, Ari Maulinta. 2013. Pengaruh Nilai Tukar Terhadap Ekspor Indonesia. *Buletin Ilmiah Litbang Perdagangan*. Vol 7(1).
- Hashim, K., Tahiruddin, S., &Asis, A. J. (2012). Palm and Palm Kernel Oil Production and Processing in Malaysia and Indonesia. Dalam *Palm Oil* (hlm. 235–250). <https://doi.org/10.1016/B978-0-9818936-9-3.50011-3>
- Henders, S., Ostwald, M., Verendel, V., &Ibisch, P. (2018). Do national strategies under the UN biodiversity and climate conventions address agricultural commodity consumption as deforestation driver? *Land Use Policy*, 70, 580–590. <https://doi.org/10.1016/j.landusepol.2017.10.043>.
- Hosseini, S. H., &Shakouri G., H. (2016). A study on the future of unconventional oil development under different oil price scenarios: A system dynamics approach. *Energy Policy*, 91, 64–74. <https://doi.org/10.1016/j.enpol.2015.12.027>
- Kementrian Pertanian Republik Indonesia. 2017. *Outlook Kelapa Sawit*. Pusat Data dan Informasi Pertanian.
- Mankiw, N. Gregory. 2003. *Teori Makroekonomi Edisi Kelima*. Terjemahan. Jakarta: Penerbit Erlangga.
- Mariati,Rita. 2009. Pengaruh Produksi Nasional, Konsumsi Dunia Dan Harga Dunia Terhadap Ekspor Crude Palm Oil (Cpo) Di Indonesia. *Jurnal EPP*. Vol 6(1) : 30-35.
- Maygirtsari, Tyanma, Edy Yulianto, dan Mukhammad Kholid Marwadi. 2015. Faktor-Faktor Yang Mempengaruhi Volume Ekspor CrudePalm Oil (Cpo) Indonesia. Vol 25(2).
- Munadi, Ernawati. 2007. Penurunan Pajak Ekspor Dan Dampaknya Terhadap Ekspor Minyak Kelapa Sawit Indonesia Ke India. *Jurnal Informatika Pertanian*. Vol 16(2).
- Obado, Joseph, YusmanSyaukat, and HermantoSiregar. 2009. The Impacts Of Export Tax Policy On The Indonesian Crude Palm Oil Industry. *Jurnal ISSAAS*. Vol 15(2) : 107 119.
- Palm Oil Agribisnis Strategic Policy Institute (PASPI). 2016. *Mitos Dan Fakta Industri Minyak Sawit Indonesia Dalam Isu Sosial, Ekonomi Dan Lingkungan Global*. Bogor.
- Putra, I. D, I Wayan Sudirman. 2014. Pengaruh Produksi, Harga, Kurs Dan Tarif 0% Terhadap Ekspor Cpo Indonesia Dalam Skema Acfta. *E-Jurnal Ekonomi Pembangunan Universitas Udayana*. Vol 3 (9).

- Rifin, Amzul. 2010. The Effect of Export Tax On Indonesia's Crude Palm Oil (CPO) Export Competitiveness. *Asean Economic Bulletin Finance*. Vol 27(2): 173–84.
- Rulli, M. C., Casirati, S., Dell'Angelo, J., Davis, K. F., Passera, C., & D'Odorico, P. (2019). Interdependencies and telecoupling of oil palm expansion at the expense of Indonesian rainforest. *Renewable and Sustainable Energy Reviews*, 105, 499–512. <https://doi.org/10.1016/j.rser.2018.12.050>
- Salvatore, Dominick. 1997. *Ekonomi Internasional*, Alih Bahasa Oleh Haris Munandar Edisi 5 Cetak 1. Erlangga. Jakarta.
- Simamora, Henry, 2000, *Manajemen Pemasaran Internasional* (jilid 1), Jakarta : Salemba Empat.
- Singarimbun, Masri dan Sofian Effendi. 2006. *Metode Penelitian Survei*. LP3ES. Jakarta.
- Sukirno, Sadono. 2003. *Pengantar Teori Mikro Ekonomi*. Penerbit PT. Salemba, Jakarta.
- Sulistyanto, Arifin Indra dan Roberto Akyuwen. 2011. Factors Affecting the Performance of Indonesia's Crude Palm Oil Export. *International Proceedings of Economics Development and Research*. Vol 4 : 281-289.