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ARTICLE

The Effect of Exports and Imports on Agribusiness Activities on the Development of Indonesia's Economic Growth

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ABSTRACT

Enhancing the agricultural sector plays a vital role in strengthening Indonesia's economic growth. This study aims to examine the impact of agricultural exports, imports, and investment on the development of the agricultural sector, as reflected in economic growth. The analysis covers the period from 2000 to 2015 using quarterly time series data. The research applies the vector autoregression (VAR) method. Findings from the causality analysis indicate that exports, imports, and investment in agriculture have a limited influence on agricultural sector growth indicators. However, growth in the agricultural sector significantly influences the levels of exports, imports, and investment in economic growth indicators. Additionally, the impulse response analysis reveals that investment responds more strongly to shocks in the agricultural sectors in Economic growth indicators compared to exports and imports. The variance of decomposition analysis shows that exports contribute more to the development of the agricultural sector than the combined contribution of imports and investment. This study has concluded that the full value of exports, imports, and investment in the agricultural sector does not significantly impact the economic

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growth rate; however, the rate of growth in the agricultural sector affects the full value of sector exports, imports, and investment in Indonesia. In addition, the authors recommended that the government strengthen the Indonesian economy by boosting exports and minimizing imports. This can be achieved by expanding export markets and enhancing the quality of locally produced goods. A trade surplus, where exports exceed imports, can contribute positively to the nation by increasing foreign exchange reserves.

Keywords: Export; Growth; Agriculture; Development

JEL Codes: F43; O40; O49; Q13

1. Introduction

Agribusiness activities is an important component in running economic growth and promoting integration in the global market. Based on business activities, and voluntarily, nations allow for the exchange of goods, services, and capital across boundaries [1].

Indonesia's participation in international trade has enabled the country to reach new markets, attract foreign investment, and diversify its economy. By exporting items such as coal, palm oil, and agricultural products, Indonesia has increased its foreign exchange income by supporting domestic production and employment. Additionally, imports of technology and raw materials play a crucial role in supporting local industries, particularly in manufacturing and infrastructure development [2].

The agricultural quarter plays a vital role in human life because it utilizes natural and organic sources to supply food, raw materials for enterprise, and energy, while also helping to preserve the environment. This sector encompasses a diverse range of activities, including growing food plants, horticulture, managing plantations, raising cattle, fishing, and forestry [3]. In international locations like Indonesia, agriculture has long been a cornerstone of the economy, supporting rural communities, generating employment opportunities, and ensuring food security for the population.

Over the last two decades, there has been a steady decline in the agricultural sector's role in Indonesia's economy. From 2001 to 2020, its contribution to the country's GDP fell from 3.64% to -2.06%. This means that the agricultural sector is experiencing a decline due to the large number of land conversions and a decrease in interest in becoming farmers among the Indonesian people. Highlighting a major change as industries and services have taken the center stage [4]. This change indicates extensive structural changes, including changes in labor, investment, and land use. While such a tendency can demonstrate progress and economic diversification, it also brings challenges, especially to the long-term stability of rural communities, food security, and the agricultural system.

To address these challenges, the Indonesian government must prioritize modernization, infrastructure development, and sustainable agricultural practices to revive the agricultural sector. Embracing technological progress, such as precision agriculture and climate-smart agriculture, can help promote techniques that enhance the region's resilience to environmental pressures [5]. It is also important to improve market access and strengthen price chains for small farmers, ensuring they reap the benefits of economic growth. By maintaining the agricultural sector, Indonesia can promote food security, reduce rural poverty, and achieve more inclusive and sustainable development.

Abiad et al. [6] explain how adjustments in a zone's percentage of the economy are frequently formed by using broader countrywide situations, and how different sectors appear in evaluation. For example, during times of economic disaster or global downturns, productivity in positive sectors can drop, which reduces their expected contribution to GDP. On the other hand, if one area experiences robust growth whilst others stay the same, its percentage of the financial system will rise, although the others haven't declined. Likewise, while a zone's output falls, however the economy holds steady, the last sectors may appear to contribute more, despite not having grown in absolute terms. This pattern becomes especially clear in instances of financial instability, such as the 1997 Asian Financial Crisis and the 2008

Global Financial Crisis, which significantly disrupted the stability between economic sectors in many developing countries, including Indonesia. During those periods, industries, such as agriculture and manufacturing frequently experienced drops in output due to declining demand, damaged supply chains, and lower levels of funding [7]. These massive-scale financial shocks underscore the vulnerability of sectoral contributions to changes in each country's and international economies.

