

II. LITERATURE REVIEW

A. Agricultural Sector Policy in Indonesia

Indonesia had four phases of agricultural policy implemented from the year 1960-2012. In the year 1960-1980 was the policy period with a focus on agricultural rice extension and better adoption of agricultural technology. This first policy was undertaken and proposed at the time of Mr. Suharto's position as a president. At this time, several sectors of agriculture successfully increased significantly and were successfully distributed for large regions and small regions in Indonesia. The policies included, the basic price, distribution of agricultural products, subsidies for fertilizer and pesticides, credit with easier access and irrigation developed.

The year of 1980-1996 was the second stage in Indonesia's agricultural policy development. This second phase was heavily influenced by world's oil prices that have decreased. As a result, the budget in the agriculture sector has become limited. For instance, corn and soy have undergone regulatory arrangements of the market mechanisms. Meanwhile on international trade some barriers have been eliminated. Furthermore, import regulations on agricultural products especially rice has been regulated by the Agency for Logistics (BULOG).

The third period was in the year 1997-1999, which was the financial crisis occurring in Indonesia and Asia. At this stage there is a slowdown in economic activity. The impact was Indonesia had to obey the program and adjustments made by the International Monetary Fund. Based on this membership, Indonesia already owns

and qualified to acquire a business and joined the IMF program to eliminate the impact of the existing crisis. Food security is one of the Government's attention, therefore the government delegates BULOG to take care of the rice trade. Eliminating tariffs and import quotas are introduced to support free trade, not only that the government also eliminates fertilizer subsidies. Subsidized rice distribution also carried out as a poverty reduction known as "Rice for the Poor (RASKIN) ".

In the year of 2000 to this day is the fourth stage in Indonesian agricultural policy. The Government has special attention to agriculture in Indonesia. The government issued seed subsidies and fertilizers to support the agricultural sector. The Ministry of Trade also conducted an import ban on rice and sugar commodities aimed to protect the domestic market. Not only the regulation in international trade, but also the development of a good irrigation system and prohibition to the transshipment of agricultural output carried out by the government.

Statistical Data showed that in the year 2000s, agricultural sector contribution had significantly decline in GDP of Indonesia. Besides in 2006-2015, the ratio of agricultural sectors to GDP declined about 0.85 percent annually. At the same time, the ratio of the service sector to GDP increased 1.02 percent annually (ASEAN, 2016b). The decline in the GDP significantly did not eliminate the agricultural contributions on the odds of 33 percent of Indonesian people's job.

On the other hand, by the increased open trade policies as applied in Indonesia has significantly increased the risk of external shocks on the domestic economy, particularly on the welfare of the Indonesian people. It can be concerned on how much

of an impact that will be distributed, and through which mechanisms, is an important empirical question to know, both for business and also for the government, especially in designing the policy.

In Indonesia, economic diplomacy has become one of the priorities, especially in the foreign policy of Indonesia, especially under the current government (of President Joko Widodo). The Indonesian president said that all ambassadors of Indonesia should act as sales persons, placing 90 per cent of attention on the economic aspects and only 10 percent on political aspects (Susilo, 2014). Jokowi as President of Indonesia wants access globally to encourage the export volume of Indonesia. In doing so, activity such as the development of Indonesia's exports, it might be the ultimate help for economic and welfare of Indonesia.

B. State-owned Enterprises in Indonesia

Based on ministerial regulation of state-owned enterprises number: PER-01/MBU/2012 *BUMN (Badan Usaha Milik Negara)* or State-owned Enterprises is a business entity that almost all or mostly capital owned by the state through direct inclusion of the originating and the richness of the separated country. History shows that the main purpose of the establishment of state-owned enterprises in Indonesia in the 1950 era was to accommodate the Dutch companies in getting nationalization or transforming the ownership by the Indonesian government. At that time, BUMN was known as State Enterprises. The main vision for the establishment of BUMN is to build the competitiveness and to build a global economic recovery locomotive. BUMN has

three types of companies there are Persero (which includes the company and open company companies) and *Perum*.

One of the priceless Indonesian culture is its fertility. This causes Indonesia to be known as the agriculture country and this nation has the idealism to increase economic through agriculture sector. Table 4. showed the list of Plantation state-owned enterprise of Indonesia.

