

Hazardous Covid-19 on Seaweed Returns in Indonesia Using Smart PLS

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The research objectives of this research are to explore the effects of Covid-19 on seaweed returns in the border area of Indonesia. The exogenous variables are resources, buyers and seaweed price, while the intervening variable is government policies and endogenous variable in seaweed returns. The data collected is from 93 of the seaweed farmers who occupied the border area called Amal Beach, Tarakan island. The method of this research is path analysis; Partial Least Square software was used as the instrument to estimate the data. The study found that resources, buyers and price have no significant effect on government policies, and it is also found that buyers, price and government policies have no significant effect on seaweed returns, while only the price of seaweed returns has a significant effect on seaweed returns in the Border Area of Indonesia.

Key words: *resources, buyers, price, government policies, returns*

1. Introduction

The impact of Corona Virus which is called Covid-19 is already spread all over the world including Indonesia. The impact of this kind of pandemic is not only a very serious and dangerous disease, but also felt by all of human life aspects such as economy and income aspects. It is noted that today there are 26,816,845 infected by Corona Virus, 879,369 deaths, 18,923,645 recovered, 7,013,831 active cases, 19,803,014 closed cases. In Indonesia, it is noted that there are 190,665 cases of Corona Virus, 7,940 deaths, and 136,401 are people recovered (WorldOMeter, 2020).

This pandemic spread all around Indonesia and especially North Kalimantan; it is noted, based on the recent data, that there 312 cases, 2 people have died, 24 people have recovered. (kaltim.tribunnews.com, 2020). The effects of Corona Virus is not only on the serious health problem, but also on other aspects such as economic problems. Within a very short period of time, the worldwide pandemic triggered by the novel coronavirus has not only claimed numerous lives but also caused severe limitations to daily private as well as business life. (Kraus, Clauss et al. 2020). The COVID - 19 had a significant impact on the financial markets from 1st March 2020 to 25th March 2020 in China and the USA. (Sansa 2020). This pandemic has relationship with companies' activities; there is an existence of sharp, dynamic and new correlations between companies related to the term 'corona', outside of pre-existing interrelationships. (Corbet, Hou et al. 2020)

It is also experienced in Indonesia and the pandemic effects could be on social, political and economic fields. Naryono stated that the decline in purchasing power will result in a decline in the production market and a decline will result in losses for companies and ultimately taxation received by the government will decrease, so that the budget deficit will widen in the future 5% of GDP. (Naryono 2020). It is obvious that this pandemic also caused unemployment. Jumady et.al found that Corona virus outbreak affects all sectors, one of which is the economic factor where many people become victims of termination of employment from the company they work besides large-scale social restriction policies or lock down which impacts the limited activities, especially the social and economic movements of the community, while this is because of many people do not have a domicile letter because of displacement that is temporary (MSi, Edy Jumady et al. 2020)

It is necessary to figure out and to analyse the Covid-19 effects on seaweed returns in the Border Area of Indonesia.

2. Literature Review

The resources consist of natural resources, and human and capital should be combined in order to get an optimal results. For stimulating the company results, the government needs to intervene with its effective policies. Most companies have limited resources, and this leads the government to launch effective policies. The Thailand government produce special policies such as subsidies for the shrimp farmer. (Huitric, Folke et al. 2002). This is also experienced in Indonesia where the condition of resources including natural, human and capital resources lead the government to launch the policies. Komarulzaman et.al stated that when we use total resource rent, the results are insignificant even after we add government policy related variables. However, there appears to be a resource curse when we estimate the resource rent in its three components. (Komarulzaman and Alisjahbana 2006)

Natural resources determined gross domestic product, and this obviously determined the returns. Hodler argued that the aggregate production decrease exceeds the natural resources' direct positive income effect, if and only if, the number of rivalling groups is sufficiently large. (Hodler 2006)

One of the resources is capital where the capital has an effect on government such as what Tuasikal stated that government grants influenced government policy on capital expenditure simultaneously.(Tuasikal 2008). It is supported also by Pradita that capital such as General Grant Allocation affects Government Policies such as Capital Expenditure Budget Allocation significantly (PRADITA and Ratna 2013). Capital as a resource also has a direct effect on returns. Dewi and Utari stated that capital has significantly effected Small Business returns in Denpasar (Dewi and Utari 2014).

