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To cite this article: A D Tombolotutu *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **270** 012056

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Trade Liberalization and Export Competitiveness: A Case Study on Indonesian Seaweed In the Global Market

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Abstract. This research aims to analyze the characteristics of Indonesian seaweed commodities, analyze Indonesian seaweed export competitiveness model in the global market, analyze the Government of Indonesia's efforts to improve the export competitiveness of Indonesian seaweed commodities and analyze the role of actors in increasing the Indonesian seaweed in the global market. This research used mix method analysis quantitative and qualitative, the collected data through primary data derived from Indonesian Seaweed Association and secondary data from United Nations Commodity and Trade, Indonesian Central Bureau of Statistic, Bank of Indonesia, Ministry of Trade. This research found that the characteristics of Indonesian seaweed according to several variables such as export competitiveness, productivity, raw material price, trade liberalization rate, inflation rate, exchange rate, research and investment development, and product differentiation have fluctuated value from 2006 to 2016. The result of regression data shows that interest rate, exchange rate, economic growth, raw material price, farmer wage rate, product differentiation, and liberalization policy has a positive effect on RCA seaweed. Inflation, productivity, nominal protection coefficient, and research development investment have a negative influence on RCA. The prediction on the competitiveness of Indonesian seaweed is that the competitiveness will still increase, but it depends on the economic condition of Indonesia in the future. It is necessary to have synergy between government, private, and universities to increase seaweed competitiveness in the global market.

1. Introduction

Maritime and Fisheries is one of the most important sectors in the world due to the high demand for maritime and fishery products as a source of food, nutrition, and livelihoods of hundreds of millions of people as evidenced by the consumption of maritime and fisheries products per world capita reached 20 kg in 2013 [1]. Indonesia as a maritime country has a huge potential of maritime and fishery resources with a potential amount of 3,000 Trillion Rupiah per year, but which has been utilized only about 225 Trillion Rupiah or about 7.5 percent consisting of superior commodities such as tuna, skipjack, and seaweed [2]. Central Bureau of Statistics [3] stated that the ten largest exporters of seaweed in the world are China, Indonesia, Japan, Chile, United States, Republic of Korea, France, Philippines, Ireland, and Peru. Among those countries, China, Indonesia, Philippines, Republic of Korea, and Japan are the largest seaweed producers in the world. Data from [4] showed that Indonesian seaweed products are considered weak conditions and have lower per-ton export values.



The export value per-ton of Indonesian seaweed is in the eighth place of the world which is around US\$ 10.000. The export value per ton of seaweed Japan, the United States, China and Chile in 2011 amounted to US\$ 174.000, US\$ 120.030, US\$ 52.000, and the US \$12.000, the export value per ton of seaweed from these countries respectively is above Indonesia.

Data from the Ministry of Maritime stated that the lower realization of Indonesia's seaweed export value in the global market is caused by the type of seaweed export products of Indonesia that just dominated by 80 percent seaweed raw material. The high increase of seaweed cultivation production in Indonesia each year is not in line with the increase of absorption capacity of seaweed processing industry in Indonesia which is only 18 units. This situation caused the lower absorption capacity of raw material seaweed products in the domestic market. The lower export price-per-ton of Indonesian seaweed in the global market is also caused by low-quality raw material competitiveness, thus giving effect to the low export price per ton of seaweed.

The Government of Indonesia has the initiative to make efforts to increase seaweed competitiveness as a step to increase profits in the global seaweed trade and increase the welfare of the community, especially coastal communities [2]. Increasing the competitiveness of seaweed products should be done by considering several key factors in improving competitiveness such as the development of innovation to produce products that have high competitiveness. The development of these innovations is done by considering the market opportunity such as the level of demand adjusted for the number of resources owned and then allocated to the appropriate policy mechanism and support the process of developing a focused product.

