

## DETERMINE REGIONAL STRATEGY IN IMPROVING THE COMPETITIVENESS OF AGRICULTURAL COMMODITIES IN GLOBAL MARKETS

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### ABSTRACT

- Purpose** : *Trade liberalization has affected Indonesian economy. The country success in international trade is truly determined by the regional sectoral competitiveness. The government recognized that agricultural commodities have higher degree of vulnerability to global trade pressures due to weak competitiveness. This study tried to identify the regional strategies that could be taken by the government in improving the competitiveness of agricultural commodity and determine the optimal solution that need to be considered.*
- Design/Methodology/ Approach** : *To determine the position of agricultural competitiveness, we calculate using Revealed Comparative Advantage (RCA), Revealed Comparative Trade Advantage (RCTA), and Trade Specialization Index (TSI) for some strategic commodities in agricultural Indonesia to export destinations.*
- Findings** : *The results show that Indonesia experienced a decline in their competitiveness in global trade. It has been proved from the comparison over time and with other export countries. This study proposes regional strategy to improve national competitiveness based on their regional competitiveness.*
- Keywords** : *Competitiveness; Policy Strategies; Agricultural Commodities*
- JEL Classification** : *R50, R58, Q58*

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### INTRODUCTION

Increased globalization makes Indonesia must deal with global trade competition. As a country with an open economy, Indonesia must accept trade openness with other countries. As an example, products imported from other countries that want to enter Indonesia market should no longer be inhibited by tariff or no tariff barrier. And, the products from Indonesia that want to enter their domestic market should get the same rights. So, globalization makes each country to specialize in their products for export market to compete in global trade. Developed countries such as America, European countries and Japan have been specialized in technology

products (Barrientos, Gereffi, & Rossi, 2011). While developing countries are like Indonesia and Brazil specialize in exporting agricultural products. Indonesia's export of palm oil reached 7.74% of total export in 2016, while Brazil with its soybeans reached 8.35% (UN Comtrade, 2016). The Indonesian market has already filled with imported products from advanced countries, especially in information technology. Not only that, domestic market on basic agricultural commodities also competed with imported products (Orams, 1999). For example, horticultural products like fruit from China is freely sold in traditional market in Indonesia. And this competition has been pulled out local farmers to enter the market. Indonesian native fruits have started rarely available on the market except at harvest time or at a higher price.

The impact of globalization is the market liberalization. That is, the market has started to walk with a mechanism (self-mechanism) (Bair, 2005). Liberalization began to reduce the role of government in the market. All obstacles to trade, called trade barriers, that the government act as a form of market intervention should be removed, as fiscal policies, taxes, tariffs, subsidies, and labor. With the liberalization, the market started its own to carry out the mechanism of supply and demand as well as the price mechanism. That is every supplier/producer is free to carry out the strategy to control the market, both production and marketing strategy. With liberalization in the market, ones who produce or sell at a price below the market, will dominate the market. While other who took higher sale margin will then face losses in the market. Remember that Indonesian Gross Domestic Product has been supported by household consumption which grew to 5.01% (yoy) with a share of 55.32% in 2016 (BPS, 2016). Without it, the economy would reflect the impact of globalization to the domestic market. What happen was when the liberalization took place in domestic market, almost all industry has slower their productions due to market competition with import products, especially in agricultural products. Imported agricultural products have affected the domestic market, including modern retail markets. The price for the same the same products became high but there were no substitute products that came from local producers in the market. This puts pressure on manufacturers of the agricultural sector and domestic processing because they cannot sell Their products in their own markets as a result of imported products. This reduces the ability of them can remain in production and even develop their potential to expand the market to other countries (Dicken, Peck, & Tickell, 1997).

There are various agriculture commodities that are strategic for Indonesia. They become source of revenue and can improve the welfare of its people. The top leading agriculture commodities in Indonesia are coffee, palm oil, cacao, and

rubber. In 2016, total area for coffee and palm oil reached 1.2 million ha each. While cocoa plantation was 1.7 million and rubber 3.6 million ha (BPS, 2016).

