AGRISOCIONOMICS
Jurnal Sosial Ekonomi dan Kebijakan Pertanian
ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

THE COMPETITIVENESS OF COMMODITIES SEAWEED USING POLICY ANALYSIS MATRIX (PAM)

Elly Jumiati*, Ahmad Mubarak, and Khalid Sunny
Agricultural Science Masters Study Program, Agriculture Faculty, Universitas Borneo Tarakan, Tarakan, North Kalimantan, Indonesia

*Correspondence Email: elly_jumiati@borneo.ac.id

Submitted 06 July 2023; Approved 18 January 2024

ABSTRACT

Seaweed products from the city of Tarakan have been traded to outside areas such as Makassar and Surabaya before being exported overseas. This study aims to analyze the competitiveness of seaweed in Tarakan City using the policy analysis matrix (PAM) method. The PAM method is used two main indicators for measuring competitiveness, namely the Private Cost Ratio (PCR) as an indicator of competitive advantage and the Domestic Resource Cost Ratio (DRCR) which is an indicator of comparative advantage. The results showed that seaweed in Tarakan City had a PCR value of 0.37 and a DRC of 0.08, the private profit (PP) obtained was Rp 6,444,319 financially has a competitive advantage at the business level farmer. Social profit (PS) of Rp 30,386,901 economically or the economy as a whole has a comparative advantage which means efficient use of resources. The impact of government policies on the output of seaweed cultivation is not protective with an NPCO value of 0.34. The impact of government policies on seaweed cultivation inputs is not protective with an NPCI value of 1.29, meaning that farmers have not received positive incentives from the current input subsidy policy. The EPC value of 0.31 means that the overall impact of government policies on input-output is protective and provides positive incentives to farmers, but is still relatively weak and very vulnerable if policy changes occur. The regional government is expected to provide protection to seaweed cultivators in the form of setting costs for purchasing seaweed and also to strictly supervise cartel practices in the seaweed trading system.

Keywords: *competitiveness, pam, seaweed, Tarakan*

BACKGROUND

Seaweed commodities is one of the primadonna for Indonesia's exports the last few years because this commodities is an important commodities for the Indonesian economy. This is because seaweed is a foreign exchange earner that can be counted on for the country as an export commodity. According to Anonymous (2010) in Dwiyitno (2011), Indonesia is the largest seaweed producer in the world by supplying about 50% of the world's dry seaweed needs reaching 1.9 million tons per year. Seaweed commodities has great potential to be developed in Indonesia. This is reinforced by the following seaweed export data.

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

Table 1. Number of Exports and Export Value of Seaweed in 2028-2022

Country of Destination	2018	2019	2020	2021	2022
			Net weight: Tons		
China	157,654.5	155,039.8	148,306.9	175,563.3	194,395.2
Chile	3,825.6	3,951.9	3,438.1	2,870.2	4,234.2
South Korea	9,319.4	8,042	7,816.9	5,192.8	7,813.9
Hong Kong	838	532.4	460.8	495.2	500.7
Philippines	1,207.8	1,325.6	926.7	1,436.9	2,473.4
Japan	1,589.3	1,419.7	1,403	1,431.4	1,899.9
France	2,767.3	3,166.8	3,297	2,470.1	5,820.2
Denmark	666.8	1,864.2	154.8	0.0	0.1
Vietnamese	7,667.8	5,998.5	6,113.5	9,032.9	6,138.2
Spanish	2,727.5	2,390	2,127.2	1,974.5	1,861.5
Other	4,012.4	7,474	3,930	5,717.8	6,943.9
Amount	192,276.4	191,204.9	177,974.9	206,185.1	232,081.2
			FOB Value: 000 US$		
China	159,206.9	173,601.9	149,376.9	188,394.1	336,762.8
Chile	6,513	8,488.2	5,865.1	4,561.9	4,957.2
South Korea	12,901.7	8,614.7	9,618.4	5,403.1	15,809.8
Hong Kong	318	296.7	301.9	322.6	403.1
Philippines	1,424.3	1,409.7	899.4	2,326.4	4,798.7
Japan	1,229.3	981.6	969.7	1,014.2	1,740.4
France	4,088.1	4,627	3,605.7	3,134.9	13,997
Denmark	1,034.3	2,953	142.8	0.0	0.2
Vietnamese	3,888.6	2,797.2	3,823.4	5,669.5	4,776
Spanish	2,532.4	1,518	914	1,039.7	1,741.3
Other	6,800.7	9,956.5	5,846.8	10,747.4	13,240.3
Amount	199,937.3	215,244.5	181,364.1	222,613.8	398,226.8

