

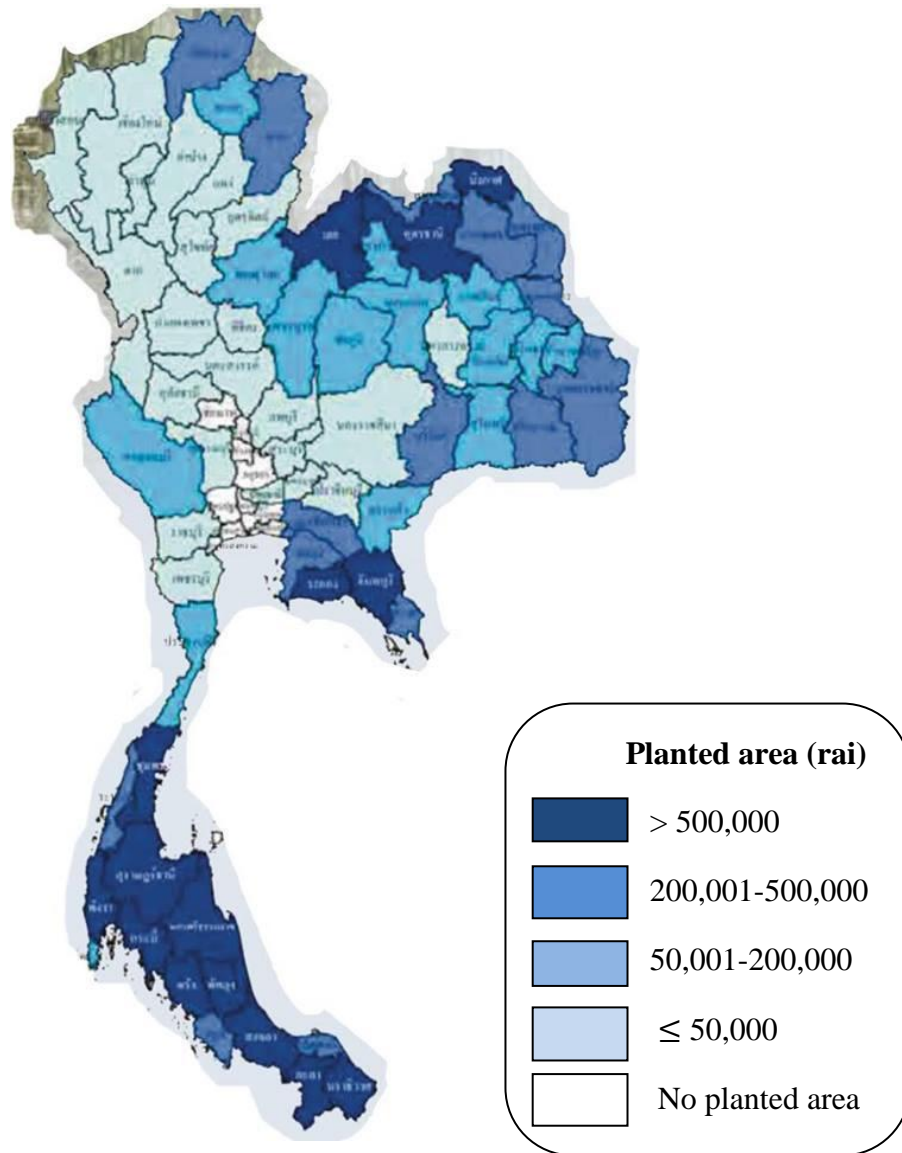
CHAPTER IV

OVERVIEW, RESULT AND DISCUSSTION

A. Overview Rubber Price in Thailand

This chapter determines and explains concerning the description about the illustration of research object which giving information from the object. This research analysis applied the econometric model to analyze the influence of Export of rubber, Rubber production, and Exchange rate to Rubber price (the price of Thailand). The model that used in this research is multiple linear regression analysis, this method used to explain the relationship and how big influence between independent variables with the dependent variable. This research using data processing program E-Views 9.0. The variables of data are taken from the period of January 2011 to December 2016.

Thailand foreign agricultural trade is important to economic development. Exports of agricultural products are significant driving factors in the agricultural sector. However, the world market has highly competitive in trade and investment. Other countries have introduced rules and regulations, including tariff and non-tariff measures, as barriers to international trade.