By looking this condition above, the competitiveness of Indonesian commodities in its own domestic market should be improved. Commodities that produced domestically has shown difficulties to compete with the imported products that come with better products and price. We think at least these two factors that affect the ability of imported products to dominate domestic market. Imported products what want to take market share somehow offered cheaper price that the domestic markets have (Jondrow, et. al, 1982). Other than that, developed countries have better technology in producing the same type of products thus will give advantages to sell them in developing countries, like Indonesia. Although they faced with many barriers, but now under liberalization they are able to take more market share of the domestic market. Among the industry sectors, agriculture producers and processing industries in Indonesia is considered very vulnerable in this globalization. Some of them will be burdened by high production cost and inefficiency, surviving in their own market due to the expansion of imported products.

By this reason, there should be an empirical explanation that could indicate how regional strategy to improve their competitiveness of agricultural commodities. This study will analyze the competitiveness of Indonesian commodities in the global market. And used this as the framework for regional strategy to expand their market. The method to be used is the Revealed Comparative Advantage (RCA), Revealed Comparative Trade Advantage (RCTA), and Trade Specialization Index (TSI). By using multiple methods of analysis, this study is expected to provide an explanation the competitiveness of commodities. The scope is limited only for strategic commodities for Indonesia in agricultural products.

## RESEARCH METHODS

This study compiled related data from Ministry of Trade database from 2012 to 2016, that can be used to measure the competitiveness of agricultural products of Indonesia in the global trade. The hypothesis in this study was initial allegation related to a decline in competitiveness in Indonesia agricultural products. This is done by performing the calculation associated with various measurement, developed by Leishman, et al. (1999).

### Revealed Comparative Advantage (RCA)

To determine the competitiveness of Indonesian agricultural commodities to other countries to use the RCA, using the following formula:

$$RCA = \left[ \frac{X_{i,n}/X_{a,n}}{X_{i,w}/X_{a,w}} \right] \dots\dots\dots [1]$$

Where:

- $X_{(i,n)}$  = Value of commodity  $i$ , from country-  $n$
- $X_{(a,n)}$  = Value of total exports of the country-  $n$
- $X_{(i,w)}$  = World Value of commodity-  $i$
- $X_{(a,w)}$  = Value of total world exports

RCA is based on Ricardian trade theory, which mentions that patterns of trade are measured by their relative differences in productivity. This RCA index can be used to provide general indication and first approximation of a country’s competitive export strengths. When a country has an RCA for a given product that greater than 1 (>1), it is inferred to be a competitive producers and exporters of that product relative to other country producing and exporting the same product. The higher value of RCA, the stronger the competitiveness of commodity- $i$  from a country.

**Revealed Comparative Trade Advantage (RCTA)**

Beside RCA, another way to determine the competitiveness of the agricultural commodities in Indonesia to other countries is to use RCTA. The difference between RCA and RCTA is whether the import also take into consideration. RCTA use both export and import performance for the same product. While RCA only looks at the export performance of a commodity from one country to compared with other countries. RCTA index is calculated using the following formula:

$$RCTA = \left[ \frac{X_{i,n}/X_{i,w-n}}{X_{a-i,n}/X_{a-i,w-n}} \right] - \left[ \frac{M_{i,n}/M_{i,w-n}}{M_{a-i,n}/M_{a-i,w-n}} \right] \dots\dots\dots [2]$$

Where:

- $X_{(i,n)}$  = The value of commodity exports from country-  $n$
- $X_{(i,w-n)}$  = The value of exports of commodity  $i$  of other than country-  $n$
- $X_{(a-i,n)}$  = Value of exports commodity other than  $i$  from country-  $n$
- $X_{(a-i,w-n)}$  = Value of exports commodity other than  $i$  from country other than-  $n$
- $M_{(i,n)}$  = Value of imports commodity  $i$  from country-  $n$
- $M_{(i,w-n)}$  = Value of imports commodity  $i$  from other than country-  $n$
- $M_{(a-i,n)}$  = Value of imports commodity other than  $i$  from countries- $n$
- $M_{(a-i,w-n)}$  = Value of imports commodity other than  $i$  from country other than-  $n$

RCTA index is calculated by considering export and import competitiveness. Both performances will determine the level of competitiveness of commodity- $i$  from a country. If the value of RCTA is greater than zero (>) then the country has higher competitiveness from the commodity, while on the other side,  $RCTA < 0$  means that the country has no competitiveness to the product in the global trade.

