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Trade Liberalization Impact on Economic Performance of Indonesian Palm Coconut Plantation

Sunariyo[1*] Nuhfil Hanani[2] Budi Setiawan[2] Syafrial[2]
1.Doctoral Candidate of Agriculture Science Program, Major in The Economic of Agriculture, University of Brawijaya, Indonesia
2.Lecturers in The Agriculture Faculty, Department of Economic of Agriculture, University of Brawijaya, Indonesia
* E-mail of the corresponding author: sunariyodiris@yahoo.co.id

Abstract
The aim of this study was to analyze the impact of the elimination of trade restrictions as a consequence of trade liberalization on the economic performance of palm coconut plantations in Indonesia. The analysis was done based on time series data for 23 years (1990-2012). In this study, the framework of econometric model compiled with a classifying the economic system of palm coconut plantations in Indonesia into three blocks: production block, block of supply and demand, and block of trades. Each block consists of several structural equations and identities. The next steps were formulating the model, re-spesification and evaluating the results of parameter estimation, validating and simulating.The analysis showed that the palm coconut trade liberalization would increase the acreage of palm coconut, and the export prices, but the production, productivity and export would decrease. This policy had no impact on domestic demand of palm coconut although the domestic price would be decline. Production policy (i.e. raising the palm coconut plantation area and productivity) did not able to increase the production and productivity. As a result, exports of palm coconut would decline, although the domestic demand was relatively constant. The Indonesian economic policy (i.e. decreasing interest rate and price of urea) would increase the total area of palm coconut but their production and productivity would drop by a greater percentage. This impact must be addressed carefully by the Indonesian government.
Keywords: liberalization, trade, economic performance, palm coconut

1. Introduction

Plantation subsector has an important role in the national economy, including palm coconut plantations. Similarly, the importance of this commodity so that the Director General of Plantation (2012), establish palm coconut, as one of the commodities that became the focus of regional development MP3EI (Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia). In Indonesia, palm coconut is the one of foreign exchange source, because Indonesia is a largest exporter country after Malaysia. Contribution of palm coconut plantations on trade balance is essential to improve Indonesia's ability to financing their imports. Therefore the amount of palm coconut exported is a residual value of domestic production and value consumed in the country, then economic performance of palm coconut plantations would also greatly depend on the development of its area, production and productivity.

The economic performance of palm coconut plantations during the years 2008 to 2012 in four aspects (trade balance, area, production and productivity) had experienced positive growth. The growth of palm coconut acreage of 5.39% per year with productivity growth of 1.11% per year have been able to generate production with growth of 7.71% (Table 1). The gains of palm coconut plantations have resulted in the trade balance increased from year to year at 8.35%. When this condition is maintained, then it could be certain that palm coconut plantations would contribute greatly to the formation of foreign exchange in the Indonesian economy. The important question was whether these conditions can be maintained? In the real world, there are many factors that affect economic performance of palm coconut plantations, especially those associated with trade liberalization.

In terms of demand and supply, the potential markets for palm coconut plantation commodities showed an increasing trend. The domestic market is a market with huge potential in the growth of the Indonesian population. Potential international market for palm coconut is also increased along with the liberalization of world trade.

Free trade had a major impact on Indonesia's agricultural sector, both at the micro level (farm) as well as at the macro level (national and policies). At the micro level, trade liberalization is closely related to the efficiency, productivity and economic scale. In this case, government policy is necessary, especially to protect the agricultural producers. However, in reality, governments in developing countries are relatively less successfully to protect their agricultural producers.

The problem in this research was how did the performance of Indonesia's palm coconut plantations if fully enforced trade liberalization? How did alternative agricultural policies have impact on the performance of palm coconut plantations?

2. Agricultural Trade Liberalization

International trade is a very important factor in improving the economic progress of the countries in the world, but the political barriers and exchange rate issues, also often arise (Samuelson and Nordhaus, 1997). Trade between two countries occur due to difference in the price of goods in different countries (Krugman and Obstfield, 1991), will determine a country's decision to sell or buy some goods from other countries. Countries that have a comparative advantage will be exporting countries, vice versa, a country that does not have a comparative advantage, will be importing countries (Mankiw, 2009). Therefore, the countries that participate in the trade, will obtain the gain of trade (Krugman and Obstfield, 1991; Dunn and Mutti, 2004; Thompson, 2001). The fact showed that almost all countries have been implemented trade liberalization. In agriculture, multilateral cooperation embodied by the WTO Agreement on Agriculture (AoA) aims to create a system of agricultural trade fair and market-oriented. Consequently, the countries involved should reduce domestic support, export subsidies and improving market access through the creation of rules and a strong and effective discipline (Department of Agriculture, 2004).

