

ANALYSIS OF FACTORS AFFECTING THE VOLUME OF COCONUT EXPORTS IN INDRAGIRI HILIR REGENCY, RIAU PROVINCE

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ABSTRACT

This research aims to: 1) Describe the development of coconut export volume, coconut production quantity, coconut export prices to Malaysia, the exchange rate of the rupiah, and Malaysia's per capita GDP from 2000 to 2023. 2) Analyze the influence of Lag2 coconut production quantity, Lag2 coconut export prices to destination countries, the exchange rate of the rupiah, and per capita GDP of destination countries on the volume of coconut exports from Indragiri Hilir Regency from 2000 to 2023. This study utilizes secondary time series data on the volume of coconut exports from Indragiri Hilir, Lag2 coconut production in Indragiri Hilir, Lag2 real coconut export prices, the exchange rate of the rupiah against the US dollar, and Malaysia's per capita GDP over the last 24 years (2000-2023). Data analysis employs descriptive analysis methods and multiple linear regression. The results indicate that the development of coconut export volume from Indragiri Hilir, the quantity of coconut production in Indragiri Hilir, coconut export prices, the exchange rate of the rupiah against the US dollar, and Malaysia's per capita GDP fluctuate and tend to increase. Based on multiple linear regression analysis calculations, there is a positive and significant relationship with Lag2 export price variables, the exchange rate of the rupiah against the US dollar, and Malaysia's per capita GDP. Meanwhile, the variable that has a positive but insignificant effect is Lag2 coconut production in Indragiri Hilir.

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Keywords: Coconut Export Volume, Production, Export Prices, Exchange Rate, Gross Domestic Product.

INTRODUCTION

Coconut is one of the agricultural commodities that contributes to the gross domestic product and foreign exchange earnings, one of which is the revenue from Indonesia's coconut export value of USD 1.71 billion with an export volume of 2.03 million tons in 2022. During the period 2018-2022, the surplus value of the trade balance fluctuated but tended to increase, the surplus value of the coconut trade balance in 2022 reached USD 1.61 billion. Coconut production centers in Indonesia are spread across several provinces consisting of Riau Province which is the first province that contributes to coconut production of (13.98%), this is because Riau has the largest coconut plantation area in Indonesia with a land area of 303,927 ha and a production volume of 283,282 tons (Pusdatin, 2022). The district with the main coconut center is Indragiri Hilir Regency with a production contribution of 80.33% of the total coconut production of Riau Province. Indragiri Hilir Regency has a variety of coconut derivative products that are managed and marketed to the national and world markets. However, according to data from the Trade and Industry Service of Indragiri Hilir Regency in 2022, the largest export volume according to coconut product commodities is predominantly oriented towards round coconuts. Around 43% of round coconuts are intended for the national and world markets, followed by coconut cream at 32% and the remaining 25% are processed other coconut products.

The volume and value of Indragiri Hilir coconut exports fluctuate from year to year, this can be seen in 2018 the volume of coconut exports reached 208,785 tons with an export value of 31,155,771 USD, and in 2021 to 2023 the volume of Indragiri Hilir coconut exports has decreased by -17.5%, however the value of coconut exports in 2021 increased by 51.09% from the previous year, which was 197,760,814 USD. There are several factors that are thought

to influence the volume of Indragiri Hilir coconut exports. Starting from the amount of production which has decreased due to less productive management activities and the large number of old or damaged plants that require rejuvenation. Up to the uncertain export price every year and followed by the rupiah exchange rate which depreciates or appreciates every year. From the description above, it can be concluded that although the agricultural sector, especially coconut commodities, makes a significant contribution to the economy in Indragiri Hilir Regency, there are challenges that must be overcome to increase export volume. The decline in coconut export volume in Indragiri Hilir Regency shows fluctuations influenced by several factors such as decreased production due to old plants and unstable export prices.

Some efforts that should be made so that the volume of coconut exports can continue to increase every year are that the local government should formulate policies such as increasing production with the Government can provide assistance to farmers in the form of counseling, training, and access to capital to increase coconut plantation production or policies to improve infrastructure with the Government needs to build and improve infrastructure such as roads, ports, and warehouses to facilitate the flow of coconut exports. In addition, exporters are advised to strengthen the quality of coconuts such as setting high and consistent quality standards for each exported product, strengthening risk management such as conducting periodic risk analysis to identify potential threats and opportunities.

RESEARCH METHOD

This study focuses on determining the development of Indragiri Hilir coconut export volume and the factors that influence it. The scope and limitations of this study are the volume of Indragiri Hilir coconut exports, the amount of coconut production, the price of coconut exports, the rupiah exchange rate against the US dollar and Malaysia's GDP per capita.