The Ministry of Maritime Affairs and Fisheries has set three main policies for the 2015-2019 year of fisheries and marine development as a framework for realizing Indonesia as the world's maritime axis, one of which is to apply the principles of responsible, competitive, and sustainable management of marine and fishery resources sustainable (KKP, 2015). One of the operational steps that need to be taken in relation to building self-reliance in aquaculture is developing seaweed cultivation (Radiarta et al., 2016). The potential area for seaweed cultivation is recorded at 1.1 million ha or 9% of the total area of potential marine cultivation area of 12,123,383 ha and the level of utilization is about 25%. Types of seaweed that are widely developed were Fucheuma spinosum, Eucheuma cottoni, and Eucheuma gracilaria.

Seaweed is developed evenly throughout Indonesia, especially in Indonesia coastal area. One of the areas that has become a center for seaweed development is Tarakan City. Tarakan City is currently the only city in North Kalimantan Province. The area of Tarakan City is 657,33 km^2 with a land area of 250,80 km^2 and sea area of 406,53 km^2 (BPS, 2020). With a water area larger than the land area, make Tarakan City a coastal area. As a coastal area, it has potential sources of The water power is quite large, one of which is seaweed. Seaweed production from Tarakan city has been traded outside the area such as to Makassar and Surabaya before exported abroad. The problem at the seaweed farming business level related to the development of seaweed commodities is that the price

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

of seaweed often fluctuates and farmers do not know information about the price of seaweed commodities on the export market. Seaweed commodity prices at the farmer level are determined more by collecting traders. Meanwhile, the selling price of seaweed will have an impact on farmers' income and production costs. In other words, the products produced by farmers are export products, but the income obtained is not balanced with the production costs. Regional government intervention is certainly needed to overcome this inequality, but government intervention has not yet been seen, whether in the form of policy or otherwise. Based on this, it is necessary to study whether Tarakan City seaweed has competitiveness in the form of comparative advantage and competitive advantage, as well as how the regional government intervenes in developing seaweed commodities, especially at the farmer level?

RESEARCH METHODS

The method of data collection is done by using a questionnaire. The type of data used were primary data is data sourced from respondents, such as respondent data, input, output quantity, input price, output price, and others. Secondary data is data sourced from literature and institutions related to data analysis, such as macroeconomic assumption data, inflation rate, rupiah exchange rate, export value, import value, export tax, import tax and etc. The data analysis method used in this study is as follows: to determine the competitiveness of comparative advantage and competitive advantages, the Policy Analysis Matrix (PAM) analysis will produce two indicators of competitiveness measurement, namely Private Cost Ratio (PCR) which is an indicator of competitive advantage that shows the system's ability to pay domestic resource costs and remain competitive at private prices and Domestic Resource Cost Ratio (DRCR) is an indicator of comparative advantage, which shows the amount of domestic resources that can be saved to generate one unit of foreign exchange (Monke and Pearson, 1995). The form of the PAM matrix as follows:

Table 2. Policy Analysis Matrix (PAM)

Items	Output Revenue	Input cost		Profit
		Tradable	Non Tradable	
Privat Cost	A	B	C	D
Social Cost	E	F	G	H
Policy Impact	I	J	K	L

Source: Monke and Pearson (1989)

Information:

1. Private Profitability (D) : A – (B+C)
2. Social Profitability (H) : E – (F+G)
3. Ouput Transfer (I) : A – E
4. Input Transfer (J) : B – F
5. Transfer Factor (K) : C – G
6. Net Transfer (L) : D – H
7. Private Cost Ratio (PCR) : C / (A – B)
8. Domestic Resource Cost Ratio (DRCR) : G / (E – F)
9. Nominal Protection Coefficient on Output (NPCO) : A / E

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

10. Nominal Protection Coefficient on Input (NPCI) : B / F
11. Effective Protection Coefficient (EPC) : A – B / B – F

A	: Private revenue	G	: Social non-tradable Input Cost
B	: Private tradable input costs	H	: Social benefits
C	: Private non-tradable input costs	I	: Output transfer
D	: Private profit	J	: Transfer input tradable
E	: Social acceptance	K	: Transfer factor
F	: Social tradable input costs	L	: Net profit

Hypothesis:
1. H0: PCR ≥ 1, it means that the commodities seaweed does not yet have the competitive advantage
2. H1: PCR < 1, meaning that the commodities seaweed had competitive advantage
3. H0: DRC ≥ 1, it means that the commodities seaweed does not yet have the comparative advantage
4. H1: DRC < 1, meaning that the commodities seaweed had comparative advantage

Test Criteria:
If C/(A-B) ≥ 1, then accept H0, reject H1
If C/(A-B) < 1, then reject H0, accept H1
If G / (E – F) ≥ 1, then accept H0, reject H1
If G / (E – F) < 1, then reject H0, accept H1

Shadow prices or social prices are the prices formed in an economy under conditions of perfect competition and equilibrium. Border price adjustment was calculated to determine shadow rice. The shadow price for tradable commodities, both input, and output, was calculated using the FOB (Free on Board) limit approach, namely the price of goods arriving at the export port, while for imported commodities using the CIF (Cost Insurance Freight) price limit, namely the price of goods arriving at the import port. The method determining the Shadow Exchange Rate uses the Squire and Van der Tak methods (Gittinger, 1984).

$$\frac{SER}{SCFt} = OER$$

Information:
SER : Shadow exchange rate (Rp/US$)
OER : Official exchange rate (Rp/US$)
SCFt : Standard conversion factor

The SCF (Standard Conversion Factor) value is the ratio of the value of imports and exports plus tax which is formulated as follows:

$$SCFt = Xt + Mt / (Xt – TXt) + (Mt + TMt)$$

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

Information:
SCFt : Standard conversion factor for year - t
Xt : Indonesia's export value for year-t (Rp)
Mt : Indonesia'simport value for year-t (Rp)
Txt : Government revenue from export tax for year-t (Rp)
Tmt : Government revenue from import tax for year-t (Rp)

RESULT AND DISCUSSION

The competitiveness of a commodities can be measured using a competitive and comparative advantage approach. Comparative advantage is a concept developed by David Ricardo to explain the efficiency of open resource allocation (Krugman and Obstfeld, 2000 in Kariyasa, 2003). The government can intervene in the agricultural sector in this case the fisheries sub-sector in an effort to increase agricultural productivity by using three forms of policies, namely price policy, public investment policy, and macroeconomic policy. Basically, the impact of price policies, agricultural investment policies and macroeconomic policies are analyzed through the Policy Analysis Matrix (PAM) approach. Analysis of the competitiveness of seaweed commodities in Tarakan City, North Kalimantan through the Policy Analysis Matrix (PAM) approach.

Macroeconomic Assumptions

Macroeconomic assumptions used in the Policy Analysis Matrix (PAM) were the nominal interest rate (% per annum), the social interest rate (% per annum), and exchange rates (Rupiah per US Dollar) which were presented in the Table 2.