Theoretically, system of free trade between countries can provide maximum benefit. But in reality, many market distortion due to government intervention. Commonly, the government intervention which include import tariffs, export taxes, restrictions on the value or volume of imports, subsidies and other trade policies that aim to protect their local producers and in order to maintain the availability of domestic supply.

Tan (1987) stated that practice of international trade between two countries have always hurt to the weak country, but Jhingan (2012) states that trade policy is important in the economic development of a country. Thus, trade policy is expected to reduce the amount of trading losses incurred. Trade policies applied in importing countries will be different with the policies in the exporting country. According to Anindita and Reed (2008), trade policies in importing countries are usually in the form of import tariffs or import taxes and import quotas. Generally, trade policies in the exporting country are in the form of export subsidies, export taxes and price discrimination. Export subsidies are often applied to agricultural commodities in countries more developed by United States. Export taxes applied to the exporters or indirectly through government-owned marketing agencies who pay producers a price lower than the price on the world market. Price discrimination is done if the exporting country to act as a monopolist that aims to maximize profit (surplus) in which the state will form a segment of the market and set different prices in different markets.

3. The Impact of Export Tax Elimination of Crude Palm Oil (CPO)

The impact of the elimination of export tax would explained using Figure 1. It was assumed there were only two states, namely state A (Indonesian) as crude palm oil exporting country and country B (or other countries, ROW) as crude palm oil importing countries.

Indonesia would be exports their CPO because the domestic prices (Pa) of this commodity is lower than the world price (Pw) as shown in Figure 1 (f). Export CPO Indonesia was amount of excess supply at price Pw. If it is assumed that trade restrictions (such as export tax) of CPO was Pw - Pa, the elimination of trade restrictions of CPO will cause Pw = Pa (world prices are transmitted directly to the domestic market). In the short term, the increase in domestic prices will be responded to consumers by reducing the demand for CPO. Manufacturers could not immediately respond to of this price increases by increasing production because it took quite a long time to produce palm coconut as a raw material CPO. Therefore, the consumers would be lower their consumption by switching to substitutes palm coconut (CPO), but the producers responded it by reducing production that indicated by the shift of the supply curve to the left, so that the new equilibrium price was Pw. (Policy removing trade restrictions are not one of factor prices, so it will cause a shift in the supply curve).

Witzke et al (2011) suggested that changes in agricultural producer prices will drive to a larger extent allocation decisions at the farm level and farm income. Liberalization will transmit directly into domestic prices in world prices. According to Agustian and Hadi (2002), CPO export tax directly affects the domestic prices of CPO. Otherwise, CPO export tax amount depends on the basis export price. While CPO is calculated based on the Rotterdam price of CPO: CIF-Freight. Domestic price of CPO are used as a basis for calculating the price of fresh fruit bunches in palm coconut plantations. Thus the CPO export tax directly and proportionally reduce domestic prices of CPO, which in turn reduces the price of fresh fruit bunches from the farmers.

Manufacturer decrease the amount of their palm coconut produced by reducing the acreage of palm coconut or reduce the capacity of the factory (CPO). Another alternative is to re-arrange (reduce) the amount of inputs that will be used in their production. Thus, elimination of trade restrictions palm coconut (CPO) will have impact on the decline their production, acreage and productivity of palm coconut (CPO), including the use of inputs.

4. Methodology

This study used secondary data. That is time series data for 23 years, began in 1990-2012. Data were collected and processed from several sources, both published regularly in the country and the world as well as from the

results of previous studies.

In this research, the economic system of Indonesian palm coconut plantations were divided into three blocks, that were: block of production, block of supply and demand, and block of trades. Each block consists of several structural equations and identities. Block of production consists of two structural equations were equations of acreage produces palm coconut and its productivity, and one identity equation. The last equation was the sum of production smallholder plantations, private large plantations, and large plantation of the state.

Block of demand and supply consists of two structural equations are equations of demand palm coconut and domestic prices, and an identity equation were palm coconut supply. Domestic supply or domestic demand were the sum of the production and imports, minus exports. Block of trade consists of two structural equations were exports, and export price equation.

Export of palm coconut were determined by the export price of crude palm oil, the production and demand of palm coconut, the exchange rate of IDR and US$, and the trade restrictions. Palm coconut export price was determined by the world's imports of palm coconut, world prices, exchange rate of IDR to US$, trade restrictions and export price in the previous year or lag.

The linkage between variables in this study as econometric model framework Indonesian plantation subsector about economic performance was presented in Figure 2. Furthermore, the model was formulated, re-specificated and evaluated the results of conjecture parameters, so the model was validated and simulated.

