

Future Indonesian Cocoa Perspectives in International Market Competition and Digital Regulation

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Abstract

The order of the leading products of Indonesian agribusiness 1. Palm Oil, 2. Rubber, 3. Coconut, 4. Coffee and 5 Cocoa. It seems that the farming community and the government have not considered cocoa as a superior agribusiness commodity and promises the welfare of farmers. From a macroeconomic perspective, cocoa can play an important role in the Indonesian economy. Most of the cocoa products are exported to foreign countries, a source of foreign exchange, a source of income for farmers, job creation, encouraging agribusiness and agroindustry and regional development.

The government and farmers in Indonesia have not been optimal in cocoa agribusiness, although various factors supporting this business significantly increase the Gross Domestic Product of Indonesian Cocoa Farmers. Currently, in the digital era, the government does not yet have the will to create digital and digital mobile platforms as a means of fostering and learning cocoa farmers.

The novelty of this study is to use 6 previous research variables, generally 3 variables, and the period is around 5 years, in this study using 31 years of data so that it is more accurate, especially for prospective predictions/estimates of Indonesian cocoa, especially for the government in setting Indonesian digital agrobusiness policies.

*The results of this study 93% of the variables of Production, Export, Import, Cocoa Prices and Exchanges have a significant effect on the Gross Domestic Product of Cocoa Farmers, 7% of other variables. Partially, imports have a negative effect, and the exchange rate is positive but less significant on the Gross Domestic Product of Cocoa Farmers. The results of this study are in accordance with various theories and opinions of previous researchers. Simultaneously positive and significant trend with regression $Y = 0749.9919 + 0.023912 * X1 + 0.002570 * X2 - 0.001947 * X3 + 3.468168 * X4 + 0.002328 * X5$*

Key Word:

Production, Export, Import, Prices and Exchanges and Gross Domestic Product of Cocoa Farmers

Date of Submission: 02-06-2023

Date of Acceptance: 13-06-2023

I. Introduction

Indonesia's contribution is very small, less than 6% of world production. Even though is a large and wide country, the land is fertile, the population is the fourth largest in the world, the technology is quite good, it should be the leader market, because the 2 countries as market leaders today are small countries. Indonesia is far superior.

The World Cocoa Foundation revealed that the demand for cocoa has increased by 3% per year in the last 100 years. It is estimated that the increase in world cocoa request in the coming years will increase at the equal level [4]. This of course provides opportunities and benefits for Indonesia as one of the four largest cocoa producing and exporting countries in the market global. Whether Indonesia is ready and able to seize the opportunities that exist, in this study analyzed the effect of Production, Export, Import, price and Exchange rate simultaneously and partially proved significant to increase the Gross Domestic Product of Cocoa Farmers. It is certain that the Government and the cocoa farming community or other farmers need to be informed that the cocoa farming business is actualvery promising for a source of income and the welfare of the farmers in the long term.

The government through the Ministry of Agriculture look forward to issue policies in favor of cocoa farmers through various strategic regulations to improve competitiveness, welfare of the farming community through agencies/institutions as intensive companions from related parties while also increasing exports and step up the country's foreign exchange reserves through cocoa products in Indonesia. Moreover, the cocoa processing industry is also component of the food and beverage industry which is a mainstay in the Making Indonesia 4.0 roadmap [13]. This sector also involves a lot of small and medium industries.

Cocoa farmers in Indonesia since 2011 have spread cocoa plantations in 33 provinces, namely all provinces except DKI Jakarta. 50 percent of cocoa producers are concentrated in 3 provinces in Sulawesi and

the other 50 percent are spread over 30 other provinces. Farming communities 98.33%, private plantations 0.89% and government plantations 0.76% [4].

Indonesia's cocoa consumption and production since 1990-2020 has continued to increase but in a small percentage on average 1.5% (3% world) where most of cocoa production (raw materials) is exported to foreign countries, but Indonesia also imports Cocoa every year in the form of ready-to-eat food. Exports, Imports, Prices and Exchange Rates of the Rupiah also tend to continue to increase, this is a big opportunity for cocoa production and potential business continuity that has not received the attention of the Indonesian government.

The solution, namely regulation and digital technology, must be a must and concern for the government in increasing cocoa production, while increasing foreign exchange, gross domestic product for farmers and effectively reducing the unemployment rate in Indonesia.

II. Literature Review

Production

Production is a process of converting raw materials into finished goods or adding value to a product (goods and services) in order to meet the needs of the community (Dennis W.C and Jeffry M F, 2010,200) [7].