Table 3. Macroeconomic Assumptions in 2020

Macroeconomic Assumptions	Amount
The nominal interest rate (% per annum)	4 %
Social interest rate (% per annum)	10.73%
Exchange rates (Rupiah per US Dollar) using assumptions APBN in 2020	14,400.00

Source: Ministry of Finance (2020)

Nominal interest rate (nominal interest rate) is obtained from interest rate information formal credit (state-owned banks, regional government banks, national private banks, foreign banks and banks joint ventures, commercial banks, and other credit institutions). In this study,
the level of nominal interest. not the real interest rate because all components of costs are not capital in the budget PAM has reflected the impact of inflation so it would be inconsistent if the impact inflation is eliminated only on the capital component by using the real interest rate. Level The nominal interest rate used is the private interest rate average for capital that was sourced from formal credit institutions in the research location, which is 4% per year.

The social interest rate is the sum of the social. The assumed opportunity cost of capital was 9.38% per year plus the rate of inflation at the research site in the year of the study. This is in accordance with historical experience countries in Southeast Asia when they are at the same stage of development as Indonesia today. The inflation rate in 2020 is 3.1%, according to the rate level social interest is at 12.9% per year (Monke and Pearson, 1995). The exchange rate used in this study in

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

accordance with the assumptions of the state budget, namely in 2020 as much as Rp 14,400.00 per US Dollar (Ministry of Finance of the Republic of Indonesia, 2020).

The Physical Input-output Structure

The physical input-output structure at the farm level was divided into three parts. First, input tradable (traded input goods), namely fuel and machinery. Second, factor domestic includes labor. land, seeds and equipment used. Third, production (output) generated. The following is a description of the physical input-output structure of seaweed commodities in Tarakan City, North Kalimantan.

Table 4. The Physical Input-Output Structure at The Farm Level

Items	Average amount
Input	
Fuel	20 lt
Boat Engine	1 unit
Land	2970 m^2
Seeds	121 kg
Agriculture equipment	
Plastic bottles	71 bottles
Gallons	21 gallons
Drying place	1 unit
Knife	I unit
Boat	1 unit
Tarpaulin	1 unit
Ris rope	22 m
Seed rope	12 m
Output	
Production	1208 kg

Source: Processed Data (2020)

Based on table 4, we can structure the input and output used by seaweed farmers. Inputs in seaweed farming consist of fixed inputs such as equipment/equipment and variable inputs that will influence the amount of output such as land area. The average area of farmers' farming land was 2,970 m^2. The number of seeds needed by farmers in one production cycle was 121 kg, and the average fuel oil used was 20 lt. Meanwhile, the average output obtained from seaweed farming in one production cycle was 1,208 kg.

Private Price and Social Price

The measure of the value of goods and services is price. Price is a factor which is very important because it relates to the behavior of farmers both as producers as well as consumers. Pricing can affect total revenue and costs total, then every pricing decision and strategy plays an important role in every farm. In this context, the private price is based on the actual price obtained from the respondent farmer's farm in the research location

The social price or shadow price is the corresponding world price or international price (CIF prices for imported commodities and FOB prices for exported commodities are estimates of efficiency prices for both tradable outputs and inputs. Determining world prices (tradable outputs and inputs) that are compatible with the commodities being analyzed is the most complicated. Most of the

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

problems occur as a result of choosing the wrong country (in US$). The social price must be determined at the same time, form/quality, and location. The process of obtaining the right world price will always be a challenge to the success of PAM analysis. The calculation of the parity price must consider the cost of shipping goods from the port to the nearest wholesaler (from the research location) converting the value of goods from processed goods to unprocessed goods. This is done if the world price obtained is the price of processed goods, while the commodities researched is an unprocesses commodities. The input-output social price in this study is calculated using the approach domestic prices, except for fuel, machinery, and output which are tradable inputs for calculate sradable input-output brought to domestic prices using exchange rate premium, while for domestic inputs it is brought to the limit price by using SCFt. Exchange rate premium and SCFt.