The type of data used in this study is quantitative data and is secondary data, in the form of time series data for 24 years in 2000-2023. In the analysis process, this research is expected to be able to provide something useful and can be used as a new discussion. Secondary data is obtained through literature studies, official publications from related agencies, library studies and others. While the data obtained from various literatures, research reports, libraries, related agencies, websites related to this research such as UN COMTRADE (United Nations Commodity Trade), World Bank, FAO (Food and Agriculture Organization of the United Nations), BPS (Central Bureau of Statistics), Ministry of Trade, Indragiri Hilir Trade and Industry Service and others. The analysis method used in this study is a quantitative method using multiple linear equations where the parameter estimation uses Ordinary Least Square (OLS) processed using Microsoft Excel and SPSS programs. The following is the regression equation formula used for the study:

$$Y = B_0 + a_1b_1Lag_2X_1 + a_2b_2Lag_2X_2 + a_3b_3X_3 + a_4b_4X_4 + e$$

Description:

Y	= Volume of Indragiri Hilir coconut exports (Ton/Year)
Lag2X1	= Indragiri Hilir coconut production (Ton/Year)
Lag2X2	= Price of coconut exports to destination countries (US\$/Ton/Year)
X3	= Rupiah Exchange Rate (US\$/Rupiah/Year)
X4	= GDP Per Capita of Destination Countries (US\$/Year)
a	= Constant Value
b	= Regression Coefficient Value
e	= Standard Error

RESULTS AND DISCUSSION

Development of Indragiri Hilir Coconut Export Volume

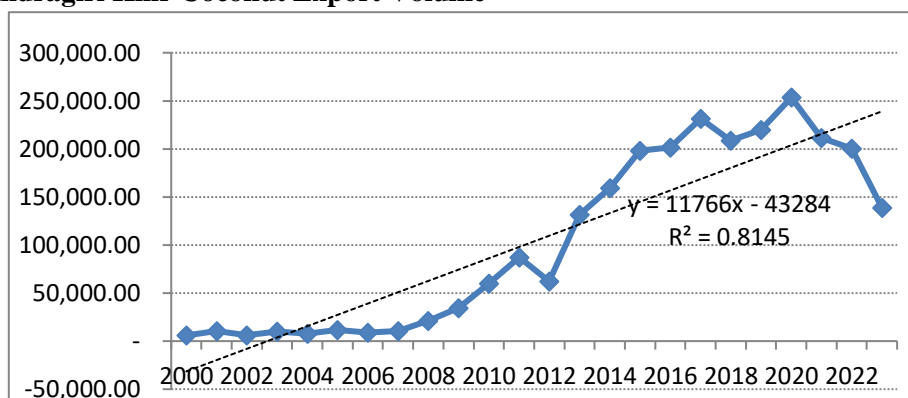


Figure 1. Development of Indragiri Hilir Coconut Export Volume 2000-2023

Figure 1 shows the development of Indragiri Hilir coconut export volume to Malaysia from 2000-2023 experiencing fluctuations that tend to increase with an average growth in export volume during the period of 103,785 tons or 4.17%. Based on the development of Indragiri Hilir coconut export volume from 2000 to 2023, the equation is $y = 11766x - 43284$, from this equation it has a positive slope value of 11,766 which means that the average increase in Indragiri Hilir coconut export volume each year increases by around 11,766 tons.

Research results are presented in the form of graphs, tables, or descriptive. Analysis and interpretation of these results is necessary before they are discussed.