5. Results and Discussions

Based on indicators of predetermined economic performance and evaluation criteria compromise between economics, statistics and econometrics of the models that have been developed, the factors that affect on economic performance of Indonesian palm coconut plantations are described below. These factors are grouped into production (palm coconut acreage and its productivity), demand and domestic price of palm coconut, and trade (export and export price of palm coconut).

5.1 Production

a) Response Acreage of the Palm Coconut (AKS)

The acreage of palm coconut plantation (AKS) area simultaneously influenced by the domestic price and domestic price of rubber (HDKSR), the acreage in the previous year (AKS1) (Table 2). AKS increased because of the HDKSR showed that increased the ratio price will be important signal for the farmers or producers to increasing the acreage of their plantation. This was also showed that the elasticity in the short term and long term of both commodity prices. The elasticity of ratio between domestic price of palm coconut and domestic price of rubber (HDKSR) to palm coconut acreage (AKS) in the short run was in-elastic (0,1001), while in the long run was elastic (-1.5907).

These results differ from the findings research of Suharyono (1996) and Zulkifli (2000), that domestic price of palm coconut affect the productive area in a positive way. This situation indicates that the price of palm coconut in the domestic market tends to be better than the export price, so as to attract producers to expand plantation area. It is presumably due to opening of the plantation area in the country were more oriented to the government policy, the country estates obligation to allocate production to fulfill domestic demand. However, Dradjat (2003) found that the effect of domestic prices on different palm coconut plantation that were the area of state large plantations (PBN), and private large plantation (PBS).

b) Response of Palm Coconut Productivity

Productivity of palm coconutplantations (YKS) was affected by the ratio of the domestic price and price of urea (HDKSP), and ratio between wages of farm workers per day and interest rates (UHBTT) (Table 3). According to the value of the elasticity, it would be found that the response of HDKSP and UHBTT to YKS were in-elastic that is of 0.4382 and 0.4758 in the short run.

Coefficient of the variables in this research were in contrast to the results research's Suharyono (1996) who found that interest rates, price of fertilizer and labor wages negatively affect the productive area of palm coconut plantations. Otherwise, Zulkifli (2000) found that the domestic price of crude palm coconut only very noticeable positive effect on the productivity of smallholders and private estates in Sumatera, partially.

The difference in the results of this study showed that there had been a dynamic and economic logic of the factors that influence the decisions of farmers in improving the productivity of palm coconut plantations. The fall in domestic prices of palm coconut, would be rise the prices of urea, daily wages of agricultural laborers and interest rates, would be response by farmers or entrepreneurs palm coconut plantations by improving the productivity of palm coconut plantations. This is understandable because the palm coconut had been planted, it remains to be met the needs of inputs such as fertilizer, capital, maintenance and use of labor. This fact also indicates that large farmers need for the change of palm coconut plantation economy in the future.

5.2. Domestic Demand and Price the Palm Coconut

a) Demand of Palm Coconut (DKS)

Demand for palm coconut (DKS) was influenced by ratio between price of cooking palm coconut and domestic price of palm coconut (HMGSK), and the production of cooking palm coconut (QMGS) (Table 4). In the short run, the response of the production of cooking palm coconut (QMGS) to Demand for palm coconut (DKS) was in-elastic (0,6296).

This finding research contrasts with the results research by Suharyono (1996) that the domestic price of palm coconut negatively affect the domestic demand. This is supported by the elasticity of demand for the price in the domestic market, both the short and long term. This response (in-elastic) showed that the effect of domestic price changes on the domestic demand did not significant. In the short term, 10% drop in domestic price of palm coconut prices would raise the domestic demand by 6.66%, while in the long run will only go up 4.84%. This fact showed that in the short-term and long-term decline in the domestic price of palm coconut will not cause a major increase in its demand. In-elastic properties allegedly caused by price domestic of palm coconut are set by the government (administered prices).

b) Domestic Price of Palm Coconut (HDKS)

The domestic price of palm coconut (HDKS) was only influenced by the exports quantity (XKS) (Table 5). This fact indicated that the increased of the export quantity (XKS) would be increased the domestic price (HDKS). In the short term, elasticity of the export quantity to the domestic price was elastic (0.9008).

This research results are consistent with the results conducted by Suharyono (1996) who found the price of Indonesia's palm coconut exports positive effect on the domestic prices. However, the domestic prices did not responsive to changes in the export price of Indonesia's palm coconut indicated by the low rate of elasticity between the domestic price of Indonesian palm coconut with the export prices in short term and long term. The low elasticity indicate that in determining the price of palm coconut in the domestic market, the domestic producers did not always take into account the export prices because it was very fluctuate. So, it was very difficult to be used as guidelines.

