

The palm oil industry in malaysia economics essay



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INTRODUCTION

Summary of Research

Palm oil also known as *Elaeis guineensis*. Palm oil is derived from the pulp, and it can be found from African palm. There are so many uses of palm oil, such as edible oil, soaps, candles, cosmetic and chocolates. The colour of palm oil usually red colored, it is because of content of palm oil. The red coloured content with two types of carotene, there are β -carotene and α -carotene. α -carotene contents with 30mg per 100 g, and β -carotene contents with 30mg together with Vitamin E. Usually β -carotene already removed and become a pale oil. Three content of pale oil, saturated vegetable fats, mono-saturated and the last one is polyunsaturated. Besides that, other than red colored of palm oil, there are yellowish-white colors and also known as palm kernel oil. It can be use to make a margarine and cosmetics.

1. 1. 2 Palm Oil History

Palm oil has been found in West African countries. This palm oil is good to make cooking oil. The uses of palm oil that been introduced by West African and has attracted the European merchants to make an international trade between this two country in order to purchased palm oil. Ashanti Empire or Ashanti Confederacy plants a large amount of oil palm trees, while the King of Kingdom of Dahomey forbid whoever person from cutting the palm oil trees.

This uses of palm oil have been attracted the Britain's Industrial. And the value of palm oil increased because of the demand from British Traders. Besides that, palm oil also can make soap, for example, Sunlight Soap and

the Palmolive brand. A country such as Ghana and Nigeria becomes a primary export from West African but in year 1880 this export of palm oil was overtaken by cocoa.

1. 1. 3 Research of palm oil in Malaysia.

Research and development (R&D) began to expand the oil palm breeding in 1960s. This activities implemented after the establishing the Malaysia's Department of Agriculture. The government also provided a college to train society how to plant palm oil. For example, the government established Kolej Serdang and now become Universiti Pertanian Malaysia (UPM). This university encouraged the graduates' student to conduct research related to the palm oil. Malaysia. In year 1979, government established Palm Oil Research Institute of Malaysia (PORIM). This institute support from UPM and B. C Sekhar as a founder and chairperson also support Porim to be a coordinated institution. Porim also giving the opportunities to society especially the scientist to do R&D related to the uses of palm oil. In year 2000, Porim changed to Malaysian Palm Oil Board (MPOB). Nowadays MPOB become well known at the international country.

1. 1. 4 Bright future of palm oil in Malaysia

Few years ago, the income from palm oil production has become the big contribution to Malaysia's Economy. Because of the income gain from palm oil, many palm oil companies can give the employee bonuses every year. Besides that, oil palm shareholders also get the benefit of selling the palm oil. Industry of palm oil said that, the price of palm oil will maintain every year depends on the economic condition.

Because of production of palm oil has contributed to Malaysia's economy, the changes of palm oil prices in Malaysia always published in newspapers. It is good for rural area, because rural areas are the biggest hectares in palm oil plantation.

As we know, price of palm oil influenced by the production of palm oil, import and export, and then global economic condition. If the global economic become more slowdown, it will the major fact that the importer will less confident to the production of the palm oil in our country.

If the prices of palm oil decrease, we can replant back the palm and reducing supply. This can help the prices of palm oil increase back. Besides that, nowadays, many new developments in technologies also can increases the production of palm oil.

1. 2 Problem Statement

Price of palm oil always fluctuated depends 4 factors. The 4 factors are production of palm oil, export of palm oil, consumption of palm oil, and land area in plantation of palm oil. The problem of this research is difficult to seek the data in internet. To find this data, we must find it at statistic department besides of UMS.

1. 3 Research objective

This research has an objective that to find a factor that influence the price of palm oil in Malaysian palm oil market. After find the factor, we must find the relationship between this four factors to the prices of palm oil. to find this relationship, we must test it one by one using econometric.

1. 4 Significance of the research

Researcher

This research suitable for the researchers who wants to gain knowledge and information about palm oil in Malaysia. All this information gather from internet, journal, and by result from E-Views. So all society especially researcher will gain knowledge on the study about determinant of the price of palm oil in Malaysia.