Source: (OAE, 2559)

Figure 4.1
Rubber plantation of Thailand

From the figure 4.1 above, show that rubber plantation area in Thailand is highest in all regions of the country. But the South is the most rubber plantation area because most people have a career as a gardener.

And most of people incomes are from rubber. Whether it is spending on a daily basis, spending on tuition, spending on health, etc. Because of this, rubber is very important to the Thai rubber planters.

Rubber was first planted in the south and the eastern parts of the country where environmental conditions are favorable for rubber plantation. And then, the government set up the policy for the expansion of the rubber cultivated areas as a new cash crop. The main objective of that policy is to increase the incomes and stabilize the small landholders through rubber plantations in the northeast and in the north (approximately 160,000 ha between the years of 2004 to 2006. After that, Para rubber became the major income generating crops in the Northeast (Poungchompu S. a., 2015).

According to the Thai Rubber Association (2013), the project of rubber plantations was started by the Ministry of Agriculture and Cooperatives in 2011. All rubber farmers across the country were supported by cooperation with the subsidiary organization. In the northeastern Region of Thailand, the areas under rubber plantations have increased after introducing the Para rubber projects ranging from about 240,000 hectares in 2009, or 9.5% of the agricultural area, to 18.3 million hectares in 2010. The tapping areas of 377,441.8 hectares produced 230,504 tons, or 247 kg per acre (7.6% of national production) in 2010. Rubber plantation of northeast Thailand has the potential to play a major role for the whole country. This is because the expansion of cultivated

areas will lead to the success of the rubber sector rather than the improvement of yield and technical efficiency (Poungchompu S. a., 2015).

Among the top ten export product groups of the country during 2016, rubber holds the fifth position and the sharing percentage is 5.7% to the total export income of the country (Workman D. , 2017a). Of the total harvested rubber, over 90% are used for exports and the incomes from the export of rubber is more than that from exports of rice (Praktikantin, 2017).

Rubber consumption and production in the world and in Thailand

Natural rubber is mainly consumed in Asia, Africa, and Latin America. Other emerging industrialized areas are considered the major natural rubber consuming countries around the world. They shared about 75% of the global rubber consumption in 2016. The top six natural rubber producers in the world are Thailand, Indonesia, Malaysia, India, Vietnam and China which contributes 86.5% to the global total output in 2016 (Insider, 2017).

The total consumption of rubber worldwide was 26.8 million tons, with natural rubber accounting for about 46% or 12.2 million tons while that of synthetic rubber was recorded at 54% and accounted for 14.6 million tons in 2015 according to IRSG. According to IRSG, the natural rubber production of the world accounted for 12.3 million tons while the synthetic rubber production accounted for 14.46 million tons in 2015. Of

these, 92% was produced in the Asia-Pacific region. As shown in Tables 4.1 and 4.2, the global rubber consumption and production steadily increased year after year within ten years (2006-2015) except in 2009 (Investment, 2016).

Table 4.1 World rubber consumption (2006-2015)

Year	Rubber consumption (Million Tons)		
	Natural rubber	Synthetic rubber	Total rubber
2006	9.51	12.43	21.95
2007	10.14	12.58	22.71
2008	10.19	12.17	22.36
2009	9.29	11.23	20.52
2010	10.76	13.23	23.94
2011	11.03	13.86	24.89
2012	11.05	13.96	25.00
2013	11.37	14.16	25.53
2014	12.14	14.27	26.40
2015	12.17	14.56	26.73

Source: International Rubber Study Group (ISRG)

Table 4.2 World rubber production (2006-2015)

Year	Rubber consumption (Million Tons)		
	Natural rubber	Synthetic rubber	Total rubber
2006	9.85	12.70	22.55
2007	10.06	12.83	22.89
2008	10.10	12.29	22.38
2009	9.72	11.49	21.21
2010	10.40	13.28	23.68
2011	11.24	14.09	25.33
2012	11.66	14.04	25.70
2013	12.28	14.20	26.48
2014	12.12	14.18	26.29
2015	12.31	14.46	26.77

Source: International Rubber Study Group (ISRG)

In 2016, Thailand placed first in natural rubber production accounting for 4.4 million tons and the share of 36.3% (Markets Insider, 2017). Moreover, the country was the first exporter of natural rubber which accounted for 36.8% of the world in 2016 (Workman D. , 2017). Table 3 shows the natural rubber production and exports within 11 years (2006-2016).

