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ANALYSIS OF FACTORS AFFECTING THE IMPORT AND CONSUMPTION OF SUGAR CANE IN INDONESIA

ZIECKY MARDONI
Putra Indonesia University YPTK Padang, Indonesia
Corresponding email: zieckymardoni@upiyptk.ac.id

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***Abstract**, This study aims to analyze and determine the effect of (1) production, consumption, price and exchange rate on sugar imports in Indonesia (2) import, production and price of sugar on sugar consumption in Indonesia. This type of research is descriptive and associative. While the type of data is documentary data, the data source is secondary data and time series data from 2000 – 2021. The analysis tool is a simultaneous equation model using the Two Stages Least Squared (TSLS) method. The results of the study concluded that (1) sugar production and exchange rate had no significant effect on sugar imports in Indonesia. While sugar consumption and sugar prices have a significant effect on sugar imports in Indonesia (2) sugar imports have a significant effect on sugar consumption in Indonesia. Meanwhile, production and prices have no significant effect on sugar consumption in Indonesia. From the results of the cointegration test using the Unrestricted Cointegration Rank Test (Trace) approach, it was found that there was a long-term relationship or balance between the variables of sugar production, sugar consumption, sugar imports, sugar prices and the exchange rate. Based on these results, the policy that can be suggested is that the Government through the Ministry of Agriculture should issue policies to encourage the expansion of domestic production scale and improve the quality of sugar in order to suppress imports and at the same time control prices, because large imports will harm sugar farmers and also drain foreign exchange reserves.*

Keywords: Import, production, consumption, price, exchange rates

A. INTRODUCTION

Sugarcane (saccharum officinarum) is grown as raw material for sugar, originating from India and Indonesia, namely in the areas of Kalimantan, Maluku, Sulawesi and Papua. Meanwhile, sugar-producing countries in the world include Cuba, Taiwan, Indonesia, India, the Philippines and other countries. Meanwhile, in Indonesia the sugar-producing regions are Central Java, East Java, West Java, Nangro Aceh Darusslam and South Sulawesi. Expansion of the area is still underway to utilize grasslands to become sugarcane plantations. Sugarcane planted will be accommodated in existing factories. If the requirements for planting and maintenance are met properly, each hectare of land can produce around 750 - 1,250 quintals of sugarcane. If the sugar content in sugarcane is 10-12 percent, it will produce 100-200 quintals of white sugar per hectare. Sugar is a staple food for the people of Indonesia Sugar is a commodity strategy in the Indonesian economy, with a land area of around 443,501 hectares in 2021. The sugar cane-based industry is a source of income for around 1.3 million farmers with a large workforce. involved around 1.7 million people. Sugar is also one of the basic needs of society and a relatively cheap source of calories. Because it is a basic need, the dynamics of sugar prices will have a direct influence on the inflation rate. Although in the last two years the performance of the national sugar industry has shown an increase, in 2013 its performance has decreased, both in terms of area, production and efficiency levels. In line with the revitalization of the agricultural sector,

