The Effect of Progressive Export Tax on Indonesian Palm Oil Industry

Amzul Rifin*

ABSTRACT

The government of Indonesia imposed export tax on crude palm oil (CPO) and its derivatives since September 1994 and in September 2007, the progressive export tax was implemented. This policy has two objectives, first is to guarantee the availability of domestic CPO as the main raw material of cooking oil which is one of the staple products of Indonesia. Secondly, is to develop the downstream industry of the palm oil industry which has higher value-added compared to CPO. By limiting CPO export, hopefully the CPO will be utilised to produce higher value-added product. The objective of this article is to analyse the effect of export tax on Indonesian palm oil industry. The results indicate that export tax will decrease domestic CPO price, production, export and competitiveness. The policy will make producers worse off while consumers and cooking oil producers will be better off. On the other hand, the policy is able to increase the refined palm oil export and stabilise the cooking oil price.

**Keywords:** export tax, crude palm oil, Indonesian palm oil industry.

INTRODUCTION

Palm oil is considered to be an important product in Indonesian economy. This commodity is also an important export commodity and in 2012, palm oil export was valued at USD 17.6 billion or 9.36% of Indonesia's total export in 2012. Palm oil export commodity can be classified into two products, crude palm oil (CPO) and refined palm oil (RPO). RPO consists of several products which utilise CPO as its raw material and these products have higher value-added compared to CPO. In 2012, RPO export dominates with 62% while the rest is CPO export. This composition has shifted compared to 1990 when 81% of Indonesia's palm oil export was in the form of CPO while the rest was RPO. In addition, during the period of 1990-2012, RPO export grew by an average of 36% while CPO export grew by 25% in the same period (*Figure 1*).

As an important export commodity, palm oil is also an important raw material for cooking and it is considered to be a staple

* Department of Agribusiness,
  Faculty of Economics and Management,
  Bogor Agricultural University,
  Bogor 16680 Indonesia.
  E-mail: amzul_rifin@yahoo.com
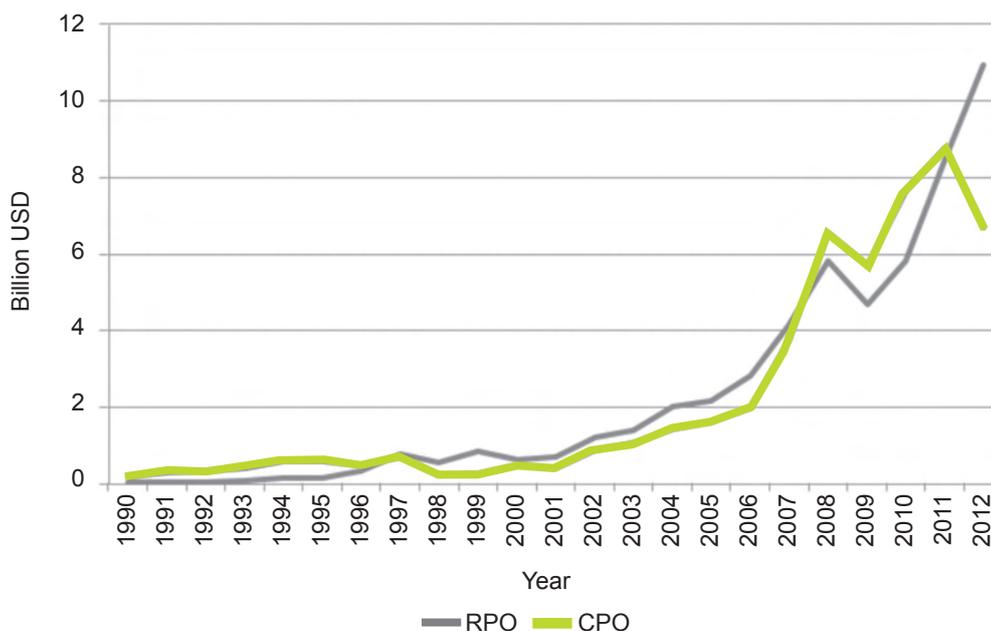
Source: UN Comtrade (2013).

Figure 1. Indonesia's crude palm oil (CPO) and refined palm oil (RPO) export, 1990-2012.

commodity in Indonesia. In order to guarantee the availability of palm oil in domestic market, the government since September 1994 imposed an export tax policy. The other objective of the policy is to develop the downstream industry of palm oil which has higher value-added.