5.3 International Trade of Palm Coconut

a) Export of Palm Coconut (XKS)

Export of palm coconut (XKS) was influenced significantly by the production (QKS), demand for palm coconut (DKS), the IDR exchange rate to US$ (ER) and palm coconut trade restrictions (RESTKSE). But, the variable of palm coconut exports did not influenced by world price of palm coconut (HWKS) that were presented in Table 6.

The positive influence between production of palm coconut (QKS) and the export (XKS) showed that the increased palm coconut production would be increased export of this commodity. Otherwise, the negative influence between some variable there were DKS, ER and RESTKSE to other variable XKS indicated that if DKS, ER dan RESTKSE go up, hence it would be decreased XKS.

Export of palm coconut (XKS) depend on the number of the production (QKS) and the domestic demand (DKS). This situation is quite reasonable because the Indonesian production of palm coconut or CPO is prioritized to fulfill domestic demand and the rest is exported as a source of government revenue. Research data in 2012 found that Indonesia's production of CPO was amounted to 24,394,549 tons, 18.84502 million tons (77.25%) are intended for export, while the rest of 5,549,529 tons (22.75%) to fulfill the domestic demand.

This research results are consistent with Zulkifli's (2000) who found the production of crude palm coconut and highly significant positive effect on the exports with a coefficient of 0.28 which is interpreted that only 28% of any increase in the production unit that can be exported and the remaining 72 % to the domestic supply. Export response to changes in production are also in-elastic, this mean that every 10% increase in crude palm coconut production would cause an increase in exports of 6.8% in the short term and 7.9% in the long term. The results also showed the IDR exchange rate to US$ did not show significant effect on the export of crude palm oil in Indonesia. Export response to changes in the exchange rate also is in-elastic with elasticity coefficient of 0.23 to 0.26 for the short term and long term which means that the increase in the exchange rate by 10% could push up exports of 2.3 % in the short term and 2.6% in the long term. Sulistyanto and Akyuwen (2011) find that the CPO price, the price of peanut oil and sunflower seeds significant effect on CPO export volume, while government policies did not support the optimal performance of the CPO. However, exports of CPO has a bright prospect in the future.

b) Export Price of CPO (HXKS)

CPO world price (HWKS), the trade restrictions (RESTKSE) and the export price in previous year (HXKS1) influenced significantly to the export price (HXKS) (Table 7). In the short run, response of the world price to the export price was in-elastic, and in the long run there was elastic. Meanwhile, response of the trade restriction to the export price was in-elastic, in the short run and the long run.

Although Indonesia was one country with largest palm coconut producer in the world, but the

determination of Indonesia's CPO export price is still depend on foreign market prices. Two of the world stock that became the benchmark was the Malaysia Derivatives Exchange (MDEX) and the Dutch Stock CIF Rotterdam. In Kuala Lumpur Stock Exchange and Rotterdam CPO price is determined by the buyers and sellers who submit the bid price through the mechanism of buying and selling. Furthermore, price happened published by media such as Reuters, Dow Jones, Bloomberg that the market price of CPO from Rotterdam who published one times every day be used by the seller as a reference.

5.4 The impact of Trade Liberalization Policy Analysis, Production, and Economic on Performance Palm Coconut of Indonesia

The elimination of CPO trade restrictions, an increase of palm coconut plantation area by 3%, an increase in productivity of palm coconut plantations by 3%, a decrease in the interest rate to 4%, a decrease in the price of urea by 10% were the basis simulations were used to determine the impact on the economic performance of palm coconut plantations in Indonesia. The impact of these policies are summarized in Table 8.

Trade liberalization policies (elimination of CPO trade restrictions)

The impact of trade liberalization on the performance of Indonesian palm coconut plantations used approach Nominal Rate of Protection (NRP). According to Flatter (2014), the NRP is an indicator of the difference between domestic prices with international prices. Simulation results impact of liberalization (elimination restriction) of palm coconut trading on the economic performance were presented in Table 8 (SIM 1). The simulation results showed that when the trade restriction was removed, then the production decreased as a result of reduced the acreage, but the productivity of palm coconut plantations will increased. This policy had impact on increased the domestic demand, despite of the domestic price also increased. What is interesting was palm coconut exports would drop even though the export price would rise where export price of palm coconut was greater than the domestic price.