Table 4.3 Natural rubber production and export in Thailand (2006-2016)

Year	Million tons	
	Production	Export
2006	3.12	2.77
2007	3.06	2.70
2008	3.09	2.68
2009	3.16	2.73
2010	3.25	2.87
2011	3.57	2.95
2012	3.78	3.12
2013	4.17	3.66
2014	4.32	3.77
2015	4.24	3.70
2016	4.36	3.31

Source: Rubber Research Institute Department of Agriculture

The production of rubber has been enormously increased due to the expansion of rubber cultivated areas. The tapping areas covered from 2.6 million hectares in 2013 to 3 million hectares in 2015. The southern region of Thailand occupied large areas of rubber plantations accounted for 68% of all tapping areas across the country (Group, 2017), which it also supported over 70% of total national latex production (Thaiturapaisan, 2016). The prices for rubber becomes higher than those for rice. Therefore,

the cultivated areas of rubber plants are expanded especially in the Southern region of Thailand (Emery, 2016).

In 2015, the rubber and rubber products industry expanded in the domestic automobile sector. As a result, the production of all types of important rubber products used for tires products are expected to increase. Moreover, rubber gloves also expanded in the domestic market according to the demand of health and cleanliness awareness (Economics, 2015).

According to the International Rubber Study Group (IRSG) (2015), the sharing of natural rubber from Thailand accounted for about one-third of the world production. Natural rubber is mainly used for tires, surgeons' gloves, condoms, balloons and other relatively high-value products (Praktikantin, 2017). In Thailand, tires are the major product for domestic consumption followed by elastics, gloves, tires and tubes for motorcycles, and rubber bands (Investment, 2017). Hence, Praktikantin (2017) stated that the price of rubber largely depends on the economic situation of the world and the price of petroleum.

Imports and exports

Thailand supplies large amounts of raw materials to the world. Furthermore, there is a strong manufacturing sector that produces wide varieties of value-added rubber products which can increase the profits. Besides the production of natural rubber, synthetic rubber can be produced for domestic consumption and export. Nevertheless, the production

amount of synthetic rubber does not meet the demands of local consumption yearly. For that reason, nearly 77% are imported to meet the needs for domestic consumption. This opens great opportunities for the producers of synthetic rubber. Moreover, a large amount of rubber products is annually imported. It also highlights the importance and strategic opportunities for the rubber product producers to strengthen its supply and demand for domestic consumption (Investment, 2017). The major important imported rubber products are pipe, joints and conveyor belts, vehicle tires, floors and wall tiles, vulcanized rubber and other rubber products (The Office of Industrial Economics, 2015).

Thailand exported natural rubber with good quality and large scale of production to many countries across the world. The top five exporting countries are China, Malaysia, Europe, Japan and South Korea (Investment, 2017). The exports of primary processed rubber are rubber sheets, rubber bars, concentrated latex and other rubbers in 2015. The export amount of primary processed rubber increased. However, the price for rubber export products decreased dramatically. Therefore, the export value decreased as well. Since the US extended the period of Generalized System of Preference (GSP) for Thai products, the exports of rubber products for automobiles also increased (The Office of Industrial Economics, 2015).

Government policies

In the report of the Office of Industrial Economics (2015), the government implemented a project for rubber and rubber products development by cooperation between the enterprises and the research organizations, and the project of the database in depth system development of rubber and rubber tree products industry. From the project, the following outcomes are expected:

- To produce the value-added rubber products which meet the international standards;
- To improve the competitive advantage in the international market; and
- To foster continuous increase of rubber and rubber products sector of Thailand

The Rubber Authority of Thailand is the key actor to support for research and development, production, and commercialization of rubber from the cultivation of latex trees to final processing all over the country. Major companies have already established in the production of rubber products in Thailand since many years ago. Therefore, Thailand becomes the center for the high value rubber goods across the world (Investment, 2017).

In the first quarter of 2016, there was a business negotiation. In that business activities, 150 rubber importers from 28 countries, including

Malaysia, Vietnam, China, South Africa, India, South Korea and Saudi Arabia joined with 109 Thai companies. Such business activities with foreign partners is important for the Thai rubber industry to make the business relationships. Additionally, the companies from Thailand can make the new market links form many other countries. The most international interest for rubber products are tires, latex pillows and mattresses, natural rubber, rubber gloves and automotive parts made from rubber. As for the government side, there has been an effort in the establishment of the research centers for production, marketing and technological research to produce the highest quality rubber and to meet the demands (Promotion, 2016).