Theoretically, the implementation of export tax will decrease the domestic price, while it will increase the export price. *Figure 2* illustrates the effect of export tax at a rate of t. The domestic price of export falls to p_t, reducing the sum of consumer and producer surplus by the area of $p_F DCp_t$. However, the tax yields revenue equal to after tax volume multiplied by the tax rate or the area of $p^*_t ACp_t$. The loss of tax is equal to the area of BCD, while a term of trade gain equal to the area of $p^*_t ABp_F$ (Helpman and Krugman, 1989).

The objective of this article is to analyse the effect of progressive export tax on Indonesian palm oil industry. In addition, two equations are calculated in order to analyse the effect of export tax on export and competitiveness.

EXPORT TAX POLICY

The trade liberalisation policy in 1991 resulted in an increase in both domestic price of cooking oil and volume of palm oil export. Concerned with the increase of cooking oil price, the government issued a new policy by imposing export taxes on palm oil products. The export tax policy was first implemented in September 1994. The implementation of export tax policy on palm oil products can be divided into three periods.
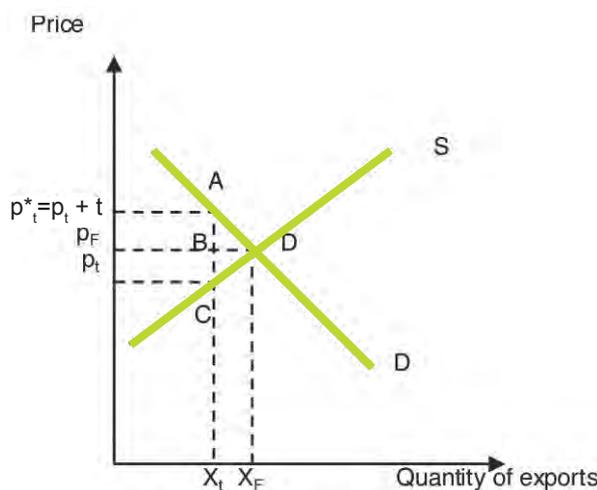
Source: Helpman and Krugman (1989).

Figure 2. The imposition of export tax.

Period I: September 1994 – June 1997

The government issued Decree of Ministry of Finance No. 439/KMK.017/1994 to tax on CPO, refined bleached deodorised palm oil (RBD PO), crude olein and refined bleached deodorised oil (RBD olein) beginning in September 1994.

The formula to calculate the export tax was as follows:

Export tax = export volume x export tariff x (base price – FOB price) x exchange rate

The free on board (FOB) price is determined by the Ministry of Finance every month based on average prices of the world market during the previous two weeks; meanwhile the base price is the maximum export price which was free from export tax. The tax rate is getting smaller as the difference between base price and export price is bigger. The complete export duty can be seen in *Table 1*.

One of the palm oil products taxed is CPO. The magnitude of export tax on CPO is shown in *Figure 3*. During this period the export tax ranges from USD 0 – USD 100.4. The highest occurred in December 1994 when the FOB price reached USD 684/t, meanwhile the lowest occurred in August 1996 when the FOB price was USD 434/t which was lower than the CPO base price of USD 435.

Period II: July 1997 – August 2007

In July 1997, based on the Decree of Ministry of Finance No. 300/KMK.01/1997, the calculation method of export tax has changed. According to the new method, the export tax is calculated as follows:

Export tax = export tax tariff x check price x export volume x exchange rate

However, when the check price has not been determined, the calculation of the export tax is as follows:

Export tax = export tax tariff x FOB value x exchange rate

The FOB value is the total export value stated in the *Commodity Export Report* or in the *Certain Commodity Export Report.*

The new calculation differs from the previous one. In the previous calculation, the export tax depends only at the difference between the FOB price and the base price and only the base price is determined by the government; meanwhile the other variable, such as base price and export tariff, is fixed. The new calculation of export tax depends on the export tariff and the check price determined by the government, therefore the government can determine the magnitude of the export tax depending on the price of domestic cooking oil. When the domestic price of cooking oil is high, the government imposed high check price and export tariff.