Determination of private and social prices for inputs and outputs will influence prices at the farm level. Of course, this requires a role from the government, so that prices, especially output, are more favorable to farmers. However, in real conditions in the field, the price of seaweed is determined by collecting traders, especially if farmers have psychological ties to collecting traders, such as borrowing farming costs from collecting traders which will be paid at harvest time. There is no policy from the local government that regulates the price of seaweed at the farming level. Even though the government provides a subsidy policy for farming inputs, this does not apply to inputs for seaweed farming because this farming does not require fertilizer. Fuel subsidies can still be provided but their implementation is sometimes difficult to obtain subsidized fuel. This means that government policy does not have a positive impact in terms of input and output prices for seaweed farming, in other words, farmers often incur greater production costs. This condition is in line with the research results of Mahatama and Farid (2013) which stated that seaweed cultivation businesses have competitiveness, but policy the current government is still disincentivizing its development. Farmers in general do not receive input subsidies and protection facilities from the government. Even farmers have to incur greater production costs than necessary.

Table 5. Matrix PAM Seaweed Farming in Tarakan City, North Kalimantan

Description	Revenues (Rp)	Costs (Rp)		Profit (Rp)
		Tradable Inputs	Non Tradable Inputs	
Privat Cost	11,615,385	1,395,333	3,775,733	6,444,319
Social Cost	34,382,775	1,339,259	2,656,613	30,386,901
Divergence/Policy Impact	(22,767,390)	56,074	1,119,120	(23,942,582)

Source: Processed Data (2020)

Table 5 illustrates the high input prices that must be paid by farmers compared to their social prices which can be seen from the value of tradable and non-tradable input costs due to the absence of taxes on non-tradable inputs and subsidies from the government on input prices used by farmers in their farming. Table 5 illustrates the high input prices that farmers have to pay compared to the social prices which can be seen from the large value of non-tradable input costs due to the absence of taxes on non-tradable inputs and subsidies from the government on the prices of inputs used by farmers in their farming. This cost causes the income and profits received by farmers to be negative. This shows that there is no transfer of income from consumers to producers (farmers), meaning that

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

the output price in the domestic market is lower than the international price (exports). This indicates that there are government policies that are not protective of farmers, so they are less profitable for farmers.

Seaweed Commodities Competitiveness in Tarakan City

Seaweed commodities Competitiveness can be measured using Competitive and Comparative Advantages (Mallu et al., 2018). International competitiveness analysis is an analysis to assess an activity economy (feasible or unfeasible) in terms of the utilization of domestic resources that are used. The analytical tool used to measure the international competitiveness of a Commodities is to use the Domestic Resource Cost (DRC) or DRCR ratio, namely the ratio of domestic costs to value added output of input costs that can be traded at social prices. PAM matrix analysis of seaweed farming in Tarakan City can be seen in Table 6.

Table 6. Indicators of Competitive and Comparative Excellence in Seaweed in Tarakan City

Indicators	Value
Private Cost Ratio (PCR)	0.37
Private advantage	6,444,319
Domestic Resources Cost Ratio (DRCR)	0.08
Social advantage	30,386,901

Source: Processed Data (2020)

Based on Table 6, it can be explained that the private cost ratio (Private from Cost Ratio or PCR) as an indicator for achieving the objectives of cultivation activities, namely obtaining maximum profits in seaweed cultivation, is a profitable cultivation system and has competitiveness in financial value or competitive advantage, because The private cost ratio (PCR) for the seaweed cultivation system in Tarakan City which is carried out using a longline system is 0.37. The PCR value shows the ability of the farm to finance domestic factors at actual prices. The smaller the PCR value, the higher the level of competitive advantage in seaweed cultivation when there is a government policy, namely the policy of providing seaweed seeds for farmers which can increase seaweed production. As per research results (Haryono et al., 2011), the competitive advantage of cocoa farming in East Java is due to intensive management, agricultural revitalization policies and policies to improve cocoa quality which encourage farmers to produce higher quality cocoa beans. Apart from that, a PCR value < 1 indicates that seaweed farming in Tarakan City is financially efficient. In line with the results of research conducted by Fadli et al. (2017), seaweed cultivation using a longline system in Lombok Regency has a PCR value of 0.15. A PCR value < 1 in the seaweed cultivation system indicates that seaweed cultivation in East Lombok Regency has a competitive advantage, based on existing government policies. Meanwhile, the domestic resource cost (DRC) ratio for seaweed cultivation is 0.08. This value shows that to obtain 1 unit of added value, domestic costs of 0.08 units are required for seaweed cultivation. In relation to international trade, the DRC ratio value for seaweed cultivation is 0.08, meaning that for every 1 US dollar of foreign exchange spent on seaweed imports, if it is produced domestically the cost is 0.08 US dollars. In other words, cultivating seaweed commodities is economically efficient, in other words resources have been allocated efficiently to seaweed farming businesses. This is in line with research from Handayani & Muchlis (2020) on DRCR values obtained

