THE EFFECT OF EXTERNAL AND INTERNAL SHOCKS ON THE MOVEMENT OF PALM OIL PRICE: A SVAR ANALYSIS OF MALAYSIA

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ABSTRACT

Palm oil is one of the important commodities in stimulating the economy since Malaysia is one of the largest countries in producing palm oil. Thus understanding the factors that affect the movement of palm oil price is crucial to the stakeholders such Malaysia Palm Oil Berhad (MPOB), smallholders and palm oil product exporters. This paper attempts to examine the relative importance of external and internal shocks on the movement of palm oil price in Malaysia. Employing structural vector auto regression (SVAR) model, this study considers four domestic variables (production of palm oil, Malaysia palm oil price, Malaysia palm oil exports and real exchange rate) and three foreign variables (soybean price, world palm oil price and foreign income from major trading partners of palm oil) in modelling the propagation of the shocks. The main finding of this study revealed that the movement of palm oil price is more influenced by foreign shocks rather than domestic shock based on variance decomposition (VDC). Impulse response function (IRF) reports that soybean oil price (substitution goods) has a significant positive impact on Malaysia crude palm oil price. In addition, the demand shocks (real exchange rate) are also important in influencing the movement of palm oil price in Malaysia. The policy implications from this study suggest that the policymakers especially MPOB need to observe precisely the movement of foreign and domestic shocks in formulating strategies to improve the Malaysian palm oil industry.

Keywords: Crude oil palm, shocks, price, volatility, SVAR

1. Introduction

Malaysia is known as the second largest countries in ASEAN after Indonesia in producing CPO to meet the demand of palm oil all around the world. In 2018, production of palm oil contributes 49.7% of global oil and 33.1% in fats production exported. In the meantime, palm oil is the most consumed vegetable oil globally. However, the prices of Malaysia palm oil fluctuate from time to time as showed in figure 1. In 1998 the price marks at RM 2500/tonne and falls down to RM 1000/tonne in 1999. This trend repeatedly happened throughout the year. During the economic recession in 2008, the price trend shows high volatility where the price fall down drastically to RM1752/tonne. This situation shows that the price was very sensitive towards market changes. In 2018, the average of CPO price was RM2267 /tonne lower than RM2817/tonne in 2017. The fluctuation of palm oil price shown in figure 1 concerns the stakeholders such as smallholders and palm oil products producers since their income are highly dependent on palm oil industry. Besides, understanding the factor that

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The volatility of CPO price trend in the past years has created instability in earnings for the country since palm oil industry plays major role in intensifying the Malaysia economic growth and development. CPO is an important sector and one of the backbones of the Malaysian economy due to its substantial contribution to the country’s export earnings. In 2017, Malaysia had produced 20 million tonne of CPO and export surged to RM78 billion compared to RM67 billion in 2016. India remains as the largest Malaysia palm oil export market for the fifth time since 2014 with total exports of 2.51 million tonnes or 15.2% of total palm oil exports in 2018. This is followed by European Union 11.6%, China by 11.3% and Pakistan by 7%. According to MPOB, India’s palm oil imports from Malaysia jumped to 52% in the first half of 2019 from 30% in 2018 since New Delhi reduced its import duty towards Malaysia to 45%. Palm oils in Malaysia is expected to continue to increase by the end of 2019.

However, 2018 was particularly a challenging year especially the decline in palm oil prices and fresh fruit bunches prices which affected the income of the industry and smallholders. The average price of palm oil declined to RM2, 232.50 per tonne caused by an increasing in the crude palm oil stock storage level and the slowdown in the global vegetable oil market. The decline in palm oil price causes difficulty for smallholders to earn sales and have to rely on other sources of income. Furthermore, there are several factors that affect palm oil price movement. As a small and highly trade-dependent economy, Malaysia palm oil industries are exposed to a variety of internal and external factors. Abdullah and Wahid (2010) and Ab Rahmana (2012) found that the main factors in understanding the fluctuation of CPO price were demand and supply. Exchange rate was also one of the factors that determined the volatility of CPO price. According to Abdullah and Wahid (2010), the demand of the commodity will increase when the Malaysia Ringgit (RM) depreciates and US Dollar (USD) appreciates. The substitute product that has similar uses in the market such as soy bean oil also influences the CPO price movement. Since CPO is a very competitive vegetable oil for demand and supply in the world, the price is determined by its adaptability in application. In order to sustain in palm oil industry, MPOB has several strategies which include expanding and increasing the use of palm oil products, seeking new uses for these palm oil products, improving production efficiency and product quality, optimizing land use in oil palm plantation areas and promoting use, the use and ability of palm oil products market.

