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Competitiveness Analysis of Cocoa Butter Exports North Sumatra, Indonesia in the Malaysian Market

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ABSTRACT

Background: Cocoa butter exported to Malaysia always fluctuates. This study aims to analyze the factors that affect the competitiveness of cocoa butter of North Sumatra in the Malaysian Market.

Methods: The research method uses multiple linear regression and the data used is time series data from 1991-2023 or 33 years.

Result: The findings demonstrated that, either separately or in combination, the export price of Ghana cocoa butter, the domestic price of North Sumatra cocoa butter and the cocoa bean export duty tariff policy all significantly and favourably affect North Sumatra cocoa butter's competitiveness in the Malaysian market.

Key words: Cocoa export prices, Cocoa prices, Competitiveness, Export duty tariffs.

INTRODUCTION

Cocoa is one of the plantation commodities that is very suitable for the climate and soil type of North Sumatra and Indonesia, so that it can produce and produce cocoa well so that cacao products can be exported to other countries (Ginting, 2021). Cocoa bean fiber, cocoa pod husk, corn husk, orange peel and pineapple peel can be improved by mixing them with yeast as inoculum. This blending will produce the highest volume of biogas and methane component. This mixture can be a rich source of renewable energy and increase exports and foreign exchange for producing countries (Enaboifo, 2020).

The types of North Sumatra cocoa butter products exported to Malaysia are cocoa beans and several cocoa butter products such as cocoa butter. Chocolate will provide health benefits to the end consumer, such as protecting against free radical damage to cells and chocolate can also help control appetite (Pallavi, 2018). Exports of cocoa butter products provide added value when compared to exports of cocoa beans. Trade in processed products provides additional benefits to producers compared to raw materials. Profits can increase up to 5 times greater than in the trade of raw materials (Elizabeth, 2019).

Cocoa is one of the most important commodities in North Sumatra. This crop provides many economic benefits to the region. First, cocoa can be a source of income for farmers in North Sumatra. Second, cocoa can be a source of foreign exchange for the country through exports (Fauzi, 2024). To increase a larger share of world trade, sanitation measures, standardization of packaging and simplification of export procedures can be emphasized so that it will generate foreign exchange (Gaware, 2020).

This study focuses more on cocoa butter commodities, using the latest data and different analytical tools used by previous studies. So that research on cocoa butter export competitiveness is expected to provide information on the position and ability of North Sumatra cocoa butter export competitiveness to increase North Sumatra cocoa butter exports in the international market.

Based on the background details given above, the study's goals are as follows: (1) compare the country's cocoa butter price to that of North Sumatra's exports on the Malaysian market; (2) compare the export prices to those of North Sumatra's exports on the Malaysian market; (3) compare the competitiveness of North Sumatra's exports in the Malaysian market to the price of Ghana's cocoa butter exports; and (4) look into the connection between the export duty policy for cocoa beans and the competitiveness of North Sumatra's cocoa butter exports in the domestic market.

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MATERIALS AND METHODS

Research area determination method

This research was conducted in the province of North Sumatra, located between 1°-4° north latitude and 98°-100° east longitude. This province is located in the northern part of Sumatra Island, Indonesia, which is one of the centers of cocoa bean production and development of processed cocoa (cocoa butter). This research was conducted in 2024.

Data analysis method

To analyze the competitiveness of processed cocoa (cocoa butter) of North Sumatra in the Malaysian Market using

Revealed Comparative Advantage (RCA). Revealed Comparative Advantage (RCA) is an economic analysis method that measures the comparative advantage of a country in exporting certain commodities. The analytical method used is a multiple linear regression model, with the following multiple linear regression equation (Ghozali, 2021):

$$RCA_Malaysia = a0 + a1\ LogX1it + a2\ LogX2it + a3\ LogX3it + a4\ LogX4it + \mu i$$

Description:

RCA_Malaysia = North sumatra cocoa butter's level of competition in the Malaysian market.
X1 = North sumatra's domestic cocoa butter price (Rp/kg).
X2 = Export price of cocoa butter of north sumatra (US$/Ton).
X3 = Export price of cocoa butter ghana (US$/Ton).
X4 = Cocoa bean export duty policy (dummy variable).
X4 = 0, no export duty on cocoa beans has been applied in 2010.
X4 = 1, cocoa bean export duty has been applied in 2010
α1 - α4 = Regression coefficient.
i = Number of observations.
t = Total time studied (33 years (1991-2023).

RESULTS AND DISCUSSION

Test goodness of fit

The fit test looks for proof that a research model is workable using the simultaneous test (F-test), partial test (T-test) and coefficient of determination (R2). Findings from a regression analysis of North Sumatra cocoa butter's competitiveness in the Malaysian market. The Goodness of Fit test results are shown in Table 1.

The findings of a multiple linear regression analysis of the factors influencing North Sumatra cocoa butter's competitiveness (RCA) in the Malaysian market are shown in Table 1. The multiple linear regression equation is as follows:

$$RCA_Malaysia = 32.898 + 0.119\ LogX1it + 0.762\ LogX2it + 2.109\ LogX3it + 0.513\ LogX4it$$

The regression model's constant value of 32.898 indicates that, when all research model variables are equal to zero, North Sumatra cocoa butter's level of competitiveness to the Malaysian market is 32.898. Given that this value is affected by variables not included in the regression model, North Sumatra cocoa butter has an average level of competitiveness to the Malaysian market of 32.898, which suggests that it is very competitive.

