THE ANALYSIS OF COCOA BEAN PRICE FLUCTUATION IN NORTH KOLAKA REGENCY

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ABSTRACT

This study aims to determine the price fluctuations of cocoa beans and cocoa bean price trends. This research was conducted in North Kolaka Regency from July to December 2021. The variables in this study were price fluctuations and cocoa bean price trends. This study was analyzed using price change and linear trend analysis from 2019 to 2021. Based on the results of the study, the price of cocoa beans fluctuated during the last 3 years (2019-2021), where the highest percentage change in prices occurred in December 2019 at 41% and September 2021 by 39%, and the lowest price percentage change in May 2020 by 13% with an average change during the 2019 to 2021 period of 26% and the trend of cocoa bean prices in North Kolaka Regency using the linear trend formula \((Y = 2339 + 134.87 \times)\) shows a changing trend towards an increase of IDR134.87/month and the average price of cocoa beans for a period of 36 months (2019-2021) is IDR25,889/kg.

Keywords: price fluctuation; linear trend; North Kolaka Regency.

INTRODUCTION

Cocoa is one of the national mainstay commodities and plays a vital role in the Indonesian economy, especially in providing employment, a source of income for farmers, a source of foreign exchange for the country, and encouraging the development of cocoa agribusiness and agro-industry. Therefore, it is not surprising that since the early 1980s, the development of cocoa in Indonesia has been very rapid. Climatic conditions and land conditions that are suitable for cocoa growth encourage the development of Indonesian cocoa plantations development (Center for Indonesian Coffee and Cocoa Research, 2004) (Pusat Penelitiam Kopi dan Kakao Indonesia, 2004).

Cocoa is one of the leading strategic plantation commodities that play an essential role in the Indonesian economy, namely as a foreign exchange earner, a source of income for farmers, job creation, encouraging domestic agribusiness and agro-industry, environmental conservation, and regional development (Direktorat Jenderal Perkebunan, 2019). Cocoa production 2019 in landmark Sulawesi was 99,051.00 with an area of 238,699.00 ha. Of the 17 Regencies City's cocoa production, North Kolaka Regency became the most crucial production center, with a production contribution of 47,833.00 tons. With an area of 78,969.00 ha of cocoa land (BPS Sulawesi Tenggara, 2019).

Cocoa \((Theobroma cacao L.)\) is one of the primary commodities of plantations. Its role is crucial for the national economy, especially as a provider of employment, sources of income, and foreign exchange. Besides that, cocoa also plays a role in encouraging regional development through agro-industry development and cocoa farming (Rosmawaty & Taufik, 2019). Cocoa is one of the export commodities that contribute to efforts to increase Indonesia's foreign exchange. Cocoa commodity ranks third in the export sector of the plantation sector. It contributes to the country's foreign exchange after CPO and rubber commodities (Sidabutar et al., 2013).

Domestic cocoa prices move following fluctuations in world cocoa prices. However, the direction is not the same due to the influence of the rupiah exchange rate against the US dollar and the accumulation of supply and demand to plantation conditions. General global conditions will influence the cocoa movement (Ithria, 2016). Price is the number of values customers give to obtain,
have, or use a product or service. If the price of an item increases, producers will increase the quantity produced (Hakiki & Asnawi, 2019).

Price is an exchange rate of goods and services expressed in monetary units. Price is crucial in business because an item must be priced so that all parties can benefit and get satisfactory results because of the correct price setting (Nickyta & Alfisyahr, 2017). This fluctuating cocoa price is influenced by the quality of the beans that farmers are not paying attention to. The low rate is due to farmers’ lack of ability to apply technology to cacao cultivation on plantations. Generally, farmers’ cocoa plants are up to a year old, so they are not once in production. This can cause the price of cocoa to continue to decline because the number and size of beans also decrease while the maintenance costs for cacao cultivation increase (Kusmiah et al., 2020). Referring to the phenomenon of the price of cocoa beans in North Kolaka, there are different price changes every month. The researchers aimed to analyze fluctuations and trends in cocoa bean prices in the North Kolaka Regency in 2019-2021.

MATERIALS AND METHODS

This research was carried out in North Kolaka Regency. This location determination was carried out purposively, considering that the area is one of the cocoa production centers in the North Kolaka Regency. His research was carried out from October 2021 to December 2021. The data analysis used in this study is quantitative data to determine price fluctuations using price change analysis to find the percentage change in cocoa bean prices over the last three years and a linear trend to see the trend of cocoa bean prices over the last three years in an up or down direction.

RESULTS AND DISCUSSION

Cocoa Bean Price Fluctuations in 2019

Fluctuation is an unstable, variable, and difficult-to-predict condition. At the same time, the price is the value formed due to the demand and supply in a certain amount in a market mechanism. Fluctuations in agricultural prices are a condition of prices for agricultural commodities that change and vary. It is difficult to predict by various parties, farmers, traders, and consumers (Layo & Sari, 2019).