Palm Oil Industry

The palm oil companies also can get benefit from this research by knowing the factor that will influence the price of palm oil respectively. If palm oil companies already knew what the factor can influence the price of palm oil, the palm oil companies increased the export of palm oil and our country also can get higher income because of the production of palm oil.

Labor Study

Labor can know what are the big factor that can influence the price of palm oil, and then can their can increase performance in terms of work quality and many more.

1. 5 Scope and Limitation of the study

The scope of this study is around Malaysia and the data collected on production of palm oil, export of palm oil, consumption of palm oil, and plantation of palm oil in land area (hectares). This data from year 1980 to 2009, involved 29 years. The data for 2010 also hard to find because year 2010 is not finished yet. So the data for 2010 is not stated yet.

CHAPTER TWO

LITERATURE REVIEW

The previous study has 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 amount of palm oil that we can get 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 and altered the economics of palm oil. This study using the autoregressive integrated moving average (ARIMA). This method has been proven to forecast from July 2006 to end 2007 to forecast the prices of palm oil.

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 were 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. These two countries are the exporters 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 tonnes to 1.3 million tonnes in 2000 and 2001, followed by exports of Indonesian CPO increased from 1.8 to 2.0 million tonnes. Both countries also contributed PPO which is the larger share of palm products. CPO and PPO in Malaysia 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 it is encouraging downstream while for Indonesia it reflected to consumer down. Both countries 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 tonnes. With this amount, the volume has become the psychological which prices tend to be increased and decreased. The end of stock fully depends on the export of palm oil and its production. While local usage and import play smaller roles. The Malaysian palm oil industry has estimated that 1.8 million tonnes could become the new level of palm oil stock. But it all depends on change in the demand and supply factors.

(James, 2008) said that the prices of crude palm oil (CPO) has a strong relationship with stock according to the conventional economics. The

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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) long time ago, the prices of palm oil have been increased, especially to the supply and demand of fats and oil. 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 develop 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 fluctuate 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

According to (Ahmad Borhan, Faizah, Mohd Arif, Norhanani, 2006), said that oilmeals, such as Soyabean meal (SBM) especially an animal feed competes with Malaysian palm kernel expeller (PKE). The competition exists among this two company because of the competitive price. The increasing

production also will affect the condition of Malaysian PKE. Future development of the Malaysian PKE depends to world livestock market.

(Ahmad Borhan, Mohd Noor, Mohd Arif, Norhanani, 2007) said that, the commodity trade will effected by the local demand and also become the risk to the physical commodity. The forecasting method need to apply to forecast the price of palm oil in the future. Hedging can be improved by using the expected trends. The behavior of crude palm oil (CPO) can be determined by doing this work. This work also compared the forecasting CPO in Malaysia. It was introduced in 1980 and become the price discovery for hedging in pegged the prices. Good based can be determine by processing of price discovery especially on its demand and supply. Through arbitrage, the future price of palm oil is realized in terms of aggregate level. (Fatimah, etal, 1994) using Box Jenkins technique, forecasting method, can predict the palm oil futures prices whether to perform better or not.

According to (Faizah, Ayat K, Mohd Nasir, 2006) fluctuate export markets and prices due to the current economic. Because of this, government giving full attention the price of export demand. The good demanded will be present by the price elasticity of demanded. Besides that, the demand for exports can predict by looking for export demand elasticity. Malaysian becomes largest share in the export and this export elasticity is important to estimates in order to maintain the production of palm oil. Only the changes of the prices of palm oil will have a big effect to the export of palm oil. Recently, the edible oils and fats has become substitutability products. Malaysian palm oil can be influence by the number of factor, and it's the most important to

structure the international market. Palm oil prices will compete with other, for example edible oils and make the palm oil prices significant.

It was said by (A B, Ma, Chow, H Hamdan, Choo, 2006) every country depends on the energy and this energy becomes a key factor to country to develop in the future. Oil palm industry has been build factory to generate steam and from electricity. In our country, there were 395 factories that processing 84 million tones fruit in year 2005.