There are two distinct interests between government and seaweed business actors in seaweed commodities. This is a challenge in an effort to increase the competitiveness of seaweed products in the global market so that the need for synergy between the two parties both government and seaweed business actors, so if the cooperation synergies between the two actors, then the efforts to increase the competitiveness of Indonesian seaweed in the global market can be optimized.

2. Problem Identification

Based on the description of the problems and background of this research the formulation of the issues that raised are: 1) What is the characteristics of Indonesian seaweed commodities; 2) How Influence, Interest Rate, Exchange Rate, Economic Growth, Productivity, Raw Material Price, Nominal Protection Coefficient, Farmer Wage Rate, Investment Research and Development, Product Differentiation, Liberalization Policy Revealed Comparative Advantage (RCA) Seaweed Indonesia; 3) How is the Government of Indonesia's efforts to improve the competitiveness of Indonesia's seaweed commodities; 4) How does the role of actors play in enhancing the competitiveness of Indonesian seaweed commodities?

3. The Characteristic of Indonesian Seaweed

The magnitude of Indonesia's production in the field of marine and fisheries, especially for seaweed commodities is a huge potential for the government to be able to develop the seaweed commodity industry. There are several obstacles in the process of seaweed commodity management although seaweed production in Indonesia is very large. These constraints such as seaweed production in the form of raw materials still have a low quality, when compared with some other seaweed producing countries.

The RCA of Indonesian Seaweed Index tends to increase since the Year 2008 and has the highest increase in the Year 2014 which is 30,82. In 2006 Indonesia RCA seaweed index in the global market was 12,80, and in the year 2016 is 19,31. In the period after the Year 2006, the level of Indonesian Seaweed RCA increased until the year 2008. Then in 2012 until the period of 2015 the development of Indonesian Seaweed RCA has increased significantly. In the year 2011, the number of Indonesian seaweed RCA index of 17.25 and in the Year 2016 is 19.31. The average value of Indonesian seaweed RCA index during the period 2006-2016 is 20.75.

4. Discussion

Multiple Regressions

The Model in this research is linear form. Regression analysis was done by OLS method. The estimated equation is:

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + \beta_7 \ln X_7 + \beta_8 \ln X_8 + \beta_9 \ln X_9 + \beta_{10} \ln X_{10} + \beta_{11} D + e$$

This method is already available in Eviews 7.0. From the regression results found that:

$$Y = -13,333 - 0,089X_1 + 0,296X_2 + 1,835X_3 + 1,418X_4 - 0,778X_5 + 0,0191X_6 - 0,248X_7 + 0,521X_8 - 0,001X_9 + 0,012X_{10} + 1,013D$$

(-3,1081)*** (2,5702)** (3,7226)*** (3,7888)*** (15,5774)*** (6,3236)***
(0,6607) (-4,6379)*** (1,4180) (-0,0142) (0,8474) (13,3269)***

Based on the results of regression analysis found that there are some explanatory variable coefficients are statistically significant and some other variables are not significant. Here are the results of the regression done and obtained then described in the following table:

Table 1. Multiple Regression Result

Dependent Variable: RCA Seaweed

1. Variable	Coefficient	Probabilities	t-statistic	Note
<i>Constant</i>	-13,334	0,0043	-3,1081	-
Inflation (X ₁)	-0,089	0,0158	-2,5702	Significant
Interest Rate (X ₂)	0,296	0,0009	3,7226	Significant
Exchange Rate (X ₃)	1,834	0,0007	3,7888	Significant
Economic Growth (X ₄)	1,417	0,0000	15,5774	Significant
Productivity (X ₅)	-0,778	0,0000	-6,3236	Significant
Price of Raw Material (X ₆)	0,019	0,5142	0,6607	Not Significant
<i>Nominal Protection Coefficient (X₇)</i>	-0,248	0,0001	-4,6379	Significant
Farmers Wage Rate (X ₈)	0,521	0,1672	1,4180	Not Significant
<i>Research Investment Development (X₉)</i>	-0,000	0,9887	-0,0142	Not Significant
Product Differentiation (X ₁₀)	0,012	0,4040	0,8473	Not Significant
Liberalization Policy (<i>Dummy</i>) (X ₁₁)	1,012	0,0000	13,3269	Significant