To ensure a balanced monetary increase, policymakers aim to build resilience across all sectors, not just by supporting vulnerable industries during challenging times, but also by promoting innovation and diversification. For example, investing in price-based agricultural processing or promoting green power initiatives in rural communities can help revitalize lagging sectors and reduce the financial system's dependence on a few dominant industries. Lin [8] emphasizes that lasting economic transformation depends on long-term strategies that are flexible enough to respond to structural shifts and outside shocks, while additionally fostering inclusive growth that benefits the entire financial system.

The lower GDP contribution of the Indonesian agricultural sector over the past 12 months is due to the Indonesian economy shifting from being predominantly agriculture-based to increasingly driven by industry and services. Dutta and Hazarika [9] state that robust economic performance has enabled low-earnings nations to transition into middle-income status through successful industrialization. However, this shift has also led to a widening income disparity between agricultural and non-agricultural people. Homè et al. [10] notes that as economies grow, the rural zone in developing international locations faces three primary challenges: ensuring food safety, increasing profits for rural populations, and managing agricultural trade.

As industrialization progresses, investments and funding tend to shift toward urban and business sectors, often at the expense of rural and agricultural development. This structural transformation can lead to the marginalization of agriculture, making it less competitive and less appealing to younger generations. According to Timmer [11], while this transition is a regular part of economic development, it requires proactive policies from authorities to ensure that rural populations aren't left behind. Without assistance for productivity-improving technology, infrastructure, and access to markets, the rural zone faces stagnation, which further reduces its contribution to the national GDP.

Moreover, globalization and liberalized trade have intensified competition in agricultural markets, placing pressure on local farmers who often lack the scale and efficiency of large global producers. Pingali [12] explains that exchange liberalization can benefit agriculture by providing access to broader markets; however, it also exposes smallholders to volatility in global prices. In Indonesia, this has sometimes led to increased imports of food staples, undercutting local production. Addressing these challenges requires a dual approach: promoting industrial growth while simultaneously investing in sustainable, high-value agriculture to ensure balanced and inclusive economic development.

The GDP value of the agricultural sector in Indonesia is based on the use of fresh and processed products derived from export and import values. During the 2001–2020 period, economic growth in the Indonesian agricultural sector was quite depressing, with the highest growth rate of 6.34% in 2007 and the lowest in 2020 at -2.1%. Low economic growth in the agricultural sector in 2020 as a result of the COVID-19 pandemic, in which export and import activities decreased in that year. Low exports led to a trade balance deficit in Indonesia's agricultural sector. Export value can be increased through product variation (structural deepening) and market diversification (in terms of destination countries), while import value can be reduced through the use of a tariff and quota system.

The highest import growth in the agricultural sector during 2001–2020 occurred in 2001, at 30.76%, and the lowest in 2020, at 15.7%. The high imports in 2001 were the result of bilateral trade between Indonesia and Australia, which at that time was in great demand for products such as wheat, live cattle, milk, fruit, and engineering equipment from Australia. Meanwhile, the low growth of imports in 2020, resulting from the COVID-19 pandemic, which also led to a decline in Indonesia's economic condition, reduced import activity. Oktaviani et al. [13] said that the dynamics of Indonesian export

growth in general are more influenced by the effect of import growth than the effect of commodity composition and competitiveness. Safitri et al.[14] said that in general Indonesia's export commodities can be grouped into four commodities, namely (1) export commodities with low import input content, with capital controlled entirely by domestic investors; (2) export commodities with low import input content, but whose capital is wholly or partly controlled by foreign investors; (3) export commodities with a high import input content with capital controlled entirely by domestic investors; and (4) export commodities with a high import input content, but whose capital is wholly or partly controlled by foreign investors.

2. Literature Review and Research Hypotheses

Source of meals and raw substances but also as a primary contributor to employment and rural livelihoods. According to Johnston et al.[15], agriculture contributes to a financial boom by imparting surplus labor, generating savings, and providing inputs for industrialization. However, in recent times, Indonesia has experienced a steady decline in the agricultural sector's share of GDP, reflecting a broader structural shift toward industry and services.

