

# Price of palm oil in malaysia economics essay



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## INTRODUCTION

The most commercial product that contributed to our national income is palm oil product. Nowadays, palm oil is the one of the major oils and fats that is produced and traded in the world where Malaysia is the second largest exporter to produce the palm oil in this world in terms of production and export and this sector contributes more than 30% of the total income to our country. But in 2003, Malaysia become largest producer and Indonesia is a second largest. Because of many land in Indonesia opened to plant the palm oil and exceed the hectares of plantation in Malaysia, Indonesia become the largest producer in the world follow by Malaysia. It is all because of the tremendous increase in production and export volume of palm oil to fulfill the world demand of palm oil. The success story of the Malaysian Palm oil industry was due to the synergistic effort of the Malaysian Palm Oil Board (MPOB) and the industry in carrying out R&D and marketing activities. These non-stop efforts have led to higher production and exports, making palm oil always readily available in the world market. But oil palm also facing challenges in enhancing productivity, increasing workflow efficiency and maximizing profits. As the second leader in the palm oil industry, it is worthwhile monitoring the development of its crude palm oil (CPO) production and price.

But the prices of palm oil not pegged by the government, it always fluctuated every time year depending on the economic condition. There are many uses of palm oil in our daily life, such as edible oil and soap.

Nowadays, the value of palm oil has been increasing quickly because of the decreasing the import tariffs for palm oil and the land for palm oil plantation

also increased to expand their business to produce more product of palm oil. Other than that, the Malaysian palm oil also face some effective competitive strength.

There are many factor that influence the price of palm oil such as hectares of land,

supply of palm oil, export of palm oil, and consumption of palm oil. But before make this research, we must obtain data from other resources to examine the model to test it with econometric model.

This study will provide data for 29 years annually in terms of prices of palm oil its production, export and its consumption. Econometric model were developed to analysis the relationship between this prices of palm oil and its economic variable whether the relationship is significant or not. This economic variable test one by one to check the relationship. This study will determine by ordinary least square method to test the independent variable.

## **LITERATURE REVIEW**

The previous study have been made to understand the impact of palm oil based-biodiesel demand on palm oil prices (Ramli; Roslan and Ayatollah, K 2007). Nowadays biodiesel has become an important fuel to our society. It is because of the growing concern for the environment. Demand for the biodiesel has become higher, and that effect to the volume of palm oil available in the market that putting its prices increased sharply since July 2006. That days, the prices of palm oil influenced by the stock, supply, production. From July 2006 onwards, biofuel become a serious fuel of his renewable production. Biodiesel mainly from palm has increased the demand

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and altered the economics of palm oil. This study using the autoregressive integrated moving average (ARIMA). This method have been proven to forecast the palm oil prices from July 2006 to end 2007.

Supporting to this journal, the prices of petroleum and vegetable oil down to be moving slowly together. (Anna Awad, Fatimah, 2009). This previous studies have been made to find the long term relationship the prices of crude oil and vegetable oil. They using the Engle-Granger two-stage to do the method. This study use data over the period from January 1983 to March 2008. The two products show the result of the strong evidence of a long relationship. Began in the 1970s until 21 century, the price for all commodities increased between January 2000 and March 2008. The increased of the prices caused by the increased petroleum price more than 300%, while food prices increased 107% during the same period and vegetables oil increased of 192%.

Besides that,(Mohd Nasir, 2003) said that Malaysia is the largest producer and Indonesia is the second largest producer. This two country is the exporter where they contribute 89. 6% of palm oil trade in the world and 83. 5 % of production. They also export crude palm oil (CPO) and other than that processed palm oil (PPO). The Malaysia exporting quantities of CPO increased from 0. 4 million tones to 1. 3 million tones in 2000 and 2001, followed by exports of Indonesian CPO increased from 1. 8 to 2. 0 million tones. Both country also contributed PPO which is the larger share of palm products. CPO and PPO in Malaysian were lower than Indonesia in 2001 and 2002. Both countries products imposed by the tariffs with the objectives initially raising revenue. For example, in Malaysia is to encouraging down

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stream while for Indonesia it reflected to consumer down. Both country have been imposed taxes on export, and there is a difference way the exports duty payable.