### **Trade Specialization Index (TSI)**

The TSI method is the most commonly used measure of competitiveness. This index shows the tendency of a country to act as an exporter or as an importer country related to a particular product. TSI is calculated using the following formula:

$$TSI = \left[ \frac{X_{i,n} - M_{i,n}}{X_{i,n} + M_{i,n}} \right] \dots \dots \dots [3]$$

Where:

$X_{i,n}$  = Value of commodity-  $i$  exports from country-  $n$

$M_{i,n}$  = Value of commodity-  $i$  from country-  $n$

This index is calculated by considering the value of exports and imports of a commodity. The range for TSI is between 1 and -1. If the TSI is greater is zero ( $>0$ ) then the commodity has strong competitiveness and the country has the potential to export these products. If the  $TSI < 0$  then the country does not have the competitiveness and tend to be the importing country.

### **Commodities Strategy**

This study only analyzed the competitiveness index for agricultural commodity. The commodity to be taken as the research objects are one that belong to the national development strategy for plantation crops, include coffee, palm oil, cocoa and rubber. These commodities are considered to have enough competitiveness in the global trade.

After we determined the competitiveness level of Indonesian agricultural commodities, we then do a comparative analysis. The index will be compared with other exporting countries that also lead the global trade. This will show where the position of Indonesia against competitor countries in the international market. In addition, the competitiveness of Indonesian agricultural commodities will also be compared with time. This comparison will show how the development of the competitiveness of Indonesian commodity over time, i.e. from 2012, 2014, and 2016. This study will use competitor countries based on superior commodities because each commodity is different in its comparative advantage. For commodities, coffee, oil palm, cocoa and rubber comparator country respectively, are Vietnam, Malaysia, Ghana, and Thailand.

## **RESULTS AND DISCUSSION**

Based on export data, Indonesia strategic agricultural commodities experienced a decline in exports from 2012 to 2016. For the coffee commodity, Indonesia experienced a decline in exports by 19% in the last 4 years. Indonesia's palm oil commodity also experienced dropping export by 18% in the same period. Cocoa and rubber Indonesia decreased significantly in 2016 compared to 2012, which amounted to 78% and 57% (Ditjenbun, 2015). The same thing when viewed from the total value of Indonesian exports. From this period, the export value of Indonesia experiences an overall decrease of 24%. It shows both the overall Indonesian exports as well as of national strategic commodities decreased performance.

When compared to the trade balance of the period, Indonesia suffered a deficit and a surplus is only at the stage in 2016. Indonesia has decreased in the value of imports for coffee and rubber commodities. It shows an increase in the production of coffee and rubber commodities in the country so that domestic demand for these commodities can be fulfilled and resulted in the value of imports to be reduced. Improvement of coffee production in Indonesia is indeed the case in the province of Aceh, Lampung, South Sulawesi, and West Java (BPS, 2016). As for oil palm and cocoa, an increase in the value of imports. For palm oil imports increased value does not lead to trade deficits. As for the increase in the value of imports of cocoa turned out to cause a deficit since 2014. Nevertheless, the overall value of imports in Indonesia experienced decreased by 29%. Despite a decline in the value of imports, there is a national strategic agricultural commodity such as cocoa being subjected to pressure in the context of global trade.