Thailand-Indonesia-Malaysia Cooperation

According to the Thai Rubber Association (2017), the rubber price depends on the world economics trend and hence it is not stable. It drops very often and consequently producers and consumers encounter the problems related to rubber throughout the world. To solve the rubber problems including that, International Natural Rubber Organization (INRO) was founded in 1980. However, the view on the minimum rubber price are different between producers and consumers. Thus, that organization ended its operations in 1999. In 2001, the International Tripartite Rubber Council (ITRC) was established by cooperating with Thailand, Malaysia and Indonesia, the world's top rubber producing and exporting countries, to solve the price decrease and help it become stable.

In 2003, the International Rubber Consortium (IRCo) was established. The major issues discussed in the annual meeting of ITRC in 2017 are:

- To increase the rubber consumption in each country at the annual rate of 10% by rubber innovation research and development;
- To develop the domestic rubber market in the future and invite more buyers and sellers from all member countries;
- To cooperate strongly in the management of rubber supply for better price and sustainability of the rubber industry by a long-term measure in balancing demand and supply (Supply Management Scheme (SMS));
- To follow rubber price situation closely by a short-term measure (Agreed Export Tonnage Scheme (AETS)); and
- To accept Vietnam as an associate member by ITRC as there is a high production level and significant role in Vietnam

Thailand is the top rubber producer and exporter in the world market in 2016. Over 90% of the total rubber production is used for exports. It contributes about one-third of the global rubber production. The export income from rubber is more than those from rice. Of the total national rubber latex, 70% was contributed by the Southern region of Thailand which is the largest rubber plantation area in the country. Since rubber price generates more incomes, rubber cultivated areas are expanded especially in the Southern region of Thailand which supports 70% of its total national latex production. However, the rubber price fell due to the

economic conditions of the world. China, which is the largest rubber importer across the world, also contributed to the falling of rubber price plus the oversupply in the global market. Thailand-Indonesia-Malaysia made a cooperation to decrease the rubber price and help stabilize the market. Rubber City project was started to develop rubber and value-added rubber products by stabilizing rubber price.

B. Descriptive Statistic

Table 4.4
Descriptive Statistic

Descriptive Statistic	Rubber Price	Export	Exchange rate	Production
Mean	86.32847	284981.6	32.37153	339369.5
Median	79.15000	293214.4	32.07500	353854.5
Maximum	190.3100	315488.9	36.13000	373957.3
Minimum	44.19000	244698.5	29.07000	249288.2
Std. Dev.	35.58294	27218.87	1.993474	32740.44
Skewness	1.099790	-0.287118	0.505202	-1.347420
Observation	72	72	72	72

Sources: Secondary data process (Appendix 2)

From the table above defines the descriptive statistic of all variable regard Rubber price (the price of Thailand), Export, Exchange rate, and Rubber production defines that first: Rubber price Mean, Median, Maximum and Minimum values are 6.32847, 79.15000, 190.3100. Secondly: Export of rubber Mean, Median, Maximum and Minimum values are 284981.6, 293214.4, 315488.9, and 244698.5. Thirdly:

Exchange rate Mean, Median, Maximum and Minimum values are 32.37153, 32.07500, 36.13000, and 29.07000. Fourthly: Rubber production Mean, Median, Maximum and Minimum values are 339369.5, 353854.5, 373957.3, and 249288.2. The result also explains that all variables in this study exhibit in term of Skewness Rubber price (the price of Thailand) and Exchange rate are positively, and Rubber production and Export of rubber are negative.

C. The Results of Data Analysis

1. The Results of Classical Assumption Test

Before we do multiple linear regression analysis test then that must be done is to test data to be analyzed so that data valid bias and is requirement, hence used classical test. The explanation of the classical assumption test is as follows.