The results of this study different from Munadi research (2007). Munadi (2007) represented that in the short term demand for palm coconut exports by India greatly influenced by the ratio between the price of soybean oil and palm coconut's price elasticity of 2.74, elasticity of 2.69 and coefficient of export demand to India last year was 0.89. The decline in export tax would followed by a growing number of palm coconut are exported. However, research on cocoa plantation commodities by Maswadi (2011), found that the government's fiscal policy has led to an increase in the domestic production, but the productivity has declined because farmers cocoa plantations did not noticed the quality of the farming, trying to suppress pests and diseases as well as the quality of the harvested fruit. Pudjiastuti et al. (2013) stated that the trade liberalization did not impact on domestic output sugar and sugarcane.

Production policy (increase acreage and productivity of palm coconut plantations)

Simulation results raise palm coconut plantation area by 3% (SIM 2 in Table 8) showed that this policy will be able to decrease production and productivity of palm coconut. As a result, CPO exports fell by 0.62%, because of the export will be decrease about 5,69%. This policy had no impact on domestic demand. Thereby, this production policy would not be able increased economic performance of palm coconut plantation in Indonesia.

Policy to raise the productivity of palm coconut plantations by 3% (SIM 3 in Table 8), palm coconut plantation sector responded by increasing the area of palm coconut at 26.86%, but the production and exports fell less than 1%. Empirical evidence were logic because it takes a relatively long time for the palm coconut to produce. Thuku et al (2013), found out that only commercialization of many millers could spur productivity in the coffee sector. The study recommends that there is need to reform the cooperative societies which is the direct mechanism of the reforms transmission. The government should also put measures that focus on value addition of coffee enabling the country to export finished coffee products and thus fetch better prices for the same output.

Economic policy (reduced interest rates and price of urea)

The interest rate is one of the economic variables that are often monitored by economic actors including businesses in the plantation sub-sector. The interest rate is seen to have a direct impact on economic conditions. Decisions with regard to consumption, savings and investment is closely related to the development of interest rates. Based on the results of the simulation (SIM 4 in Table 8) if the interest rate drops to 4%, the acreage of palm coconut will increase, but the production and productivity of palm coconut will go down with a greater percentage. This impact must be addressed carefully by the government as the authority to change the interest rate may be done by the Indonesian government.

Based on the financing structure of farming, the linkages between prices of inputs and productivity of palm coconut can be explained. The increased prices of inputs would affect the ability of farmers to buy and fulfill the needs of input. If this input can not be fulfilled in accordance with the fertility rate will drop so that the plant would reduce production. Therefore, removal of subsidies on fertilizers should be reviewed. The results of

the simulation (SIM 5 in Table 8) showed that the policy of lowering price of urea by 10%, has the same effect with lowered interest rates, which would increase the total area of palm coconut, but the production and productivity will drop by a greater percentage.

Several studies of plantation commodities give results similar or different from the results of this study. Pudjiastuti et.al. (2013) found that the increase in sugar prices would increase output, and the welfare of sugar and sugarcane producers and sectors that use sugar as an input, but its exports unchanged. Meanwhile, exports of rubber as substitutes palm coconut, significantly affected by domestic production of rubber, producer prices, exchange rates, domestic consumption and interest rates (Amoro dan Shen, 2013).

6. Conclusions

The economic performance of Indonesian palm coconut plantations were determined by a variety of variables that are grouped in blocks of production (acreage and productivity), block supply and demand (demand and domestic price) as well as a block trade (export quantity and export prices).

The CPO trade liberalization had impact on increasing the acreage of palm coconut, but the production and productivity dropped. This policy had no impact on domestic demand of palm coconut, but the domestic price would be down. Exports of palm coconut would go down even though the price of its exports would rise, where palm coconut export price was greater than the domestic price.

Policies to raise production of palm coconut plantation area and productivity of 3% did not able to increase production and productivity of palm coconut. As a result, exports of palm coconut oil dropped, because of the domestic demand is relatively fixed.

The Indonesian economic policy (in this case was reduced interest rates and price of urea), would increase the total acreage of palm coconut, but the palm coconut production and productivity would drop by a greater percentage. This impact must be addressed carefully by the Indonesian government.

Reference

Agustian, A dan Hadi, P.U. 2002. Analisis Dinamika Ekspor dan Keunggulan Komparatif Minyak Kelapa Sawit (CPO) di Indonesia. Pusat Penelitian Sosial Ekonomi Pertanian. Badan Penelitian dan Pengembangan Pertanian, Bogor

Anindita, R dan Reed, M.R., 2008. Bisnis dan Perdagangan Internasional. Penerbit Andi. Yogyakarta.

Amoro, G and Yao Shen. 2013. The Determinants of Agricultural Export: Cocoa and Rubber in Cote d'Ivoire. International Journal of Economics and Finance; Vol. 5, No. 1; 2013. ISSN 1916-971X E-ISSN 1916-9728.