(Yusof, Mohd Arif, 2005) found that, palm oil such as an export oriented commodity is not easy to predict in the future. It involves investigating the past performance of the palm oil. They make an overview about the palm oil industry, about the background, recently and in the future development. Long time ago, production of palm oil is lowest among the soyabean oil and animal oils. But, recently the production of palm oil is the number two in our country and the production exceed 29 million tones follow by soyabean oil and animal oils. It is expected that palm oil production can reach 37. 15 million tonnes in 2020. This production of palm oil will contribute to world oils. Malaysia become the largest producer in the world and try to maintain the position in producing 42% tonnes to the world demand of palm oil.

Conceptual Framework

Independent variable Dependent var.

Factor/supporting

Price of palm oil Relationship

Production (supply)

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Export

Consumption

Land area (Hectares)

Independent variable

There are 4 factors that influence 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 means that, if the supply exceeds 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 an 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 depending to this four factor, this four factor can influences the prices of palm oil whether wants to increased or decreased.

CHAPTER THREE

DATA AND 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. It's 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 identify 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 prices 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. But before regress, we must test the variable using unit root test to make sure the probability below 0. 05. This is because, we must make all variable significant before regress the data and know what difference we should use before regress data. After that, we log the data to make all data less problem in autocorrelation and less problem in multicollinearity. 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.

3. 1. 1 Collecting of Data

Primary Data

Using the previous journal and summarize that journal to give the information about this research.

CHAPTER 4

4. 1 RESULT AND FINDINGS

Unit root test

Unit root test of price of palm oil using first difference to make the data stationary.

Null Hypothesis: D(PRICE) has a unit root

Exogenous: Constant

Lag Length: 4 (Automatic - based on AIC, maxlag= 7)

t-Statistic

Prob.*

Augmented Dickey-Fuller test statistic

-2. 998437

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0. 0493

Test critical values:

1% level

-3. 737853

5% level

-2. 991878

10% level

-2. 635542

Graph of Price

Explanation. As we can see graph above, the price of palm oil is fluctuated, but recently, the prices of palm oil increased and then drop back.

Unit root test of production using first difference to make the data stationary

Null Hypothesis: D(PDC) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag= 5)

t-Statistic

Prob.*

Augmented Dickey-Fuller test statistic

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-3. 998301

0. 0047

Test critical values:

1% level

-3. 689194

5% level

-2. 971853

10% level

-2. 625121

Graph of Production

Explanation. The production of palm oil in our country decreased every year because of other competition from Indonesia. Our country compete with Indonesia in terms of production because last time Indonesia is a second largest producer in the world and recently, Indonesia already becomes the world largest producer in the world follow by Malaysia. So our country production of palm oil decreased because of world demand has two choices to import the palm oil.

Unit root test of land using first difference to make the data stationary

Null Hypothesis: D(LAND) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag= 7)

t-Statistic

Prob.*

Augmented Dickey-Fuller test statistic

-4. 664706

0. 0009

Test critical values:

1% level

-3. 689194

5% level

-2. 971853

10% level

-2. 625121

Graph of Land

Explanation. The hectares of land in our country also increased year by year because of people already know that plant palm oil can make bulk of profit to them. Besides that, the planters increased the hectares of plantation

because government enhances them to plant the palm oil by giving them awareness and so on.

Unit root test of export using first difference to make the data stationary

Null Hypothesis: D(EXP01) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag= 3)

t-Statistic

Prob.*

Augmented Dickey-Fuller test statistic

-3. 609207

0. 0121

Test critical values:

1% level

-3. 689194

5% level

-2. 971853

10% level

-2. 625121

Graph of Export

Explanation. Our export in our country also decreased year by year, it is related to our production in our country. This is because of Indonesia also export the palm oil in the world. So the world demand has two choices whether wants to import from Indonesia or our country.

Unit root test of consumption using first difference to make the data stationary

Null Hypothesis: D(CNSPTN) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on AIC, maxlag= 7)

t-Statistic

Prob.*

Augmented Dickey-Fuller test statistic

-4. 569870

0. 0011

Test critical values:

1% level

-3. 689194

5% level

-2. 971853

10% level

-2. 625121

Graph of Consumption

Explanation. Our consumption in our country also decreased in our country.