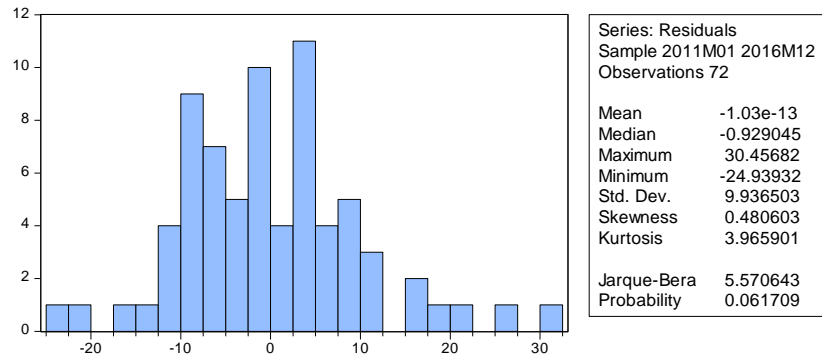
a) The Results of Normality Test

Normality testing is performed to test whether in a research model, the dependent variable and the independent variable or both have a normal distribution or not. A good model is normally distributed or near normal. Identify whether or not the problem of normality is done by looking at the value of Jarque-Bera.

To see distributed data normal or not, if the value of Jarque-Bera $\times 2$, then the data is normally distributed vice versa if Jarque-Bera $> X$ then the data is not normal. if the value of

Jarque-Bera $\times 2$, then the data is normally distributed. As well as otherwise if Jarque-Bera X then the data is not normal.

After the data is processed using application reviews 9, then seen the result as follows.



Source: Secondary data process (Appendix 4.4)

Figure 4.2
The result of Normality Test

From the figure 4.2 above shows the result the probability value is $0.061709 > 0.05$ so it can be said that the probability value of this model is normally distributed, while based on normality test results can be seen from the probability value Jarque-Bera (JB), if the probability > 0.05 , then the model in normal state, based on this parameter is known that the value of probability value at JB is 0.061709 greater that the value of 0.05. Thus it can conclude that the regression model meets the assumption of normality.

b) The Result of Multicollinary Test

Multicollinearity test aims to determine wheter there is a relationship between independent variable. The

multicollinearity test is a state in which one or more independent variables are expressed as linear conditions with other variables.

A good regression model should not be a correlation between independent variables. The result of this test can be seen from the Variance Inflation Factor (VIF) with the VIF equation = $1/\text{tolerance}$. If the value of VIF is less than 10 there is no multicollinearity.

Table 4.5

The result of Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Export	5.08E-09	290.6064	2.590886
Exchange rate	0.572081	418.9406	1.560818
Production	4.68E-09	379.8642	3.454696

Source: Secondary data process (Appendix 4.2)

Based on the table above, shows that the data results of multicollinearity test in Centered VIF the values for Export of rubber, Exchange rate, and Rubber production variables are 2.590886, 1.560818, and 3.454696. It's mean that the Centered VIF value of the three variables is no greater than 10. Then it can be said that there is no multicollinearity in the dependent variable.

c) The Result of Autocorrelation Test

The result from the data processing of autocorrelation, then consider the output of linear regression with eviews 9 which looks are as follows:

Table 4.6

The result of Autocorelation Test

Variable	Coefficient	t-statistic	Prob.
AR(1)	0.761470	9.577185	0.0000
SIGMASQ	49.76766	7.139607	0.0000
Durbin-Watson			2.037412

Source: Secondary data process (Appendix 4.1)

From the table 4.6 above, the authors perform healing on the disorder by using the AR test (1) on the data. And the table above shows the results of correlation test that has been improved by using model AR(1) there is a DW value is 2.037412 means that the value of DW is between the value of dU (1.54) and dL (2.46) then according to the DW test in this case data is no autocorrelation.

d) The Result of Heteroskedasticity Test

Heteroskedasticity test was conducted to test whether the variant of two observations in the same study (homogeneous) for all the dependent variable with the independent variable so that the estimation result is not biased. The identification of

whether or not heteroscedasticity problem is done through White Heteroskedasticity test.

Table 4.7

Result of Heteroscedasticity Test

T

Breusch-Pagan-Godfrey Heteroscedasticity			
F-statistic	1.163280	Prob.F(3,68)	0.3302
Obs*R-squared	3.514743	Prob. Chi-square(3)	0.3189
Scaled explained	4.649145	Prob. Chi-square(3)	0.1994

Source: Secondary data process (Appendix 4.3)

Base on the table 4.7 above shows that the value of Obs*R-squared can be seen from the probability of Chi-Square. From the test results using this Breusch-Pagan-Godfrey probability value is $0.3189 > 0.05$, then there is no heteroskedasticity.