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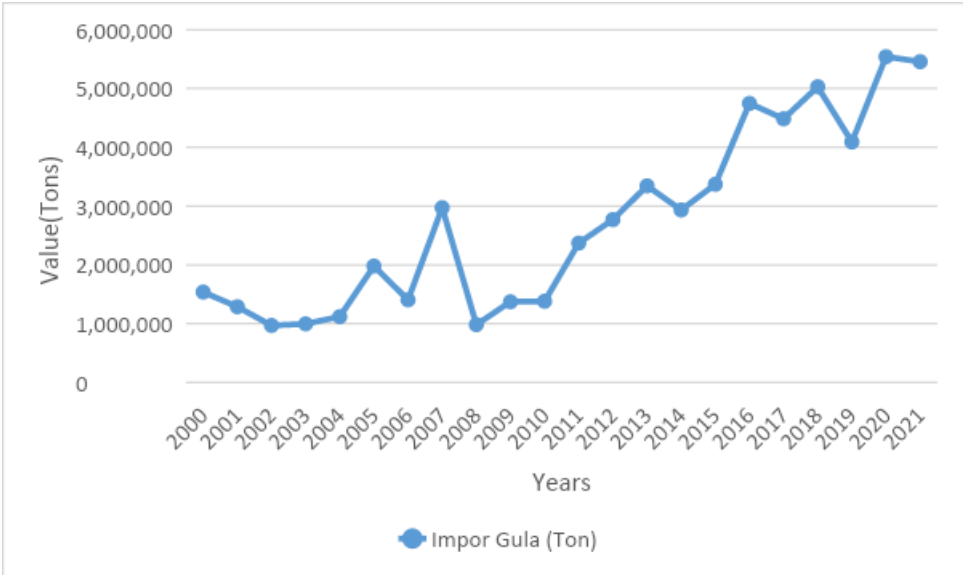
the national sugar industry, or the sugarcane-based industry in general, must revitalize. To realize this, increased investment is a mandatory requirement, in order to further increase sugar production, so it is expected to reduce sugar prices and reduce national imports, where currently sugar imports are relatively large at around 5,455,000 tons in 2021, where these imports are detrimental to farmers will also deplete foreign exchange reserves. In order to increase national cane sugar production, investment in the cane sugar industry is quite prospective. From the market side, the demand for sugar in the country is very large, both for industrial needs and for consumption needs. The government with its various promotive and protective policies has created a conducive trade climate for the development of the sugar cane-based industry. The international market, which in the last three years has experienced a decline as a result of the pressures faced by the world's main sugar producers, also indicates that investment in this sector is quite prospective. In sugar, various sugarcane derivative products such as ethanol, baker's yeast, inactive yeast, sugarcane top wafers, particleboard, fiberboard, pulp, and calcium citrate have quite open market opportunities, both in the domestic and international markets. In order to continue the target of developing a sugar cane-based industry, investment is needed both in farming, sugar factories and their derivative products. Overall, the total investment required is around IDR 16.5 trillion. Based on the type of investment, the total investment for primary businesses reaches more than Rp. 2 trillion. A very large investment is needed in the downstream industry business which reaches around Rp. 14 trillion. Investment for infrastructure is estimated at Rp. 500 billion. To achieve this, government support is needed, such as: consistency of government policies, creation of a fair competition field, provision of incentives for industrial development outside Java and financial support for the rehabilitation and consolidation of sugar production.

Grafik 1
Sugar Cane Imports in Indonesia 2000-2021
(Unit of Tons)



Source: BPS Indonesia Sugarcane Statistics, 2022

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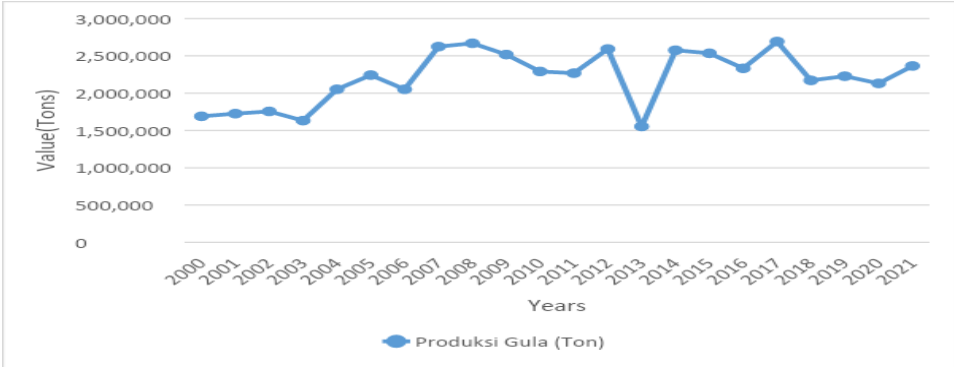
Based on Graph 1, it shows that sugar imports in Indonesia fluctuated from 2000 to 2021. For example, there was a sharp increase in 2007 which rose to 2,972,788 tons and there was a sharp decline in 2008 where sugar imports fell to 983,944 tons. In 2013 sugar imports in Indonesia were 3,343,809 tons while in 2014 it fell to 2,933,823 tons, but in 2015 it rose again to 3,369,941 tons, then sugar imports in Indonesia in 2016 rose to 4,746,047 tons and in 2021 sugar imports will reach 5,455,144 tons.

