Projection Income For Seaweed Cultivation Businesses On The Malaysia-Indonesia Border Area

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Abstract— **Income is the maximum value that can be consumed by someone in a period by expecting the same situation at the end of the period as the initial situation. The definition of income according to economics excludes the possibility of changes in the total assets of a business entity at the beginning of the period and emphasizes the static value at the end of the period. Seaweed farming is the practice of growing and harvesting seaweed. Therefore, the author is interested in conducting research on "Projection of Seaweed Cultivation Business Income on the Malaysia-Indonesia Border" for the years 2023, 2024, 2025 and 2026. With the aim of finding out the projected value of seaweed cultivation business income on the Malaysia-Indonesia border and also differences in the income value of seaweed cultivation businesses on the Malaysia-Indonesia border for 2023-2026. By using the least squares method and carrying out a different test analysis using the SPSS statistics 25 application. The data used in this research is income data from seaweed cultivation businesses in Nunukan for 2023-2026. The results of this research obtained a projected value of seaweed cultivation business income in 2023 of 2,505,987, in 2024 of 2,505,987, in 2025 of 2,708,797, and in 2026 of 2,911,607 (data on grass cultivation business income in Nunukan). Meanwhile, the results obtained after carrying out the t test using the SPSS statistics 25 application are:**

The sig value (2-tailed) is 0.039 > 0.05 (for seaweed cultivation business income data). So according to the basis of independent sample t test decision making, Ho is accepted and H_a is rejected. Which means there is no significant difference between the actual value and the predicted value (seaweed cultivation business income data)

Keyword : ***Rejection, Income, Seaweed Cultivation Businesses***

I . INTRODUCTION

Nunukan Regency is a province of North Kalimantan, directly bordering Malaysia, especially the state of Sabah. This district has an area of 14,247.50 km2 and is an island surrounded by ocean because it is an area of expansion, growth and economy. Nunukan Regency is one of Indonesia's mainstay seaweed producers. Where this seaweed activity can take place throughout the year. The enormous potential and economic opportunities created by the development of seaweed cultivation in Nunukan Regency have caused almost all coastal communities who initially worked as fishermen to switch to seaweed cultivation.

Seaweed cultivation is one type of cultivation in the fisheries sector that has the opportunity to be developed in Indonesian waters. Seaweed cultivation itself is a long process and involves many units such as rope makers, seed growers, harvesters, drying facility rental owners, warehouse owners or collectors and seaweed distributors. Seaweed cultivation has a role in efforts to increase fisheries production to meet food and nutritional needs as well as meet the needs of domestic and foreign markets, expand employment opportunities, increase the income and welfare of fishermen and cultivators and preserve aquatic biological resources. The need for seaweed continues to increase over time, from meeting domestic to overseas needs. The seaweed produced by farmers is the result of their own cultivation due to Indonesia's location which is surrounded by oceans. Thus providing higher potential for marine and fisheries business.

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Seaweed is a biological resource that has high economic value and has great potential to be developed for cultivation with very high sales levels. No one thought that seaweed in Nunukan Regency would become a reliable product as a superior commodity, as well as a source of income for border communities. Even though the price continues to decline, the ambition of the people of this border region has never faded and continues to use seaweed as a source of hope to fulfill their daily lives.

Income is all receipts in the form of money or goods originating from other parties as well as industrial products which are valued on the basis of the amount of money from assets in force at that time. Income is a person's source of income to meet daily needs and is very important for a person's survival directly or indirectly. Income is very influential on the continuity of a business, the greater the income obtained, the greater the ability of a business to finance all expenses and activities that will be carried out. A person's condition can be measured using the concept of income which shows the total amount of money received by a person during a certain period of time. Seaweed cultivation business income can be predicted for the next few years with the aim of knowing how the seaweed cultivation business income will develop from various sectors in the seaweed cultivation business in the following year. We can do forecasting or what is known as projection.

Projection is a prediction or mathematical calculation to estimate something in the future using data that has been obtained or collected in previous years. Projection has two different meanings, the first is projection to depict an object that is made flat (horizontal) or in the form of a line on a flat plane. Projections are estimates of future conditions using existing (current) data. The purpose of projections is to predict how the value will be obtained for the coming year.

Based on the description of the background, the author is interested in conducting research and based on the results of the author's observations carried out in Nunukan. The author made research entitled "Projection of Seaweed Cultivation Business Income on the Malaysia-Indonesia border".