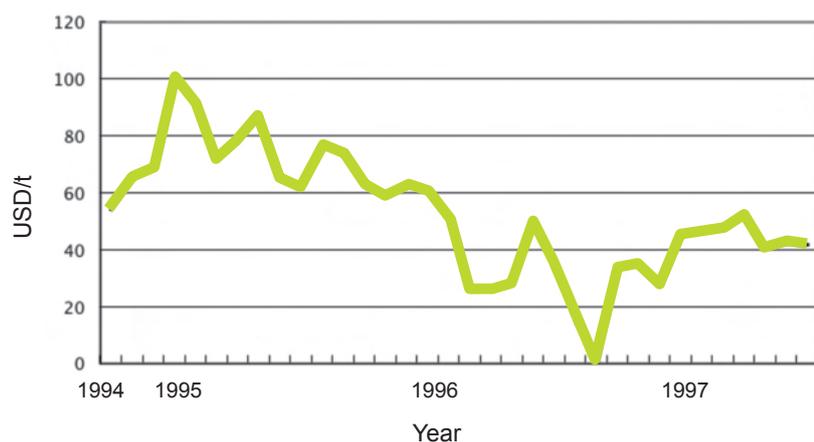| TABLE 1. EXPORT TAX STRUCTURE OF INDONESIAN PALM OIL ACCORDING TO THE MINISTRY OF FINANCE DECREE NO. 439/KMK.017/1994		
Product	**Price levels**	**Duty/t**
Crude palm oil	Base price: USD 435 Additional: First 35 (435-470) Next 35 (470-505) Next 35 (505-540) Next 35 (540-575) Next 35 (575-610) Balance (P>610)	0% 60% 56% x (EP – BP) 52% x (EP – BP) 48% x (EP – BP) 44% x (EP – BP) 40% x (EP – BP)
Refined bleached deodorised palm oil	Base price: USD 460 Additional: First 40 (460-500) Next 40 (500-540) Next 40 (540-580) Next 40 (580-620) Next 40 (620-660) Balance (P>660)	0% 60% 56% x (EP – BP) 52% x (EP – BP) 48% x (EP – BP) 44% x (EP – BP) 40% x (EP – BP)
Crude olein	Base price: USD 465 Additional: First 45 (465-510) Next 45 (510-555) Next 45 (555-600) Next 45 (600-645) Next 45 (645-690) Balance (P>690)	0% 60% 56% x (EP – BP) 52% x (EP – BP) 48% x (EP – BP) 44% x (EP – BP) 40% x (EP – BP)
Refined bleached deodorised olein	Base price: USD 500 Additional: First 50 (500-550) Next 50 (550-600) Next 50 (600-650) Next 50 (650-700) Next 50 (700-750) Balance (P>750)	0% 60% 56% x (EP – BP) 52% x (EP – BP) 48% x (EP – BP) 44% x (EP – BP) 40% x (EP – BP)

Note: EP - export price, BP - base price.

Figure 3. Crude palm oil export tax, September 1994 to June 1997.

The export tax tariff is determined by the Minister of Finance, while the check price is determined by the Ministry of Trade and Industry on a monthly basis. During this period, the number of products being taxed increase from four into 10 palm oil and palm kernel oil derivatives including CPO. In addition, from January to April 1998, the government banned the export of palm oil products since the domestic scarcity at that time.

During this period, the magnitude of the CPO export tax ranges from USD 4.8 until USD 378/t (*Figure 4*). The highest occurred during the financial crisis in September 1998 when the export tax tariff reached 60% and the check price was USD 630/t CPO. During this period, the country was in the midst of the Asian financial crisis which saw a tremendous increase in the domestic cooking oil price. In an attempt to lower the cooking oil price, the government set a high export tax on CPO or even banned the CPO export from January to April 1998 in order to guarantee the availability of domestic CPO in an affordable price. After the crisis is over, the government gradually decreased the export tax tariff (*Table 2*).

The magnitude of the export tax during this period depends on two variables, export tax tariff and the check price. The check price is supposed to follow the fluctuation of international price, but during the period of August 1999 until August 2000 the check price of CPO is constant at USD 120 and during October 2000 – September 2005 when the check price is constant at USD 160 (*Figure 5*). Therefore during these two periods the CPO export tax is constant (*Figure 4*). Beginning from April 2006, the government updates the check price every month. Meanwhile, for the export

tax tariff, the magnitude fluctuated over this period (*Table 2*).