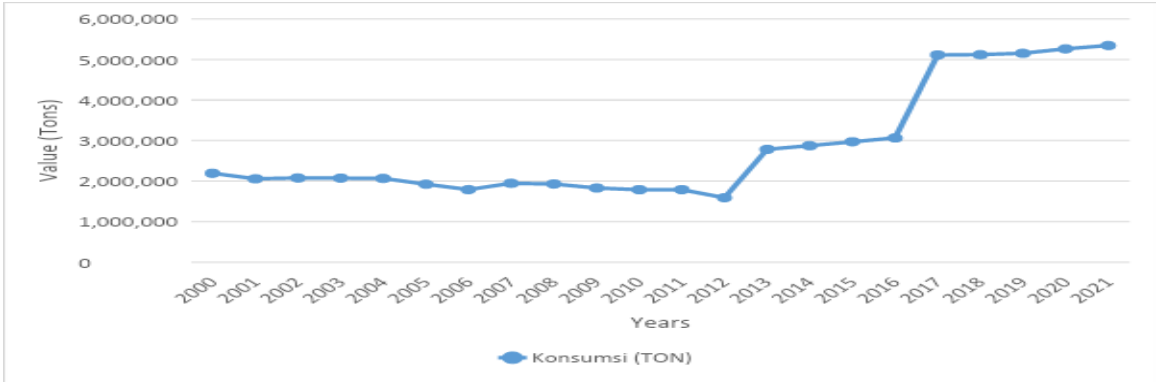
Grafik 2
Cane Sugar Production in Indonesia in 2000-2021
(Unit of Tons)



Source: BPS Indonesia Sugarcane Statistics, 2022

Based on Graph 2, it shows that sugar production in Indonesia tends to fluctuate. In 2008 there was a significant increase, where production was 2,668,428 tons, but decreased after that, especially there was a sharp decline in 2013 to 1,553,551 and rose again in 2014 to 2,9575392 tons, then in 2015 decreased by -1.57% to 2,534,872 tons, then production sugar in Indonesia again rose by 15.4% in 2017, which was 2,691,724 tons. But in 2021 production will decrease to 2,364,321 tons.

Grafik 3
Sugar Consumption in
Indonesia (Unit of Tons)



Source: BPS Indonesia Sugarcane Statistics, 2022

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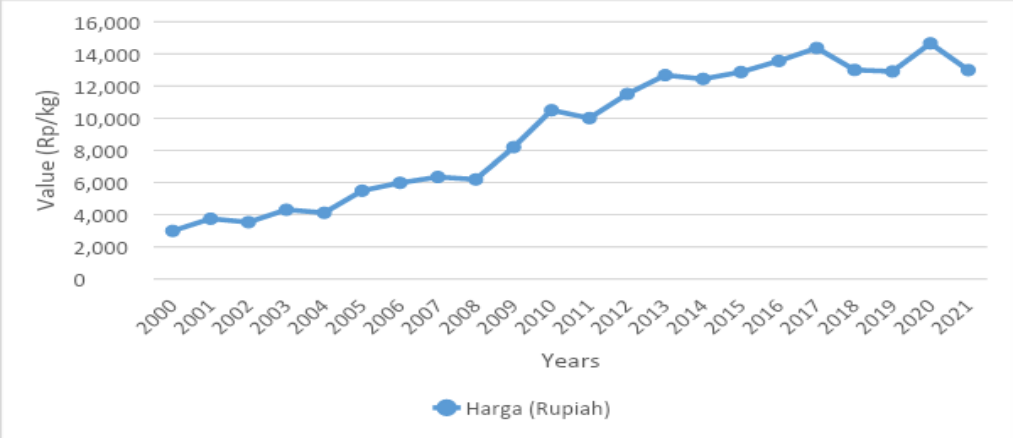
Based on Graph 3, it shows that sugar consumption in Indonesia tends to increase if we look at the data from 2013 to 2021. It can be seen that in 2013 sugar consumption in Indonesia was 2,782,033 tons, while in 2014 it was 2,873,613 tons, then in 2015 it was 2,967 tons. 870 tons, in 2016 there were 3,064,875 tons, in 2017 sugar consumption was 3,218,224 tons and continued to rise, so that in 2021 sugar consumption rose to 5,345,322 tons.