Conditions that decrease the value of exports and imports not only in Indonesia but has become a common condition of the world. The decline in world export value has reached 48% and the import value reaches already reached 44% in this period. This is an indication of a slowing world economic growth in the context of international trade (Porter, 1990; Rugman & Porter, 2017). For coffee, oil palm, cocoa, and rubber, also occurs a drop in *n* value of exports and imports in the world in general (exclude world oil exports) in the period. Major exporting countries also experienced a decline in the value of exports and imports (except the value of Vietnam's coffee imports). Vietnam has decreased the export of coffee (32%), Malaysia experienced a decline in exports of palm oil (24%) and a drop in imports (14%), Ghana experienced a decline in exports of cocoa (4%) and a drop in imports (87%), and Thailand experienced a decline in exports rubber (43%) and a drop in imports (1%) in this period. So, there is no indication of declining performance international trade to become a negative signal for strategic commodity of Indonesia. What is more important in conditions of international trade is how the competitiveness of the national strategic agricultural commodities.

**Table 1**  
**Competitiveness**

	<b>Year</b>	<b>Coffee Vietnam</b>	<b>Palm Oil Malaysia</b>	<b>Cocoa Ghana</b>	<b>Rubber Thailand</b>
RCA	2012	19.07	60.01	299.53	25.61
RCA	2014	8.71	22.11		26.26
RCA	2016	8.13	22.71	602.24	54.24
	<b>Year</b>	<b>Coffee Indonesia</b>	<b>Palm Oil Indonesia</b>	<b>Cocoa Indonesia</b>	<b>Rubber Indonesia</b>
RCA	2012	4.05	108.5	4.86	27.82
RCA	2014	2.33	46.22	2.81	26.75
RCA	2016	3.81	47.19	1.98	53.64
	<b>Year</b>	<b>Coffee Indonesia</b>	<b>Palm Oil Indonesia</b>	<b>Cocoa Indonesia</b>	<b>Rubber Indonesia</b>
RCTA	2012	3.78	15.24	4.05	36.95
RCTA	2014	2.23	102.56	-0.34	38.09
RCTA	2016	3.8	117.24	-0.56	148.68

	Year	Coffee Indonesia	Palm Oil Indonesia	Cocoa Indonesia	Rubber Indonesia
TSI	2012	0.83	1	0.72	0.98
TSI	2014	0.91	1	-0.27	0.98
TSI	2016	0.91	1	-0.37	0.98

*Source: Author computation*

RCA from all strategic agricultural commodities shown in Table 1 indicated that for Indonesia it has a positive value, thus it means that the commodity has strong competitiveness in global grade. However, to know how this competitiveness grow over time, it is necessary to compare this indicators over time and with other export countries (Ragimun, 2007). For coffee products, Indonesia experienced a decline RCA from the value 4.05 in 2012 to 3.8 in 2016. This also happen to other export products such as oil palm and cocoa. The value for palm oil products, Indonesia also experienced a decline RCA from 108.49 values becomes the value of 47.18. For cocoa, Indonesia decreased RCA, from 4.85 values becomes the value of 1.97. Meanwhile, for rubber products, Indonesia experienced an increase in RCA, from 27.82 in 2012 to 53.64 in 2016. So, it is in general, the competitiveness of Indonesia's strategic agricultural commodities declined when viewed over time.

Furthermore, the competitiveness of Indonesia's strategic agricultural commodities also turned out to be below the export countries (except palm oil). First, the competitiveness of Indonesian coffee was under Vietnam. In Table 1, we can know that the value of RCA index at the same period, Indonesian coffee commodity has RCA value under Vietnam. As an illustration, the value of the coffee commodity RCA Indonesia in 2016 was 3.80, while the value of RCA Vietnam is 8.17. The competitiveness of Indonesian cocoa from Ghana also below, where the value of Indonesian cocoa RCA in 2016 only on the value of 1.97 (Ghana reached more than 10 times that of Indonesia). Indonesia's competitiveness slightly below Thailand. RCA value of rubber Indonesia in 2016 reached a value of 53.64, while Thailand could reach a value of 54.24. However, for palm oil, Indonesia's competitiveness is above Malaysia, with RCA Indonesia in 2016 reached a value of 47.17 while Malaysia only reached a value of 22.71.

In general, the competitiveness of Indonesia's strategic agricultural commodities in global trade was below the export countries. In addition, the calculation of RCTA and TSI did confirm this result. Unlike the TCA, both calculations take into consideration both of export and import side. From the data export and import value of Indonesia's strategic agricultural commodities, a decline in the value of exports of strategic commodities. There is a decline in the value of imports for coffee and rubber. For the commodity of palm oil and cocoa, there is an increase in import value. Thus, RCTA and TSI calculations will be slightly different from RCAs as they are influenced by the change in import value.