Development of Coconut Production in Indragiri Hilir

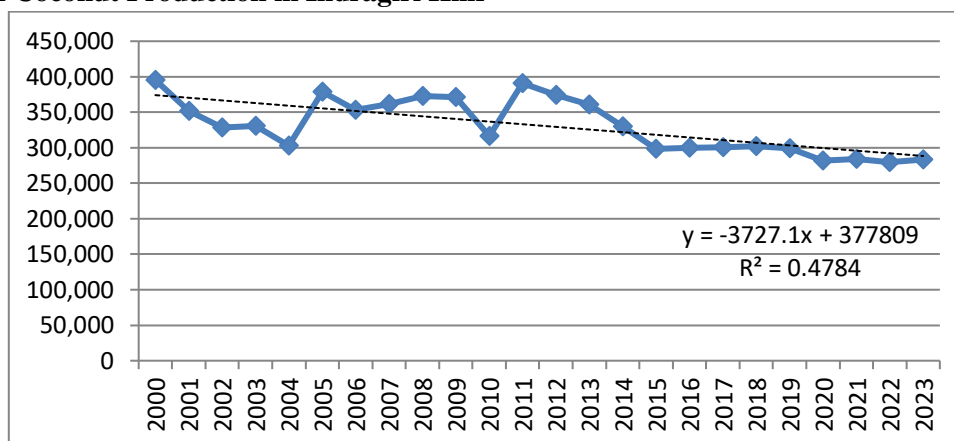


Figure 2. Development of Coconut Production in Indragiri Hilir 2000-2023

Figure 2 shows the development of coconut production in Indragiri Hilir Regency from 2000 to 2023 fluctuating with an increasing trend. Based on the development of coconut production in Indragiri Hilir Regency from 2000 to 2023, the equation is $y = -3727.1x + 377809$. This equation has a negative slope, which means it will decrease every year. The slope value in the equation above is -3,727.1, meaning that Indragiri Hilir coconut production will decrease every year by -3,727.1 tons/year. In addition, the coefficient of determination in the figure above is 0.4784, which means that the model's confidence level is 47.84%.

Development of Indragiri Hilir Coconut Export Prices to Malaysia

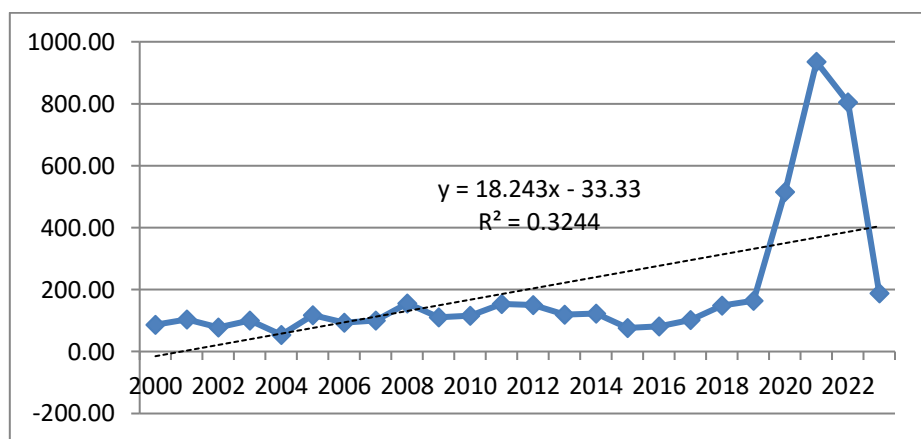


Figure 3. Development of Indragiri Hilir Coconut Export Prices to Malaysia 2000-2023

Based on Figure 3, the development of Indragiri Hilir coconut export prices as seen in the Figure above shows that during the period 2000 to 2023, coconut export prices fluctuated with a trend that tended to increase. In the Figure, the development of export prices to Malaysia is obtained by the equation, namely $y = 18.243x - 33.33$ from the equation has a positive slope value of 18.243, which means that it will increase every year by 18.243 US\$. In addition, the coefficient of determination value obtained from the figure above is 0.3244, which means that the model's confidence level is 32.44%.

Rupiah Exchange Rate Development Against the US Dollar

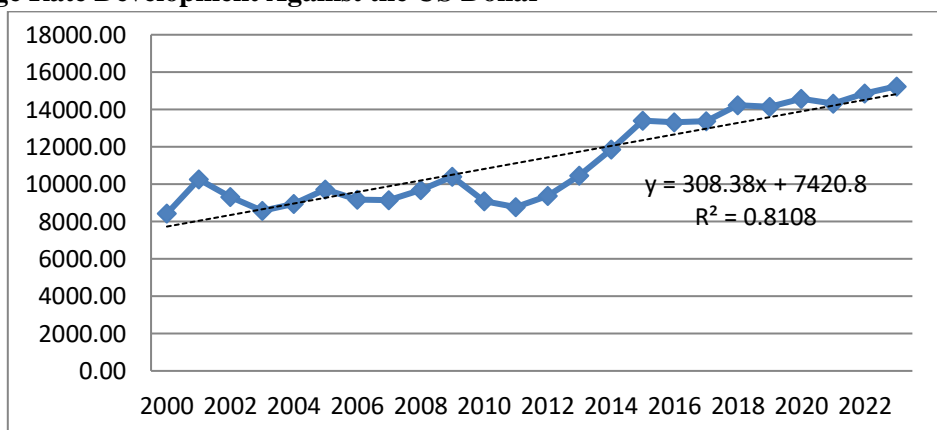


Figure 4. Rupiah Exchange Rate Development Against the US Dollar 2000-2023

Figure 4 shows linearly that the exchange rate development from 2000 to 2023 tends to increase, the equation of the development above is $y = 308.38x + 7420.8$, from this equation a positive slope value is obtained, namely 308.38, which means that the rupiah exchange rate will increase every year by 308.38 US\$. In addition, the coefficient of determination value is 0.8108, which means that the model's confidence level is 81.08%.