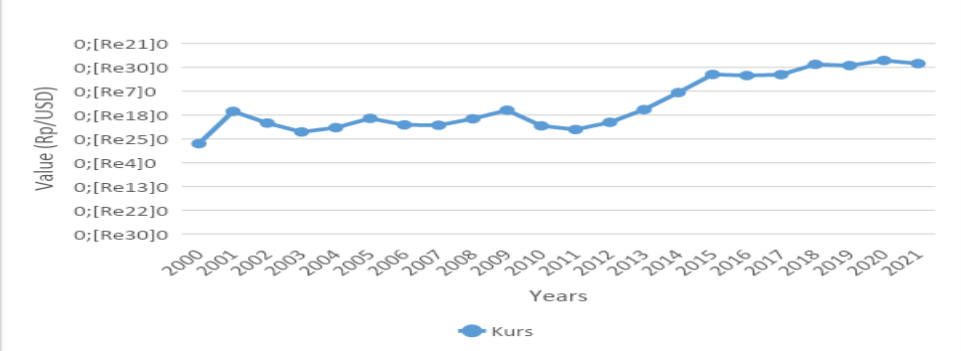
Grafik 4
Domestic Sugar Price in Indonesia
(Unit Rp/Kg)



Source: BPS Indonesia Sugarcane Statistics, 2022

Based on Graph 4 shows that the price of sugar in Indonesia tends to increase continuously where in 2000 the price was Rp 2,987/kg and continued to increase in 2010 at Rp. 10.502/kg. It can also be seen in 2013 the price of sugar in Indonesia was Rp 12,685/kg while in 2014 it was Rp 12,450/kg then in 2015 it was Rp 12,879/kg, then the price of sugar in Indonesia in 2016 was Rp 13,570/kg, in 2017 the price of sugar is Rp. 13,750 kg. And in 2020 there is an increase to 14,667/kg, although in 2021 it has decreased to Rp. 13,000/kg.

Grafik 5
Excange Rate Development in Indonesia from 2000 - 2021
(Rp/USD)



Source: Bank Indonesia, 2022

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Based on Graph 5, the data shows that the exchange rate tends to depreciate, which means that the value of the rupiah weakens or decreases in value against the USD, where in 2000 1USD was equal to Rp. 7,590 and in 2021 1 USD has become Rp. 14,312. Starting from the description of the background above, the author wants to analyze further by conducting a study entitled: **"ANALYSIS OF FACTORS AFFECTING THE IMPORT AND CONSUMPTION OF SUGAR IN INDONESIA".**

Consumption of Theory

According to Keynes, national consumption is determined by disposable income so that, C = f (Yd), ceteris paribus …….. (1) And according to Marshal in a book written by Alfianlains (2015: 23) states that a consumer's demand is a function that shows the amount of a commodity that a consumer will buy and also as a function of the prices of commodities and consumer income, This statement is expanded again as stated by Richard A Billas (2016: 17) that the amount of goods demanded besides being determined by taste, is also determined by prosperity and other products produced within the country. On the other hand, it can also be said that food imports are part of consumption. Furthermore, Harry G Johnson in a book written by Revaldi (2016: 270) states that a country's imports are the difference between the needs of all imported goods produced domestically, then he gives the following formula;

M = Mt - Md……..(2)
Where:
M = Import
Mt = Total needed in the country
Md = Imported goods produced domestically Based on the statement above, it can be said that imports are a function of income M = F (Y)

Import of Theory

According to Romeo M Bautista (2016: 134) there are three factors that influence a country to import goods, namely: a. Limited domestic production, limited domestic production so that a country imports to cover this shortfall. b. There is a difference in the price of goods produced domestically with the prices of goods produced abroad. This is caused by differences in endowment or differences in the amount and price of factors of production owned by a country, this situation will cause a country to export or import certain goods. c. There are differences in the level of income and spending of a country. Income and costs will affect the demand for imported goods. Thus the mathematical function of demand for imports can be written as follows:

M = f (Pl, Pd, E, Y)

Where:
M = Number of imported goods
Pl = price of imported goods abroad
Pd = price of imported goods in the country
Y = income which is usually measured in gross domestic product

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However, knowing the domestic and foreign price variables is very difficult, so the best way is to determine our imports using the exchange rate variable, so the formula above can be simplified to:

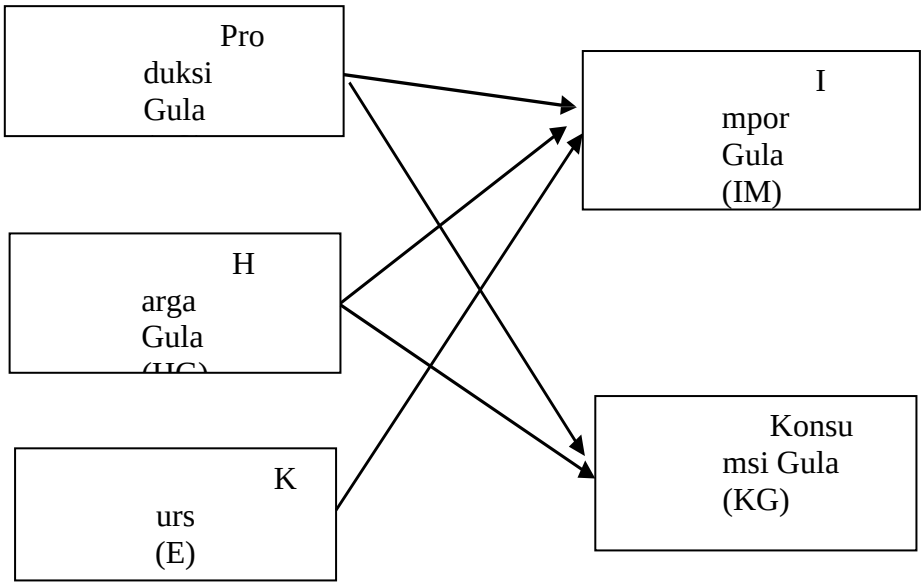
M = f (E, Y)

Where:
E = Exchange rate/exchange rate
Y = domestic income

PREVIOUS RESEARCH

The previous research related to the author's research was research conducted by NOVA DEWITA entitled "Development of Indonesian Food Imports". Where he concluded that the decline in imports of food consumption goods is closely related to Indonesia's success in achieving self-sufficiency in food, and the magnitude of the influence of the decline in imports of food consumption goods is an indication that consumer goods in the form of food ingredients occupy the dominant place of all imports of consumer goods.

CONCEPTUAL FRAMEWORK



Conceptual framework or framework of thinking is a concept to explain, reveal and show the relationship between endogenous variables and exogenous variables to be studied based on the theories that have been stated above. Imports are influenced by sugar production, sugar consumption, sugar prices and exchange rates. When the exchange rate or exchange rate of a country's currency appreciates (its value increases relative to other currencies), the price of imported goods in a country decreases, so that country's imports increase. Vice versa, when the exchange rate or the exchange rate of a country's currency depreciates (its value decreases relative to other currencies), then the price of imported goods in a country increases, so that country's imports fall. Consumption in this study is

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influenced by production, prices and imports. An increase in production and imports will be able to increase salt consumption because there are many goods in the market, causing high demand which in turn will encourage increased consumption. Rising prices will reduce salt consumption because the price is a sacrifice for consumers.

METHOD

The data for all variables in this study starts from 2000 to 2021 with a total of 21 years of data. The population in this study is all data obtained from the Central Statistics Agency (BPS), Bank Indonesia (BI) and data from the Directorate General of Plantations. The sample in this study is the value of the volume of sugar imports in Indonesia in 2000-2021, the value of sugar production in Indonesia in 2000-2021, the value of sugar consumption in Indonesia in 2000-2021, the price of sugar in Indonesia in 2000-2021 and the exchange rate in Indonesia in 2000. -2021. In obtaining the data in this study, documentation and library methods were used. The method of documentation is to find data from the official website that has been recorded by Bank Indonesia, the Central Statistics Agency and the Directorate General of Plantations from 2000-2021. While the library method is obtained from several books, notes or research results that have been carried out by previous researchers that can support the theory and discussion in this study. The analysis technique used is stationary test, cointegration, Granger causality, multiple linear regression and classical assumption test. The equations in this study are as follows:

$$IM = \alpha_0 + \alpha_1 PG + \alpha_2 KG + \alpha_3 HG + \alpha_4 E + \mu_1 \quad (4)$$

$$KG = \beta_0 + \beta_1 PG + \beta_2 IM + \beta_3 HG + \mu_2 \quad (5)$$

RESULTS AND DISCUSSION

Before carrying out the stages of analyzing the variables of Cane Sugar Import, Cane Sugar Production, Cane Sugar Consumption, Cane Sugar Price and Exchange Rate shortened to IM, PG, KG, HG and E, then some tests are carried out first.