Period III: September 2007 - Now

Beginning in September 2007 based on the Ministry of Finance Decree No. 94/PMK.011/2007, the export tax tariff determination has changed. According to the decree, the export tax tariff is determined based on the reference price set by the Ministry of Trade according to the previous month average international CPO price in Rotterdam. This regulation was imposed because of the increase in the international price of CPO causing palm oil producer to export its product rather than selling in domestic market.

This decree also set the minimum reference price when the palm oil product is taxed. From September 2007 until October 2008, the minimum reference price is USD 550. Therefore when the reference price is under USD 550, the export tax tariff is zero. Meanwhile, the higher the reference price rises the higher export tax tariff is imposed. Beginning in November 2008, the minimum reference price was increased to USD 700/t of CPO. In September

TABLE 2. CRUDE PALM OIL EXPORT TAX TARIFF	
Period	**Export tax tariff (%)**
July – December 1997	5
January – April 1998	Export ban
May – June 1998	40
June 1998 – January 1999	60
February – May 1999	40
June 1999	30
July 1999 – August 2000	10
September 2000 – February 2001	5
March 2001 – August 2005	3
September 2005 – May 2007	1.5
June 2007 – August 2007	6.5

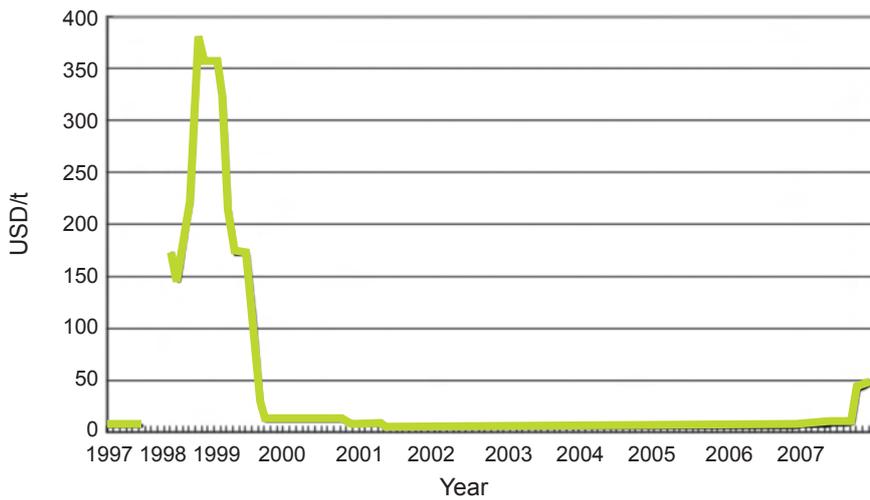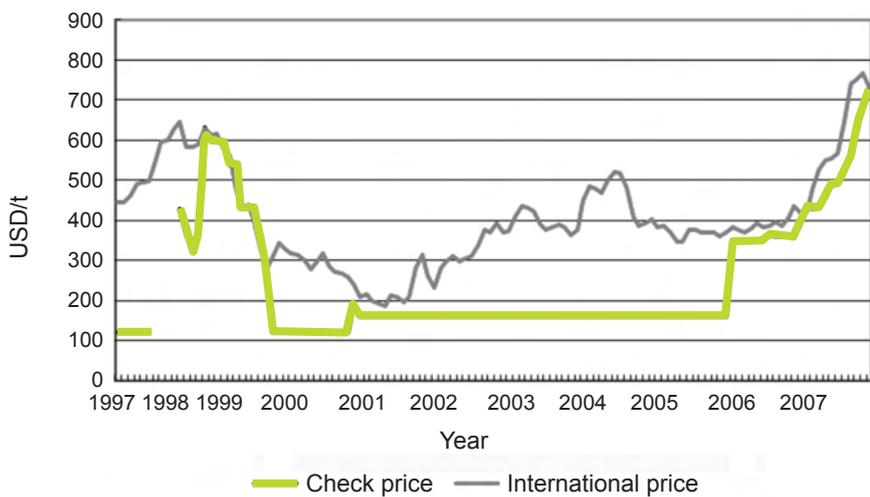Source: Ministry of Finance (various years).

Figure 4. Crude palm oil export tax, July 1997 to August 2007.