Direktorat Jenderal Perkebunan. 2012. Kebijakan Pengembangan Komoditas Perkebunan Strategis. Disampaikan pada Rapat Kerja Akselerasi Industrialisasi dalam Rangka Mendukung Percepatan dan Pembangunan Ekonomi, Hotel Grand Sahid, 1 Pebruari 2012.

Jhingan, M.L., 2012. Ekonomi Pembangunan dan Perencanaan. Penerjemah D. Guritno. PT. Raja Grafindo Persada. Jakarta.

Krugman, P.R. and M. Obstfeld, 1991. International Economics: Theory and Policy. Scott and Foresman, Glenview

Kuncoro, M., 2013. Mudah Memahami & Menganalisis Indikator Ekonomi. UPP STIM YKPN. Yogyakarta.

Maswadi. 2011. Agribisnis Kakao dan Produk Olahannya Berkaitan Dengan Kebijakatan Tarif Pajak di Indonesia. J. Tek. Perkebunan & PSDL. ISSN: 2088-6381. Vol 1, No 2, Desember 2011, hal 23-30.

Munadi, E. 2007. Penurunan Pajak Ekspor dan Dampaknya Terhadap Ekspor Minyak Kelapa Sawit Indonesia ke India (Pendekatan Error Correction Model). Informatika Pertanian Volume 16 No. 2, 2007.

Pudjiastuti, A.Q.; Anindita, R.; Hanani, N and Kaluge, D. 2013. Effects of Sugar Price Increase In Indonesia. Studia UBB, Oeconomica, Volume 58, Issue 1, 2013.

----------. 2013. Changes Effect of Sugar Import Tariff in Indonesia. Russian Journal of Agricultural and Socio-Economic Sciences, 3(15).

Sulistyanto, A.I. and Akyuwen, R. 2011. Factors Affecting the Performance of Indonesia's Crude Palm coconut Export. International Conference on Economics and Finance Research. IPEDR vol.4 (2011) © (2011) IACSIT Press, Singapore.

Tan, S., 1988. Essensi Ekonomi Internasional. Ghalia Indonesia. Jakarta.

Thuku, G.K., Paul, G and Almadi, O. 2013. Effects of Reforms on Productivity of Coffee in Kenya. International Journal of Business and Social Science Vol. 4 No. 15 [Special Issue – November 2013].

Witzke, H.P., Britz, W., and Borkowski, N. 2011. Common Agricultural Policy Regionalised Impact –The Rural Development Dimension. Collaborative project - small to medium-scale focused research project under the Seventh Framework Programme. Project No.: 226195

Zulkifli, 2000. Dampak Liberalisasi Perdagangan Terhadap Keragaan Industri Kelapa Sawit Indonesia dan Perdagangan Minyak Sawit Dunia. Disertasi Doktor. Program Pascasarjana, Institut Pertanian Bogor. Tidak dipublikasikan.

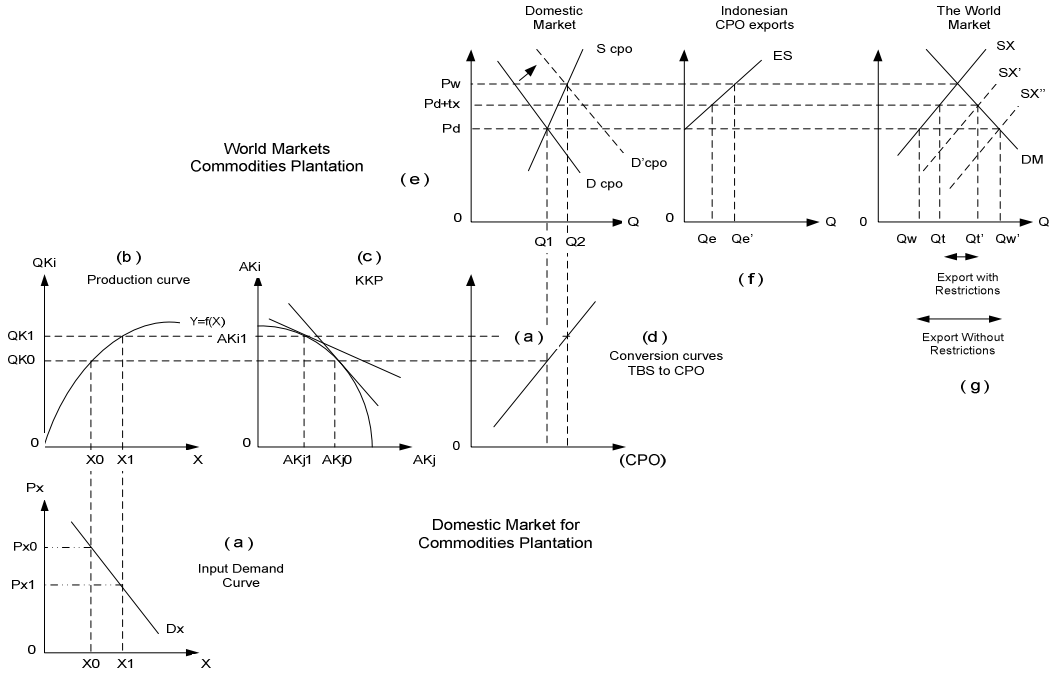

Figure 1. Impact of Trade Liberalization Crude Palm Oil (CPO)
Source: Tweeten (1992), modified

