



Analysis of Price Sensitivity of Indonesian Imported Sugar to the Volume of Indonesian Sugar Imports from Australia period 2010-2021

Sugiartiningsih

Universitas Muhammadiyah Bandung

Eddy Winarso^{*)}

Universitas Jenderal Achmad Yani Bandung

**) Author Correspondence*

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ABSTRACT

The aim of the study was to determine the price sensitivity of imported Indonesian granulated sugar from Australia to the volume of demand for imported Indonesian granulated sugar from Australia for the 2010-2021 period. The research method is descriptive quantitative, namely the relationship between changes in price and volume of imports of Indonesian granulated sugar from Australia. The research started in 2010 because the world was facing a global crisis, while the limit for 2021 was that there was still an outbreak of Covid-19 which had an impact on the stability of the Indonesian economy. The regression results show that the price elasticity of imports of Indonesian granulated sugar from Australia is high or elastic. The main factor is the large demand for granulated sugar by both the household and industrial sectors in Indonesia. Meanwhile, domestic production of granulated sugar has been declining due to the low supply of the main raw material for sugarcane. The impact of Indonesia's dependence on imported sugar from Australia is very high. The policy that must be carried out by the Indonesian government is to increase the productivity of sugar cane farmers by

paying attention to land fertility factors so that higher quality cane can be produced and protecting micro and small farmers through cooperatives with high bargaining values. Sugarcane cooperatives must be appointed as the main supplier of sugar mills in Indonesia in order to optimally increase future linkages.

Keywords: granulated sugar, import prices, productivity

I. Research Background

Granulated sugar is a staple food need for Indonesian people. Sugar is needed by the household and industrial sectors both for consumption and production processes. Starting from the community's tradition of drinking coffee and tea which continues to develop into a home industry at the level of modern food made from sugar, this has driven the demand for refined sugar in Indonesia to continue to increase.

The average consumption of sugar per capita per week in Indonesia has increased throughout 2021. The Central Bureau of Statistics recorded that throughout 2021 sugar consumption reached 1.123 kg per capita per week. [23]

Table 1 Per capita sugar consumption per week in Indonesia

Year	Per capita sugar consumption per week
2018	1,163 kg
2019	1,123 kg
2020	1,105 kg
2021	1,123 kg

Source: <https://databoks.katadata.co.id>



Sugar consumption in 2021 is higher than the previous year's average of 1.105 kg per capita per week. Nevertheless, in 2019 the consumption is as much as in 2021, namely 1.123 kg per capita per week.

In 2021, BPS reports national sugar production of 2.35 million tons consisting of 1.06 million tons of state-owned sugar factories and 1.29 million tons of private sugar factories. Meanwhile, the demand for sugar in 2022 will reach around 6.48 million tons, consisting of 3.21 million tons of GKP and 3.27 million tons of GKR.

For information, the Indonesian government has increased the price of Peralite, Solar and Pertamina

fuel oil (BBM) starting September 3, 2022. The increase in fuel prices was not immediately followed by an increase in the price of food commodities. There are a number of commodities whose prices are relatively stable, one of which is granulated sugar.

Based on data from BPS, there is a sugar shortage of 4.13 tons of granulated sugar. Therefore, the government opened a sugar import faucet. The 6 largest sugar supplying countries to Indonesia in 2021 are: (1) India; (2) Australia; (3) Brazil; (4) Thailand; (5) South Korea; and (6) United Arab Emirates. With import values as follows:

Table 2 Import of Sugar in 2021

No	Country of Origin	Volume (thousand tons)
1	India	1.939
2	Australia	1.331
3	Brazil	1.143
4	Thailand	1.033
5	South Korea	4,9
6	United Arab Emirates	2,0

Source: <https://databox.katadata.co.id>

Import values based on data from the Central Bureau of Statistics from 2017 to 2021 are as follows:

Table 3 Sugar Imports by Main Country of Origin, 2017-2021

Country of Origin	2017	2018	2019	2020	2021
Net Weight: 000 Kg					
India	0,0	0,0	540,0	619.904,1	1.939.798,8
Australia	646.850,0	922.897,0	542.205,0	1.214.466,0	1.331.388,0
Thailand	2.440.823,5	4.037.528,5	3.539.251,3	2.027.117,0	1.033.800,0
Brazil	1.079.177,1	60.000,0	0,0	1.547.314,2	1.143.038,3
South Korea	7.084,8	7.190,8	7.200,0	4.742,4	4.992,0
United Arab Emirates	0,0	0,0	0,0	0,0	2.080,0
German	0,0	6,0	6,0	6,9	20,1
Other	310.164,0	1.231,7	850,9	126.127,9	27,0
Amount	4.484.099,4	5.028.853,9	4.090.053,2	5.539.678,6	5.455.144,2
CIF Value: 000 US\$					
India	0,0	0,0	208,0	229.160,8	857.266,6
Australia	293.110,2	314.706,2	189.614,8	429.170,5	582.768,0
Thailand	1.145.222,5	1.451.006,4	1.170.596,8	709.762,7	482.022,2
Brazil	470.982,3	24.530,6	0,0	523.669,2	455.193,0
South Korea	5.156,9	5.025,0	4.784,8	3.116,3	3.433,0
United Arab	0,0	0,0	0,0	0,1	1.081,6



Emirates					
German	0,0	133,3	133,4	131,7	355,8
Other	159.740,6	820,5	580,7	40.916,3	117,7
Amount	2.074.212,6	1.796.221,9	1.365.918,4	1.935.927,4	2.382.237,8

Notes:

1. Including bonded zones.
2. Processed from customs documents of the Directorate General of Customs and Excise (PEB and PIB) data quoted from the Indonesian Statistical Publication.

The price of granulated sugar is still around 11.62% more expensive than a year ago. The trend of increasing national sugar prices has occurred since early 2022.

The main fulfillment of granulated sugar is supported by domestic supply which is marked by the large number of sugar factories in Indonesia. However, the reality is that there is a scarcity of sugar production in Indonesia [1]. In its development, many sugar factories in Indonesia have stopped producing. In fact, it is suspected that the factory's dependence on imported granulated sugar raw materials is getting higher [2].

This condition is very ironic considering that Indonesia was once listed as the second largest sugar producing country after Cuba [3]. The main factor is that sugar cane as the main raw material

for granulated sugar is easy to get in Indonesia. Apart from being supported by soil fertility which is still high, it is likely that the government will pay more attention to the agricultural sector so that sugarcane can be produced with good quality.

The imbalance between demand and supply of domestic granulated sugar has resulted in strong imports of Indonesian granulated sugar from various countries. Australia is one of the import destination countries [4]. Australia's advantage in penetrating the Indonesian market is inseparable from the price of imported Indonesian granulated sugar from Australia which is predicted to be quite capable of competing in the international market. As a realization of this statement, it can be shown in Table 4 below:

Table 4 Volumes and Prices of Indonesian Granulated Sugar Imports from Australia for the 2010-2021 Period

Year	Volume In Tons	Price per ton US\$
2010	19148	731.292
2011	14356	969.288
2012	9344	859.416
2013	7803	715.192
2014	5100	679.947
2015	1020214	366.960
2016	896431	438.549
2017	646850	453.135
2018	922897	340.998
2019	542205	349.711
2020	1214466	353.382
2021	1331388	437.715

Table 4 shows the volume of Indonesian granulated sugar imports increased from 19147.90 tons. In 2010 it will be 1,331,388.0 tons in 2021. On the other hand, the price of imported Indonesian

granulated sugar from Australia tends to fall from US\$ 731.291 to US\$ 437.71 in the same period. Whereas in 2011 when the price rose to US\$



969.287, the volume of imported sugar fell to 14355.90 tons.

Deviations occurred from 2012 to 2014 when the price of imported sugar fell successively to US\$ 859,416; US\$ 715,191 and US\$ 679,946 were actually followed by a decrease in demand for Indonesia's import volume from Australia to 9,343.90 tons; 7802.80 tons and 5100.40 tons. Likewise, from 2019 to 2020 when the price of sugar rose from US\$ 349,710 to US\$ 353,382 followed by an increase in the volume of imports of Indonesian granulated sugar from Australia from 542,205.00 tons to 1214466.00 tons.

Given the inconsistency of price changes to the volume of imports of Indonesian granulated sugar from Australia, its sensitivity must be examined so that further action can be taken by the government as protector of the people.