Source: Ministry of Trade and IMF (2009).

Figure 5. Check price and international price of crude palm oil, July 1997 to August 2007.

2011, the minimum reference price being taxed increase to USD 750/t of CPO. Higher reference price would induce higher tariff rate and increase the export tax (*Table 3*). In addition, currently there are 29 palm oil products and its derivatives are imposed with export tax and each commodity has a different tariff scheme.

During this period, for CPO, the highest export tax paid occurred in March 2011 when the export tax tariff was 25% and the check price was USD 1222 therefore the export tax was USD 305.5/t. Meanwhile the lowest of 0% occurred from November 2008 to May 2009 and August 2009 to December 2009 when the reference price was lower than USD 700 (*Figure 6*).

EFFECT OF EXPORT TAX ON INDONESIAN PALM OIL INDUSTRY

Several studies have been conducted to analyse the effect of export tax on Indonesian palm oil industry especially the effect of CPO export tax. The studies can be divided into two classifications based on the methodology utilised, the first using the simultaneous equation conducted by Larson (1996), Marks *et al.* (1998), Susila (2004) and Obado (2009). The second approach is conducted using single equation model which is conducted by Hasan *et al.* (2001) and Rifin (2010).

Larson (1996) argued that the export tax decreased the domestic price of CPO, hence the production cost of cooking oil also decreased. Export tax also transfers an amount of USD 99 million from palm oil growers, mainly located outside Java, to the urban consumers mostly in Java. Therefore export tax mainly benefits the urban population in Java which consumes cooking oil made from palm oil.

Marks *et al.* (1998) calculated the impact of export tax on the government, producers, distributors and consumers using static model. The study showed that the government loss was USD 18.1 million, palm oil refiners loss USD 2.5 million; meanwhile distributor and consumers gained USD 220.5 million from the implementation of export tax in 1995. The government loss is triggered by the loss of the government-owned estates which is higher than the revenue collected from the export tax.

Susila (2004) using simultaneous equation reveals that the export tax has negative effect on investment, production, export and farmer's income. Meanwhile, the policy has positive impact in controlling domestic CPO and cooking oil price. The author concluded that the policy will make the consumers and government to be better off meanwhile the producers will be worse off.

Obado *et al.* (2009) using the same approach as Susila (2004) also generate similar result. The

TABLE 3. CRUDE PALM OIL EXPORT TAX TARIFF	
Reference price (USD/t)	Export tax tariff (%)
RP £ USD 750	0
USD 750 < RP ≤ USD 800	7.5
USD 800 < RP ≤ USD 850	9
USD 850 < RP ≤ USD 900	10.5
USD 900 < RP ≤ USD 950	12
USD 950 < RP ≤ USD 1000	13.5
USD 1000 < RP ≤ USD 1050	15
USD 1050 < RP ≤ USD 1100	16.5
USD 1100 < RP ≤ USD 1150	18
USD 1150 < RP ≤ USD 1200	19.5
USD 1200 < RP ≤ USD 1250	21
RP > USD 1250	22.5

Source: Ministry of Finance Decree No. 75/2012.