Stationary Test

Table 1 describes each stationary variable at a certain level, namely at Level and 1nd difference. From the table it can be seen that the variable sugar production is stationary at the level, sugar consumption, sugar imports, sugar prices and the stationary exchange rate at the 1nd difference level and all variables have a small probability value of = 0.05, then all variables in this study it can be said that the mean, variance and autocovariance are constant over time (for different lags the values are the same, it doesn't matter where to start measuring).

Tabel 1 : Stationary Test Results of Each Variable

Variabel Name	Level	Probability Value
Sugar Production (PG)	Level	0,0258
Sugar Consumtion (KG)	1^{st} *difference*	0,0015
Sugar Import (IM)	1^{st} *difference*	0,0000
Sugar Price (HG)	1^{st} *difference*	0,0006

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Exchange Rate (E)	*1st difference*	0,0003

Cointegration Test

From the results of the cointegration test using the Unrestricted Cointegration Rank Test (Trace) approach, it shows that there is a relationship or long-run equilibrium (long run equilibrium) between the variables PG, KG, IM, HG and E, where in the lines None, At most 1, At most 3, At most 4 The probability that is smaller than = 0.05 or the Critical Value is less than the Trace Statistics, except for the At most 2 line where the probability is greater than = 0.05.

Table 2
Cointegration Test Results All Variables

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.770752	83.23774	69.81889	0.0029
At most 1 *	0.747159	53.77872	47.85613	0.0125
At most 2	0.405829	26.27884	29.79707	0.1206
At most 3 *	0.369955	15.86708	15.49471	0.0439
At most 4 *	0.282075	6.627806	3.841465	0.0100

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Multiple Linear Regression

3.1. Sugar Import Equation Model

Table 3 shows the results of the estimation of the sugar import equation.

Table 3
Multiple Linear Regression Estimation Results

Dependent Variable: IM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1114949.	1228766.	-0.907373	0.3769
PG	-0.045545	0.455328	-0.100026	0.9215
KG	0.514680	0.240866	2.136787	0.0474
HG	172.3543	59.16419	2.913153	0.0097
E	82.23382	169.4307	0.485354	0.6336

Source: Processed Data

From the estimates that have been made, the equation model for sugar imports is as follows:

$IM = \alpha_0 + \alpha_1 PG + \alpha_2 KG + \alpha_3 HG + \alpha_4 E + \mu_1$

$IM = - 1114949 - 0.045545\ PG + 0.514680\ KG + 172.3543\ HG + 82.23382\ E + \mu_1$

Partially, sugar consumption affects sugar imports in Indonesia significantly and

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positively. This means that if sugar consumption increases but is not matched by an increase in sugar production, there will be an increase in sugar imports. This is because when the increased consumption of sugar is not driven by an increase in sugar imports, there will be a shortage of sugar in the market. Therefore, imports are needed.

Partially, the exchange rate has no significant effect on sugar imports. This means that the ups and downs of sugar imports are not caused by exchange rate fluctuations. This condition is because sugar is a basic need for the people of Indonesia. So even though the exchange rate depreciates, causing the price of imported goods to be expensive, people will still ask for sugar. As nowadays many foods and beverages in Indonesia contain sugar, so the demand for sugar remains high.

Partially, sugar production has no significant effect on sugar imports. This means that the increase in sugar production has only a slight effect on the decline in sugar imports and is negative, ie if sugar production increases, sugar imports will decrease. Partially, sugar prices affect sugar imports significantly and positively in Indonesia. When the price of sugar increases, the import of sugar will also increase. Since rising sugar prices indicate increased demand, this increase in demand will increase sugar imports.

Sugar Consumption Equation Model

Table 4 shows the results of the estimation of the sugar import equation.