Development of Malaysia's GDP Per Capita

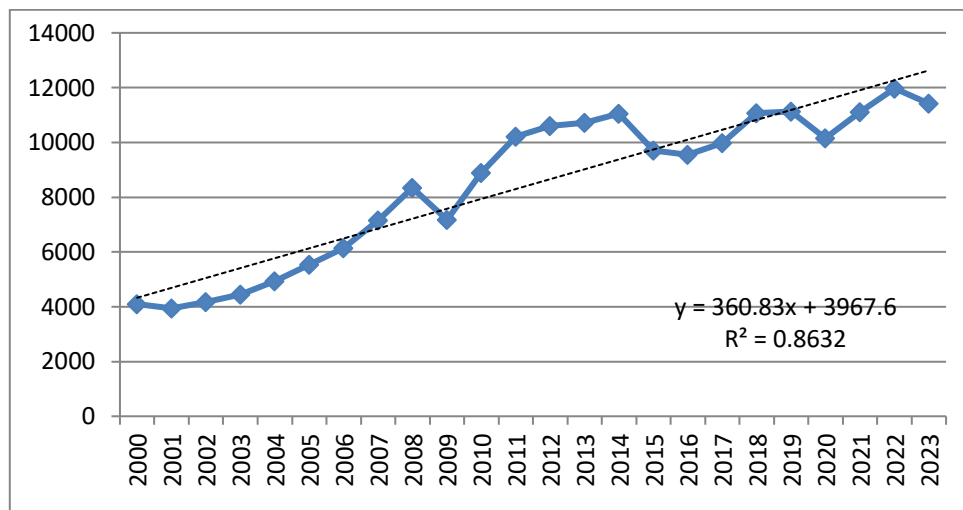


Figure 5. Development of Malaysia's GDP Per Capita 2000-2023

Based on the Figure above, the development of Malaysia's GDP Per Capita from 2000 to 2023 has fluctuated with an increasing trend. In the Figure of the development of Malaysia's GDP Per Capita, the equation $y = 360.83x + 3967.6$ is obtained. This equation has a positive slope which means it will increase every year. The slope value in the equation above is 360.83, meaning that the average increase in Malaysia's GDP Per Capita is US\$ 360.83. In addition, the coefficient of determination is 0.8632, which means that the model's confidence level is 86.32%.

Analysis of Factors Affecting the Volume of Indragiri Coconut Exports to Malaysia

Table 1. Multiple Linear Regression

Model		Coefficients ^a		Standardized Coefficients Beta	t	Sig.
		Unstandardized Coefficients B	Std. Error			
1	(Constant)	-349803.050	57461.682		-6.088	.000
	Lag2_X1	.185	.128	.103	1.441	.168
	Lag2_X2	1.634	.513	.220	3.184	.005
	X3	25.343	3.713	.676	6.826	.000
	X4	12.466	3.673	.339	3.394	.003

a. Dependent Variable: Y

Based on the estimation results in Table 2, the following multiple linear regression model is obtained:

$$Y = -349.803,050 + \text{Lag2 } 0,185 X1 + \text{Lag2 } 1,634 X2 + 25,343 X3 + 12,466 X4$$

Simultaneous Test

Table 2. F Test

Model		ANOVA ^a				Sig.
		Sum of Squares	df	Mean Square	F	
1	Regression	161248527026.088	4	40312131756.522	48.060	.000 ^b
	Residual	14259384164.503	17	838787303.794		
	Total	175507911190.591	21			

a. Dependent Variable: Y

b. Predictors: (Constant), X4, Lag2_X2, Lag2_X1, X3

Table 3 shows that the significance value is 0.000b, which means that the value is smaller than the alpha significance level of 0.05. The regression analysis model is significant, this means that the dependent variable, namely the volume of Indragiri Hilir coconut exports, is simultaneously significantly influenced by the independent variables which include coconut productivity, real coconut export prices, the rupiah exchange rate against the US dollar and Malaysian GDP.