D. The Result of Regression Estimate

Estimate the relationship between variables that meet the price of rubber in Thailand is done through the OLS approach in the following:

Table 4.8
The Result of Regression Estimate

	Coefficients	T-test	Prob.
Constanta	566.7017	26.15561	0.0000
Export of rubber	-0.000264	-3.710298	0.0004
Exchange rate	-5.868380	-7.770943	0.0000
Rubber production	-0.000634	-9.263717	0.0000
R-Squared	0.922020		
F-Statistic	268.0060		
Prob. F-stat	0.000000		

Source: Secondary data process (Appendix 3)

Based on the table 4.8 above, shows that the export rubber variable has the value significant is 0.0004, in this research alpha used is 5% (0, 05) then the value $0.0004 < 0,05$. Because of that the value significant less than the alpha (0,05) then the export rubber variable has significant effect on Rubber price (the price of Thailand). The Exchange rate variable has the value significant is 0.0000; in this research alpha used is 5% (0, 05). Exchange rate variable has the less value than the alpha ($0.0000 < 0,05$). Then the exchange rate variable has significant effect on Rubber price (the price of Thailand). And Rubber production variable has the value significant is 0.0000, in this research alpha used is 5% (0, 05) then the value $0.0000 < 0,05$. Because of that the value significant less than the alpha (0,05) then the Rubber production variable has significant effect on Rubber price (the price of Thailand).

This research using multiple linear regression analysis, the model of this research is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$\text{Rubber price} = b_0 + b_1 \text{Export} + b_2 \text{exchange rate} + b_3 \text{production} + ut$$

Explanation: $Y = \text{Rubber price}$

$a = \text{constants}$

$e = \text{error}$

$\beta = \text{regression coefficient}$

$X_1 = \text{Export of rubber}$

$X_2 = \text{Exchange Rate}$

$X_3 = \text{Rubber Production}$

$$Y = 589.2607 - 0.000264 X_1 - 5.868380 X_2 - 0.000634 X_3 + e$$

Based on the estimation of regression, the dependent variable in this research is Rubber price (the price of Thailand), and the independent variables are Export rubber, Exchange rate, and Rubber production. Based on the table 4.5, it can be seen that Export rubber Exchange rate bath to US dollar, and Rubber production are significantly affecting to Rubber price (the price of Thailand) in January, 2011 – December, 2016.

E. Statistic Test

1. F-test

This objective is to see if there is a significant influence between variable X to variable Y simultaneously. In the context of this research, the simultaneous test would like to see whether the variables such as export of rubber, rubber production, and exchange rate Thai bath to US dollar influence to rubber price (the price of Thailand) or not.

To see whether or not there is influence between independent variable to dependent variable seen from its significant value. If the value of sig. < alpha, then there is a significant influence between the independent variables on the dependent variable, which implies that there is a significant influence between variables such as export of rubber, rubber production, and exchange rate influence to rubber prices (the price of Thailand). Otherwise, If the value of sig. > alpha, then there is no significant influence between the independent variables on the dependent variable. It's mean; the independent variables in this research are export rubber, rubber production, and exchange rate does not influence to the dependent variable, which is rubber price (the price of Thailand).

Table 4.9
The Result of F-test

F-statistic	268.0060
Prob. F-stat	0.000000

Source: Secondary data process (Appendix 3)

After testing using the software eviews 9. From the table 4.9 above, the results F-test in this study has a result of 268.0060 with (Prob. F-stat) of 0.000000 the value of sig. < alpha, that is $0.0000 < 0.05$, which means that the independent variables (export of rubber, rubber production, and exchange rate) has effect on rubber price (the price of Thailand) from January 2011 to December 2016.

2. T-test

T-Test is used to determine the influence of each independent variable partially. T-Test basically shows how far the influence of the independent variables in explaining the dependent variable (Ghozali, 2009).

In this research use E-views 9.0 to estimate the results of multiple linear regression outputs as follows:

Table 4.10
The Result of T-test

Variables	Regression		
	Coefficeient	T-test	Prob.
Constanta	566.7017	26.15561	0.0000
Export of rubber	-0.000264	-3.710293	0.0004
Exchange rate	-5.868380	-7.70943	0.0000
Rubber production	-0.000634	-9.263717	0.0000

Source: Secondary data process (Appendix 3)

a) The testing t-test of variable X_1 (Export of rubber)

This test is used to determine whether the regression model can be used to influence the rubber price (the price of Thailand) simultaneously or not, with significant level of testing criteria (= 0.05).