Table 4
Multiple Linear Regression Estimation Results

Dependent Variable: KG

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1716917.	995467.6	1.724734	0.1017
IM	0.839713	0.193592	4.337545	0.0004
PG	-0.409497	0.500101	-0.818829	0.4236
HG	-27.75729	79.15110	-0.350687	0.7299

Source: Processed Data

$KG = \beta_0 + \beta_1 PG + \beta_2 IM + \beta_3 HG + \mu_2$

$KG = 1716917 - 0.409497\ PG + 0.839713\ IM - 27.75729\ HG + \mu_2$

Partially, sugar production has no significant and negative effect on sugar consumption in Indonesia. In other words, the increase in sugar consumption is not determined by sugar production. When sugar production goes up, sugar consumption actually goes down. Partially, sugar imports have a significant and positive impact on sugar consumption in Indonesia. The increase in sugar imports with the assumption that it is not accompanied by an increase in sugar production, this condition will increase sugar consumption. This is because the increase in sugar imports will increase the supply of sugar in the market so that the price of sugar will decrease. The decline in sugar prices will lead to an increase in people's purchasing power for sugar. Therefore, this will increase the consumption of sugar. Partially, the price of sugar has no significant and negative effect on sugar consumption in Indonesia. If the price of sugar increases, the people's sacrifice to buy sugar will also increase so that it will reduce purchasing power. Of course, this condition will result in lower sugar consumption.

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Classic Assumption Test

Normality Test

Normality test aims to test whether the regression model, the data used has a normal distribution or not. Good data is data that has a normal distribution or is close to normal, as we know that the F test and t test assume that the residual value follows a normal distribution. To detect this, the Jarque - Bera test is used, a test that uses a probability distribution (Gujarati, 2006). The results of the normality test are shown in the following figure:

Table 5
Normality Test Results

	Variabel persamaan 1	Variabel persamaan 2
Jarque-Bera	1.158.551	0.277493
Probabillity	0.560304	0.870449

Source: Processed Data

It is assumed that H0 is normally distributed data, and Ha is data that is not normally distributed. If probability > alpha then the decision is H0 accepted, Ha is rejected. If probability < alpha then the decision is H0 rejected and Ha accepted. Based on Table 5, it is known that the probability value > alpha 0.05, r, then H0 is accepted, Ha is rejected, which means that the variables contained in equations one and two are normally distributed.

Multikolinierity Test

The multicollinearity test aims to test whether the regression model found a linear correlation between the independent variables. Where there should be no linear correlation. In this study, the multicollinearity test was performed using a correlation matrix.

Table 6
Multicollinearity Test Results of Independent Variables Equation 1

Variance Inflation Factors
Date: 10/08/22 Time: 12:21
Sample: 2000 2021
Included observations: 22

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1.51E+12	85.23921	NA
PG	0.207323	58.75012	1.424356
KG	0.058016	32.44156	5.821031
HG	3500.401	19.92846	3.190457
E	28706.77	200.4579	8.004970

Multicollinearity Test Results of Independent Variables Equation 2

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Variance Inflation Factors
Date: 10/08/22 Time: 15:07
Sample: 2000 2021
Included observations: 22

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	9.91E+11	42.34602	NA
IM	0.037478	15.74245	3.772305
PG	0.250101	53.64546	1.300597
HG	6264.897	26.99771	4.322212

Multicollinearity test results can be seen in the centered VIF column, if the VIF value is not greater than 10, then we can say that there is no multicollinearity in all independent variables.

Heteroskesdastisity Test

Heteroscedasticity test is used to test the category data group that has unequal variance among group members. If the variance is the same, then homoscedasticity occurs, while if the variance is different, then what will happen is heteroscedasticity (Gujarati, 2006). In this study, heteroscedasticity testing was carried out using the Glejer heteroscedasticity test. It is assumed that H0 is no heteroscedasticity symptom and Ha is heteroscedasticity symptom. If the value of Prob. F(4,17) and Prob. F(3.18) where this can also be called the probability value F count value > from the alpha level 0.05 (5%) then H0 is accepted and Ha is rejected which means there is no heteroscedasticity, whereas if the probability value F count is < from the alpha level 0.05 (5%) then H0 is rejected and Ha is accepted, which means there is heteroscedasticity. The results of the heteroscedasticity test are shown in the following table:

Table 7
Variable Heteroscedasticity Test Results Equation 1

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	1.902923	Prob. F(4,17)	0.1563
Obs*R-squared	6.803969	Prob. Chi-Square(4)	0.1466
Scaled explained SS	4.674646	Prob. Chi-Square(4)	0.3223

Variable Heteroscedasticity Test Results Equation 2

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	1.729715	Prob. F(3,18)	0.1967
Obs*R-squared	4.923045	Prob. Chi-Square(3)	0.1775
Scaled explained SS	4.322907	Prob. Chi-Square(3)	0.2286

Source: Processed Data

Based on the table above, it shows that the value of Prob. Chi-Square > (α = 0.05) so it can be concluded that H0 is accepted and Ha is rejected, which means that the regression

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model does not experience symptoms of heteroscedasticity.