Partial Test

The Effect of Production (X1) on the Export Volume of Indragiri Hilir Coconuts (Y)

The regression coefficient of Indragiri Hilir coconut production two years earlier (Lag2 X1) has a coefficient value of 0.185, this shows that the correlation between the amount of production and the export volume of Indragiri Hilir coconuts is positive and every increase of one unit of coconut production two years earlier, the export volume variable of Indragiri Hilir coconuts will increase by 0.185 tons. Statistically at a 95% confidence level on the coconut production variable two years earlier, it can be concluded that ($t_{count} < t_{table}$ or $sig > \alpha$) which means that the production of Indragiri Hilir coconuts two years earlier (Lag2 X1) has an insignificant effect on the export volume of Indragiri Hilir coconuts (Y).

The Effect of Export Price (X2) on the Export Volume of Coconut in Indragiri Hilir (Y)

The regression coefficient of the coconut export price of the previous two years (Lag2 X2) has a coefficient value of 1.634, this shows that the correlation between the coconut export price of the previous two years and the export volume of coconut in Indragiri Hilir is positive and every one unit increase in the export price of coconut in the previous two years, the export volume variable will increase by 1.634 tons. Statistically, at a confidence level of 95%, the coconut export price variable of the previous two years can be concluded that ($t_{count} > t_{table}$ or $sig < \alpha$) which means that the coconut export price variable of the previous two years (Lag2 X2) has a significant effect on the export volume of coconut in Indragiri Hilir (Y).

The Effect of the Rupiah Exchange Rate (X3) on the Export Volume of Coconut in Indragiri Hilir (Y)

Based on the results of the multiple linear regression analysis above, it is known that the exchange rate coefficient in the equation above produces a positive coefficient with a value of 25.343. The hypothesis stating that the rupiah exchange rate against the US dollar has a positive effect on the volume of coconut exports can be accepted. The positive coefficient on the value means that every weakening of the rupiah exchange rate against the US dollar by 1 US\$, it will increase the volume of Indragiri Hilir coconut exports to Malaysia by 25,343 tons. Statistically at a 95% confidence level, the rupiah exchange rate variable against the US dollar can be concluded that ($t_{count} > t_{table}$ or $sig < \alpha$) which means that the rupiah exchange rate variable against the US dollar (X3) has a significant effect on the volume of Indragiri Hilir coconut exports (Y).

The Effect of Malaysia's GDP Per Capita (X4) on the Volume of Indragiri Hilir Coconut Exports (Y)

Based on the results of the multiple linear regression analysis above, it is known that the coefficient of Malaysia's GDP per capita in the equation above produces a positive coefficient with a value of 12.466. The hypothesis stating that Malaysia's GDP per capita has a positive effect on the volume of coconut exports can be accepted. The positive coefficient on the value means that every increase in Malaysia's GDP per capita of 1 US\$, assuming a fixed variable, has the potential to increase the volume of Indragiri Hilir coconut exports to Malaysia by 12,466 tons each year. Statistically at a 95% confidence level, the GDP per capita variable of Malaysia can be concluded that ($t_{count} > t_{table}$ or $sig < \alpha$) which means that the GDP per capita variable of Malaysia (X4) has a significant effect on the volume of Indragiri Hilir coconut exports (Y).

Research Implications

Improving the quality and quality in producing coconuts by rejuvenating coconut plantations can have an impact on increasing export volumes. One step in rejuvenating coconut plants is to use certified superior coconut seeds ready to plant, fertilizers and pesticides. Aligning prices with demand can help involve a more dynamic and responsive pricing strategy to Malaysian market conditions and this will have an impact on increasing coconut exports. In addition, increasing operational efficiency can increase the competitiveness of export commodities.

CONCLUSION

Based on the results of the research and discussion as well as the proof of the proposed hypothesis, the following conclusions can be drawn:

The annual growth of the volume of Indragiri Hilir coconut exports to Malaysia, Indragiri Hilira coconut production, coconut export prices, the rupiah exchange rate against the US dollar and Malaysia's GDP per capita are respectively 11,766 tons/year, -3,727.1 tons/year, 18,243 US\$/year, 308.38 US\$/year and 360.83 US\$/year.

Simultaneously, Indragiri Hilir coconut production two years earlier, coconut export prices two years earlier, the rupiah exchange rate against the US dollar and Malaysia's gross domestic product per capita have a significant effect on the volume of Indragiri Hilir coconut exports with a significance value of 0.000. While partially the factors

that have a positive influence on Indragiri Hilir coconut exports significantly are the price of coconut exports two years earlier, the rupiah exchange rate against the US dollar and Malaysia's GDP per capita

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