This transition is typical of the general sample of structural transformation, wherein economic development ends in a reallocation of resources from agriculture to non-agricultural sectors. McCullough[16] emphasised that structural shifts from agriculture to non-agricultural sectors are a regular feature in financial modernization, but without inclusive rules, they can exacerbate income inequality and deepen regional disparities. In Indonesia's case, the motion toward industrialization has raised concerns about the growing earnings gap between rural agricultural workers and those employed in urban industries. This hole can exacerbate poverty in rural regions and prevent an inclusive boom.

Furthermore, the rural quarter in growing nations faces a triad of challenges related to food production, earnings technology, and trade competitiveness. According to Clapp[17], food security remains a primary concern in rural economies, particularly in areas where agricultural systems are increasingly exposed to weather variability and international market fluctuations. In terms of earnings, stagnant agricultural productivity frequently results in lower income compared to business sectors. Trade liberalization has similarly complicated those dynamics. According to Anderson and Martin[18], while starting markets can improve agricultural exports, they also expose domestic producers to intensified competition and price volatility.

Fluctuations in agriculture's share of GDP are also influenced by relative sectoral growth trends. McMillan et al.[19] explain that once the boom in enterprise or offerings outpaces agriculture, the proportion of agriculture in GDP declines even though agricultural output remains stable or increases slightly. This no longer necessarily reflects a failing agricultural zone but highlights the faster pace of expansion in different parts of the economic system. However, without complementary rules, such dynamics may also exacerbate rural-urban inequalities and reduce long-term food system resilience.

To foster a sustainable boom, policymakers need to develop strategies that modernize agriculture while ensuring rural inclusion. Investments in infrastructure, irrigation, mechanization, and access to markets can improve productivity and make the arena more resilient[20]. Without such efforts, the marginalization of agriculture should restrict Indonesia's ability to achieve balanced, long-term economic growth.

The decline in agriculture's share of GDP does not necessarily imply stagnation; rather, it reflects a transition toward higher-value economic activities. However, this transition must be inclusive. Christiaensen and Todo[21] argue that while industrialization and urbanization contribute to economic growth, agricultural development is more effective at reducing poverty, especially in low-income countries. Investments in agriculture not only enhance food security but also create employment opportunities, particularly for women and young people in rural areas. Therefore, balanced sectoral development is crucial for equitable growth.

Technological innovation and digitalization have emerged as key enablers of agricultural transformation. According to World Bank[22], digital agriculture, enabled

by mobile technology, remote sensing, and data analytics, has the potential to increase productivity, reduce waste, and enhance supply chain efficiency. These tools can also help farmers adapt to climate change by offering timely information on weather patterns, pest outbreaks, and market prices. However, access to such technologies remains uneven across areas, requiring targeted public policies and investments to bridge the digital divide.

Moreover, the sustainability of agricultural development is closely tied to climate resilience and resource management. As noted by Fanzo et al.[23], sustainable food systems must address environmental degradation, biodiversity loss, and the overuse of water and land resources. Climate-smart agricultural practices, such as crop diversification, conservation tillage, and agroforestry, are essential in ensuring long-term productivity and environmental health. Without sustainable practices, the benefits of agricultural modernization could be short-lived and lead to increased socio-environmental vulnerabilities. These lead to the core hypothesis of this study:

H1. *Agriculture sectors have an effect on economic growth.*

H2. *Exports have an effect on economic growth.*

H3. *Imports affect economic growth.*

H4. *Labors affect economic growth.*

H5. *Lands affect economic growth.*

H6. *Transport affects economic growth.*

Table 1 presents a summary of previous studies, highlighting the methods and approaches used in those works, as well as a summary of some of the results obtained.

Table 1. Previous research.

Author/Year/Country	Findings	Sig. (Effect)	Methods	Range of Data Collection
Fitriana et al.[24]	Increase and decrease in the contribution of a sector	Positive	Cointegration	2008
Hayami[25]	The effect of high economic performance	Positive	Error Corection Model (ECM)	2007
Otsuka[26]	The effect when the economy in poor countries develops	Positive	OLS analysis Metode	2013
Lihan[27]	General Indonesian export commodities	Positive	OLS analysis Metode	2003
Oktaviani et al.[13]	which affects the dynamics for Indonesian export growth	Positive	Cointegration	2008

3. Materials and Methods

The data used in this study are secondary data from the period of 2001–2020. There are 7 variables deployed to estimate the model of factors that affect exports and imports in Indonesia. Moreover, the data were collected from the World Bank, the Repository, and the E-Journal.