Formulation of the problem

Based on the description on the research background, the formulation of the problem is:

1. What is the price sensitivity to the volume of imports of Indonesian granulated sugar from Australia for the 2010-2021 period?
2. What policies should be carried out by the Indonesian government to protect the interests of the people

Research purposes

1. To determine price sensitivity to the volume of imports of Indonesian granulated sugar from Australia for the 2010-2021 period.
2. To find out the policies that must be carried out by the Indonesian government to protect the interests of the people.

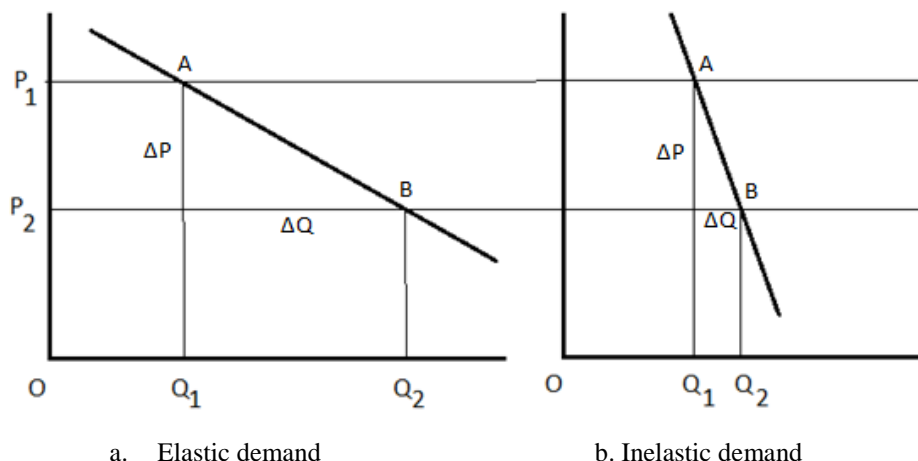
Benefits of research

It is hoped that this research will be useful for:

1. Society to be able to consume higher quality staple goods.
2. The government is to be able to take appropriate policies related to food security programs in Indonesia.

Theoretical review

The demand for a commodity is influenced by various factors, namely: 1. The price of the goods themselves, the prices of other related goods, income, population and tastes [5]. From these various factors the price of the goods itself becomes a benchmark for consumers to make decisions in buying a commodity. According to the law of demand, if the price of a good falls, the quantity demanded will increase, and vice versa. This is as shown in Figure 1 below:



From Figure 1, there are two types of demand curves in terms of their sensitivity, namely elastic and inelastic. The elastic demand curve is characterized by a lower price decrease that will increase the output demanded greater as shown in Figure 1(a). When the price drops from P₁ to P₂. Then the output demanded increases from Q₁ to

Q₂. Because the change in output (Δ Q) is greater than the change in price (Δ P), the elasticity is called elastic (> 1). Goods that have elastic elasticity are industrial goods group.

The inelastic demand curve is characterized by a steep slope so that a high price decrease (ΔP) is followed by a lower increase in output (ΔQ). The



impact will result in a demand elasticity value of less than one ($eD < 1$) as shown in Figure 1 (b). Goods that are classified as inelastic are agricultural goods.

Thinking Framework

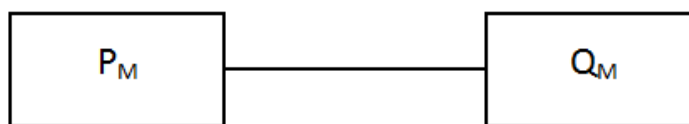
People's welfare can be achieved if food security can be realized properly. Indonesia as a country known for having a large and fertile land area and a conducive climate should have the ability to provide basic food needs easily and abundantly [1].

Sugar is an important type of basic need for the people whose supply must be guaranteed by the government. As far as possible the production of white sugar is met by sugar factories in Indonesia which of course use sugar cane as raw material. Besides that, it has a high backward and forward

impact on related parties, especially sugar cane farmers and the household sector.

Unbalanced production of granulated sugar with very high demand has driven import policies to maintain stability. The high volume of imports of Indonesian granulated sugar from other countries is most likely triggered by prices that are affordable to the people, thus giving high price sensitivity. Australia is one of the important import destinations for Indonesia. The high volume of imports of Indonesian granulated sugar from Australia will make our dependence on imports relatively high and ignore the fate of sugar cane farmers. The government's attention to sugarcane farmers needs to be increased to improve the welfare of farmers and all related parties.