Source: Result of the processed data by using *Eviews7*

The result of t-test which is test of dependent variable partially shows that of all independent variables used in the model there are 6 (six) significant variables at alpha 1 percent affect RCA (Y), such as 1) Interest Rate (X₂); 2) Exchange Rate (X₃); 3) Economic Growth (X₄); 4) Productivity (X₅); 5) Nominal Protection Coefficient (X₇); 6) Liberalization Policy (X₁₁), while Inflation (X₁) significant at alpha 5 percent. For more details can be seen in the following explanation: 1) Interest rate (X₂), based on the partial test data analysis, found t-test value for the variable interest rate of 3.722 and the probability of 0.0009 < alpha 0.01, thus accept H₀ and reject H_a. It shows the variable interest rate statistically at the 1 percent alpha level significantly affect RCA (Y); 2) Exchange rate (X₃), based on analysis of partial test data, found t-test value for exchange rate variable equal to 3.788 and its probability equal to 0.0007 < alpha 0.01, Thus accept H₀ and reject H_a. It shows that statistically, the exchange rate variable at the 1 percent alpha level significantly affects RCA (Y); 3) Economic growth (X₄), based on analysis of partial test data, found t-test value for economic growth variable equal to 15.5774 and the probability equal to 0.0000 < alpha 0.01, Thus accept H₀ and reject H_a. This shows the statistically significant variable of economic growth at a significant 5 percent alpha level affecting RCA (Y); 4) Productivity (X₅), based on partial test data analysis, t-test value for economic growth

variable is -6.323 and its probability is 0.0000 $< \alpha$ 0.01, Thus accept H_0 and reject H_a . It shows statistically productivity variables at the 1 percent alpha level significantly affect RCA (Y); 5) Nominal Protection Coefficient (X_7), based on partial test data analysis, t-test value for Nominal Protection Coefficient variable is -4.637 and its probability is 0.0001 $< \alpha$ 0.01, Thus accept H_0 and reject H_a . It shows the nominal variable protection coefficient statistically at the 1 percent alpha level significantly affect RCA (Y); 6) Liberalization policy (D), based on partial test data analysis, t-test value for liberalization policy variable is 1.332, and its probability is 0.000 $< \alpha$ 0.01. Thus accept H_0 and reject H_a . It shows statistically liberalization policy variables at a 1 percent alpha level significantly affect RCA (Y); while, 7) Inflation (X_1); based on partial test data analysis, t-test value for inflation variable from -2.570 and probability is 0.0158 $< \alpha$ 0.05, Thus receiving H_0 and rejecting H_a , it shows the statistically variable inflation at a 5 percent alpha level significantly affects RCA (Y).

5. Factor Analysis that Affecting RCA of Indonesian Seaweed

The expected sign test (hope of coefficient mark) is meant to model according to logic, so that the validity of the model can be determined and the following 7 (seven) variables have significance affecting RCA (Y), namely: 1) Inflation (X_1); 2) Interest Rate (X_2); 3) Exchange Rate (X_3); 4) Economic Growth (X_4); 5) Productivity (X_5); 6) Nominal Protection Coefficient (X_7); 7) Liberalization Policy (X_{11}).

Inflation (X_1) has a negative coefficient sign (-); higher inflation causes RCA Seaweed to be lower. This is caused by the price of seaweed commodity traded in the global market is becoming higher, so it can cause seaweed exporters to be difficult because with higher prices will cause RCA seaweed to be lower. Higher export prices lead to, the market share of Indonesian seaweed commodities becomes increasingly difficult to compete with other countries seaweed products traded in global markets at relatively lower prices or easier to reach. [5] stated that inflation has an impact on the rise in prices of goods and services, the value of a currency will decrease and the purchasing power of the currency becomes weaker. The decline in purchasing power will then affect the individual, business world, and government revenue and expenditure budget. In other words, the high inflation rate will negatively affect an economy as a whole.