Autokorelation Test

The autocorrelation test aims to test whether in linear regression there is a correlation between the confounding error (residual) in period t with errors in period t-1 (previous).

Table 8
Autocorrelation Test Results Confounding Error Equation 1

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.370885	Prob. F(2,15)	0.6963
Obs*R-squared	1.036664	Prob. Chi-Square(2)	0.5955

Autocorrelation Test Results Confounding Error Equation 2

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.408035	Prob. F(2,16)	0.6717
Obs*R-squared	1.067641	Prob. Chi-Square(2)	0.5864

Source: Processed Data

Prob value. F(2,15) and Prob. F(2.16) can also be called the probability value of calculated F. If F count > from = 0.05 then there is no autocorrelation.

Hypothesis Test Results

Coefficient of Determination Test

The Coefficient of Determination (R2) aims to determine how far the variation of the independent variable can explain well the variation of the dependent variable. The concept of OLS is to minimize residuals, so that a high correlation is obtained between the dependent variable and the independent variable. The perfect R2 value can be fully explained by the independent variables included in the model.

Table 9
Coefficient of Determination Test Results Equation 1

R-squared	0.872158	Mean dependent var	2733908.
Adjusted R-squared	0.842078	S.D. dependent var	1570867.

Coefficient of Determination Test Results Equation 2

R-squared	0.762990	Mean dependent var	2850900.
Adjusted R-squared	0.723488	S.D. dependent var	1364505.

Source: Processed Data

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From the results above, it can be seen that from the results of the coefficient of determination test equation 1 R2 = 0.87. This means that 87 percent of the up and down variation in sugar cane imports in Indonesia 87 percent is influenced by sugar cane production, cane sugar consumption, sugar cane prices and exchange rates in Indonesia, while the remaining 13 percent is influenced by variables outside the model. And from the results of the coefficient of determination equation 2 R2 = 0.76. This means that 76 percent of the variation in the ups and downs of cane sugar consumption in Indonesia 76 percent is influenced by sugar cane production, sugar cane prices and imports in Indonesia, while the remaining 24 percent is influenced by variables outside the model.

F-statistic Test

The F test basically shows whether all the independent variables included in the model have a joint effect on the dependent variable. The test is carried out by comparing the probability values obtained from calculations with an error rate of of 5%, with the following conditions: Probability < alpha (0.05), then Ho is rejected and Ha is accepted (significant effect). Probability > alpha (0.05), then Ho is accepted and Ha is rejected (no significant effect).

Table10

F-Statistic Test Results Equation 1	
F-statistic	28.99425
Prob(F-statistic)	0.000000
F-Statistic Test Results Equation 2	
F-statistic	19.31537
Prob(F-statistic)	0.000007

From the results of the f-statistics test of the two equations, the probability values of 0.000000 and 0.000007 are smaller than the significant level of 0.05. This means that the production of cane sugar, consumption of cane sugar, and the price of cane sugar, together (simultaneously) have a significant effect on the import of sugar cane in Indonesia.

CONCLUSIONS

Based on the estimation results of the multiple linear regression equation with the discussion of the results of several tests carried out in this study, it can be concluded that (1) sugar production and exchange rate have no significant effect on sugar imports in Indonesia. While sugar consumption and sugar prices have a significant effect on sugar imports in Indonesia (2) sugar imports have a significant effect on sugar consumption in Indonesia. Meanwhile, production and prices have no significant effect on sugar consumption in Indonesia. From the results of the cointegration test using the Unrestricted Cointegration Rank Test (Trace) approach, it was found that there was a long-term relationship or balance between the variables of sugar production, sugar consumption, sugar imports, sugar prices and the exchange rate.

And based on these results, the policy that can be suggested is that the Government through the Ministry of Agriculture should issue policies to encourage the expansion of domestic production scale and improve the quality of sugar in order to suppress imports and at the same time control prices, because large imports will harm sugar farmers and also

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deplete foreign exchange reserves.

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