From this statement, the framework of thought can be described as follows:



Sensitivity of Import Prices to Demand Volume for Indonesian Granulated Sugar Imports from Australia

Figure 2: Thinking Framework

Changes in the price of Indonesian imported sugar from Australia will affect the volume of imports from that country. The theory of demand states that sugar is an essential good so that there will be a negative relationship between output and price. The fall in import prices will increase the purchasing power of the Indonesian people for imported granulated sugar. Moreover, if domestic production is very low, the demand for Indonesian imports from Australia will increase. Even with our high dependence on imported sugar, the impact on the increase in import demand will be greater than the decrease in its price or it is called elastic. It can be considered that granulated sugar is classified as industrial goods [6].

Previous research on granulated sugar emphasized domestic demand during the 1990-2009 period by including three independent variables, namely the price of granulated sugar, Gross Domestic Product (GDP) and population in Indonesia. The results of the analysis show a negative relationship for the price variable and a positive relationship for the other two variables. The

difference is from the elasticity value of demand for domestic sugar which shows inelastic [7].

Research on the sensitivity of other industrial products is the effect of eco-labeling on prices and demand for Indonesian plywood exports to the United States which are affected by prices and price changes. From the calculation results obtained a large price elasticity value so that it is classified as industrial goods. The main factor for the high responsiveness of ecolabeling has been handled with technology that is able to process plywood products from meranti wood residues combined with other types of wood that can be used for the production process [8].

Likewise, research on the production of the agricultural sector in Indonesia provides elastic results. First, the effect of land area on corn production in Indonesia from 1990 to 2006. This condition illustrates the not yet optimal use of land for corn production in Indonesia [9]. Second, the effect of land area on pepper production in Indonesia for the 1975-2015 period showed elastic results [10].



Different results occurred in the effect of the dairy cow population on milk production for dairy cows in Indonesia during the 2010-2019 period. Based on the calculation results, it shows a small sensitivity or inelastic [11]. Another difference is the demand for Indonesian rice imports from Vietnam by including the independent variables, namely the price of rice imports, income and the population of Indonesia. From the calculation results obtained a unidirectional relationship between prices and the value of Indonesian rice imports from Vietnam. The main factor is white rice from Vietnam has better quality than domestic rice so that it is more in demand by Indonesian consumers [12].

From all these studies it can be concluded that from the domestic demand side, price sensitivity to volume in the agricultural sector in Indonesia is inelastic. As for import demand, it has a high sensitivity. Considering that rice and sugar are very important commodities for the people, the government must maintain stability by importing them. The impact of a slight decrease in the price of imported sugar from Australia will be followed by a very large increase in the volume of imports.

Ha: The sensitivity of demand for imported Indonesian granulated sugar from Australia to import prices is negative and elastic.

II. Research Methods

This study uses a descriptive analysis approach, namely the relationship between price changes and the volume of Indonesian imports from Australia. The data used is classified as secondary data sourced from the Central Bureau of Statistics. The research period began in 2010 and ended in 2021. The 2010 election was caused by the global crisis that hit developed countries in both the European and American Regions and the Indonesian economy was starting to recover. The year 2021 is because Indonesia is still faced with the Covid-19 outbreak which has also disrupted the stability of the Indonesian economy.

Then in order to be able to calculate the sensitivity of import demand, the first step in modeling is to specify a demand model for sugar import volume as follows [13]:

$$QD = aP^b$$

where:

QD = volume of imports of Indonesian granulated sugar from Australia (tons)

P = import price of Indonesian granulated sugar from Australia (US\$)

a, b = coefficients

The second step is to transform equation (1) into natural logarithmic form [14] so that the regression equation can be written as:

$$\ln QD = \ln a + b \ln P$$

The estimated slope coefficient (b) in equation (2) represents the percentage change or average elasticity.

Hypothesis Test Design

Regression Equation Partial Test

Analysis of the Sensitivity of Demand for Imports of Indonesian Granulated Sugar from Australia to Prices of Imports of Indonesian Granulated Sugar from Australia for the 2010-2021 Period.

The price of imported Indonesian granulated sugar from Australia has a high sensitivity or elasticity to the demand for imported Indonesian granulated sugar from Australia.

H0: $\rho < 1$ The price of imported Indonesian granulated sugar from Australia has a low sensitivity or inelastic to the demand for imported Indonesian granulated sugar from Australia.