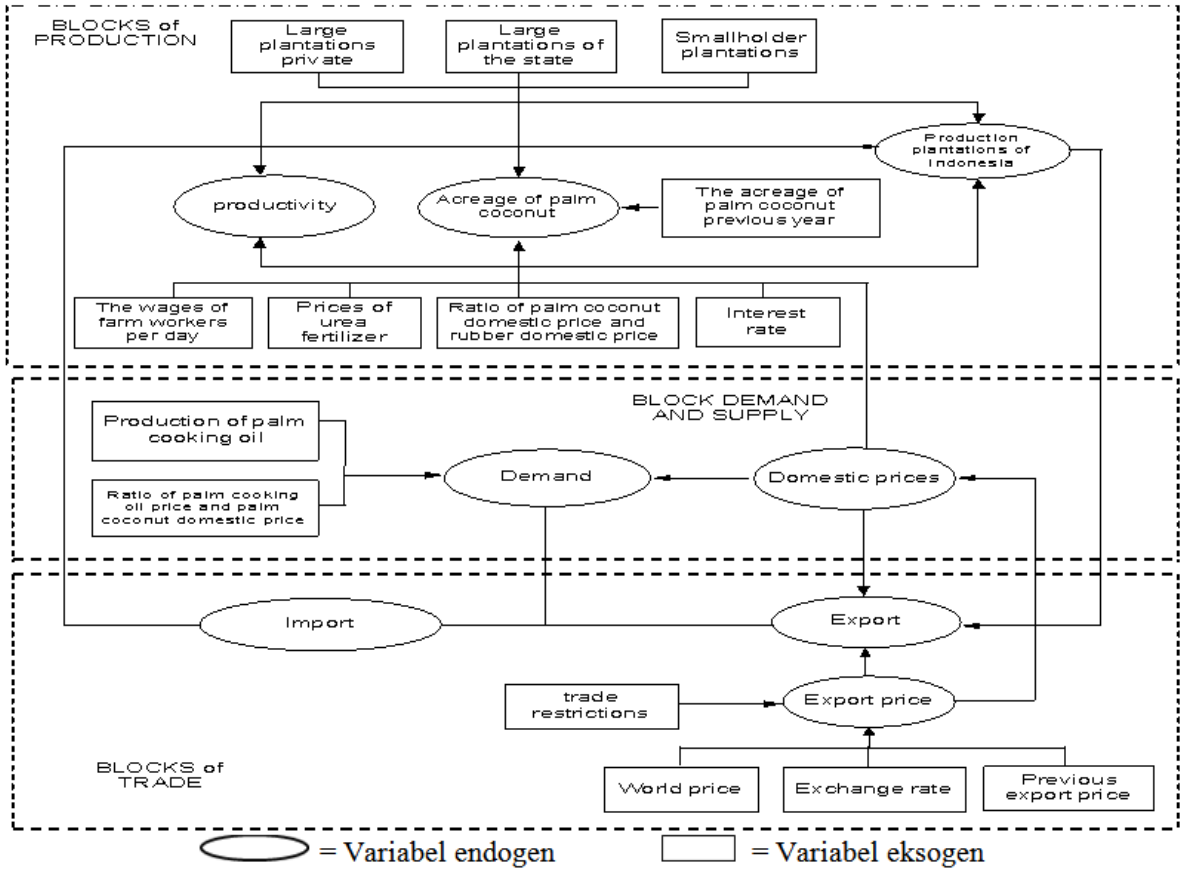

Figure 2. The Framework Model for the Economic Performance of Indonesian Palm Coconut Plantations

Table 1. The Role of Palm Coconut Indonesia during the Year 2008-2012

No.	Variable	Year		The average growth rate per year (%)
		2008	2012	
1.	Balance trade (000 US$)	14,097,123	19,546,030	8.35
2.	Area (ha)	7,363,847	9,074,621	5.39
3.	Production (ton)	17,539,788	23,521,071	7.71
4.	Productivity (kg/ha)	3,424	3,571	1.11