II. LITERATURE REVIEWS

A. *Income*

According to Harnanto (2019: 102), he writes that income is an increase or increase in assets and a decrease or decrease in company liabilities which is a result of operational activities or the procurement of goods and services to the public or consumers in particular. In the Indonesian dictionary, income is the result of work (business or so on) while income in the management dictionary is received by individuals, companies and other organizations in the form of wages, salaries, rent, interest, commissions, fees and profits. Income is the amount charged to customers for goods. and services sold.

There is a lot of non-operating income, for example interest income, rent, sales of securities and so on. Usually, other income is divided into 5 types, namely:

1. Rental Income

This is the income that companies get from renting their assets to other parties. For example, renting out premises, production machines, transportation equipment, and so on.

2. Interest Income

This is the income obtained by the company from interest on loans given to other parties, for example clients. It can also be in the form of sales of goods and services paid for in installments. Usually there are flowers, so these flowers are included in the second type.

3. Asset Income

This third type of income is also related to assets, but is different from rental income. Because asset income is obtained from selling assets or property. For example, selling property. Not only that, it can also be from selling office furniture, machinery, market securities, and so on.

4. Dividend Income

This is the company's income obtained from the distribution of profits or dividends that the company gets from owning shares in other companies. For example, company A owns shares in company Z. So, when company Z distributes dividends to investors, this is what is called dividend income for company A.

5. Profit on Sales of Fixed Assets

Lastly is the income obtained from company profits. For example, company B has a warehouse which in 2018 was built with capital of IDR 250 million. Then, a year later in 2019 the warehouse was sold for IDR 300 million. So IDR 50 million is the profit from the sale of fixed assets, which is included in the company's income.

Factors influencing income

There are 4 (four) factors that influence income, namely:

a. Education

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals and skills needed by themselves, society, nation and state (Law No. 20 of 2003) (Pristiwanti, 2022)

b. Number of Family Dependents

The number of family members is those who are still dependents of the family, both siblings and non-biological siblings who live in the same house but are not yet working.

c. Years of service

Working period shows how long a person has worked in each job or position, so it can be said that a long working period shows more experience than one person compared to other colleagues (Arrazi, 2019).

d. Work experience

Work experience is an employee's own capital which is obtained from a process of formation by the employee in carrying out appropriate work with its responsibilities (Situmeang, 2017).

B. *Seaweed cultivation*

Seaweed farming is the practice of growing and harvesting seaweed. Seaweed is one of the important marine products, because it is easy to cultivate and has many uses, namely for food, pharmaceutical industry, cosmetics industry, textile industry, leather industry, medicines and others for domestic and domestic markets. export.

There are 4 (four) factors that influence seaweed income, namely: Capital, Price, Labor, and Work experience

C. *Projection*

According to Heizer and Render (2015: 113) projection is forecasting, an art and science of predicting future events. Forecasting will involve taking historical data (last year's sales) and projecting them into the future with a mathematical model. In line with Tita Deitana, it is stated that projection or forecasting is a science and art for making predictions in the future. Projection or forecasting is the art and science of predicting future events by involving taking historical data and projecting it into the future with a systematic approach model, (Jay Heizer and Barry Render 2011:136). The conclusion from projection is a forecast to predict or predict about something that will happen in the future .

III METHODOLOGY

The type of research in this study is quantitative. This method was used because this research aims to determine the projected income of seaweed cultivation businesses on the Malaysia-Indonesia border. So it can be concluded that the researcher used a quantitative type of research.

A. Location and Length of Research

The research location is the place where research was conducted regarding Projected Income from Seaweed Cultivation Businesses on the Malaysia-Indonesia Border, namely in Nunukan. This research was carried out from the time this final assignment was received until the completion of the research.

B. Data Analysis Technique

Hypothesis testing

Difference test or t test (t test)

The T test (T Test) is a statistical test used to test the truth or falsity of a hypothesis which states that between two sample means taken randomly from the same population there is no significant difference (Sudjiono, 2010). Usually the basis for testing regression results is carried out with a confidence level of 95%.

The T test is basically a test to see whether the middle value (average value) of a distribution of values (groups) is significantly different from the middle value of another distribution of values (groups). This t test can also see two different correlation coefficient values.

To carry out the t test, the following formula can be used:

$t = \beta n / S\beta n$

Where:

t : the price of the t test to be searched for

Bn : mean price (calculated average)

Sβn: standard deviation of mean differences

C. Hypothesis Examining

The form of testing for this research is as follows:

a. If the significant value is <0.05 or t count > t count then the influence between independent and dependent.

b. If the significant value is > 0.05 or t table > t table then there is no influence on the independent and dependent variables.