The Interest Rate Variable (X_2) has a sign of positive coefficient (+). High-interest rates will have a positive effect on RCA. This is because an increase in interest rates will have an effect on the deflation, which will have a positive impact on the decline in the price of seaweed commodities traded in the global market due to deflation can cause seaweed exporters not to be hampered by higher prices will cause the level of export competition is getting lower. [6] stated that the government issued an interest rate increase to deflation by reducing the amount of money in the community to reduce inflation.

The exchange rate variable (X_3) has a positive coefficient sign (+), the stronger exchange rate index (appreciation) causes the Indonesian seaweed RCA to become higher. This is due to the higher exchange rate index causing Indonesia's seaweed export prices to become more stable and can be adjusted to the prevailing prices in the international market, thus increasing the competitiveness of Indonesian seaweed exports in the global market is increasing. [6] states that strong exchange rate conditions will affect the stability of local commodity prices traded in global markets.

The Economic Growth Variable (X_4) has a sign of a positive coefficient (+). Increased economic growth will have a positive impact on Indonesia's seaweed RCA. This is due to the increase in economic growth will have an impact on infrastructure development, so with the increase of infrastructure development, it will provide a reduction in the cost of seaweed production. The economic growth has an impact on improving infrastructure that will provide efficiency and effectiveness in the production of a commodity to be traded or exported in a global market.

The Productivity Variable (X_5) has a negative coefficient sign (-), the productivity that is too high may cause the Indonesian seaweed RCA to decline. This is due to the low absorption of raw materials of seaweed to be processed first before marketed or traded in the global market. At present, the total

absorption of raw material of Indonesian domestic seaweed is only about 20 percent of the total production of Indonesian seaweed, causing the majority of seaweed products exported by Indonesia in the global market is in the form of raw material which has very little added value and also has the quality and the low quality that causes the selling price of Indonesian seaweed in the global market is very low. [7] stated that the low absorption of raw seaweed material in Indonesia in the domestic market causes the competitiveness of Indonesian seaweed to be weak, resulting from the increase in seaweed productivity every year. This will have an impact that the high seaweed productivity in Indonesia hurts the Indonesian seaweed RCA.

The Nominal Protection Coefficient (X_7) variable has a negative coefficient sign (-). The negative sign indicates that a Nominal Protection Coefficient increase of 0.248 will lower the Indonesian Seaweed RCA by 0.248, *Ceteris Paribus*. High Nominal Protection Coefficient will cause RCA Indonesian seaweed will decrease. This is due to the low competitiveness of Indonesian seaweed products, compared to other seaweed exporters in the world. Also, also due to the low selling value plus the quality of quality by Indonesian seaweed products that are less good will affect the weak competition or competition seaweed trade in the global market. [8] stated that the high Nominal Protection Coefficient would cause the stimulation of efforts to improve the quality of a commodity product produced will be low, so that will affect the inability of Indonesian export commodities to compete in the global market.

The Liberalization Policy Variable (Dummy) (X_{11}) has a sign of positive coefficient (+). A positive sign indicates that a 1.012 increase in the Trade Liberalization Policy will increase RCA Seaweed Indonesia by 1.012, *Ceteris Paribus*. Trade liberalization policy will have a positive impact on Indonesia's seaweed RCA in the global market. This is due to the existence of trade liberalization policies ratified by the Government of Indonesia, will provide direct stimulation to Indonesian seaweed producers to improve the quality of seaweed produced to compete in the global market with producers from other countries. [8] states that liberalization policy will provide stimulus to increase the competitiveness of a commodity. The Government of Indonesia ratified the liberalization policy to impact the strengthening of the competitiveness of exported commodities to compete with export commodities from other countries by making efforts such as by curbing domestic production by using certain standards as well as Indonesian National Standard (SNI).