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

from farming systems libtukom coffee in West Tanjung Jabung Regency (0.176). This value indicates that The magnitude of domestic factors in social prices is needed to increase the added value of coffee libtukom is one unit. This condition indicates that resource allocation in the system Libtukom coffee farming is relatively more efficient. and have a comparative advantage even in the absence of government policy. As stated by Putri et al. (2019), it is more profitable if it is produced domestically rather than imported from abroad because the production costs must be lower than if it had to be imported

Impact of Output Policy

Indicators to determine government protection against seaweed output domestic value in the PAM table is indicated by the magnitude of the output value of Transter (OT). On the table 6 showed that Output Transfer (OT) results for seaweed farming showed a negative value (22,767,389.93) due to by the difference between the private price received by farmers and the social price. this thing showed that there is no transfer of revenue from consumers to producers (farmers). This means that the price of output in the domestic market is lower than the international price. This indicated that there were government policies that do not is protective of farmers so that it is less profitable for farmers. Though There is no pricing policy for seaweed products yet, but the government is trying to can increase farmers' income by spurring industrial growth seaweed processing, because with this industry it is hoped that farmers can increase production and improve product prices. This is what hasn't implemented in Tarakan City, although seaweed in Tarakan City has advantages comparative and competitive, but still not providing benefits for farmers because what is sold was still unprocessed dried seaweed. There is a transfer of income from consumers to producers (farmers) who resulting in the output price in the domestic market being lower than the international price is the imposition of export duties for exported seaweed With the government's policy to provide an export duty for grass which are exported in addition to increasing the selling price of farmers' seaweed as well as maintain the supply of raw materials for the domestic seaweed processing industry although still a large amount is still exported. However, the import of processed seaweed is still being carried out and the price tends to be cheap from the processed domestic seaweed for seaweed industries such as the gelatin and carrageenan industry. This is supported by the NPCO value of -0.34 which means that the domestic price is lower than the international price This means that there are government policies that not yet effective so it has not benefited farmers.

Table 7. Indicators of Policy Impacts on Seaweed Farming Output in Tarakan City

Indicators	Value
Output Transfer (OT)	22,767,390
Nominal Protection Coefficient Output (NPCO)	0.34

Source: Processed Data (2020)

Mahatma and Farid (2013) research, that the government's policy towards increasing the competitiveness of seaweed still lacks partiality. He further explained that marine aquaculture at the farmer level has competitiveness but current government policies still have incentives in their development, this is proven by farmers not getting subsidized inputs, protection facilities from the government, farmers spending more than they should, and the price of seaweed in the domestic market is much lower than the price in the export market

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

Impact of Input Policy

Government policies also apply to input prices on farming. Various government policies are usually realized through the provision of subsidies or trade barriers (tariffs or non-tariffs) producers can utilize resources optimally and can protect domestic producers. This was done with the hope that farmers as input users can received lower input prices so that they can reduced the production costs of their farming. The impact of government policies can be seen from the value of input transfers (IT). Factor Transer (FT) and Nominal Protection Coeficient on Input (NPCT), as showed in table 8.