Thus, this paper contributes to the stake holders in palm oil industry and to the literature in following ways. First, to the stake holders, in particular to the smallholders, understanding in the
factors that affect the volatility of palm oil price helps them to formulate new strategies in generating their earnings and not focusing in one single crop. Second to the Malaysia palm oil authority, Malaysia Palm Oil Berhad (MPOB) will be more sensitive and aware of the internal and external factors that affect palm oil price movement in formulating strategies to enhance the competitiveness of Malaysia’s palm oil and boost the economic growth.

2. Literature Review

Past literature has discussed the importance of CPO in the world. According to Zabid and Abidin (2015), Malaysia and Indonesia were the top largest countries in producing palm oil, which is one of the important commodities in the world’s oil and fats market. However, there are limited studies about crude palm oil price volatility in Malaysia. The price of Malaysia CPO has been volatile all over the time. This happens because the CPO market needs a longer time to adjust in the market if any shocks happened (Razali and Ayojimi, 2015). As a result, this will give risk to the investor, producer and the farmers in CPO industry. Therefore, an effective strategy is needed in the policy to decrease the risk and uncertainties (Karia and Bujang, 2011). It is supported by Alom et al. (2012) stated in their study the volatility of price can leap up risk and uncertainty that cause slowdown in the economic activities.

CPO was also one of the important world commodity exports. Since CPO has been competitive in the world market, there are so many factors that affect the movement of CPO price. CPO price behaviour is usually determined by supply and demand side factor (Rahman, Balu & Shariff, 2013). Many studies said that the price of its substitute good such as other vegetable oil can affect the movement of palm oil price. Soybean oil price has been found by many researchers to affect the palm oil price. Kantaporn Chuangchid et. al (2012) has observed that the palm oil price has extreme dependence of soybean and crude oil price. Arshad, Shamsudin, & Hameed (2011) found that the palm oil price has positive relationship with the world palm oil. Soybean oil is the price leader among vegetable oils, Nasir and Faizah (2005). According to CIMB Securities, the palm oil price is much cheaper than soybean oil, so that if crude palm oil price goes up over the time, the consumer will switch to other cheaper vegetable oil. In short-run, soybean oil has been a closer substitute to palm oil and it has been a significant factor that is influencing CPO price. This study also found that in the long run soybean, sunflower, and rapeseed oil together will give influence to the CPO price. Hassan and Balu (2016) said that in the short term, if the productions in palm oil increase, it will give a negative response in soybean oil price, total export and production. As an oil commodity, it has become an important influence on palm oil prices because of its similar application in the food industry (Rahman, Shariff, Abdullah, & Sharif, 2007). The substitute products of palm oil also affect the export demand of palm oil. Shri and Fatimah (2011). This finding was supported by Abdul Talib et. al (2007)

Almost 90% of Malaysian palm oil productions were exported annually since Malaysia was an exported oriented industry (Ming & Chandramohan, 2002). The increasing in export will rise the price of CPO in Malaysia and vice versa (Rahman, Shariff, Abdullah, & Sharif, 2007). Growth domestic product (GDP) was also one of the factors that affected the CPO export (Imamudin Yuliadi, 2018). While the study was done by Murshidi and Aralas (2017) found the price of CPO the palm oil has affected the GDP growth in the short and long run. Anzuini, J. Lombardi, and Pagano (2013) analysed that the increase in commodity price is caused by the increase in the short term inflation expectation following monetary expansion. Other researchers such as Barsky and Kilian (2002) show the commodity price can be determined by the monetary policy. They also found that the increase in the oil price in 1970’s had at least caused by the monetary condition. The export in CPO can also be explained by the financial exchange rate, Talib and Darawi (2002). There are significant impacts on the CPO production with the export market and domestic price (Kusuma,2006). The export of palm oil products is an important factor that influences the movement of crude palm oil price (Rahman, Balu & Shariff, 2013).

CPO production has become significant components in determining palm oil price in Malaysia. The total of production of CPO in Malaysia is the main contributor to the total palm oil
stocks (Abdullah, 2013). The increase in palm oil production which indicates the increase in stock will result in the falling of Malaysia CPO price (Rahman, Shariff, Abdullah, & Sharif, 2007). Kelly Wong (2017) suggested that Malaysia palm oil stock and production need to be managed according to the changes of export price to meet the demand at time of CPO since the study found Malaysia palm oil price give negative impact to the export demand. The study also found that world GDP give significant impact to the palm oil export. In line with the growth of technology, the palm oil production also diversifies and extended to value-added products (Fold and Whitfield, 2012). Balu and Hassan (2016) suggests that total production and total export of palm oil should be taken into account in determining the palm oil price. This has been proved by Asari et. al (2011) where production of palm oil can influence its price level.