Multiple linear regression (MLR) is a statistical method used when there are more than one independent variable involved. This analysis helps determine both the direction and the extent to which the independent variables affect the dependent variable[28].

MLR analysis is essentially an extension of simple linear regression, differing only in that it involves multiple independent variables. The general form of Equation (1) is as follows:

$$Y = \alpha + \beta_1 X_2 + \beta_2 X_2 + \beta n\, Xn + e \quad (1)$$

where:

Y is the dependent variable or response variable; X is the independent variable or predictor variable, and α & β are constant & slope or coefficient estimates.

This means that the contribution of :

- X_1 = Agriculture sectors
- X_2 = Exports
- X_3 = Imports
- X_4 = Labors
- X_5 = Lands
- X_6 = Transports
- Y = Economic Growth

The interpretation of the equation remains generally consistent. For example, the impact of motivation (X_1), compensation (X_2), and leadership (X_3) on job satis-

faction (Y) can be represented by the following Equation (2):

$$Y = 0.235 + 0.21X_1 + 0.32X_2 + 0.12X_3 \quad (2)$$

If the motivation variable rises while compensation and leadership remain unchanged, job satisfaction is expected to increase.

Similarly, an increase in the compensation variable, assuming motivation and leadership are held constant, will also lead to a rise in job satisfaction.

Likewise, if the leadership variable improves while motivation and compensation stay the same, job satisfaction will experience a positive effect. There are priority assumptions that are made in this study, namely:

1. Gross Domestic Product/Economic Growth affect positively on GDP in Indonesia (β1 > 0)
2. Agricultural business affect positively on GDP in Indonesia (β2 > 0)
3. Export and Import affect positively on GDP in Indonesia (β3 > 0)
4. Labor affect positively on GDP in Indonesia (β4 > 0)
5. Land affect positively on GDP in Indonesia (β5 > 0)
6. Transport affect positively on GDP in Indonesia (β6 > 0)

4. Results

The coefficient of willpower check is conducted to evaluate how well the version explains the collective effect of the unbiased variables on the dependent variable, typically indicated by the adjusted R-squared value[28]. This coefficient displays the share of variance within the dependent variable that may be accounted for by the independent variables within the regression model. The R-squared (R^2) value, as determined in the Model Summary table, provides this measure. Ghozali[28] explains that a low coefficient of determination shows that the independent variables have a limited ability to account for variations within the dependent variable. On the other hand, a few close studies show that the independent variables effectively provide the vital statistics to expect adjustments in the dependent variable.

The coefficient of determination is used to evaluate the extent to which endogenous variables together explain the variation in exogenous variables. A higher R^2 value indicates a stronger predictive capability of the research model. This test helps evaluate the overall contribution and significance of the independent variables in explaining the dependent variable. The R^2 value ranges from 0 to 1, where a value closer to 1 suggests that the independent variables provide nearly complete information for predicting the dependent variable, while a lower value reflects a weaker explanatory power.

According to **Table 2**, the Adjusted R-squared determination test, it shows that the coefficient of determination is 0.461. This means that the contribution of Agriculture sectors (X_1), Exports (X_2), Imports (X_3), Labors (X_4), Lands (X_5) and Transports (X_6) to Economic Growth (Y) is 46%, while the value of 54% is explained by the variable X_1–X_6. The test t and F Test are:

$$\begin{aligned} Y = {} & 10.92934 + 1.242253X_1 + (-0.386610)X_2 \\ & + 0.421898X_3 + (-2.447995)X_4 + 0.624805X_5 \\ & + (-0.002798)X_6 + e \end{aligned} \quad (3)$$

Based on Equation (3) it can be interpreted:

Multiple linear regression = + (same direction)

− (opposite direction)

C = 10.92934 means that it will continue to increase without the X_1, X_2, X_3, X_4, X_5, X_6 variables

X_1 = 1.242253 means that x1 increases, then y will increase (unidirectional)

X_2 = -0.386610 means that y is increasing, x is decreasing (opposite direction)

X_3 = 0.421898 means that x3 increases, then y will increase (unidirectional)

X_4 = -2.447995 means that y is increasing, x is decreasing (opposite direction)

X_5 = 0.624805 means x5 increases, then y will increase (unidirectional)

X_6 = -0.002798 means that y is increasing, x is decreasing (opposite direction)

The t-test is used to determine the extent to which an individual independent variable influences the dependent variable. This test is conducted by comparing the significance level (α) with the p-value. If the p-value is less than α (typically 0.05), then the null hypothesis (H_0) is rejected, indicating a significant partial effect of the independent variable on the dependent variable. Con-

versely, if the p-value is greater than α, no significant partial relationship is concluded. Judging from the probability value, if the value is < 0.05, then the influential variable (positive/negative) is based on the regression value.