Production, prices, exchange rates, exports of Indonesian agricultural products to have a positive effect on Indonesia's GDP [25]. Cocoa production, cocoa export prices, interest rates, and export tariffs (export tax).[6] GDP and the real exchange rate have a partially positive effect on US GDP and the exchange rate has a positive and important for influence on exports of Indonesian products to the United State prices have a positive and less significant effect on exports of Indonesian products to the United State, and production has a positive and significant influence on exports. significant impact on the export of Indonesian products to the US. United States of America. Simultaneously US GDP, exchange rates, prices and production together affect Indonesia's exports to the United State [19].

Multiple linear regression performance that together land area, production, international cocoa prices affect Indonesian cocoa exports a positive and insignificant cointegration in the long term and short term. International cocoa production and prices in the long term and short term respectively a positive and significant effect [18]

Export

Export is an economic activity carried out with the aim of removing goods produced from within the country and then sent abroad (Cicchetti Sten G) [5]. The effect of the exchange rate on exports of manufactured agricultural materials in Indonesia. In this study, exports are influenced by the destination country's GDP, price ratio, and exchange rate [10]. The relationship between exports and imports and a few key macroeconomic variables, such as prices, gross domestic production, population, exchange rate, unemployment rate, inflation, and domestic production during 1980-2014 are described [3]. Findings show that while GDP, geographic distance, exchange rates, and price ratios are important factors, restrictions imposed by countries on GMOs have a significant effect on US corn and soybean exports [5].

Import

Import is an activity that aims to bring goods into the customs area, or an activity to buy goods and services from other countries to meet domestic needs (Cicchetti Sten G).[5] Imports and Gross Domestic Product (GDP) have a significant negative influence on the exchange rate, while exports and inflation have a importance positive influence on the exchange rate in the economy [8].

Price

According to Kotler and Armstrong (2012) price is the sum of all values given by customers for benefit from owning or using a product or service. The effect of the exchange rate on the export of agricultural material manufacturing in Indonesia. Exports are influenced by the GDP of the destination country as well as to the price ratio and the exchange rate [10].

The international cocoa price variable had a positive and significant influence on the export value of Indonesian cocoa [22]. The exchange rate of the rupiah against the United State has a negative and importance influence on the export value of Indonesian cocoa. Domestic production of Indonesian cocoa has a positive and importance impact on the export value of Indonesian cocoa. The world's GDP has a positive and significant impact on the export value of Indonesian cocoa in 1996-2015 [1]

Exchange Rate

According to the exchange rate is the price of one currency against another. This affects the economy and his standard of living [10] Foreign exchange or exchange rate is the price level agreed upon by residents of the two countries to trade with each other. It is often also referred to as foreign exchange, which is the foreign exchange of one country's currency against another country's currency.

For example, Rodrik's (1998) opinion in his writings that "Real exchange rates and economic growth: theory and evidence", high exchange rates have an impact on economic growth. That is, there is a positive relationship between the exchange rate and GDP growth rate, especially for developing countries [21].

Gross Domestic Product

Domestic and Gross Product is the market price of all finished goods and services manufacture in a country in a certain period” (Todaro 2000, p. 34) [24]. If you want economic growth, the country concerned must increase the production of goods and services within the borders of a domestic, "states that economic growth shows the extent to which economic activity will generate additional income for the community in a certain period" [25].

The findings show that imports and GDP have a significant negative infect on the exchange rate while exports and inflation have a significant positive infect on the exchange rate in the economy The findings show that Imports and GDP have a significant negative infect on the exchange rate while exports and inflation have a significant positive effect on the exchange rate in the economy) [8]. This study quantifies the effect of changes in import tariffs on GDP ... with lower efficiency and negative impact on GDP [19].

III. Methodology and Analysis

Ordinary Least Squares

According to OLS (Ordinary Least Squares) is most often used not only because it is easy but has a strong theoretical nature and is summarized in the Gauss-Markov theory. This theory is based on classical assumptions, the OLS estimate has the lowest variance among other linear estimates, this opinion was put forward by Gujarati and Damodar (2013, p. 92)[12]. A regression equation is said to be good if the equation is linear and where the equation meets the BLUE (Best Linear Unbiased Estimation) assumption.

The data used are secondary data from 1990 to 2020 obtained from the Ministry of Agriculture, BPS and Bank Indonesia using the instrument eviws 9.