There are several methods that can be used in determining the relation of CPO and the factors. Alias and Tang (2005) used the econometric model Johansen and ECM and found that in the long and short terms, there was responsiveness in palm oil production to its relative price, government's support, and interest rate. While Alias and Othman (1998) by using cointegration and granger causality model, found the price of palm oil and soybean price are cointegrated and there is existence relationship in a long-run equilibrium. By using VAR model, Anzuini, J. Lombardi, and Pagano (2013) analyse the impact of monetary policy shocks on the commodity price. This study found the food commodities responds strongly to monetary policy with variance contribution which is around 20%. To examine the price volatility Rahman, Shariff, Abdullah, & Sharif (2007) use VECM model and find that the palm oil price volatility is moderate and has large effect. However, there are lack of studies on shock in economics that affect palm oil price. Razali and Salami (2015) provide empirical studies to show the true nature of Malaysian CPO future market that needs some shock by using GARCH approach.

Therefore, this present study tries to fill the gap by including the shock in the economic and taking a few relevant determinants into account to understand the crude palm oil price movement. This paper attempts to extend previous studies on the price movement of crude palm oil in Malaysia by employing structural vector analysis model (SVAR) in non-recursive form. Therefore, the result from this study may help the stakeholder to be more aware of the shock that occurs in the economy and generate new strategies to diversify the crops.

3. Data and Methodology

3.1 Data and description of variables

This study utilizes monthly frequency data from January 1990 to December 2018. The selection of this specific period is mainly to include the crisis occurred in economy that may contribute shocks to the palm oil price. Basically there are three foreign variables that is soybean oil price as the substitution product, industrial production index as foreign income and real exchange rate and three domestic variables namely crude palm oil production, crude palm oil price and crude palm oil export. The details involving these variables are explained in table 1. All the data are taken from Malaysia Palm Oil Board (MPOB) and International Financial Statistic (IFS).

Table 1: Description of Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Notation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean Oil Price</td>
<td>SBP</td>
<td>Soybean Oil Price in US dollar (USD)</td>
</tr>
<tr>
<td>Industrial Production Index</td>
<td>IPI</td>
<td>India Industrial Production Index</td>
</tr>
<tr>
<td>Crude Palm Oil Production</td>
<td>YCPO</td>
<td>Crude Palm Oil Production in a thousand ton ('000)</td>
</tr>
<tr>
<td>Crude Palm Oil Price</td>
<td>CPOM</td>
<td>Malaysia Crude Palm Oil Price in US dollar (USD)</td>
</tr>
<tr>
<td>Crude Palm Oil Export</td>
<td>CPOX</td>
<td>Crude Palm Oil Export in a thousand ton ('000)</td>
</tr>
<tr>
<td>Real Exchange Rate</td>
<td>REER</td>
<td>Malaysia Real Exchange rate</td>
</tr>
</tbody>
</table>
3.2 SVAR Models

The following equation shows the dynamic relationships for the selected economic variables in a SVAR approach:

$$A_0 Y_t = C + (\Gamma_1 L + \Gamma_1 L^2 + \ldots + \Gamma_k L^k) Y_t + \epsilon_t$$  \hspace{1cm} (1)

where, $A_0$ is a square matrix that captures the structural contemporaneous relationships among the economic variable. $Y_t$ represents an $n$-vector of relevant variables as follows:

$$Y_t = (IPI_t, SBP_t, YCPO_t, CPOM_t, CPOX_t, REER_t, \epsilon_t)$$

The $A_0$ and $B$ are $8 \times 8$ matrices of coefficients, and $C$ is a vector of deterministic variables while $R^k$ represents matrix polynomial in lag operator with $L$ being a $8 \times 8$ matrix of coefficients. The impulse responses of exogenous endogenous variables to the structural shocks are defined by Matrix $A$ denoted by $\epsilon_t = (\epsilon_t^{sbp}, \epsilon_t^{ip}, \epsilon_t^{ycpo}, \epsilon_t^{cpom}, \epsilon_t^{cpos}, \epsilon_t^{reer})'$ while the structural form parameter of the model is explained by Matrix $B$.