Ha: $\rho > 1$ The price of imported Indonesian granulated sugar from Australia has a high sensitivity or elasticity to the demand for imported Indonesian granulated sugar from Australia.

Simultaneous Regression Equation Test

Analysis of the Sensitivity of Demand for Imports of Indonesian Granulated Sugar from Australia to Prices of Imports of Indonesian Granulated Sugar from Australia for the 2010-2021 Period.

The price of imported Indonesian granulated sugar from Australia is sensitive to the demand for imported Indonesian granulated sugar from Australia.

H0: $\rho = 0$ The price of imported Indonesian granulated sugar from Australia is not sensitive to the demand for imported Indonesian granulated sugar from Australia.

Ha: $\rho \neq 0$ The price of imported Indonesian granulated sugar from Australia is sensitive to the demand for imported Indonesian granulated sugar from Australia.

Determination Test

Analysis of the Sensitivity of Demand for Imports of Indonesian Granulated Sugar from Australia to Prices of Imports of Indonesian Granulated Sugar from Australia for the 2010-2021 Period.

To find out the variation of the use of independent variables in the regression equation, the R2 test was carried out. If the value of R2 is high, the variation in the variable price of imports to the sensitivity of the demand for imports of Indonesian granulated sugar from Australia is relatively high. The value of



R2 is close to 1 which means that the function is more representative.
 Results and Discussion

According to the results of data processing for the 2010-2021 period using the Excel program, the following results are obtained:

Table 5

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	46.878	4.934	9.501	0.000	35.884	57.872	35.884	57.872
X Variable 1	-5.602	0.787	-7.114	0.000	-7.356	-3.847	-7.356	-3.847

In Table 5 the constant value (In a) is 46.878 and then the anti ln is found so that it becomes 2.285 x 1020. This figure can be interpreted that before the import price was operational, the volume of imports of Indonesian granulated sugar from Australia was 2.285 x 1020 tons. The price of imported Indonesian granulated sugar has a coefficient or elasticity of -5.602. Thus, if import prices decrease by 1%, it will increase the volume of demand for imported Indonesian granulated sugar from Australia by 5.602%.

Statistical Testing

Analysis of the significance of the coefficient value of the equation of linear regression using the t-statistic test, F-Statistics and R²

Regression Equation Partial Test

Ha: The price of imported Indonesian granulated sugar from Australia has a high sensitivity or elasticity to the demand for imported Indonesian granulated sugar from Australia.

From the results of the t-statistical test, it was found that the price variable for imported Indonesian granulated sugar from Australia has a coefficient of -7.114. The t-count value is proven to be greater than the t-table of 3.169 at a significance level of 1% [15]

Simultaneous Regression Equation Test

Ha: The price of imported Indonesian granulated sugar from Australia is sensitive to the demand for imported Indonesian granulated sugar from Australia.

The results of simultaneous testing of the regression equation are indicated by Table 2:

Table 6 Simultaneous Test

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	50.6365	50.6365	50.61	3.24164E-05
Residual	10	10.0061	1.00061		
Total	11	60.6425			

Table 6 shows the F-statistic variable for the price of imported sugar from Indonesia from Australia with a coefficient of 50.61. The calculated F-value is proven to be greater than the t-table of 9.65 at a significance level of 1% [16]

Determination Test (R²)

To find out the value of R² from the regression equation for imports of Indonesian sugar imports from Australia, it can be seen from Table 3 below:

Table 7 Determination Test (R²)

<i>Regression Statistics</i>	
Multiple R	0.913782997
R Square	0.834999365
Adjusted R Square	0.818499302



Standard Error	1.000302785
Observations	12

Table 7 shows the R^2 value of 0.834999365 so that the price variable for imported Indonesian granulated sugar from Australia has a variation of 83.4999365%. The remaining 16.5000635% is determined by variations in other variables not included in the elasticity modeling. Thus, the price variable has a high variation so that it is more representative.

III. Discussion

The equation for the sensitivity analysis of the demand for imports of Indonesian granulated sugar from Australia to the price of imports of Indonesian granulated sugar from Australia for the 2010-2021 period.