Figure 6. Crude palm oil export tax, September 2007 to December 2013.
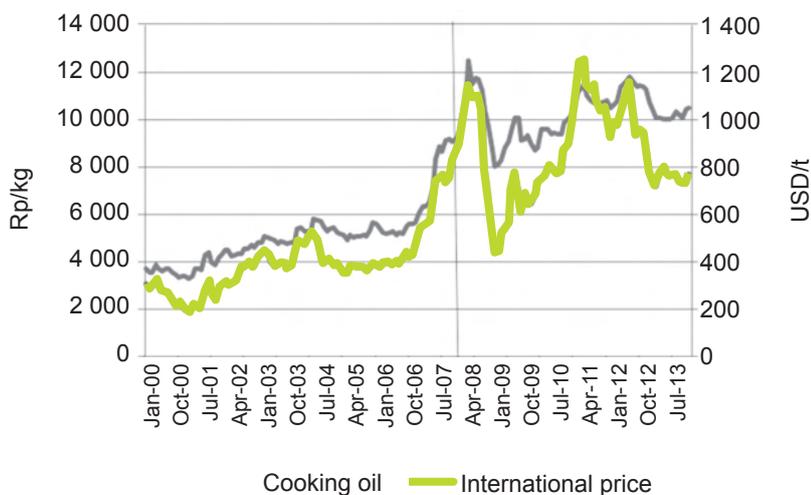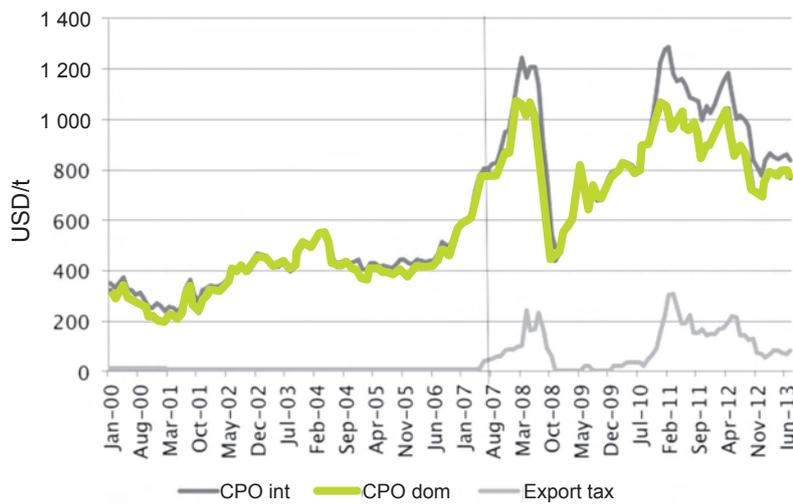

Source: Ministry of Trade and PT Smart (2013).

Figure 7. The relation between cooking oil price and international price of crude palm oil.

authors indicated that the policy is negatively related to mature area of oil palm plantation, export and domestic price of CPO while it has positive relation with CPO consumprion and stock. Hence the policy will reduce the competitiveness of Indonesian palm oil industry.

A different approach was taken by Hasan *et al.* (2001) and Rifin (2010) using single equation. Hasan *et al.* (2001) analysed the dynamic effect of export tax on Indonesia's palm oil export performance. The authors utilise the vector autoregressive regression (VAR) with three dependent variables: net export share, export tax and relative export price (international price divided by Indonesian FOB price). The result indicates that export tax has negative relationship with net export share while relative export price have a positive relationship with the net export share. The research also showed that the effect of export tax is not immediate; it appears on the second month and peaks four months after the tax is imposed and it has a long period effect. Meanwhile Rifin (2010) also analysed the effect of CPO export tax on Indonesia's CPO export competitiveness by comparing to Malaysia's CPO export. The author reveals that increase in Indonesia's CPO export tax compared to Malaysia will decrease Indonesia's CPO export competitiveness compare to Malaysia.

The other methodology utilised to analyse the effect of export tax is using partial equilibrium analysis. The advantage of using this analysis is that the range of the analysis can be widen not only in one country or one commodity. Bouet *et al.* (2012) using partial equilibrium analysis, analyse the effect of differential export taxes (DET) on several commodities and several countries including oil palm in Indonesia. The DET means implementing different value of

Source: Ministry of Trade and PT Smart (2013).

Figure 8. The relation between domestic price of crude palam oil (CPO), international price of CPO and export tax.

TABLE 4. ESTIMATION RESULT				
Variables	**Dependent variable**			
	Export		**Share**	
Constant	-11.524		-3.389	*
Ln exchange rate (Rp/USD)	3.599	***	0.494	*
Indonesia's CPO export tax (USD/t)	-0.008	***	-0.002	***
Malaysia's CPO export tax (USD/t)	0.002	**	0.001	*
Ln domestic CPO price (Rp/kg)	-3.627	***	-0.570	***
Ln international CPO price (USD/t)	3.505	**	0.712	**
Ln international soyabean price (USD/t)	1.183	**	-0.017	
R²	0.439		0.377	
F-stat	10.947	***	8.480	***

Note: ***   Significant at 1% level.
         **   Significant at 5% level.
          *   Significant at 10% level.

export tax for different products along the supply chain, mainly lower value of export tax for raw materials compare to processed products. This DET is applied in Indonesia for the case of oil palm products. One of the scenario in the article, is eliminating the DET in oil palm in Indonesia, the results show that eliminating export tax on raw and processed oil palm will increase domestic price and decrease fresh fruit bunch (FFB) production slightly (0.1%).