(Ahmad Borhan and Mohd Arif, 2009) said that the prices of palm oil and it comprises crude palm oil and processed palm oil is a strong indicator of the level of palm oil stock. The stock of palm oil has been hovered around 1 million tones. With this amount, the volume has become the psychological which prices tend to be bullish and bearish, respectively. The end of stock fully depends on the export of palm oil and its production. While local consumption and import play minor roles. The Malaysian palm oil industry has estimated that 1. 8 million tones could become the new level of palm oil stock. But it all based on change in the supply and demand factors.

(James, 2008) said that the prices of crude palm oil (CPO) has a strong relationship with stock according to the conventional economics. The economics of oils and fats had changed in the last two years, that cause both prices and rising in tandem according to traditional economic theory. Because of created the new role played by biodiesel, the strong signs of a linkages also created. The palm oil prices should take into one account of two factors, the petroleum price and the amount of oil stocks. The price band can determines by prices of petroleum. While the stocks can show high or low palm oil prices.

Malaysia's economic development has indeed been impressive by the contribution of the palm oil industry. (Sabri, Salmiah, Faizah and Nik Abdullah, 2008). It also changing the market trends and rapid development

and has continued to pose challenge. The development of oil and fats industry are provides and has undergone in terms of world balance.

In the previous journal, (Mohd Basri, Mohd Arif, and Jamil, 2008) said that in the past, there have been spikes in the palm oil prices, especially to the demand and supply imbalance of oils and fats. But since mid 2006, spikes have become more sustained. Besides that, spikes also been attributed to the supply and demand of edible oils and fats and also to the increasing demand for the fuel. Because of the increased of palm oil, the demand curve shifted to the right. The prices of oils have been increased slightly.

(Ayat K Faizah, Ramli Abdullah and Nurul Hufaidah, 2007) study on how to examines volatility spill over. The study focus on between the domestic prices of palm oil and what major factor to the prices volatility. From the research, palm oil has moderate price volatility. And effort should be made to sustained the price of crude palm oil (CPO) to minimize volatility in other prices caused of the prices of (CPO) become a price leader among the other palm oil products. There was a model to developed to forecast prices of palm oil products in domestic.

(Ramli and Mohd Alias, 2006). Malaysia also known the world's biggest exporter of the palm oil and associated with palm oil. Because of the largest exporter the world, it become important for the country to lead the commodity's production and its price and can be used to determine the country revenue or in process of decision making. The objective of this paper is to analyses them econometrically and to forecast. The paper forecast that in the future, the production of palm oil can increased. By 2020, the

production of palm oil can reach 22 million tones. Prices of palm oil also can fluctuated but in the future, its amount of prices increasing gradually.

(Basri; Mohd Fauzi; Mohd Noor Mamat and Rosli, 2007) analyses the impact of lifting the export tax on Malaysian crude palm oil. Firstly, the equation is developed, especially on processed palm oil (PPO) and crude palm oil(CPO). The study comes out with the conceptual model of the Malaysian palm oil market model, such as the palm oil supply, oil palm area, imports and exports of palm oil products, domestic consumption, domestic price relationship and stocks

## **Intermediation Conceptual Framework.**

Independent variable    Dependent var.

Factor/supporting

Price of palm oil    Relationship

Production (supply)

Export

Consumption

Land area (Hectares)

## **Mediating**

## **Independent variable**

There are 4 factor that influences the price of palm oil. There are production (supply), export, consumption and land area in hectares. This independent

variable also can support the price of palm oil. Production can influences the prices of palm oil by the supply in the market, the more supply in the market, the more it can influences the prices of palm oil. It mean that, if the supply exceed the demand of the market, many unit of production are waste because of the demand not equal to the unit of production in the market. So to increase the demand in the market, firm can reduces prices of the production in order to attract the demand of the market. Low prices of the production can increased the demand of the production in the market.

Export also can influences the prices of palm oil in the market by having a export more than import in the market can make a country deficit in terms of profit. Same like production, but export trade in other country and make a international business in order to gain profit. If have much demand in palm oil from other country, it means that, we should export more to achieved the demand from other country. From this situation, our country can take advantages to increase the prices of palm oil respectively.

Consumption also can influences the prices of palm oil. It depends on how the consumer fully utilized the use of palm oil. If the consumer already knew the use of the palm oil, easy to them to know how important the palm oil in our society. Because of that, the consumer will ask for the palm oil and directly increased the demand for palm oil.

Other than that, land area of plantation also can influences the prices of palm oil. If we plant more trees of palm oil in land, we are producing more palm oil in the market. If the supply of the palm oil in the market exceed than demand, than many surplus to that product. So to overcome this



problem, firm must reduced the prices of palm oil to attract consumer to buy the palm oil. But it is good to the firm if the demand more than supply, then the firm can increased the price of palm oil in order to gain profit.