Table 1. Plantation State-owned Enterprise of Indonesia

No.	Company Name	Commodity
1.	PTPN I (Persero)	Oil palm, rubber, and cocoa
2.	PTPN II (Persero)	Oil palm, rubber, cocoa, sugar and tobacco
3.	PTPN III (Persero)	Oil palm and rubber
4.	PTPN IV (Persero)	Commodity of palm oil, cocoa and tea
5.	PTPN V (Persero)	Oil palm, rubber, and cocoa
6.	PTPN VI (Persero)	Oil palm, rubber and tea
7.	PTPN VII (Persero)	Oil palm, rubber, tea, cocoa, sugarcane and horticulture
8.	PTPN VIII (Persero)	Tea, rubber, quinine, cocoa, palm and gutta percha
9.	PTPN IX (Persero)	Tea, rubber, coffee, cocoa and sugarcane
10.	PTPN X (Persero)	Sugarcane, tobacco and fiber crops
11.	PTPN XI (Persero)	Sugar cane
12.	PTPN XII (Persero)	Robusta/Arabica coffee, Cocoa Edel/bulk, rubber and tea and horticultural
13.	PTPN XIII (Persero)	Oil palm and rubber
14.	PTPN XIV Persero)	Palm oil, rubber, cocoa, hybrid coconut, Nias coconut/tall, nutmeg, coffee and cultivation of sugarcane
15.	PT Rajawali Nusantara Indonesia (RNI)	palm oil, sugar and tea

Based on Table 4. can be known that the commodity of oil palm plantation and rubber are the main commodity developed by state-owned enterprises Indonesia. Not

only in state-owned, but also the private sector has a significant increase in oil palm and rubber plantation. The companies are PT. Astra Agro Lestari Tbk, PT. Tunas Baru Lampung Tbk, PT. London Sumatra Tbk. and Malaysian foreign companies.

In addition to SOE (State-owned Enterprises) in the field of agriculture, Indonesia also has SOE supporting in agriculture. State-owned enterprises of agricultural support are 1 (one) Fertilizer Company, PT PUSRI, 2 (two) Seed Company, PT SHS and PT Pertani., 3 (three) Irrigation Company, PT Jasa Tirta I & II, and 4 (four) Perum Bulog.

C. Agricultural Commodities in Indonesia

Indonesia is a country who disposed their economy from agricultural as the main sector. However, the advance of industrialization and urbanization attracted the rural citizen precisely the farmers to leave the agricultural field. The farmers try to get other jobs in a non-agricultural sector for the better life.

The performance of major agricultural commodities in the last decade has been quite good in some commodities. The Indonesian agricultural export commodities, however, remains facing various challenges, most of them are very structural in nature, such as low-yielding smallholder crop systems, sustainability pressures, low-quality of production, underinvestment, inadequate infrastructure, underdeveloped agricultural practices and restrictive government policies. Table 5. showed the Indonesian Exports and Imports in 2016.

Table 2. Indonesian Exports and Import of Selected Agricultural Commodities to ASEAN in 2016 (in million US)

No	Description	Export	Import
1	Rice, Including Husked and Broken Rice	1	532
2	Banana Fresh	11	-
3	Pineapple Production Excluding Fresh	152	0
4	Mangoes, Guava, and Mangoesteen	23	33
5	Palm oil	14,367	4
6	Coconut Oil	816	10
7	Cake of Coconuts	39	0
8	Soybeans	0	959
9	Sugar and Honey	225	349
10	Coffee, Green, Husk, Roasted	1008	48
11	Tobacco	947	507
12	Crude Rubber	3373	33

(-): data not available. Source: (ASEAN, 2016a)

Regarding trade activity in Table 5. the export of Indonesia's commodities in agriculture has big amount in oil palm tree, rubber, and coffee. Some commodities such as rice, soybeans, tobacco, and sugar are imported in big scale to Indonesia. However, that should be several reasons that might explain these conditions in many ways.

Rice is the main food in Indonesia, that way, in Asia, Indonesia is the third largest rice producer after China and India. To encourage the farmers, Indonesian government pays a purchase of rice higher than the International market price through the Bureau of Logistics (BULOG), a state-owned enterprise. In 2015, Indonesia was able to produce 75.4 million tones. The government from Ministry of Agriculture (MoA) purchases the rice for two main purposes: to sell subsidized rice to poor families and to stabilize the price of rice at the retail store.