T Table = 5.016

T Count > T table and Prob < 0.05

Has a positive and significant effect on Y

Table 2. Model summary table.

Dependent Variable: Y
Method: Panel Least Squares
Sample: 2001 2020
Periods included: 20
Cross-sections included: 1
Total panel (balanced) observations: 20

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.92934	17.30133	0.631705	0.5385
X_1	1.242253	0.569119	2.182766	0.0480
X_2	−0.386610	0.317305	−1.218419	0.2447
X_3	0.421898	0.289363	1.458026	0.1686
X_4	−2.447995	1.174151	−2.084906	0.0574
X_5	0.624805	0.516553	1.209564	0.2480
X_6	−0.002798	0.071668	−0.039040	0.9695
R-squared	0.631775	Mean dependent var		4.911534
Adjusted R-squared	0.461825	S.D. dependent var		1.775454
S.E. of regression	1.302481	Akaike info criterion		3.635636
Sum squared resid	22.05393	Schwarz criterion		3.984142
Log likelihood	−29.35636	Hannan-Quinn criter.		3.703668
F-statistic	3.717414	Durbin-Watson stat		1.941888
Prob(F-statistic)	0.022441			

Sources: Data processing (2024).

Based on the test results, the T variable has a value of 5.016, with a corresponding probability value of less than 0.05. According to the established test criteria, a *p*-value of less than 0.05 indicates that the T variable has a significant effect on profitability. Meanwhile, the F-statistic test evaluates the combined effect of all independent variables on the dependent variable. This test involves comparing the significance level (α) with the *p*-value. If the *p*-value is less than α (typically 0.05), the null hypothesis (H_0) is rejected, suggesting that the independent variables collectively have a significant impact on the dependent variable. Conversely, if the p-value exceeds α, H0 is accepted, indicating no joint influence of the independent variables on the dependent variable.

F_{Table} = 5.078

$F_{Count} > F_{Table}$ and Prob < 0.05

63.17%

The test above shows that the independent variable has a value of < 0.05, where the probability value is below 0.05. Thus, according to the provisions in the test criteria, if the probability value is < 0.05, it can be concluded that the variables jointly affect profitability.

Determination Test: This study employs the t-test and F-test, to determine whether a variable has a two-way or one-way relationship. The findings of the determination test are displayed in the table above. The table shows that the exports and imports of agribusiness activities have a significant impact on GDP. This is indicated by the value of the probability of exports, imports, and investment being less than 0.5, which rejects the null hypothesis (H0). Meanwhile, GDP does not affect exports and imports, with a p-value greater than 0.05. Thus, the null hypothesis (H0) is accepted. Additionally, the magnitude of the contribution per year from exports, imports, and investment to agricultural GDP from 2001 to 2020. This occurs because exports and imports utilize fresh products, while GDP employs both fresh and processed products. Investment on the other hand, utilizes Domestic Investment (PMDN) and Foreign Direct Investment (FDI) values. The results of this study differ from those of Batubara [29], who concluded that exports and imports do not significantly affect economic growth. This indicates that the results of exports have impacted the growth of national economic output, and changes in the value of imports have contributed to growth in the Indonesian economy's output. Djokoto [30] said that for-

eign direct investment affects agricultural GDP growth. This means that an increase in foreign direct investment has a positive effect on agricultural GDP growth, and the government does not need additional incentives to boost agricultural GDP growth. Between 2001 and 2020, Indonesia experienced a trade balance deficit in the agricultural sector, resulting from the value of imports exceeding the value of exports. According to Tambunan [31] excessive imports can cause foreign exchange reserves to deplete, leading to a shortage of funds to finance the domestic production process, which in turn results in a decrease in production volume. Between 2001 and 2020, the GDP significantly affects exports, imports, and investment, with a probability value of less than 0.05. Thus, the null hypothesis (H0) is rejected, or Ha is accepted. The higher agricultural GDP will encourage the government to increase exports.