Other resources are human resources which are assumed to be the main factor of resources. The quality of human resources led the government to launch its policies related to increasing the quality of human resources. Husna stated that the human resources quality has an effect on government policies through financial internal control policies (Husna 2013). It is supported also by Wardhani et.al that the variable human resource quality and internal control system have an influence on district government policies in case of reliability of financial reporting in the Klaten district of the village administration. (Wardani and Andriyani 2017). The human resources quality also has an effect on returns. Sudirman and Putra examined that human resources and working duration have a positive effect on returns (Sudirman and Putra 2015).

Buying behaviour also can influence the government policies, with both direct or indirect influences. Eze et.al argued that six independent variables (environmental attitude, pro-environmental behaviour, values, eco-literacy, low price sensitivity and social influence) and the effects on consumer (green) buying behaviour, and then buying behaviour could lead to government policies and returns (Eze and Ndubisi 2013).

The economic conditions depend on the inflation rate or the price. For controlling price stability, the government uses this to create several policies, so there is a causality relationship between price and government policies; Pastor and Veronesi argued that the price decline should be large if uncertainty about government policy is large, and also if the policy change is preceded by a short or shallow economic downturn. (Pastor and Veronesi 2012)

The aims of government policies are to increase the returns and increase the economic growth. Some research stated that the policies of government with taxes, permission, and retribution have an impact on regional income. (Talumewo, Tilaar et al. 2019)

3. Problem Statement

Based on the background of this study, the problem statements could be built as follows:

1. Are there any significant effects of resources on government policies in the Border Area of Indonesia?
2. Are there any significant effects of buyers of seaweed on government policies in the Border Area of Indonesia?
3. Are there any significant effects of the price of seaweed on government policies in the Border Area of Indonesia?
4. Are there any significant effects of resources on seaweed returns in the Border Area of Indonesia?
5. Are there any significant effects of buyers of seaweed on seaweed returns in the Border Area of Indonesia?
6. Are there any significant effects of the price of seaweed on seaweed returns in the Border Area of Indonesia?
7. Are there any significant effects of government policies on seaweed returns in the Border Area of Indonesia?

4. Methods

This research was to analyse the influences between the independent variables and the dependent variables, so the formulation developed as follows:

$$Y_1 = \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \epsilon_1 \quad \dots\dots\dots(1)$$

$$Y_2 = \partial_1 X_1 + \partial_2 X_2 + \partial_3 X_3 + \partial_4 Y_1 + \mu_1 \quad \dots\dots\dots(2)$$

Whereas: ϵ_1 = error term of Y_1 μ_1 = error term of Y_2

X_1 = Natural resources

X_2 = Seaweed Buyers

X_3 = Seaweed Price

Y_1 = Government Policies

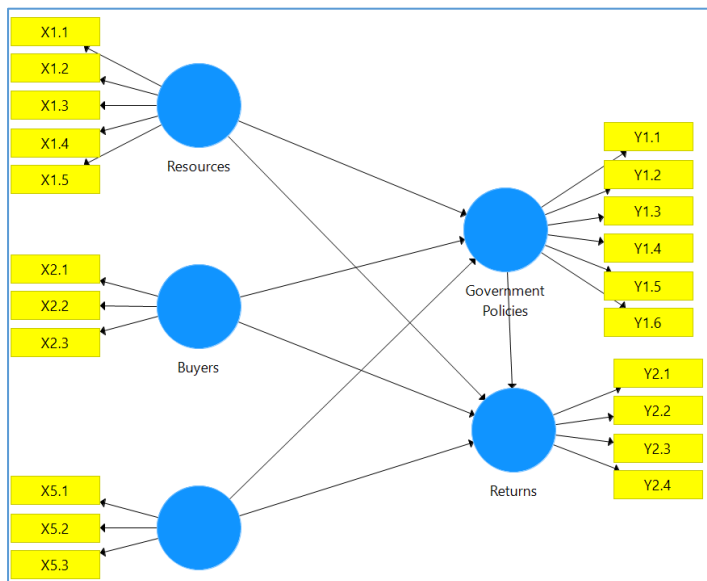
Y_2 = Seaweed Returns

The above formulation could be solved by path analysing or by using the Structural Equation Model SmartPLS because by using this software the result can be explored of examining direct and indirect effects at once. This statistic analysis is used for several reasons such as: the intervening variable part of the research model can be explored, and the validity and reliability test and the classic assumption test are provided. The steps of analysis are as follows:

1. Designing the structural models (inner model)
2. Designing and testing outer models
2. Constructing a path diagram
3. Converting a path diagram to regressions
4. Hypothesis parameter
5. Examining the hypothesis