In the terms of International trade of rice, BULOG was the one only that be able to import the rice with medium-quality, the other companies such as the private companies allowed to import especially importing rice. In December 2015, the Minister of Trade stipulated in Regulation 103/2015 that japonica rice was permitted to be imported into Indonesia. In order for japonica rice imports to resume, the MoA had agreed to issue import recommendations. However, since the end of 2014, the MoA had not permitted any import of japonica rice, citing its similarities with Indonesian varieties (Kwon & Kim, 2015). This trade issue should be arranged as good as possible to get the minimum cost.

Indonesia is the fourth largest coffee producer, after Brazil, Vietnam, and Columbia. For Robusta, Indonesia is the second largest after Vietnam. The total farm of coffee in Indonesia was estimated about 1.3 million hectares, spread from Aceh, North Sumatra, South Sulawesi and Bali for the Arabica coffee. From the regions, the well known as producers of Robusta coffee are in province of Lampung, South Sumatera, and East Java.

In Indonesia, the production of coffee is estimated 85% is Robusta and the 15% is Arabica Coffee. The Arabica grows in the highest land in Indonesia, while the Robusta Coffee grows in the lower land. Coffee grown by small farmers in Indonesia dominantly, but the government also has the coffee plantation which named is government-owned estate (PTPNs).

Indonesia is the second largest of production of natural rubber behind Thailand. Natural rubber in Indonesia has grown about 6,2 percent per year, this number is behind

Malaysia but higher than Thailand. Mostly the production of natural rubber is exported. The quality of natural rubber in Indonesia is not as good as Malaysia and Thailand. This can be because there are no incentive systems and quality controls for the farmer especially the smallholder growers.

According to MoA (Ministry of Agriculture), the oil palm tree plantation area in Indonesia in 2016 is 8 million hectares, this number increase twice as in 2000. In 2020, the area of oil palm tree will be expected to increase to 13 million hectares (Beckman, Dyck, & Heerman, 2017).

Tropical fruit in Indonesia such as mango, guava and mangoestenn could grow in almost all area of Indonesia. This is not showed Indonesia be able to be the exporter of fruit. However, Indonesia is a small player in mango export, far behind the other country in ASEAN and also far behind the Brazil and Mexico in the world market. This because the stakeholders in Indonesia especially in mango industry have not conducted systematic marketing research regarding the consumer preference in the export destination country.

D. Comparative Advantage Theories

David Ricardo, 1817 the author of on the Principles of Political Economy and Taxation was a man coined the economic theory of comparative advantage. In this theory, the main idea is one will produce more and consume less of a good for which one has comparative advantage (Ricardo, 2001). Basically, the theory of comparative advantage contrasted with Adam Smith concept about absolute advantage. The

absolute advantage is the theory about why countries should specialize in doing what they are best (Nik Rozana, N. M. M., Suntharalingam, C. * , and Othman, 2008)

Comparativeness is the productivity which a nation uses its human, capital, and natural resources. Productivity in a macro economy means a combination of domestic and foreign. To be more precious, the productivity ultimately depends on improving the microeconomic capability of economy and sophistication of local competition (Porter, 2009).

The Revealed Comparative Advantage (RCA) is an index used in international economics. The RCA usually counted for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows. The Revealed Comparative Advantage (RCA) which was introduced by (Bella Balassa, 1965) is calculated as:

$$RCA_{ij} = \frac{(x_{ij} / x_{in})}{(x_{rj} / x_{rn})} \quad (1)$$

where :

x : exports

i : a country

j : a commodity

r : the total value

n : the world

In equation (1), x_{ij} the total export of country i for the product classification, x_{in} the total value of export from country i , minus the total export of product. Meanwhile, x_{rj} is the total export from the rest of the world (world) for the product j minus the value of export with similar from country i . Next, x_n is the total export of the world minus the total export value of country i . The formula of RCA_{ij} would result in value between 0 until infinity. RCA value below 1 means that country i does not have comparative advantage for product x ; similarly, if the RCA value is above 1, the product x from country i is having a comparative advantage. The index value of RCA either above or below 1 cannot be compared directly because it is asymmetric.