Ha: The price of imported Indonesian granulated sugar from Australia has a high sensitivity or elasticity to the demand for imported Indonesian granulated sugar from Australia

The variable price of Indonesian refined sugar imports from Australia has a high sensitivity to the volume of imported Indonesian granulated sugar from Australia. This statement is in accordance with the law of demand that the price of sugar has a negative relationship to the demand for imported Indonesian granulated sugar from Australia. A high sensitivity or elasticity value indicates that a low reduction in the price of imported sugar can increase the volume of imports of Indonesian granulated sugar from Australia quite large. This condition can be interpreted that granulated sugar is a group of industrial goods so that according to the theory of elasticity it will have a high sensitivity value.

From a historical point of view, granulated sugar in Indonesia must be processed from sugar cane through a certain process to become granulated sugar. The process of making granulated sugar which is dense in Natural Resources (SDA) requires an abundant supply of sugarcane. The reality is that sugar cane plantations in Indonesia have decreased due to various factors such as soil fertility. From a biological point of view, the diameter of the sugarcane plant introduced by the VOC was very wide and capable of producing high-quality granulated sugar. The abundant volume of sugarcane support has resulted in high sugar production in Indonesia so that it becomes a major exporter in the world. The impact on fulfilling domestic demand for sugar in Indonesia is relatively stable as indicated by low prices and elasticity [7].

However, in its development, the government's lack of response to social and environmental aspects around the sugarcane, the volume of sugar cane is far from what was expected. According to a report by the Center for Indonesian Policy Studies (CIPS) sugar production from sugarcane plantations in Indonesia has decreased from 2016 of 2.36 million tons to 2.05 tons in 2020-2021. Meanwhile, Indonesia's sugar consumption during this period increased to 7.2 million tons. The main factor is the decline of sugarcane plantations in Indonesia [17].

Sugarcane farmers with low wages generally prefer to find a part-time job by working as casual laborers in other factories. This behavior shows that the exchange rate for sugar cane farmers in Indonesia can be said to be still low, so it has a negative impact on the granulated sugar industry sector, considering that sugar cane is the main raw material for making granulated sugar. Weaknesses in the upstream side if allowed to continue will disrupt the work of sugar factories in Indonesia. The number of sugar factories in Indonesia receded from being active to being inactive so that the volume of granulated sugar production continued to decline while the demand for granulated sugar continued to increase.

This factor of scarcity of sugar requires the government to follow up by importing it from Australia. Thus, the importance of the need for granulated sugar opens up opportunities for Australia to export to Indonesia in large volumes. Allegedly the price of imported sugar from Australia is in accordance with the purchasing power of the Indonesian people. This price competition has an effect on the high sensitivity of imported value. As a result, granulated sugar, which should be a basic need, has turned into industrial goods.

Government Actions in Protecting the Fate of Sugar Cane Farmers

Sugarcane farmers are economic actors who are the foundation of hope for the Indonesian people to improve their welfare. To be able to make it happen, good synergy is needed between farmers and the government. Sugarcane farmers can act as owners or farm labourers. This distinction must be clarified especially for the status of "owner" which can be connoted as entrepreneurs who own micro, small, medium and large sugar cane fields. If the government wants to improve the fate of farmers for farmer groups it must be right on target.



For example, micro and small farmers should be protected by joining and becoming members of farmer cooperatives who really get the assistance they expect without any intervention from big companies. The government's role is to provide resource assistance needed by sugarcane farmers such as fertilizers, medicines, extension workers, health, environment and social affairs so as to create quality sugarcane production. Even from a bargaining point of view, sugarcane farmer cooperatives must be prepared to buy sugarcane from farmers at a reasonable price so as to provide welfare for farmers and related parties.

The next step for the cooperative is to distribute the farmers' cane yields to the nearest sugar factory. However, the sugar factory that was pioneered since the VOC can be preserved by building strong links between farmers and sugar factories. The fact that the Colomadu sugar factory has fallen into a slump. Even though this factory was an early milestone in industrialization in Java which was built by Mangkudara IV [18]

To maintain comfort, there must be good synergy between the cooperative as a supplier of sugar cane from farmers and sugar factories as the main channel for raw materials for farmer products. Then the production of factory granulated sugar must be distributed to the people evenly by the government. The government's action of imposing granulated sugar as a public good fulfills two conditions, namely having an abundant supply and can be consumed by anyone [19].