### **Dependent variable**

The price of palm oil is depend to this four factor, this four factor can influences the prices of palm oil whether wants to increased or decreased.

## **DATA & METHODOLOGY**

LEAST SQUARE METHOD (SINGLE REGRESSION) and (MULTIPLE REGRESSION)

The framework developed in this study is drawn both from econometric method (which is based on the economic theory) and the system dynamics approach. This section discusses the econometric model using least square method. Its to correlate and examine the relationships among dependent variable and independent variable. It is a economic theory form with statistical methods.

Factor determinants of prices of palm oil in Ringgit Malaysia (RM). consists of 4 factor that influence the price of palm oil, there are production (supply), export in tones, consumption of palm oil and land area of plantation of palm oil in hectares.

The first step is finding time series data from 1980 to 2009, which influence the price of palm oil to make a research and then describe it according to the econometric model. To regress the econometric model we must use the data which influence the prices of palm oil. So this 4 factor is the important data

to make a research. After regress, we can identified relationship between dependent and independent variables.

These 4 factor also known as independent variable and price of palm oil also known as dependent variable which price of palm oil depend on this 4 independent variable whether to increase or decrease. The prices of palm always fluctuate depend on this 4 independent variable. To test this independent variable had a relationship between price or not, the econometric model by using least square method use to test one by one of this independent variable whether this independent variable has a relationship between dependent variable. After test this econometric model, we look to the T-statistics, R-squared, Durbin-Watson stat. if t-stat are less than 2, this means that there is no relationship between independent variable and dependent variable and also known as is not significant. If more than 2, there is a relationship between independent variable and dependent variable. After test one by one, we should regress all dependent variable using multiple regress because of explanatory variable is more than one to check whether all independent variable significant or not.

#### **4. MODEL LISTING AND FINDING**

Least square method- $POPt = +bX$

Between dependent variable and independent variable

Variable

C

Std-error

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T-stat

R-Squared

DW-stat

Prob

PROD

483.2153

1.51E05

-3.55

0.310563

0.264663

0.0014

EXP

626.5528

0.000104

-2.42

0.173625

0.311140

0. 0220

CONS

435. 8310

01. 73E-05

-3. 64

0. 321860

0. 254297

0. 0011

L. AREA

97. 77170

1. 86E-05

7. 67

0. 678609

0. 571303

0. 0000

Analysis of data:

Used e-view to regress and estimation using Ordinary least square based on dependent variable and independent variables from the data collected.

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PPO<sub>t</sub>= price of palm oil in the market

PROD= production of palm oil(supply)

EXP= export of palm oil to the world demand (tones)

CONS= consumption of palm oil in this market

L. AREA= landarea of palm oil plantation in Malaysia (hectares)

Result of regression between PO<sub>Pt</sub> and PROD

Dependent variable: PO<sub>Pt</sub> and Independent variable: PROD

PO<sub>Pt</sub>= 483. 2153-5. 37E-05t

t-statistic=-3. 55. ignore sign negative, accept H<sub>0</sub>, because there is a relationship between price and production because t-statistic shows that it is significant and above 2. So production can influence the price of palm oil respectively.

R-Squared = 0. 310563

Explanation. 31. 05% of the changes in the dependent variables can be explained by the independent variables. 68. 95% cannot be explained by the regression analysis due to some omission of independent variables.

Std-error= 1. 51E05

Explanation. The smaller the value of SEE, the closer the data points/actual points to the regression line.

DW-statistics= 0. 264663

Explanation. There is a problem in auto-correlation because DW show value less than 2.

Probability= 0. 0014

Explanation. The variable is significant at 0. 05 (5%) significant level or 95% confidence level. If the probability is less than 0. 05, it means that 95% confidence interval accepted and there is a relationship between dependent variable and independent variable.

Result of regression between POPt and EXP

Dependent variable: POPt and Independent variable: EXP

$POP_t = 626.5528 - 0.000252t$

t-statistic=-2. 42. ignore sign negative, also accept  $H_0$ , because there also a relationship between price and export because t-statistic shows that it is significant and above 2. So export also can influence the price of palm oil respectively.

R-Squared= 0. 173625

Explanation. 17. 36% of the changes in the dependent variables can be explained by the independent variables. 82. 64% cannot be explained by the regression analysis due to some omission of independent variables.