6. Government Efforts in Increasing the Indonesian Seaweed Competitiveness

The development of the seaweed commodity sector in the context of enhancing the competitiveness of national seaweed is charged to all interested actors in the seaweed commodity. Each ministry and agency under the Government of Indonesia should have each policy prepared by their respective functions and duties. But in reality in the structure of policy in the Government of Indonesia is not the occurrence of synergy, so it is considered causing the overlapping policy. Each of the ministries issued a colliding policy.

The Government of Indonesia to improve seaweed competitiveness in global markets through the relevant ministries should establish a policy scheme for each ministry. Based on the functions and tasks of each ministry will provide a clear picture and plot in the process of policy implementation later and not contradict each other. [9] states that the policy issued by the government is a policy applied by each ministry agency based on their respective functions and duties to provide a clear picture of a policy to be implemented by the government.

Based on the functions and duties of each ministry responsible for implementing the improvement of seaweed competitiveness each ministry is required to be in their respective positions based on the assigned authority. On the one hand, other ministries and agencies are supporters in terms of creating competitive Indonesian seaweed products, on the other hand the actors of seaweed business (private actors) have a duty to help increase the competitiveness of national seaweed from the business side in providing input and information to create a vision, mission, and objective in enhancing national seaweed competitiveness in global markets.

7. The Role of the Government, Private, and Society Actors

Developmental State is a concept of increasing economic development of countries applied in countries located in East Asia. Integrity blend elements of government (Government Sector) and private sector (Private Sector) is generally done to create economic development of the country. Government intervention to restricted market sectors can create a balanced mix in improving national product competitiveness. The role of government and seaweed business actors synergized to each other can yield positive efforts to increase the competitiveness of seaweed products in the global market.

In some characteristics of the Developmental State concept of the role of state and private sector states that in the state market problems to intervene the market only through instruction and direction based on the national strategy, so it needs a good cooperative relationship between the government and business actors to achieve one goal the same avoidance of the contradictory impression in formulating policies to realize the same goals in implementing the policy. On the one hand, the government is given the opportunity to take several initial steps on various policies that are considered beneficial, while still providing the opportunity and full support to seaweed business actors.

The continuous effort of the government and seaweed business actors to increase the competitiveness of Indonesian seaweed in the global market is to work together in support of each other. The Indonesian government is keen to disseminate policies and rules of development to improve seaweed competitiveness. The seaweed business actors always provide information to the government related to the issues faced by Indonesian seaweed commodities.

The most fundamental thing in the implementation of the policy by the Government of Indonesia so that business actors can optimize the implementation of the policy is to cooperate. The form of cooperation that can be done by both parties is implemented by 1) exchanging information about the problems faced; 2) involving seaweed business actors in formulating policies by the government; 3) jointly active in controlling and maintaining economic stability, especially enhancing the competitiveness of seaweed products in the global market so that based on the type of strategy established by the Government of Indonesia included in the concept of The Role of Support Policies. Some things that the Government of Indonesia should consider in creating a good bureaucracy are to minimize a bad bureaucratic system so that policies will be fully supportive of the national strategy being built. Seaweed business actors have conflicting interests with the government due to the opportunity of greater profits in seaweed business. However, it cannot be denied that the actual efforts of the government in making efforts to improve competitiveness are positive movements in the improvement of national economic development. Seaweed business actors need full support if the government wants to issue a policy, so that optimization of policy implementation by seaweed business actors can be maximized. Seaweed businessmen need great support either in the form of policies that are deemed to be helpful to the full implementation of the policy.

In Developmental State Theory states that business actors need a positive role of government to generate positive advantages. Socialization is one way or government strategy to seaweed business actors to increase awareness and knowledge to be able to create agreement in policy implementation. With an understanding by seaweed business actors government efforts in improving seaweed competitiveness in global markets can be optimized to achieve maximum results. Establishing joint forums and establishing collective agreements between the two sides by the government has been a good strategy but the problem can be minimized or dealt with in cooperation in the form of synergies between both parties of government and seaweed business actors, so that the optimization of the policy will be aligned and the achievement of the results will apply maximally in improving the competitiveness of Indonesian seaweed products in the global market.