Classic Test

a. Normality data:Jerque-Berra is 0.855933 the probability is 0.651833 >0.05 or =5%. Simultaneous distribution is normally distributed, then the analysis uses the normal distribution.

b. Autocorrelation: Durbin Watson test 1.717884 based on these results, it can be concluded that there is no autocorrelation in the regression model because the Durbin-Watson number is between du (1.160) and 4-du (1.735), which means that this regression model does not contain autocorrelation problems, or it can be concluded that this regression is feasible. to use. (Gujarati, 2012, p. 462) [12].

c. Heteroskedasticity; This heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another observation. This test uses the ARCH Heteroscedasticity test. The calculated chi-squares value of 1.854627 was obtained from Obs*R-squared. The probability of chi-squared count 0.0536 > 0.05 (α=5%). Because the calculated probability is 0.1732 > 0.05, it can be concluded that there is no problem in Heteroscedasticity (AgusWidarjono, 2013, p. 126)[2].

d. Multicollinearity:VIF 6.568164 up to 16,84340 of 5 or VIF greater than 10 there are only 2 variables that have multicolored problems.

Regression Test

a. t-test; t test; of the five variables, 2 variables whose t is less than 2 are Imports and Exchange Rates.

b. F Test; F test = 1646.120 > 3.14 probability of 0.00000 or simultaneously very significant.

Table of Regression Data for Variables of Production, Export, Import, Price and Exchange Rate for Gross Domestic Product

Dependent Variable: Y

Method: Least Squares

Date: 10/27/21 Time: 18:16

Sample: 1990 2020

Included observations: 31

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	749.9919	736.4325	1.018412	0.3182
X1	0.023912	0.006335	3.774741	0.0009

X2	0.002570	0.001191	2.157615	0.0408
X3	-0.001947	0.002435	-0.799516	0.4315
X4	3.468168	1.376920	2.518787	0.0185
X5	0.002328	0.080921	0.028767	0.9773
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R-squared	0.936972	Mean dependent var	20131.32	
Adjusted R-squared	0.932366	S.D. dependent var	9417.048	
S.E. of regression	567.6768			
F-statistic	1646.120	Durbin-Watson stat	1.717884	
Prob(F-statistic)	0.000000			

Indonesian Cocoa multiple regression:

$$Y = 0749.9919 + 0.023912 \cdot X1 + 0.002570 \cdot X2 - 0.001947 \cdot X3 + 3.468168 \cdot X4 + 0.002328 \cdot X5$$

From the multiple regression equation can be described:

- 1). If the variables of Production, Export, Import, Price and Exchange Rate are not added (equal to 0), the Total Gross Domestic Product is Rp. 749 billion.
- 2). If there is an increase in production of Rp. 1 million, GDP will increase by Rp. 239,120
- 3). If the increase in exports is Rp. 1 million, GDP will increase by Rp. 25,700
- 4). If imports decrease by Rp. 1 million, then GDP increases by Rp. 19,470.
- 5). If the price increases by IDR 1 million, then GDP will increase by 3.4 million.
- 6). If the Exchange Rate increases by IDR 1 million, then GDP will increase by Rp 23.280.

IV. Conclusion

1. Simultaneously Production, Export, Import, Price and Exchange significantly increase the Domestic Product of Cocoa Farmers
2. Imports have a negative and less significant impact on the Gross Domestic Product of Cocoa Farmers
3. The exchange rate is less significant to the Gross Domestic Product of Cocoa Farmers
4. Indonesia has a very big opportunity or opportunity to become the leader of the cocoa market
5. The government, especially the Ministry of Agriculture, is not yet optimal in providing guidance and counseling on cocoa cultivation
6. Cocoa is an export product that is needed and consumed by people in many countries

V. Suggestion

1. The government must actively socialize and fully support cocoa agribusiness, because it has been proven to significantly increase the Gross Domestic Product of Cocoa Farmers
2. Cocoa can be grown in 34 provinces, currently 50% is produced in 3 provinces in Sulawesi. All areas of Indonesian Cocoa Production are exported in raw materials and imported cocoa in the form of finished products (consumption). To increase added value, Indonesia must encourage the industry to process raw materials into finished goods, and it is proven that imports have decreased significantly, increasing the Gross Domestic Product of Cocoa Farmers.
3. The exchange rate tends to move slowly and is less significant, however, due to the increasing long-term trend, the increase in the exchange rate can also increase the income of the Cocoa farming community
4. Land, soil fertility, labor is still many who have not been empowered for productive activities, this cocoa agribusiness is a good alternative choice and promises the welfare of its managers
5. The government empowers IPB and Agricultural Vocational Schools to make curriculum and training for cocoa agribusiness to promote cocoa agribusiness because most of it is exported to foreign countries and can save and increase the country's foreign exchange
6. Technology is a must currently, the Government creates a digital platform/web side and flat form specifically for cocoa cultivation, facilities for coaching, training, international prices, and demand and exchanging experiences of farmers.

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Manihuruk Christiaus, et. al. “Future Indonesian Cocoa Perspectives in International Market Competition and Digital Regulation.” *International Journal of Business and Management Invention (IJBMI)*, vol. 12(6), 2023, pp. 81-85. Journal DOI- 10.35629/8028