Table 8. Indicators of Policy Impacts on seaweed farming Input in Tarakan City

Indicators	Value
Input Transfer (IT)	56,074
Nominal Protection Coefficient Input (NPCI)	1.29
Transfer Factor (TF)	1,119,120

Source: Processed Data (2020)

Input Transfer with a positive value indicates that the tradable input costs received by farmers are more expensive than the tradable input costs paid at world prices, where the system seems to be taxed by existing policies so that it will reduce the level of producer profits or in other words producers do not that matter. get incentives. The difference in tradable inputs in seaweed cultivation of 56,074 is caused by the difference in private prices paid by farmers and social prices. The cause of positive divergence is the existence of levies and taxes imposed on tradable inputs so that private prices for some tradable inputs such as fuel and machinery are higher than social prices. Meanwhile, the transfer factor has a value of 1,119,120, which shows that the price of non-tradable inputs incurred at the private price level is higher than the costs of non-tradable inputs incurred at the social price level. This positive TF value is in line with research that the TF value in seaweed research in West Konawe Regency is positive, namely RP 60,198. The overall NPCI result of 1.29 shows that private input costs are higher than the costs that must be incurred. As stated by Haryono et al. (2011), that the NPCI value is greater than one (NPCI>1), indicating that farmers have to pay more expensive input costs because domestic tradable input prices are higher than international tradable input prices. This is due to the existence of a protection policy in the form of taxes for producers of tradable inputs for seaweed farming in Tarakan City. As stated by Feryanyo (2010) NPCI obtained at the research location shows a value that is positive or greater than one, namely 1.70, 1.80, and 1.20 for each Lembang District, Pangalengan District, and Cikajang District. This matter shows that there is a protection policy for consumers input (breeders) in the form of assistance which causes the financial price of the input to be higher lower than the shadow price.

Impact of Input-Output Policy

The impact of government policy on input-output can be explained through the Effective Protection Coefficient (EPC), Net Transfer (NT) indicators. The level of protection of the simultaneous input-output policy is shown by the Effective Protection Coefficient (EPC) value. This indicator describes the extent to which government policies protect or inhibit domestic production. An EPC value of more than one indicates that government policies on output and input can provide incentives to farmers to produce. More detailed results of the impact of input-output policies are shown in the table 9.

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

Table 9. Indicators of Policy Impacts on Seaweed Farming Input and Output in Tarakan City

Indicators	Value
Effective Protection Coefficient (EPC)	0.31
Net Transfer (NT)	(23,942,582)

Source: Processed Data (2020)

Based on Table 9, the EPC value is 0.31. This indicates that there are policies that effectively protect domestic producers, namely by providing input assistance in the form of seaweed seeds so that they can reduce production costs. Meanwhile, on the output side, the existing policy provides tariffs on imported seaweed, so this causes a difference in the selling price of imported seaweed (CIF price) and the actual price of seaweed sold by farmers, where the selling price of domestic seaweed is higher than the price imported seaweed from abroad. This is thought to be because the government protects farmers by imposing export duties on seaweed products. while the net transfer value (NT) of Rp 23,942,582 causes profits to be smaller than the equivalent value, if there was no transfer policy. Government intervention through policy is really needed, especially the price of seaweed at the farmer level. According to Rahmaniyah (2020), farming in several regions in Indonesia has an effective protection coefficient value below 1. This could happen because government policy is not serious in providing stimulus (encouragement) for farmers.

CONCLUSION AND SUGGESTION

Seaweed commodies has competitive advantages and advantages comparatively, this was indicated by the PCR value of 0.37 and the DRC of 0.08. And the private profit (PP) earned wa Rp 6,444,319 (have a competitive advantage) financially at the farm level. Whereas social benefit (PS) of Rp 30,386,901 (has an advantage comparative) economically. The impact of government policies on the output of seaweed farming was not protective against farming systems with an NPCO value of 0.34. While on the other hand, the impact of government policies on seaweed farming inputs was unprotective with an NPCI value of 1.29, meaning that farmers have not received positive incentives from the current input subsidy policy. EPC value was 0.31. EPC value was 0.31 it means the impact of government policies on input-output as a whole was protective and provided positive incentives to farmers, but the value of the coefficient shows the level of protection that was still relatively weak and very vulnerable if there is a change in policy.