Single regression

Least square method- $POPt = +bX$

Between dependent variable and independent variable

Variable

C

Std-error

T-stat

R-Squared

DW-stat

Prob

D1LNPROD

0. 329321

0. 177300

1. 85

0. 113301

1. 751273

0. 0742

D1LNEXP

0. 855506

0. 254039

3. 36

0. 295760

1. 816493

0. 0023

D1LNCONS

0. 171866

0. 270477

0. 63

0. 021939

1. 704933

0. 5332

D1LNAREA

0. 097365

0. 389766

0. 24

0. 678609

0. 571303

0. 8046

TABLE ONE

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.

Before regress the data, must do the unit root test to make sure the data stationary or not, after that log the data to reduce the problem of autocorrelation and multicollinearity. Then use first difference method because it is already mention in unit root test to check using first difference method.

List of Equation

PPOt= 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 POPt and PROD

Dependent variable: POPt and Independent variable: PROD

$POP_t = 0.054234 + 0.329321t$

The coefficient above shows that the relationship between price and production of palm oil is positive relationship. It means that, 1 unit increased of production of palm will lead to increase price of palm oil by 0.329321.

t-statistic= 1.85

Reject H_0 , because there is no significant relationship between price and production because t-statistic shows that it is significant and below 2. So production cannot influence the price of palm oil respectively.

R-Squared = 0.113301

Explanation. There are 11.33% of the changes in the dependent variables. Only independent variable can explain the dependent variable. 88.67% cannot be explained by the regression analysis due to some omission of independent variables. In other words, this R-squared show the weak relationship between dependent variable (price) and independent variable

(production). It's mean that, when independent variable change 1%, dependent variable will change by 11.33%. So, we can concluded that independent variable and dependent variable has a weak relationship because of the R-Squared is low.

Std-error= 0.177300

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

DW-statistics= 1.751273

Explanation. There is a less problem in auto-correlation because DW shows value almost than value 2. If the value of DW shows above 2, means that there is no problem in autocorrelation

Probability= 0.0742

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. The independent variable for the production is 0.0742. This production of palm oil (supply) cannot influence the price of palm oil. It's because if the production is too many in the market, the price of palm oil will not effect because society only concern for the basic needs such as shelter, food and society not concern for the production of palm oil. Same like if the production of palm oil is low, it will not influence the price of palm oil because society not really wants the uses of palm oil.

Result of regression between POPT and EXP

Dependent variable: POPT and Independent variable: EXP

$$\text{POPT} = 0.063604 + 0.855506t$$

The coefficient above show the positive relationship between price and export. It means that, 1 unit increased export of palm oil will lead to increase price of palm oil by 0.855506

$$t\text{-statistic} = 3.36$$

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.

$$R\text{-Squared} = 0.295790$$

Explanation. There are 29.57% of the changes in the dependent variables. Only the independent variable can explained the dependent variable. 70.43% cannot be explained by the regression analysis due to some omission of independent variables. R-squared show the weak relationship between dependent variable (price) and independent variable (export). It can be explained when independent variable change 1%, dependent variable also will change by 29.57%. we can concluded that independent variable and dependent variable has a weak relationship because of the value of R-squared is low.

$$\text{Std-error} = 0.254039$$

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

DW-statistics= 1. 816493

Explanation. There is a little bit problems in auto correlation because DW shows value almost 2.

Probability= 0. 0023

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. The independent variable for the export is 0. 0023 and this export of palm oil (supply) can influence the price of palm oil. The price of palm oil will influence if the export more than demand from other country. This kind of scenario happened because it's good to decrease price of palm oil to the trading country, so that the trading country can buy with cheapest price. But if the export less than demand from other country, it will influence the price of palm oil, because our country can sell with high price in order to get more profit from other country. It happen when the shortage of the production and demand will keep increasing every year and the export are limited.

Result of regression between POPT and CONS

Dependent variable: POPT and I