The SVAR model cannot be estimated directly because it has correlation with the other endogenous variables in one equation. Therefore, by pre-multiplying equation (1) with $A^{-1}$, it will produce a reduced form VAR equation:

$$Y_t = A^{-1} C + A^{-1} (\Gamma_1 L + \Gamma_1 L^2 + \ldots + \Gamma_k L^k) Y_t + A^{-1} \epsilon_t$$  \hspace{1cm} (2)

where $\epsilon_t = A^{-1} \epsilon_t$ shows the reduced form VAR residual which satisfies $E(\epsilon_t) = 0, E(\epsilon_t \epsilon_t') = \Sigma_\epsilon$. $\Sigma_\epsilon$ is a $(n \times n)$ symmetric, positive definite matrix which can be estimated from the data. The residuals are also presumed to be white noise, but because of the contemporaneous effect of the variables across the equation, they may be correlated with each other.

The relationship between the variance-covariance matrix of the estimated residuals, $\Sigma_\epsilon$ and the variance-covariance matrix of the structural innovations, $\Sigma_{\epsilon}$ is such that:

$$\Sigma_\epsilon = E(\epsilon_t \epsilon_t')$$
$$= E(B \epsilon_t \epsilon_t' B')$$
$$= B E(\epsilon_t \epsilon_t') B'$$
$$= B \Sigma_{\epsilon} B'$$  \hspace{1cm} (3)

In order for the system to be identified, the sufficient restriction must be imposed, so that all the parameters in structural equation can be recovered. For $(n \times n)$ symmetric matrix of $\Sigma_\epsilon$, there are $(n^2 + n)/2$ unknowns and hence the additional restrictions need to be imposed to exactly identify the system.
3.3 The structural Model

The relationship between the structural innovations \( \varepsilon_t \) and the reduced-form residuals \( \eta_t \) is given by \( B \varepsilon_t = \eta_t \). In a purely recursive SVAR model, the elements in \( B \) above the diagonal of the matrix are all set equal to zero. When a recursive identification scheme is used on the Malaysian data, the models produce both a price puzzle and an exchange rate puzzle to internal and external shocks. To address these problems, a number of non-recursive identification schemes are considered.

Equation [4] indicates the set of restrictions that are imposed on of the contemporaneous parameters of the SVAR model of the Malaysian palm oil price. The coefficient \( B_{ij} \) indicates how variable \( j \) affects variable \( i \), contemporaneously. The coefficients on the diagonal are normalized to unity, while the number of zero restrictions on the coefficients is 17, so the model is exactly identified.

\[
BY_t = \begin{bmatrix}
1 & 0 & 0 & 0 & 0 \\
\beta_{21} & 1 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 \\
\beta_{51} & \beta_{52} & \beta_{53} & 1 & 0 \\
\beta_{61} & \beta_{62} & \beta_{63} & \beta_{64} & 1
\end{bmatrix}
\begin{bmatrix}
IPI \\
SBP \\
YCPO \\
CPOM \\
CPOX \\
REER
\end{bmatrix}
\]

The two foreign variables – soybean oil prices and foreign industrial production index – are assumed to contemporaneously affect most of the domestic variables. The only exceptions are that soybean oil price and foreign industrial production index do not contemporaneously affect domestic crude palm oil production. The first and second zero restriction reflects the assumption of production of crude palm oil where Malaysian palm oil does not respond in the same month to a foreign shock. The third zero restriction is based on the assumption that Malaysia has been one of the largest in producing crude palm oil so that it does not respond immediately to the foreign shock. Domestic variables are assumed not to contemporaneously affect the foreign variables (the restriction is also imposed on lagged values of the domestic variables) due to the fact that Malaysian economy is relatively small in size and therefore unlikely to have much impact on foreign variables.

Restrictions in equation [4] indicate that all supply and demand variables (soybean oil price, foreign income, Malaysia CPO price, Malaysia CPO export and real exchange rate) respond contemporaneously to Malaysia CPO production shocks. In [4] it assumed that Malaysia CPO price responds more rapidly to the CPO production shock than they do to a shock to foreign variable.

The lag length for the VAR model is chosen based on Akaike’s (1973) Information Criterion (AIC) and Schwarz (1978) Bayesian Criterion (SBC). The eigenvalues of companion matrix for VAR model are taken as model of stability. The models are stable if all the eigenvalues are inside the unit circle. (see Lutkepohl, 1993). From the SVAR model, impulse response functions are produced to describe the direction of response of a variable of Malaysia CPO price to an exogenous shock (e.g. foreign shock). Furthermore to forecast error variance attributable to innovations in each of the variables in the system, the percentage of variance decompositions is used.