Using recent monthly data from January 2006 until July 2013 also reveals that CPO export tax has negative effect on Indonesia's CPO export and competitiveness (indicated by export share) (*Table 4*). However, the coefficient is relatively small compared to other variables. This shows that the effect of export tax to export and competitiveness is negative but relatively small compared to other variables. In addition, Malaysia's CPO export tax also

affects Indonesia's CPO export and competitiveness although the effect is relatively small shown by the small coefficient of the variable. Therefore, the decreased of Malaysia's CPO export tax since January 2013 will have negative effect on Indonesia's CPO export and competitiveness.

The policy has two main objectives which are to develop downstream industry and guarantee the availability of CPO for domestic market in affordable price in order to stabilise the cooking oil price. The first objective has been achieved since the RPO export increased significantly over the years and surpassed the CPO export as shown in *Figure 1*.

The second objective is regarding the volatility of cooking oil price. Two periods are compared, before the implementation of progressive export tax in September 2007 and afterwards (*Figure 7*). The price fluctuation is measured by the coefficient variation, the coefficient variation of cooking oil price before September 2007 is 23.30% and after September 2007 the coefficient variation is 9.63% showing lower price fluctuation of the cooking oil price. The fluctuation of cooking oil price can be affected by the international price of CPO, fluctuation of international price of CPO is higher compared to cooking oil price. Before September 2007, the coefficient variation of international price of CPO is 31.56% and after September 2007 is 22.93%.

The relatively smaller fluctuation of cooking oil price after the implementation of progressive export tax is because the price of domestic CPO has relatively smaller fluctuation (*Figure 8*). The progressive export tax is able to absorb the effect of international CPO price to the price of domestic CPO. Looking at *Figure 8*, it shows that during the price increase of

international CPO there are gaps between price of international and domestic CPO while during stable price the gap is relatively smaller.

CONCLUSION

The implementation of export tax has negative effect on export, production, domestic CPO price and competitiveness. In addition, it will make producers worse off while consumers and cooking oil or producers would be better off. On the other hand, the policy especially the progressive export tax, has made refined palm oil export to increase and able to stabilise the cooking oil price.

REFERENCES

ANTOINE BOUET; CARMEN ESTRADES and DAVID LABORDE (2012). Differential export taxes along the oilseeds value chain: a partial equilibrium analysis. *IFPRI Discussion Paper 01236.* International Food Policy Research Institute (IFPRI).

MINISTRY OF FINANCE. Decree of Ministry of Finance, Republic of Indonesia. Various decrees and years.

MINISTRY OF TRADE AND INDUSTRY. Decree of Ministry of Trade and Industry, Republic of Indonesia. Various decrees and years.

HASAN, MOHAMAD F; MICHAEL R REED and MARY A MARCHANT (2001). Effects of an export tax on competitiveness: the case of the Indonesian palm oil industry. *J. Economic Development, 26(2)*: 77-90.

HELPMAN, ELHANAN and PAUL R KRUGMAN (1989). *Trade Policy and Market Structure*. MIT Press, Cambridge.

LARSON, DONALD F (1996). Indonesia's palm oil subsector. *Policy Research Working Paper No. 1654*. World Bank.

MARKS, STEPHEN V; DONALD F LARSON and JACQUELINE POMEROY (1998). Economic effects of taxes on exports of palm oil products. *Bulletin of Indonesian Economic Studies, 42(3)*: 7-58.

OBADO, JOSEPH; YUSMAN SYAUKAT and HERMANTO SIREGAR (2009). The impacts of export tax policy on the Indonesian crude palm oil industry. *J. International Society for Southeast Asian Agricultural Sciences (ISSAAS), 15(2)*: 107-119.

RIFIN, AMZUL (2010). The effect of export tax on Indonesia's crude palm oil (CPO) export competitiveness. *ASEAN Economic Bulletin, 27(2)*: 173-184.

SUSILA, WAYAN R (2004). Impacts of CPO-export tax on several aspects of Indonesian CPO industry. *Oil Palm Industry Economic Journal Vol. 4 No. 2*: 1-13.

UNITED NATIONS (2013). Commodity trade statistics database (COMTRADE). Available from URL: http://unstats.un.org/unsd/comtrade