The results show that palm oil and cocoa products experience more comparative in RCTA and TSI. This is in line with the results from RCA. And for cocoa, RCTA and TSI is below zero at the last two period. It indicated that Indonesia loss its competitiveness in the global trade. Coffee and rubber products shown to have potential competitiveness edge when viewed from the RCTA and TSI.

**Table 2**  
**Regional Strategy**

	Area (ha)			
	Coffee	Palm Oil	Cocoa	Rubber
Sumatera	793,549	6,393,364	436,180	2,571,955
Java	87,376	6,742	86,947	139,662
Bali & Nusa Tenggara	14,343	-	80,226	504
Kalimantan	1,669	4,177,368	28,868	907,355
Sulawesi	15,072	39,224	976,888	13,634
Maluku & Papua	4,648	54,767	111,665	5,939
<b>Indonesia</b>	<b>1,246,657</b>	<b>1,201,465</b>	<b>1,720,773</b>	<b>3,639,048</b>
	Production (ton)			
	Coffee	Palm Oil	Cocoa	Rubber
Sumatera	463,504	19,856,284	154,462	2,568,507
Java	102,397	60,294	34,863	128,851
Bali & Nusa Tenggara	44,142	-	20,731	344
Kalimantan	6,805	10,729,133	8,798	649,617
Sulawesi	44,130	921,359	409,024	6,447
Maluku & Papua	2,893	163,891	30,520	4,185
<b>Indonesia</b>	<b>63,871</b>	<b>1,730,961</b>	<b>658,399</b>	<b>3,357,951</b>
	Productivity (kg/ha)			
	Coffee	Palm Oil	Cocoa	Rubber
Sumatera	742	3,793	852	1,173
Java	745	1,997	805	1,418
Bali & Nusa Tenggara	569	-	619	953
Kalimantan	513	3,369	687	870
Sulawesi	621	3,157	815	671
Maluku & Papua	455	1,590	586	896
<b>Indonesia</b>	<b>714</b>	<b>3,588</b>	<b>798</b>	<b>1,104</b>

Source: BPS (2016)

Knowing the comparative advantage of Indonesia agricultural commodities in global trade, this study proposes how regional strategy improve this competitiveness to create regional economic growth in Indonesia. Table 2 showed how each region can contribute to improve it. For coffee products, regions like Sumatra and Java can be targeted to expand their production at national level. Their productivity level were above other regions in Indonesia, around 750 kg/ha. For palm oil, regions like Sumatra and Kalimantan should be the central for national production. The production and total area for palm oil were dominated from these regions. For Cocoa, region in Sulawesi should be the central for national production. It has reached 410 thousand ton each year of cocoa from this region. Rubber product was dominated from Sumatra, only because they have the higher total cultivation area, not because of their productivity that has below Java. From this result, each region can contribute different strategy on how to improve national competitiveness of agricultural products. With differentiation of central production of agricultural products, it will help Indonesia to improve their competitiveness in global market.

## **CONCLUSION AND SUGGESTION**

### **Conclusion**

The competitiveness of Indonesia's strategic agricultural commodities is weakening. This is indicated by the results of the comparison between time and the results of the comparison between exporting countries. Coffee, palm oil, cocoa, and rubber commodities have decreased RCA during the period 2012-2016. Moreover, the RCA for strategic commodities would fall under other exporters of competitor countries (coffee = Vietnam, palm oil = Malaysia, cocoa = Ghana, rubber = Thailand). Indicator of RCTA and TSI shows oil palm and cocoa experienced declining on competitiveness.

### **Suggestion**

When international trade declining, trade competition should be anticipated by increasing the competitiveness of strategic commodities. Therefore, there should be the anticipation from the government to improve the competitiveness of these commodities, especially in commodities of palm oil and cocoa. Each region needs to contribute in their competitive advantage in producing national agricultural products.

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