Based on all variables were built, the research model can be displayed as follows:

Figure 1: Research Structural Model



Whereas X_1 = resources, X_2 = seaweed buyers, X_3 = seaweed prices, Y_1 = government policies, and Y_2 = seaweed returns

From Figure 1, it can be explained that X_1 , X_2 , and X_3 have direct influences on Y_1 , and X_1 , X_2 , X_3 have direct influences and indirect influences on Y_2 , while Y_1 has only direct influence on Y_2

The indicators can be explored that X_1 (resources) consist of natural resources, capital and human resources, X_2 (buyers) consist of condition, bargaining power and buyer's aid, X_3 (Price) consist of current price, fluctuating price and expected price, Y_1 (government policies) consist of central government policies and local government policies, Y_2 (seaweed returns) consist of current returns, current selling, and current progress

4. Data Collection

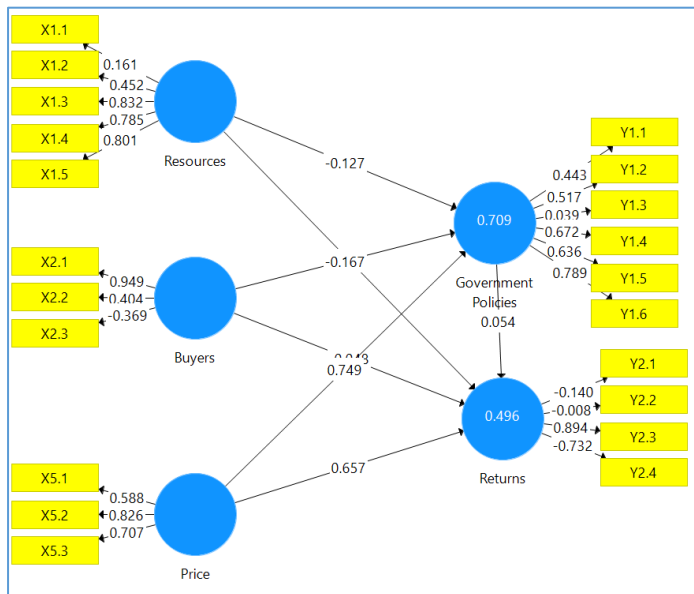
Data were collected from 93 seaweed farmers and located in Amal Beach Tarakan, North Kalimantan Indonesia

All of the data were processed and examined using SmartPLS 3.20 version.

5. Results and Discussion

After undertaking statistical analysis by using SmartPLS, it was found the figure of model as follows:

Figure 2 : The Structural Model



Another result is the path coefficient as follows:

Table 2 : Reliability and Validity Test Result

	Cronbach's Alpha	rho_A	Composite Reliability	Average ...
Buyers	-0.966	-0.835	0.350	0.400
Governm...	0.529	0.596	0.703	0.324
Price	0.507	0.514	0.753	0.509
Resources	0.646	0.685	0.765	0.436
Returns	0.284	0.579	0.000	0.339

Source : Survey results 2020, Processed

From Table 2, it can be explored that Cronbach's Alpha of resources, price, government, and buyers is more than 0.3 or -0.3, and returns are close to 0.3, so it can be concluded that the instruments are valid. For the reliability test result, all of the composites are more than or close to 0.5 and only returns are less than 0.5, so it can be concluded that all instruments are reliable except returns.

Table 3: Path Coefficients

Path Coefficients					
	Buyers	Government Policies	Price	Resources	Returns
Buyers		-0.167			-0.048
Government Policies					0.054
Price			0.749		0.657
Resources				-0.127	0.022
Returns					

Source : Survey results 2020, Processed

From Table 2, it can be converted in a path equation as follows:

$$Y_1 = -0.127X_1 - 0.167X_2 + 0.749X_3$$

It means that resources and seaweed buyers have a negative effect on government policies, while seaweed price has positive effect on government policies.