The test for this test is if the prob. (sig) < alpha then there is a significant influence between the X_1 (export of rubber) variable to the Y variable (rubber price). Otherwise, if the prob. (sig) > alpha then there is no significant influence between variable X_1 (export of rubber) to variable Y (rubber price).

From the table 4.7 show that, we can that the value significant of variable X_1 (export of rubber) is $0.0004 < 0.05$, then it can be said that there is significant influence between variable X_1 (export of rubber) to rubber price.

b) The testing t-test of variable X_2 (Exchange rate)

The test for this test is if the prob. (sig) < alpha then there is a significant influence between the X_2 (exchange rate) variable to the Y variable (rubber price). Otherwise, if the prob. (sig) > alpha then there is no significant influence between variable X_2 (exchange rate) to variable Y (rubber price).

From the table 4.7 show that, we can that the value significant of variable X_2 (exchange rate) is $0.0000 < 0.05$, then it can be said that there is significant influence between variable X_2 (exchange rate) to rubber price (the price of Thailand).

c) The testing t-test of variable X_3 (Rubber production)

The test for this test is if the prob. (sig) < alpha then there is a significant influence between the X_3 (rubber production) variable to the Y variable (rubber price). Otherwise, if the prob. (sig) > alpha then there is no significant influence between variable X_3 (rubber production) to variable Y (rubber price).

From the table 4.7 show that, we can that the value significant of variable X_3 (rubber production) is $0.0.0000 < 0.05$, then it can be said that there is significant influence between variable X_3 (rubber production) to rubber price (the price of Thailand).

3. R-square

R^2 test is a value that show how much the independent variable will explain the variable dependent variable, R^2 in the regression equation is susceptible to the addition of independent variables, where more independent variables are involved then the value of R^2 will be greater because that is the use of R^2 adjusted on multiple linear regression analysis (Prawoto, 2016).

Based on the results of regression table 4.5 above, show that R-square obtained from the estimation model between export of rubber, rubber production, and exchange rate on Rubber price (the price of Thailand) of 0.922020 or amounted 92.2% rubber price (the price of Thailand) influence by export of rubber, rubber production, and exchange rate. While 7.8% rubber price (the price in Thailand) explained by variable outside research variable.

F. Result of Discussion

Based on the research finding of this study aims to determine some correlation between variables, namely Rubber price (the price of Thailand), Exchange rate, Export of rubber, and rubber production. So, all of three independent variables that affect to Rubber price (the price of Thailand) will be discussed as follows:

Table 4.11

**The Accumulation of Independent
To Dependent variable**

Variables	Coefficient	Probability
Constanta	566.7017	0.0000
Export of rubber	-0.000264	0.0004
Exchange rate	-5.868380	0.0000
Rubber production	-0.000634	0.0000

Source: Secondary data process

1. The influence of Export of rubber on Rubber price (the price of Thailand)

The result of this test shows that the export of rubber has a negative direction, because the value of export of rubber coefficient is - 0.000264 and export of rubber has a significant effect on Rubber price (the price of Thailand), because it has a probability of 0.0004 which mean is below $\alpha = 0,05$. This means that if there is an increase of 1% export of rubber, Rubber price (the price of Thailand) will decrease about 0.000264%, assuming other variables are constant. Therefore, the regression results are in accordance with hypothesis in this research.

Export of rubber has influence to Rubber price (the price of Thailand). Thailand is an agricultural country that produces and exports agricultural products without any further processing. So when the rubber processing industry in foreign countries reduces production or turn to grow rubber itself. This will reduce the demand for rubber while increasing production, resulting in a further drop in rubber prices. As China is the

most importing country of rubber from Thailand. At the same time, China is currently reducing imports because of the global economic slowdown. China has a role to play as a producer, it started growing rubber and invested in Vietnam, Laos, and Cambodia. This is consistent with international trade theory by Adam Smith; trade between two nations is based on absolute advantage. When one nation is more efficient than another in the production of one commodity but it less efficient than the other nation in producing a second commodity, then both nations can gain by each specializing in the output with the other nation for the commodity or its absolute disadvantage.