The government's efforts to optimize the stock of domestic granulated sugar for the people can be purchased at a decent/low price. Especially when it is related to people's lives as micro businesses in the culinary field, of course, they need granulated sugar to make cakes and drinks in large volumes for the production process. This integration

needs to be maintained continuously and has a positive impact both in the future to the final consumer and back to the sugar cane farmers including farm laborer's. This consistency will revive the performance of sugar factories which have been halted due to sugarcane raw material constraints and are forced to use imported raw materials which may not be sugarcane.

The sweetness of granulated sugar currently circulating is different from that of refined sugar in the New Order Era. The fact is that consuming coffee or tea drinks requires a larger volume of granulated sugar. Meanwhile, from a health point of view, we are not allowed to consume too much sugar so that it does not have a negative impact on the body, such as nutrition, increased triglyceride levels, obesity, diabetes and tooth decay [20]. Therefore, the government should pay more attention to encouraging farmers to be more active in planting sugarcane in order to provide healthier sugar.

Even planting sugar cane by the people really helps the government to produce electricity that is environmentally friendly. The sugarcane production process in the sugar factory only uses the water, while the waste is generally discarded. This bad habit will create a dirty environment with piles of refuse and can start a fire. With the principle that the environment must be healthy, sugar cane with a touch of technology can become a public good with abundant electrical energy [21]. Especially considering that the need for electricity is still very high in Indonesia, it is alleged that it can improve people's welfare in the long term [22]. The collaboration of related parties in the process of production and distribution of granulated sugar in Indonesia can be illustrated through the following chart:

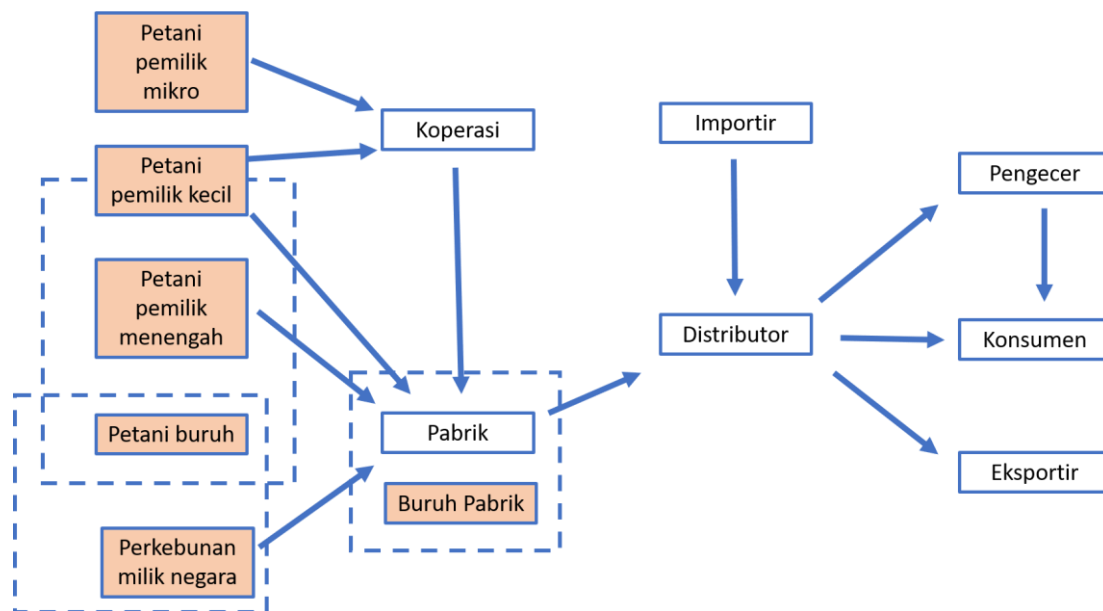


Figure 3 Flowchart from Sugar Cane Farmers to Final Consumers

IV. Conclusion

The conclusions of this study are:

1. The sensitivity of the demand for imported sugar to the price of imported sugar from Indonesia from Australia is elastic due to the scarcity of sugar production in Indonesia and the need to maintain stability in food security by importing.
2. The government needs to pay attention to the fate of sugar cane farmers, especially for owners who are classified as micro and small by paying attention to resources, appointing cooperatives as the main distributors to sugar factories, preventing adverse impacts on health and helping to increase environmentally friendly electrical energy.

Suggestion

The suggestions given from this research are:

1. Added other variables to see the sensitivity of import demand such as prices of other related goods and income.
2. Expanded research from the environmental side both from raw materials, production processes and final goods.

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