It is examined that since resources and seaweed buyers increase, so supported government policies decrease but not significantly, while only seaweed price has a positive and significant effect on government policies. On the one hand. all of these condition are because the government (central and local) are more focused on how to solve the Covid-19 pandemic such as budget refocusing and reallocating for reducing and recovering the Covid-19 infected. Government put resources and the seaweed buyer as a second priority, and put Covid-19 infected recovery as a main priority. So even resources and the seaweed buyer experienced decreasing conditions, and the government did not attempt to support it by particular policies. This study was opposite to Huitrie, Folke et al, and Komarulzaman et al who said that the condition of resources lead the government to intervene such as to create government policies (Huitric, Folke et al. 2002), (Komarulzaman and Alisjahbana 2006). It is also opposite to Tuasikal, and Pradita et al. who argued that capital has an effect on government policies (Tuasikal 2008), (PRADITA and Ratna 2013). It also contradicts with the research of Husna, and Wardani et al. who say that human resources have effects on government policies (Husna 2013), (Wardani and Andriyani 2017).

On the other hand, especially for controlling the price, the government keeps putting it as a main priority and the government regional inflation controlling team evaluates the price

fluctuations regularly. That is reasonable according to the result of this research that price has a positive and significant effect on government policies. This result is supported by Pastor et al. that the price affects government policies (Pastor and Veronesi 2012).

$$Y_2 = 0.022X_1 - 0.048X_2 + 0.657X_3 + 0.054Y_1$$

This means that resources, seaweed price and government policies have a positive effect on seaweed returns, while seaweed buyers have a negative effect on seaweed returns.

This is reasonable since the resources' condition is better such as more natural resources, more capital, and working harder, so the returns will increase. It leads the companies to produce more efficiently and more effectively, the average variable cost is lower and it could impact the increasing of returns. This result supported by Hodler who argued that resources affect the income or returns (Hodler 2006).

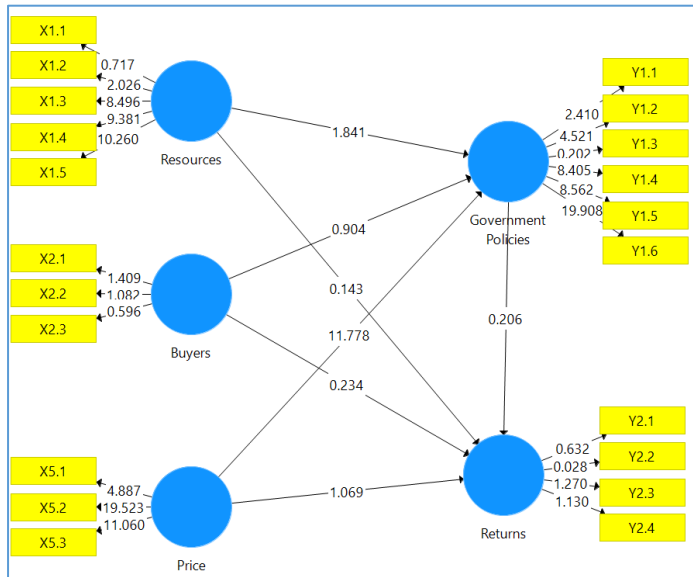
It could be explained that in this pandemic of Covid-19 era, so many buyers shut down their businesses and it impacted them by reducing the orders of buyers. In normal conditions when there is a decrease of buyers, the seaweed returns will decrease, but in the pandemic era, the government bought all the seaweed returns with a higher price. It is reasonable, in the pandemic era that a decrease of buyers lead to an increase of returns. This contradicts Pastor et al.'s argument that a low price could lead to low returns. (Pastor and Veronesi 2012)

In terms of seaweed price, the seaweed price tends to decrease because some of the buyers stopped or reduced their order. They stopped or reduced the seaweed order because of pandemic of Covid-19. In this pandemic condition the decreasing of the seaweed price leads the decreasing of seaweed returns as well. The decreasing of seaweed returns is at about 60 percent. This result is supported by Pastor et al. which stated that price could affect the returns (Pastor and Veronesi 2012).

Government policies have a positive effect on seaweed returns, because by government policies such to control the rate of seaweed price, this could lead the business to be more aggressive and increase the seaweed returns. This result is supported by Talumewo et al. who stated that government policies have an impact on regional income. (Talumewo, Tilaar et al. 2019)

The next step of analysis using SmartPLS is to run the bootstrapping facility, so the new figure is as follows:

Figure 2 : The Bootstrapping Structural Model



After bootstrapping, the path coefficient can be seen as follows:

Table 4 : Bootstrapping Path Coefficients

	Original Sample (...)	Sample Mean (M)	Standard Deviation...	T Statistics (O/S...	P Values
Buyers -> Government Policies	-0.167	-0.099	0.185	0.904	0.368
Buyers -> Returns	-0.048	-0.028	0.204	0.234	0.816
Government Policies -> Returns	0.054	0.166	0.261	0.206	0.837
Price -> Government Policies	0.749	0.760	0.064	11.778	0.000
Price -> Returns	0.657	0.221	0.614	1.069	0.288
Resources -> Government Policies	-0.127	-0.130	0.069	1.841	0.069
Resources -> Returns	0.022	-0.048	0.154	0.143	0.887