D. Road Map Research

The road map research needs to be done as follows:

1. Identifying the gaff
2. Developing the variables
3. Problem formulation
4. Developing the hypothesis
5. Collecting the data (both primary and secondary data)
6. Analizing the data

7. Examining the hypothesis
8. Conluding the results

IV. Results and Discussions

This research uses secondary data, namely income data from seaweed cultivation businesses on the Malaysia-Indonesia border obtained from the Nunukan maritime and fisheries service office. The following data will be used in conducting this research:

Table 1. *Income data from seaweed cultivation businesses on the Malaysia-Indonesia border (Nunukan) in 2015-2022*

Year	Income
2015	8.046.17
2016	6.617.25
2017	10.458.33
2018	15.662.50
2019	18.004.17
2020	12.441.67
2021	14.304.17
2022	25.708.33

A. Data analysis

Data analysis is a process for searching and compiling data systematically. Data analysis is a skill that a data practitioner must have. The data analysis process requires critical thinking and good problem solving.

1.1.1 Test the hypothesis

Difference test or t test (t test)

In making decisions for the t test is

a. if the value is significant or sig.(2-tailed) > 0.05 then Ho is accepted and H_a is rejected

b. if the value is significant or sig.(2-tailed) < 0.05 then Ho is rejected and H_a is accepted

Table 4. 4 T test using income data from seaweed cultivation businesses based on current sales prices

Based on the table above, the results of the SPSS output show the mean or average value of the actual and predicted values, namely the predicted value is 2607392.0000, which is higher than the actual value, namely 1761458.5000.

Table 2 T test using income data from seaweed cultivation businesses based on current prices

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								95% Confidence Interval of the Difference	
		F	sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Nilai aku dalam ramalan	Equal variances assumed	1,655	,246	-2,632	6	,039	-84,593,350,000	32,138,285,802	-1632329.024	595337.976
	Equal variances not assumed			-2,632	4,148	,056	-84,593,350,000	32,138,285,802	-1725803.36	33936.3633

Based on the results of the SPSS independent sample T-Test test output above, a sig (2-tailed) value of 0.039 > 0.05 was obtained, so in accordance with the basis for decision making, the independent sample t-test Ho was accepted and H_a was rejected. Which means there is no significant difference between the actual value and the predicted value.

B. Discussion

From the analysis that has been carried out on the data from this research using the least squares method. There is a projected value of seaweed cultivation business income on the Malaysia-Indonesia border (seaweed cultivation business income data) for 2023 of 2,303.17, 2024 of 2,505,987, 2025 of 2,708,797 and in 2026 of 2,911. 607.

Based on the results of the hypothesis test carried out by the researcher, it can be seen that the independent sample t test shows that Ho is accepted and Ha is rejected, which means there is no significant difference between the actual value and the predicted value. This is proven by the results obtained through the independent sample t test showing the sig value. (2-tailed) of 0.039 > 0.05 (seaweed cultivation business income data).

Group Statistics					
	Jenis data	N	Mean	Std. Deviation	Std. Error Mean
Nilai aktual dan ramalan	1.00	4	1761458.5000	587021.81012	293510.90506
	2.00	4	2607392.0000	261826.58415	130913.29207

Based on the results of calculations using the Least Square method, it is more appropriate to use for forecasting. Because it is known that the projected income from seaweed cultivation businesses on the Malaysia-Indonesia border is for the next 4 (four) years. And the analysis results use secondary data for the last 10 years taken from the maritime and fisheries service office. The difference is from 2023 to 2026. In the forecast for 2023 it is known that income is worth 2,303.17. In the forecast for 2024 it is known that income is worth 2,505,987. In the forecast for 2025 it is known that income is worth 2,708,797 and in the forecast for 2026 it is known that income is worth 2,911,607.

V. Conclusion

Based on the results of the analysis and discussion of "Projection of Seaweed Cultivation Business Income on the Malaysia-Indonesia Border, in Nunukan, it can be concluded as follows:

There is no significant difference between the income value of seaweed cultivation businesses in 2019, 2020, 2021 and 2022 with predictions for 2023, 2024, 2025 and 2026. This is proven by the results of the t test which has been carried out using the SPSS statistics 25 application which produces Ho is accepted and H_a is rejected, which means there is no significant difference between the actual value and the predicted value.

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Nunukan border maritime and fisheries service office (Indonesia – Malaysia)

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