Source: Statistics Macro and Micro Agricultural Sector (2013), Ministry of Agriculture (2013), modified

Tabel 2. Response Analysis of Palm Coconut Acreage (AKS)

Independent Variable	Parameter Estimate	Prob	Elasticity	
			Short-run	Long-run
Ratio between domestic price of palm coconut and domestic price of rubber (HDKSR)	658062.5	0.2655*	0.1001	-1.5907
Acreage of palm coconut in previous year (AKS1)	1.062926	0.0001*		

Source : analysis results, 2014

Table 3. Analysis Results of Productivity Response

Independent Variable	Parameter Estimate	Prob	Elasticity	
			Short-run	Long-run
Ratio between domestic price of palm coconut and urea fertilizer price (HDKSP)	0.4551	0.0020*	0.4382	-
Ratio between daily farm labor wages and interest rate (UHBTT)	0.0005	0.0015*	0.4758	-

Source : analysis results, 2014

Table 4. Results Analysis of Palm Coconut/CPO Demand (DKS)

Independent Variable	Parameter Estimate	Prob	Elasticity	
			Short-run	Long-run
Intercept	201667.7	0.9073		
Ratio between the price of cooking palm oil and the domestic price of palm coconut (HMGSK)	1024891	0.4942	0.3496	-
Production of cooking palm coconut (QMGS)	285.6422	0.0082*	0.6296	-

Source : analysis results, 2014.

Table 5. Result Analysis of Domestic Price of Palm Coconut (HDKS)

Independent Variable	Parameter Estimate	Prob	Elasticity	
			Short-run	Long-run
Export of palm coconut (XKS)	0.4981	0.0001*	0.9008	-

Source : analysis results, 2014

Table 6. Results Analysis of Palm Coconut Exports (XKS)

Independent Variable	Parameter Estimate	Prob	Elasticity	
			Short-run	Long-run
Intercept	207917.5	0.0001		
World price of palm coconut (HWKS)	0.002133	0.8454	0.0012	-
Production of palm coconut (QKS)	0.999007	0.0001*	1.5257	-
Demand of palm coconut (DKS)	-1.00223	0.0001*	-0.5356	-
Exchange rate of IDR and US$ (ER)	-13.4121	0.0869*	-0.0129	-
Trade restriction of palm coconut (RESTKSE)	-2467.01	0.2214*	-0.0068	-

Source : analysis results, 2014

Table 7. Parameter Estimation Results of Equation Export Price of Palm Coconut/CPO (HXKS)

Independent Variable	Parameter Estimate	Prob	Elasticity	
			Short-run	Long-run
Intercept	377406.0	0.0073		
World impor of palm coconut (MWKS)	0.019929	0.0607*	0.1170	0.1211
World price of palm coconut (HWKS)	0.885075	0.0001*	1.1238	1.1633
Exchange rate of IDR and US$ (ER)	-174.359	0.0001*	-0.3648	-0.3776
Trade restriction of palm coconut (RESTKS)	20282.69	0.0002*	-0.0173	-0.0179
Previous export price of palm coconut (HXKS1)	0.033894	0.3405		

Source : analysis results, 2014

Table 8. The impact of Trade Liberalization Policy Analysis, Production, and Economic on Performance Palm coconut Indonesia

No.	Variable	Notation	Value and the amount of change (%)					
			Basic	SIM 1	SIM 2	SIM 3	SIM 4	SIM 5
1.	Area of palm coconut	AKS	3565478	26.86	-	26.86	26.86	26.86
2.	Productivity of palm coconut	YKS	33247.7	-7.57	-7.57	-	-7.57	-7.57
3.	Production of palm coconut	QKS	11624265	-0.41	-0.41	-0.41	-0.41	-0.41
4.	Demand of palm coconut	DKS	4027569	0.00	0.00	0.00	0.00	0.00
5.	Domestic price of palm coconut	HDKS	4243415	-10.22	-10.77	-10.77	-10.77	-10.77
6.	Export of palm coconut	XKS	7648913	-0.0047	-0.62	-0.62	-0.62	-0.62
7.	Export Price of palm coconut	HXKS	3513275	5.64	-5.69	0.00	0.00	0.00

Source : analysis results, 2014
SIM 1 = Simulation of removing trade restriction on palm coconut (RESTKSE = 0%)
SIM 2 = Simulation of increasing acreage plantation of palm coconut (AKS = 3%)
SIM 3 = Simulation of increasing productivity plantation of palm coconut (YKS = 3%)
SIM 4 = Simulation of decreasing the rate of interest became 4% (TSB = 4%)
SIM 5 = Simulation of decreasing price of urea 10% (HPU = 10%)