5. Discussion

These results are consistent with those of Ratnawati [32], which concluded that Gross Domestic Product (GDP) growth has a positive effect on increasing the value of exports. This happens because GDP growth encourages variations in export products, which in turn further enhances export performance. Additionally, GDP will also impact imports. Agus et al. [33] state that GDP affects imports, where increased GDP can be used as a source of financing for imports. This import is not only for consumption and industrial raw materials, but also used for seeds by investors who will invest in export commodities. Seed imports are carried out to obtain seeds of superior varieties that are currently limited or not yet available in Indonesia, including those for oxen, horses, freshwater ornamental fish, garlic, and rice. Furthermore, GDP affects investment; if GDP increases, investment is likely to increase as well. Kubaje et al. [34] stated that, simultaneously, GDP affects foreign direct investment. This happens because the increasing GDP will attract investors to invest in Indonesia.

Meanwhile, imports affect exports, while exports do not affect imports, as the value of exports is less than the value of imports, resulting in a trade balance deficit, likewise with investment and imports. Investment affects imports due to the large number of investors who utilize imported seeds to invest in the agricultural sector. In contrast, imports do not significantly impact investment, despite the high public demand for consumption, as the number of investors in the agricultural sector has declined. Different conditions occur in investment and exports. Investment does not affect exports, and exports do not affect investment. This occurred because, during 2001–2020, the value of investment tended to increase, while the value of exports was less than the value of imports. The small export value of these fresh products does not significantly affect investors' decisions to invest in the agricultural sector, as most of the products are exported in a processed form. The results of this study align with those of Oktaviani et al. [13], Lihan [27], and Adeleye et al. [35], which indicate that exports, imports, and investment have a significant impact on economic growth.

6. Conclusion

Based on the results of the Determination Test conducted, it can be seen that the exports and imports of agribusiness activities significantly impact GDP/economic growth, as indicated by the probability values of exports, imports, and investment. The amount of contribution per year from exports, imports, and investment to agricultural GDP during 2001–2020. This occurs because exports and imports use fresh and processed products, while investment uses Domestic Investment (PMDN) and Foreign Direct Investment (FDI) values. Between 2001 and 2020, Indonesia experienced a trade balance deficit in the agricultural sector, resulting from the value of imports exceeding the value of exports. Between 2001and 2020, the GDP significantly impacted exports, imports, and investment. Investment does not affect exports, and exports do not affect investment. This happened because during 2001–2020, the value of investment tended to increase while the value of exports was less than the value of imports. The small export value of these fresh products, does not significantly affect investors' decisions to invest in the agricultural sector, as most of the products are exported in a processed form.

7. Recommendations

Based on the description above, several follow-up alternatives are as follows:

1. Need to maintain the GDP growth so that it can increase the value of exports, imports, as well as labor, land, and transportation, which is very effective for the quality of agriculture in Indonesia.
2. It is hoped that the government will continue to increase exports, imports, as well as labor, land, and transportation, because it has an excellent opportunity to make a large contribution to the growth of agricultural GDP in Indonesia.
3. It is recommended that the government strengthen the Indonesian economy by boosting exports and minimizing imports. This can be achieved by expanding export markets and enhancing the quality of locally produced goods. A trade surplus, where exports exceed imports, can contribute positively to the nation by increasing foreign exchange reserves. In addition, the government should also be able to reduce its debt from abroad. Although this may initially increase foreign exchange reserves, the subsequent payments will reduce these reserves, as well as the interest on these debts.
4. Based on the conclusions above, the researchers suggest that in determining export and import policies related to a country's national income, the government can provide capital assistance or facilities and infrastructure for the processing industry in the agribusiness sector.

Author Contributions

Conceptualization, A. and I.M.; methodology, A.A.A.; software, S.A.Z.P.; validation, O.M.P.H. and J.F.T.; formal analysis, J.F.T.; investigation, O.D.; resources, S.A.Z.P.; data curation, A.; writing—original draft preparation, I.M.; writing—review and editing, A.A.A.; visualization, O.D.; supervision, A.; project administration, O.D.; funding acquisition, A. All authors have read and agreed to the published version of the manuscript.

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