Source : Survey results 2020, Processed

Table 4 explored the direct effects of independent variables on dependent variables, and it also examined the hypothesis of this research with several parameters as follows:

Level of confidence is 95 percent or $\alpha = 0.05$. Due to this hypothesis being a two tail hypothesis, hence α is converted to be $0.05/2 = 0.025$. The degree of freedom of this research is $n-k-1$, whereas $n =$ total of data series, $k =$ total of variables, so $93-5-1=87$. T table $(0.025;87) = 1.990$; the hypothesis will be accepted since $t \text{ test} > t \text{ table}$ or $t \text{ test} > 1.990$

It is examined that the hypothesis for resources has a significant effect on government policies with the t test being 1.841 less than 1.990; the hypothesis for seaweed buyers has a significant effect on government policies with the t test being 0.904 less than 1.990. It can be concluded that the hypothesis is **rejected**. This is reasonable because in the pandemic condition, the seaweed farmers focus more on how to avoid Covid-19 infection, and they reduced their activities including to maintain their seaweed, the buyers reduced their orders,

while government focused on how to reduce the Covid-19 pandemic. That is why the resources and seaweed have no significant effect on government policies.

The hypothesis for seaweed price has a significant effect on government policies with t test 11.778 being more than 1.990 and it can be decided that the hypothesis **is accepted**. In term of the price, the government is very concerned and it can be shown by government activities such as the Inflation Controlling Team who keep working even in pandemic conditions; it could be argued that seaweed price has a significant effect on government policies.

It also examined that the hypothesis for resources has a significant effect on seaweed returns with the t test being 0.143 less than 1.990, the hypothesis for seaweed buyers has significant effect on seaweed returns with the t test being 0.234 less than 1.990, the hypothesis for seaweed price has a significant effect on seaweed returns with the t test being 1.069 less than 1.990, and the hypothesis for government policies has a significant effect on seaweed returns with the t test being 0.206 less than 1.990. It can be decided that all of these hypotheses **are rejected**. It can be argued that seaweed farmers, seaweed buyers, and the government focus more on avoiding and reducing the Covid-19 infected. For this reason, the government reallocated and refocused their budget or split their budget for a Covid-19 recovery. Economy and business matters are not the main priority, including seaweed farms. Reasonable seaweed resources, seaweed buyers, seaweed price and government policies have no significant effect on seaweed returns.

The advantages of using SmartPLS Version 3.2 are all of indirect effect and can be explored automatically as follows:

Table 5 : Bootstrapping Specific Indirect Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (...)	T Statistic...	P Values
Buyers -> Government Policies -> Returns	-0.009	-0.017	0.056	0.160	0.873
Price -> Government Policies -> Returns	0.040	0.128	0.204	0.197	0.844
Resources -> Government Policies -> Returns	-0.007	-0.025	0.039	0.176	0.860

Source : Survey results 2020, Processed

From Table 5, can be decided that the hypothesis seaweed resources, seaweed buyers and seaweed price have no significant effects on seaweed returns partially and indirectly because all of the indirect t tests are less than 1.990. This is because of all government policies are not effective for seaweed returns, or the government is more focused on how to recover from the Covid-10 pandemic.

Table 6 : R Square Value

	R Square	R Square Adjusted
Government Policies	0.709	0.699
Returns	0.496	0.473

Source : Survey results 2020, Processed

Table 6 showed that on the one hand, the contribution of independent variables such as resources, seaweed buyers, and seaweed prices on dependent variables such as government policies, are quite big or 69.9 percent. This means that only 21.1 percent are contributed by other non-observed variables. On the other hand, the contribution of independent variables such as resources, seaweed buyers, and seaweed prices are relatively small or 47.3 percent.

6. Conclusion

Based on results and discussion, it can be concluded that resources, and seaweed buyers have no significant effect on government policies, while seaweed price has a significant effect on government policies.

It is also can be concluded that resources, seaweed buyers, seaweed price, and government policies have no significant effects on seaweed returns both directly and indirectly. It is recommended that the government policies should focus not only on seaweed price but also should focus on other factors such as resources, and seaweed buyers.

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