![Chart](image-url)

Figure 1. Chart of percentage change in the price of cacao beans 2019 in North Kolaka Regency

There was an increase and decrease in price changes from January to December. Price changes in North Kolaka Regency, as shown in Figure 1, fluctuated quite a bit. From January to February, the percentage change in price was 18%, where price fluctuations in that month increased, the percentage change decreased from April to May by 14%, and the percentage change in price increased from November to December by 41%. Changes in the price of cocoa beans during January-December showed an average change of 28%. This result indicates that the average positive price change for cocoa beans in the North Kolaka Regency during January-December has increased. This study aligns with Setiawan & Hadianto (2014), who state that the average change in commodity prices is positive, indicating that commodity prices have increased.
Cocoa Bean Price Fluctuations in 2020
Cocoa prices at the farmer level are pretty fluctuating. Itthria’s research (2016) shows that cocoa prices follow world prices. However, the direction is not the same because of the influence of the rupiah exchange rate against the US dollar, in addition to the accumulation of supply and demand to conditions in plantations. The movement of cocoa will tend to be influenced by general global conditions. The price of cocoa beans fluctuates, which causes the income and profits obtained by farmers from the results of their farming activities to fluctuate. Such conditions are not conducive for cocoa farmers because the profits derived from cocoa farming activities are unstable.

The price fluctuations of cocoa beans in an area always occur all the time. Based on the study’s results, price fluctuations in North Kolaka Regency in January to February increased by 22%, fluctuations decreased from February to March by 14%, and fluctuations increased from November to December by 31%. Changes in the price of cocoa beans during January-December showed an average change of 24%. This result indicates that the average change in the price of cocoa beans, which has a positive value in North Kolaka Regency during the months of January-December has

Cocoa Bean Price Fluctuation in 2021
Price fluctuations are detrimental to agricultural producers (farmers) because the prices purchased by marketers tend to be far below market prices. The state of rising and falling prices, changes in prices are due to the influence of supply and demand (Nuryanti & Yandra, 2017)

Figure 2. Chart of percentage change in the price of cacao beans in 2020 in North Kolaka Regency

Figure 3. Chart percentage of cocoa bean price change (%) fluctuations in North Kolaka Regency 2021
Price fluctuations that occurred in 2021 were not much different from fluctuations in previous years, and this year, the price of cocoa beans from January to February, the percentage change in price was 21%, the fluctuation in that month increased, the percentage change in price decreased in June to February. It increased by 18% in July, and fluctuations increased from August to December. Changes in the price of cocoa beans during January-December showed an average change of 26%. This indicates that the average change in the price of cocoa beans, which is positive in the North Kolaka Regency during January-December, has increased.

**Cocoa Bean Price Fluctuations in 2019 – 2021**

Figure 4 shows that fluctuations in cocoa bean prices occur from 2019 to 2021. The graph shows that the development of cocoa bean prices in the North Kolaka Regency is very volatile. If you look at the price developments, the price of cocoa beans every year in 2019 is more stable than in 2020 and 2021. The price changes in 2020 and 2021 are insignificant in that year.

![Percentage Change in Cocoa Bean Price (%)](image_url)

Figure 4. Chart of percentage change in the price of cocoa beans in North Kolaka 2019-2021

The graph of the percentage change in the price of cocoa beans has ups and downs every month, where the highest price percentage is in 2019 from November to December at 41% and in 2021 from August to September at 39%. The lowest percentage change was in 2020 from April to May at 13%. The average percentage change in the price of cocoa beans is 26%. This indicates that the average change in the price of cocoa beans in the North Kolaka Regency during the 2019-2021 period has increased. This is due to the average change being positive.

**Cocoa Bean Price Trend in North Kolaka**

The trend is the movement of an up or downtrend in the long term obtained from the average change over time, and the value is relatively flat (smooth). The trend of periodic data can be in the form of a trend that increases and decreases smoothly. An increasing trend is called a positive trend, and a decreasing trend is called a hostile trend. In general, the price of cocoa beans continues to change from time to time and increases yearly. Prices are generally determined by the relationship that occurs between supply and demand. Prices often fluctuate. This is due to demand, fluctuations in store, and experimentation in the price determination process.

**Cocoa Bean Price Trend in North Kolaka in 2019**

Based on the trend analysis results on cocoa bean prices in North Kolaka Regency in 2019 (monthly data), the cost of cocoa beans in North Kolaka Regency fluctuated. The Development of Cocoa Bean Prices in North Kolaka Regency in 2019 (in monthly information) can be seen in the image below.