Std-error= 0. 000104

Explanation. The smaller the value of SEE, the closer the data points/actual points to the regression line.

DW-statistics= 0. 311140

Explanation. There also have a problem in auto correlation because DW show value less than 2.

Probability= 0. 0220

Explanation. The variable is significant at 0. 05 (5%) significant level or 95% confidence level. If the probability less than 0. 05, it means that 95% confidence interval accepted and there is a relationship among dependent variable and independent variable.

Result of regression between PO<sub>Pt</sub> and CONS

Dependent variable: PO<sub>Pt</sub> and Independent variable: CONS

PO<sub>Pt</sub>= 435. 8310-6. 31E-05t

t-statistic=-3. 64. ignore sign negative. accept H<sub>0</sub>, because there is a relationship between price and export because t-statistic shows that it is no significant and above 2. So consumption can influence the price of palm oil respectively.

R-Squared= 0. 321860

Explanation. 32. 18% of the changes in the dependent variables can be explained by the independent variables. 67. 82% cannot be explained by the regression analysis due to some omission of independent variables.

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Std-error= 01. 73E-05

Explanation. The smaller the value of SEE, the closer the data points/actual points to the regression line.

DW-statistics= 0. 254297

Explanation. There is a problem in auto correlation because DW show value less than 2.

Probability= 0. 0011

Explanation. This variable also significant 0. 05 (5%) significant level 95% confidence level. If probability less than 0. 05, it means that 95% confidence interval accepted and there is a relationship among dependent variable and independent variable.

Result of regression between PO<sub>Pt</sub> and LANDAREA

Dependent variable: PO<sub>Pt</sub> and independent variable: L. AREA

PO<sub>Pt</sub>= 97. 77170+0. 000143t

t-statistic= 7. 67. accept H<sub>0</sub>, because there is a relationship between prices and landarea because t-statistic shows that it is significant and above 2. So landarea can influence the price of palm oil respectively.

R-Squared= 0. 678609



Explanation. 67. 86% of the changes in the dependent variables can be explained by the independent variables. 32. 14% cannot be explained by the regression analysis due to some omission of independent variables

Std-error= 1. 86E-05

Explanation. The smaller the value of SEE, the closer the data points/actual points to the regression line.

DW-statistics= 0. 571303

Explanation. Also have a problem in auto correlation because DW show value less than 2

Probability= 0. 0000

Explanation. The variable is significant at 0. 05 (5%) significant level or 95% confidence level. If the probability less than 0. 05, it means that 95% confidence interval accepted and there is a relationship between dependent variable and independent variable.

Multiple Regression

Test using first difference

Dependent variable= POPT

Coefficient

Probability

Dlnpdc

-2. 234175

0. 0724

DInland

0. 417220

0. 1939

DInexp

1. 778560

0. 0036

DIncnsptn

0. 794493

0. 1748

C

-0. 041683

0. 4468

R-squared= 0. 520161

Durbin Watson= 1. 511417

Dlnprice=-0. 041683+0. 794493+1. 778560+0. 417220-2. 234175

We using the first difference method because we want to make the data significant. Before regress the data using first difference, we must log all the data to make the probability below than 0.005, in order to make the data significant. After regress, we found that only probability for  $\ln \text{exp}$  less than 0.005. Mean that only  $\ln \text{exp}$  significant and other independent variable not significant because over than 0.005. Other independent variable not significant because of multicollinearity and autocorrelation problem. Multicollinearity defined that, there is no linear relationships among the explanatory variables. Autocorrelation can be defined as 'correlation between members of observations ordered in time (as in time series data)'

## **CONCLUSION AND RESULT**

Malaysian is the second producer in the world who produce palm oil. These production can improved our country economy by exporting the palm oil market to other country because our country contribute 89.6 of palm oil trade in the world. Palm oil have many used in our daily life, used of palm oil influence the demand of palm oil in market. More demand of palm oil in market, more increased the price of palm oil per tones.

After finished doing this proposal, there are 4 factor that determinant the price of palm oil in Malaysian palm oil market. This 4 factor are production of palm oil, export of palm oil, consumption of palm oil and hectares of plantation of palm oil. This 4 factor test one by one to check whether there is a relationship between this factor to the price. To test it, we use least square method in econometrics. And this all four factor can influence the price of palm oil because t-statistic more than 2. Multiple regression also has been

test, and only one independent variable was significant and other independent variable not significant.