Seaweed cultivation in Tarakan City has comparative and competitive advantages so it needs to be maintained and improved by the government. Even though in terms of input use it can be said to be efficient, in terms of income and profits at the farmer level they still do not enjoy the impact of government policy in the form of I-O policies related to seaweed cultivation. The government still has to carry out policy interventions that can increase farmers' income and profits, especially in setting seaweed prices and adding added value to output by establishing an integrated seaweed processing industry.

REFERENCES

BPS. 2020. Import Foreign Trade Statistics Bulletin. Jakarta: Central Bureau of Statistics. April.
Dwiyitno. 2011. Seaweed as a Potential Source of Food Fiber. Squalen's Journal, 6(1): 9-17.

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 8 (2): 578-589, June 2024

Fadli, Pambudy, R. & Harianto. 2017. Analysis of Competitiveness of Seaweed Agribusiness In East Lombok District. Agribisnis Indonesia Journal, 5(2): 89-102.

Feryanto. 2010. Analysis of Competitiveness and Impact of Government Policy on Local Cow's Milk Commodities in West Java. Thesis. Institut Pertanian Bogor Postgraduate School.

Handayani, P., & Fuad Muchlis. 2020. Analysis of the Competitiveness of the Libtukom Coffee Farming Business in West Tanjung Jabung Regency. In Journal Of Agribusiness and Local Wisdom. 3(2).

Haryono, D., Hartadi, R., & Murti Mulyo Aji, J. 2011. Analysis of Competitiveness and Impact of Government Policy on Cocoa Production in East Java Sosial, Ekonomi Pertanian Journal, 5(2): 72-82.

Kariyasa. K. 2003. Impact of Import Tariffs and Performance of Indonesian Rice Basic Ilarga Policy in World Market. Analisis Kebijakan Pertanian Journal, 1(4): 315-330.

Mahatama E., & Farid M. 2013. Competitiveness and marketing channels of seaweed: the case of Jeneponto Regency, South Sulawesi. Trade Research and Development Scientific Bulletin, 7(1): 64-72

Mallu, M. H., Darwanto, D. H., Hartono, S., & Handoyo Mulyo, J. 2018. The Competitiveness of Beef Cattle Breeding Business on Community Livestock-Based in North Penajam Paser Regency, East Kalimantan Province. International Journal of Economics & Management Sciences, 07(05): 5–8. https://doi.org/10.4172/2162-6359.1000548

Marine and Fisheries Ministry. 2015. Potential and Volume of Indonesian Seaweed Production 2014. Jakarta: KKP.

Ministry of Finance of the Republic of Indonesia. 2020. Government Report on the Implementation of the Semester State Budget Fiscal Year 2020. Jakarta.

Monke, E.A. & S.R. Pearson. 1995. The Policy Analysis Matrix for Agricultural Development. Cornell University Press. Ithaca and London. Revised Edition 2005. Jakarta: Publisher. Indonesian Torch Foundation.

Putri, T. W. S., Suryantini, A., & Utami, A. W. 2019. The Competitiveness of Stevia rebaudiana as A Sweetener Alternative in Tawangmangu Subdistrict of Karanganyar Regency. Agro Ekonomi, 20(10): 10–20. https://doi.org/http://doi.org/10.22146/ae.46979

Radiarta, I. N., Erlania, Haryadi J., & Rosdiana A.. 2016. Analysis of the development of seaweed cultivation on Sebatik Island, Nunukan Regency, North Kalimantan. Kebijakan Perikanan Indoneia Journal, 8(1): 29-40.

Rahmaniyah, F., & Rum M. 2020. Competitiveness Analysis Of MH-3 Madura Superior Hybrid Corn in Bangkalan. Agriscience Journal, 1(2): 367-382. http://journal.trunojoyo.ac.id/agriscience

Yusriadin, Budiyanto, Rosmawaty, & I. Fausayana. 2019. Competitiveness Analysis of Seaweed Farming in Konawe Selatan Regency. Jurnal Sosio Agribisnis (JSA), 4(2): 41-50.