E. Results of the Previous Research

Many researchers from various countries have done research on the comparative advantages published in the last year. (Tabata, 2006) investigated changes in Russia's comparative advantage in 1994-2005 by Revealed Comparative Advantage index, Revealed Comparative Disadvantage index, and Trade Specialization Index. The results of his work showed the increasing competitiveness of oil and gas exports (and secondarily those of armaments, selected base metals, roundwood, and fertilizers) and declining competitiveness in (and increasing imports of) meat, plastics, and automobile production and stagnation in the machinery sectors.

(Asmara, Purnamadewi, Mulatsih, & Meiri, 2015) investigated the Comparative Advantages and Export Performance of Indonesia Fiber Industry Product and Major Exporter Countries in the World Market, 2008-2012. This showed China and South Korea dominated the world fiber export especially for synthetic fiber.

Next, (Widgrén, 2005) in 2005, examines the comparative advantages of selected countries in Asia, America, and Europe between 1996 and 2002. The study was conducted by calculating the Balassa index using industry data on HS 4-digit level. The main part of the analysis concentrated on the intensity factor of the countries' comparative advantage. Widgren shows that there are several convergences in terms of content factor of comparative advantage among Asian countries, the new member states, and the European Union 15. According to Widgren the comparative advantage of the European Union (EU) has recently been moving towards intensive use in both human and physical capital.

Furthermore, (Serin & Civan, 2019) examined the comparative advantage of Turkish commodities, including tomatoes, olive oil, and fruit juice. They asked how those commodities can progress in the EU market from 1995 to 2005. The researchers did the research because the EU is the largest market for Turkish exports, such as processed fruits and vegetable products. Serin and his partner used the RCA and CEP index. Their results showed that Turkey is very superior in fruit juice and olive oil, but not with tomatoes.

Then, (Rozana, Suntharalingam, & Othman, 2017) examined the ability to be sold of Malaysian fruits in the competitive global agricultural markets. According to the author free trade has increased tropical fruit trade which leads to a wider global competition. Therefore, Rozana did some research to see the position of Malaysian fruit products in competition with other exporters. The researcher was used RCA and CEP index in their studies. They find that Malaysian most superior products are

watermelon and papaya. Malaysia are advised by this paper to focus on developing of watermelon and papaya to maintain their competitiveness.

Another study is in Swaziland (Karambakuwa, 2013) investigated the comparative advantages of Swaziland. They investigated whether Swaziland has comparative advantages in products which are exported to the Common Market for Eastern and Southern Africa (COMESA), Southern African Development Community (SADC), the Southern Africa Customs Union (SACU) and the rest of the world. The researchers indicate that Swaziland has $RCA \geq 1$ on 449 product lines. According to them, chem wood pulp, sulfite, coniferous unbleached have the highest RCA. Other main products of Swaziland are manufacturing and agricultural products. From the paper the authors argued that Swaziland can increase the variety of products which have comparative advantages through attracting foreign direct investment via transnational companies and the exploration of new resources.

Next, (Ishchukova & Smutka, 2013) studied the comparative advantages of Russia in agricultural products and foodstuffs over the period 1998-2010. They use the Balassa index, the Vollrath index, and the Lafay index. The Balassa index is used to identify the groups of products which have comparative advantages. The Vollrath Index is used to show the number of products that already have a competitive advantage, and whether they grow during the period. Due to geographical location and good trade relations with Commonwealth of Independent States (CIS) and Asian countries, the Lafay index is used in regional analysis to show Russian comparative advantages in relation with those countries. From their study, (Ishchukova & Smutka,

2013) show that primary products of Russia (e.g. wheat, cow's milk, sunflower seeds, and others) have comparative advantages compared to the EU and Asian countries. In connection with the whole world, the researchers indicate that the by-products (e.g. bran) have comparative advantages in 1998-2001, while the primary products have comparative advantages in the year 2002-2010.

From all of the previous researches, it can be noted that comparative advantage makes a country more aware of its excellence. In the assessment, this time is on the agricultural sector. Furthermore, it can also be determined location mapping about the location of effective commodity distribution as well as ways to improve it. Another thing to get is comparative advantage be able to describe the country that has the power of a commodity based on its revealed comparative advantage.

F. Framework