Based on the analysis of the trend of price changes in 2019, every month, there is a change which shows the direction of increase. The slope at the same time shows the trend of changes in the average month, which tends to increase, an increase of IDR2,174/month. This research is in line with Putri & Watemin (2014): If the value shows a positive number, the trend tends to increase; otherwise, if the trend is a negative number, the trend tends to decrease. At the same time, the research
conducted by Surya & Santoso (2017) obtained a negative linear trend result, namely -0.030. The constant value of 13,196 is the position of line a that intersects the y-axis, meaning the point of intersection between a line and the Y-axis on the Cartesian diagram/axis when the value of X = 0. At the same time, the statistical definition is the average value of the Y variable if the value of the X variable is worth 0. In other words, if X does not contribute, then on average, the Y variable will have a value equal to the intercept. The average price for 12 months is IDR27,333/kg with a coefficient of determination of $R^2 = 0.7576$, which means it shows the relationship between the variable period of the month and the variable price of 75.76%, according to research by Riyanto & Hatmawan, (2020) stating that the value of coefficient of determination (R2) if the value is close to 1 indicates that the independent variable (independent) provides all the information needed by the dependent variable (dependent).

**Figure 5.** Cocoa bean price trend chart in North Kolaka 2019

**Cocoa Bean Price Trend in North Kolaka Regency in 2020**

Based on the trend analysis results on the price of cocoa beans in North Kolaka Regency in 2020 in monthly data, the price of cocoa beans in North Kolaka Regency has fluctuated. The development of cocoa bean prices in North Kolaka Regency in 2020 (in monthly data).

**Figure 6.** Chart of cocoa bean price trends in North Kolaka Regency 2020
Based on the analysis of the trend of price changes in 2020, every month, there is a change that shows the direction of increase. The slope at the same time shows the trend of changes in the average month, which tends to increase, an increase of IDR1,1503/month. This research is in line with the research of Reflis & Suluh (2021), which states that the trend formed is positive where the line of price development depicted increases continuously. The increasing trend is influenced by several things that occur in one year. At the same time, the research conducted by (2019) found a negative linear trend, namely -0.407. The constant value is 16,773, which means intercept, the position of line a that cuts the Y axis. The average price for 12 months is IDR24,250/kg with a determinant coefficient of R2 = 0.4924, which means that the relationship between the month variable and the price variable is 49%.

Cocoa Bean Price Trend in North Kolaka Regency in 2021

Based on the trend analysis results on the price of cocoa beans in North Kolaka Regency in 2021 (in monthly data), the cost of cocoa beans in North Kolaka Regency has fluctuated. The development of cocoa bean prices in North Kolaka Regency in 2021 (in monthly data) can be seen in the image below:

![Figure 7. Chart of cocoa bean price trends in North Kolaka Regency 2020](image)

Based on the analysis of the trend of price changes in 2021, every month, a change shows the direction of the increase. The slope at the same time shows the trend of changes in the average month, which tends to increase, an increase of IDR1,597/month. This research is in line with the research of Reflis & Suluh (2021), which states that the trend formed is positive where the line of price development depicted increases continuously. The increasing trend is influenced by several things that occur in one year. The constant value is 16,597, which is the position of line a that intersects the Y axis. The average price for 12 months is IDR24,250/kg with a coefficient of determination of 0.4862, which means that the relationship between the month variable and the price variable is 48.62%.

Cocoa Bean Price Trend in North Kolaka Regency in 2019-2021

Based on the trend analysis results on the price of cocoa beans in North Kolaka Regency in 2019-2021 (in monthly data), the cost of cocoa beans in North Kolaka Regency fluctuated. The development of cocoa bean prices in North Kolaka Regency in 2019-2021 (in monthly data) can be seen in Figure 8.

Based on the analysis of the trend of price changes in 2019-2021, every month, there is a change that shows the direction of increase. The slope at the same time shows the trend of changes in the average month, which tends to increase, an increase of IDR134.87/month. This research is in line with the research is in line with Husmaruddin & Salma (2014). If the value shows a positive number, the trend tends to increase. The research conducted by Yahya et al. (2020) obtained the results of a negative linear trend, namely -0.189. The increasing trend is influenced by several things that occur in one year. The constant value is 23,892, which means intercept, the position of line a that
cuts the Y axis. The average price for 36 months is IDR25,889/kg with a determinant coefficient of 0.3388, which means that the relationship between the month period variable and the price variable is 33%.

![Cocoa Bean Price Trend in North Kolaka Regency in 2019-2021](image)

Figure 8. Chart of cocoa bean price trends in North Kolaka Regency 2019-2021

CONCLUSION

The price of cocoa beans has fluctuated during the last 3 years (2019-2021), where the highest price percentage change occurred in December 2019 at 41% and September 2021 at 39%. The lowest price percentage change in May 2020 was 13%, with an average change from 2019 to 2021 of 26%.

REFERENCES