Coefficient of determination (R^2)

The results of the investigation show that the coefficient of determination, or R^2, is 0.698. This indicates that 69.8% of the variance in the variable competitiveness of North Sumatra cocoa butter in the Malaysian market can be explained by the cocoa butter's domestic price (X1), export price (X2), Ghana cocoa butter export price (X3) and the cocoa bean export tariff policy (X4). Other factors not included in the model account for the remaining 30.2% of the variation.

Concurrent test (f-test)

At a significance level of 0.000 at the α = 0.05 level, Table 1 demonstrates that the F-count of 4,527 is more than the F-table of 2,458. The fact that the significance value of F is lower than the probability value (0.000 <0.05) implies that the independent and dependent variables are influenced at the same time.

Therefore, the independent variables of the province's domestic cocoa butter price (X1), export price (X2), Ghana's export price (X3) and tariffs on cocoa bean exports (X4) may have a substantial effect on North Sumatra cocoa butter's capacity to compete in the Malaysian market.

Partial test (t-test)

To determine the partial influence between independent and dependent variables, the partial test looks at the t value at the 5% significant level.

Effect of domestic cocoa butter prices in North Sumatra on the competitiveness of cocoa butter in the Malaysian market

Regression coefficient result for North Sumatra's domestic cocoa butter pricing variable (X1) is 0.119, indicating a favourable outcome. This suggests that because of its domestic pricing, North Sumatra's cocoa butter is marginally more competitive in the Malaysian market. The regression coefficient is positive, meaning that a one per cent increase in the domestic price of North Sumatra cocoa butter will result in a 0.119 per cent increase in the product's competitiveness in the Malaysian market. Ceteris paribus means that a

Table 1: Regression test results competitiveness of cocoa butter of North Sumatra province in the Malaysian market.

Independent variable	Regression coefficient	t-count	Sig.	Description
Constant	32.898	3.163	0.107	
Domestic price of north sumatra cocoa butter (X1)	0.119	3.215	0.018	Significant
North sumatra-malaysia cocoa butter export price (X2)	0.762	1.002	0.029	Significant
Ghana-malaysia cocoa butter export price (X3)	2.109	2.191	0.010	Significant
Cocoa bean export duty policy (X4)	0.513	2.516	0.044	Significant
R^2 = 0.698				
F-count = 4.527				
Sig. = 0.000				

Source: Data processing results, 2024.

one per cent increase in domestic prices will make the product highly competitive both domestically and internationally by increasing exports to export destination countries.

Effect of North Sumatra cocoa butter export prices on the Malaysian cocoa butter market's competitiveness

Regression coefficient value of 0.762, the North Sumatra cocoa butter export price variable (X2) exhibits a positive sign. According to the aforementioned, the export price of North Sumatra cocoa butter significantly boosts its competitiveness in the Malaysian market. The product's competitiveness on the Malaysian market will rise by 0.762 per cent for every 1% increase in the export price of North Sumatra cocoa butter, ceteris paribus, according to the positive regression coefficient. Malaysia typically pays US$ 318/kg for North Sumatra cocoa butter, while Ghana, a rival, charges US$ 1103/kg. Even if the export price of North Sumatra's cocoa butter has grown, its competitiveness will continue to grow because its pricing is lower than Ghana's. This is due to the fact that the price increase is not higher than that of competing countries.

Effect of Ghana's cocoa butter export price on Malaysia's cocoa butter market's competitiveness

Regression coefficient result for the Ghana cocoa butter export price variable (X3) is 2.109, indicating a positive sign. This implies that North Sumatra cocoa butter's competitiveness in the Malaysian market is significantly increased by the export price of Ghanaian cocoa butter. The regression coefficient positive, meaning that a one percent increase in Ghana's cocoa butter export price will increase North Sumatra's competitiveness to the Malaysian market by 2.109 per cent. Ceteris paribus means that if competitor Ghana's price rises and North Sumatra's price is lower than that of its competitors, Malaysia, as an importer, will choose North Sumatra products over Ghanaian ones. As a result, the price of Ghanaian cocoa butter will rise, making North Sumatra cocoa butter more competitive.

Effect of the cocoa bean export duty policy on North Sumatra's cocoa butter's ability to compete in the Malaysian market

Regression coefficient value for cocoa bean export duty policy variable (X4) is 0.513, indicating a positive sign. This implies that North Sumatra's cocoa butter is much more competitive in the Malaysian market thanks to the export tariff scheme on cocoa beans. The export duty policy will boost North Sumatra cocoa butter's competitiveness on the Malaysian market by 0.513 per cent, according to the positive regression coefficient.

CONCLUSION

Simultaneously and partially, the domestic price of North Sumatra processed cocoa, the export price of North Sumatra processed cocoa, the export price of Ghana processed cocoa and the export duty rate of cocoa beans have a positive and significant effect on the competitiveness of North Sumatra cocoa butter to the Malaysian market.

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Disclaimers

The opinions and findings presented in this article are those of the authors alone and may not be representative of those of the organisations with which they are affiliated. The authors accept responsibility for the accuracy and quality of the information they provide, but they disclaim all duty for any losses resulting from the use of this content, whether direct or indirect.

Informed consent

Since the Central Bureau of Statistics provides accurate, trustworthy and pertinent information to support the research, all secondary data gathering methodologies for this study have been approved by the Central Bureau of Statistics of North Sumatra and Indonesia.

Conflict of interest

The authors of this work state that they have no conflicts of interest with regard to its publication. Funding or sponsorship had no influence on the study's design, data collecting, analysis, publishing choice, or article authoring.

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