Impulse Response Function (IRF) is to track the current and future responses of each variable due to the changes or shock of a particular variable. So that it can be seen on how long the influence of the shock of a variable on other variables until the effect disappears or returns to the original. Forecast Error Decomposition (FEVD) is to determine which shock has the major role in explaining each variable in the model. FEVD is a prediction of the percentage contribution of each variable due to changes in certain variables in the VAR system. Based on this analysis, it can be concluded how the role of shock from internal and external shock on crude palm oil price in Malaysia.
4. Empirical Results

This section focused on the choice of lag length for the SVAR models, the impulse response function (IRF) and the variance decomposition of the selected SVAR models. For the stability test (not shown) all the absolute value for eigenvalues less the one, therefore the model is stable. All variables were transformed into logarithm form. Table 2 presents lag length tests by using Akaike’s Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC). As seen in table 2, SBC show the minimum lag is two. Thus, to minimize the loss of too many degrees of freedom two lag length is sufficient to capture the dynamics for our models.

<table>
<thead>
<tr>
<th>Lag Length</th>
<th>AIC</th>
<th>SBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>-18.41</td>
<td>-15.10</td>
</tr>
<tr>
<td>7</td>
<td>-18.44</td>
<td>-15.54</td>
</tr>
<tr>
<td>6</td>
<td><strong>-18.54</strong></td>
<td><strong>-16.06</strong></td>
</tr>
<tr>
<td>5</td>
<td>-18.48</td>
<td>-16.39</td>
</tr>
<tr>
<td>4</td>
<td>-18.39</td>
<td>-16.70</td>
</tr>
<tr>
<td>3</td>
<td>-18.41</td>
<td>-17.12</td>
</tr>
<tr>
<td>2</td>
<td>-18.21</td>
<td>-17.32</td>
</tr>
<tr>
<td>1</td>
<td>-17.40</td>
<td>-16.92</td>
</tr>
</tbody>
</table>

4.1 Impulse Response

Figure 2 and figure 3 present impulse response function (IRF) of endogenous variable in this study for the 36 months after the shock. The blue line represents the response of the palm oil price to the shock and the dotted line represents the confidence interval. The measure is taken based on the upper bound and lower bound derives from the impulse response function. If the upper bound and the lower bound are in the same direction whether positive or negative, the results of impulse response are significant and vice versa.

Figure 2 illustrates impulse response of CPOM to the foreign shocks while figure 3 displays IRF of CPOM to domestic shocks variables respectively. As shown in figure 2, a positive shock to SBP shock brings about positive responses to crude palm oil price. An increase in the CPOM is statistically significant for up to 25 months. This is consistent with the microeconomic theory that the increase in soybean oil price (substitute goods) tends to increase the demand of palm oil price and the price of CPOM will increase. An increasing 1% in soybean oil price will increase 5.1% of CPOM. The increase in soybean oil price is shown to increase CPOM in the short run. An increase in foreign income results a slightly increase CPOM but statistically not significant. The increase in foreign income does not really impact CPOM.

As indicated in figure 3, the unexpected increase in YCPO brings about negative response to CPOM. 1% increase in YCPO tends to decline 0.3% in CPOM. However the YCPO shocks only affect CPOM in short run and CPOM starts to climb up again after 4 months. Moreover, CPOM responds positively to the shock in real exchange rate but not statistically significant. A positive shock in real exchange rate increases 1.6% in CPOM at period 2. As mostly other shock in this study, the shock only gives a short term effect to the CPOM. Shocks to CPOX induce mix responses of CPOM. It is captivating to find that CPOM falls quite considerably to a shock to CPOX within two months. This indicates that, exports in Malaysia palm oil are relatively more influential than the YCPO and REER. As for CPOW models, the results indicate almost the same as CPOM models.
Figure 2: Impulse Response CPOM to Foreign Shocks

Figure 3: Impulse Response CPOM to Domestic Shocks
4.2 Variance Decomposition

Variance decomposition explained the percentage of the proportion that contributes in influencing the movement of CPOM. Table 3 shows three years variance decomposition of Malaysia’s crude palm oil price to each internal and external variable. The last row indicates the percentage of variable in influencing Malaysia crude palm oil price movement in three years. Thus, table 3 indicates that shock in soybean oil price has largely contributed 59.47% in influencing Malaysia’s crude palm oil price movement in 3 years. Besides, real exchange rate also plays an important role in influencing CPOM which contributes 5.38%.