According to Sadali (2013) this paper will investigate the determinant that make natural rubber price volatile, first of all, Malaysia is the third largest producer of natural rubber after Thailand and Indonesia. In this research paper the researcher will determine factor that will affect volatility natural rubber (latex) price in Malaysia. Whereby, the dependent variables for this study are Volatility natural rubber price in Malaysia, while the independent variables are crude oil petroleum price, inflation, export and import. The result of this research It shows the three independent variables which is inflation, export and Crude oil have significant relationship to Volatility natural rubber price in Malaysia but one of the independent variables which is import have no significant relationship to volatility natural rubber price.

According to Phisitsuppakul (2015) he said the many constraints in reducing or increasing natural rubber yields in the world market, the impact on the price of rubber. And cause uncertainty in the income of exporters. Also according to Supanpak (2007) Study Demand for Export of Rubber to China, it found that the export of rubber in Thailand has an effect on the change of the export of rubber to Thailand.

From the test results means rubber production are negative and has significant influence on Rubber price (the price of Thailand) in 1st January 2011 to 31st December 2016. This is evident in the core of demand. In fact, the decision is purchase or import goods of various countries. The decision is based on the price of the product from the exporting country. It is not determined by the price of a particular country, for example if the price of rubber in that period is increase, the demand for rubber from abroad will decrease, and it will result in export of rubber is decrease. Consistent with demand theory is an economic principle referring to a consumer's desire and willingness to pay a price for a specific good or service. Generally, it is used to express the relationship between quantity and price. Demand is correlated in the opposite direction to price level. When price levels increase, demand for this type of product will decreases.

2. The influence of Exchange rate on Rubber price (the price of Thailand)

The result of this test shows that the exchange rate has a negative direction, because the regression coefficient value of exchange rate of - 5.868380. And exchange rate has a significant effect on Rubber price (the price of Thailand), because it has a probability of 0.0000 which mean is a less than $\alpha = 0,05$. This means that this result indicates when the exchange rate of Thai bath to US dollar increase (appreciation) about 1% then the probability of Rubber price (the price of Thailand) will decrease about 5.868380%, Therefore, the regression results are in accordance with hypothesis in this research.

The accordance to (Mulyana, 2016) the exchange rate has negative and significant to rubber export in the lag time. Indonesia earned substantial foreign exchange from crumb rubber export. However, major fluctuations in the export earnings have raised concern about the country's future growth potentials and self-sustainability.

Seeing from another view point that is the exchange rate system adopted by Thailand at this time is a free-floating exchange rate system (pure) wherein this exchange rate system is determined by the market mechanism. It means that the demand and supply of rubber for US dollar and also another economic activity using US dollar will influence the value of exchange rate itself. Market mechanism which also includes the use of dollars in rubber trading.

3. The influence of Rubber production on Rubber price (the price of Thailand)

The result of this test show that the rubber production has a negative direction, because the value of rubber production coefficient is - 0.000634 which means that if there is an increase of 1% the probability Rubber price (the price of Thailand) will decrease by 0.000634%. And has a significant effect on Rubber price (the price of Thailand), because it has a probability of 0.0000 which mean is below $\alpha = 0,05$. Therefore, the regression results are in accordance with hypothesis in this research.

According to Nuchra Rakkandi (2003) she said that studies the nature of pricing for the agricultural market, importance of agricultural price changes. Especially of the nature rubber of the cycle, shows the cyclical or unstable price movement, no direction, predict difficulties, and flexibility depends on supply and demand. In the production of agricultural products, farmers will use current price as determinants or incentives to produce agricultural products. For example, rubber plantation if the farmers are motivated to plant rubber trees in the high price range. Do not forget that it takes many years to grow rubber. In the case when most gardeners turn to rubber for each household in the same period. When it comes to harvesting, it will overproduction of rubber in the market and will result in lower prices of rubber.

This study is accordance to the research conduct by Padungseriwit K. (2010) this result of research, the relationship of crop production index and the export of rubber in Thailand found that the rubber crop production index has affect to export of rubber in Thailand.

From the test results means rubber production are negative and has significant influence on Rubber price (the price of Thailand) in 1st January 2011 to 31st December 2016. It means that if the production exceeds the needs of the user, then the price of rubber decrease. On the other hand, if the rubber production is less than the demand, the rubber prices will increase in accordance with the price mechanism.