8. The Synergy's in Upstream Revitalization Efforts

Development of upstream sector is considered important to improve the development of downstream sectors as there is continuity if the upstream sector can be optimized and improved, the downstream sector will provide the yield increase itself as a reference to high quality industrial raw materials. The

government provides several descriptions related to the implementation of the policy to be directly socialized to all seaweed business actors which is then followed by the exchange of various forms of information related to the constraints in efforts to increase the revitalization by seaweed business actors to the government. The government is also making efforts to formulate policies related to zoning plan of potential seaweed development area along with seaweed business actors to avoid threats related to the degradation of seaweed cultivation area [10].

The policy undertaken by the Government of Indonesia to revitalize seaweed is to provide the application of national cultivation technology standards and national seaweed quality standards. The Government of Indonesia socializes as a synergy to seaweed business actors, especially those who play a role in the upstream sector (cultivation) and by providing direct guidance to seaweed business actors and build conscious responsibility in the form of quality recognition to the cultivators and other business actors in order to awaken the awareness on the importance of quality standards and food safety [11-13].

9. The Synergy's in the Industrialization of the Downstream Sector

Efforts made by the Government of Indonesia in synergy with Indonesian seaweed businessmen towards the industrialization program of downstream seaweed sector is to synergize between the two actors both government and seaweed business actors is by the establishment of Indonesian Seaweed Industry Association (ASTRULI) on dated February 28th, 2014, the purpose of the establishment of ASTRULI is to accommodate all activities related to the national seaweed industry as the first step of the Government of Indonesia in synergizing with seaweed business actors. Also, one of several efforts made in the synergies of cooperation between the two parties is to socialize by the government (government sector) to the seaweed business actors.

10. The Synergy's in National Seaweed Standardization Efforts

The Government of Indonesia's efforts to synergize cooperation for national standardization of seaweed products aims to maintain the value of seaweed product quality so that it has high competitiveness in the global market. The first strategy undertaken by the Government of Indonesia is to conduct a full socialization to seaweed business actors, secondly by applying standardization to the seaweed cultivation sector, it will directly give a positive impact on the development of seaweed industry production as it is supported by raw materials (raw material) seaweed that has a high quality [11].

11. Conclusion

Based on the result of the research, the conclusion in this research is as follows: 1) The characteristic of Indonesian seaweed commodity is the production of seaweed in the form of raw material still has low quality, compared to some other seaweed producing countries which resulted in the selling price of Indonesian seaweed which is smaller compared to some other seaweed exporting countries; 2) Regression results are as follows: $Y = -13,333 - 0,089X_1 + 0,296X_2 + 1,835X_3 + 1,418X_4 - 0,778X_5 + 0,0191X_6 - 0,248X_7 + 0,521X_8 - 0,001X_9 + 0,012X_{10} + 1,013D + 4,28$. Based on the results of regression analysis found that there are some explanatory variable coefficients are statistically significant and some other variables are not significant; 3) The Efforts made by the Government of Indonesia to improve Indonesia's seaweed competitiveness in global markets is to synergize the roles of actors namely Government, Seaweed Business Actors, and Research Institutes; 4) The role of actors acting as an effort to improve seaweed's competitiveness is by the policy applied by the Government of Indonesia in an effort to increase the competitiveness of seaweed products in the global market belonging to The Role of Support Policies due to the form of policy strategy implemented by The Government of Indonesia is a domestic policy by emphasizing the upstream and downstream sectors through policy directly in providing assistance or support to business actors in optimizing the implementation of policies and referring to research conducted by several research institutions. The policy strategy implemented by the Government of Indonesia to increase the competitiveness of

seaweed products in the global market is to synergize into three policy sectors such as revitalization, industrialization, and standardization.

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