Table 3: Variance Decomposition of Malaysia’s Crude Palm Oil

<table>
<thead>
<tr>
<th>Period</th>
<th>Std. Error</th>
<th>LIPI</th>
<th>LSBP</th>
<th>LYCPO</th>
<th>LCPOM</th>
<th>LCPOX</th>
<th>LREER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.05</td>
<td>0.26</td>
<td>43.15</td>
<td>0.25</td>
<td>56.34</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>0.07</td>
<td>0.46</td>
<td>51.25</td>
<td>4.35</td>
<td>40.88</td>
<td>0.31</td>
<td>2.75</td>
</tr>
<tr>
<td>6</td>
<td>0.08</td>
<td>0.46</td>
<td>56.41</td>
<td>4.05</td>
<td>35.62</td>
<td>0.21</td>
<td>3.24</td>
</tr>
<tr>
<td>9</td>
<td>0.09</td>
<td>0.41</td>
<td>58.77</td>
<td>3.07</td>
<td>33.95</td>
<td>0.18</td>
<td>3.62</td>
</tr>
<tr>
<td>12</td>
<td>0.10</td>
<td>0.43</td>
<td>59.78</td>
<td>2.58</td>
<td>33.05</td>
<td>0.16</td>
<td>4.01</td>
</tr>
<tr>
<td>15</td>
<td>0.12</td>
<td>0.51</td>
<td>60.27</td>
<td>2.30</td>
<td>32.45</td>
<td>0.15</td>
<td>4.31</td>
</tr>
<tr>
<td>18</td>
<td>0.12</td>
<td>0.62</td>
<td>60.51</td>
<td>2.13</td>
<td>32.0</td>
<td>0.19</td>
<td>4.55</td>
</tr>
<tr>
<td>21</td>
<td>0.13</td>
<td>0.76</td>
<td>60.58</td>
<td>2.02</td>
<td>31.63</td>
<td>0.28</td>
<td>4.74</td>
</tr>
<tr>
<td>24</td>
<td>0.14</td>
<td>0.92</td>
<td>60.51</td>
<td>1.95</td>
<td>31.31</td>
<td>0.41</td>
<td>4.91</td>
</tr>
<tr>
<td>27</td>
<td>0.15</td>
<td>1.10</td>
<td>60.35</td>
<td>1.91</td>
<td>31.01</td>
<td>0.58</td>
<td>5.05</td>
</tr>
<tr>
<td>30</td>
<td>0.16</td>
<td>1.30</td>
<td>60.11</td>
<td>1.89</td>
<td>30.74</td>
<td>0.78</td>
<td>5.17</td>
</tr>
<tr>
<td>33</td>
<td>0.16</td>
<td>1.51</td>
<td>59.82</td>
<td>1.89</td>
<td>30.47</td>
<td>1.027</td>
<td>5.28</td>
</tr>
<tr>
<td>36</td>
<td>0.17</td>
<td>1.74</td>
<td>59.47</td>
<td>1.89</td>
<td>30.22</td>
<td>1.30</td>
<td>5.38</td>
</tr>
</tbody>
</table>

5. Summary and Conclusions

This paper examines the relative importance of internal and external shocks in affecting Malaysia’s crude palm oil price. The results show that foreign factors are more dominant in influencing CPOM than the domestic ones. This study managed to identify the most common variables in affecting Malaysia’s crude palm oil. It shows that soybean oil price shock brings about significant change in the Malaysia’s crude palm oil. However, foreign income does not give a significant impact to the Malaysia CPO price even though India is taken into account as top trading country in Malaysia CPO. Besides, production in crude palm oil is also given a significant effect to CPOM at early period. Shock in export brings negative and detrimental impact on the CPOM. The internal and external shock only gives temporary effect in the short run.

The results imply that reduction of the negative impact from internal and external shock on palm oil industry especially in crude palm oil price, policymakers are encouraged to be more aware of the internal and external shocks. Crude palm oil is a very important commodity to Malaysia as it contributes significantly in national earnings. Therefore, policymakers need to formulate new strategies in order to sustain the crude palm oil industry. Furthermore, smallholders need to plan new crops such as corn and sugar cane during the shocks to generate more income from their harvest. Finally, increasing research in Malaysia CPO price volatility and development is needed due to the importance to the Malaysia economic growth.
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Reference


