DETERMINANT INCOME OF FISHERMAN'S OF WEST CENTER OF INDONESIA

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ABSTRACT

This study aims to determine the factors that affect the income of fishermen in Lhokseumawe. The data used in this study is primary data sourced from 61 respondents. The method used for data analysis is multiple linear regressions with the linear-log model. Data processing was done by using Eviews-8. The result showed that partially variable of working capital, labour, work experience, and technology have a significant and positive influence on fisherman's income in Lhokseumawe. While together the working capital, workforce, work experience and technology variables also have a substantial and positive impact on fisherman's income in Lhokseumawe Recommendation, fish is an excellent source of animal nutrition for human health, therefore it is necessary local government support to establish fish processing industry into ready-to-eat food (ready-to-eat food) that is more practical as a manifestation of concern towards improving the creative economy and economic empowerment of people around the coastal area.

Keywords: Working Capital, Labour, Work Experience, Technology, Fisherman Income.

INTRODUCTION

Indonesia is the largest archipelagic country in the world consisting of 17,508 islands with 81,000 km of coastline and an area of 3.1 million km^2 of the sea. Under the UN convention in 1982, Indonesia has the potential of biological resources and non-biological abundant. This causes most of the people to live and occupy the coastal areas as well as relying on his life as a fisherman (Glaser et al., 2015). Utilization of marine resources for fisheries is very important as a source of food and commodity trade. Indonesian marine fisheries production increased sharply from about 800,000 tons in 1968 to more than 4 million tons in 2003. According to Olaoye et al. (2012) fishing activities including hunting, collecting or catching fish in the oceans for food needs.

Fisheries business is not a business that only doing fish maintenance activities in ponds, rivers, lakes or the sea but an effort that includes various aspects of orgasm (biological resources) in the waters as a whole. All orgasms such as fish, shellfish, shell, seaweed and other orgasms include the object of a fishing business. The purpose of a fishery business is all activities that have to do with utilizing the biological resources of animals, and the results can be used for economic activities to support the income of coastal communities. (Islam and Tanaka 2004). The fishery sector is one of the government's goals in increasing non-oil exports, employment, foreign exchange and food nutrition. But on the other hand, it can also be seen that the people who inhabit the coast that plays an active role in fishery business are hard work to separate the

community from the circle of poverty and need serious handling. (Régnier et al., 2008). People who have a livelihood and gain income as a fisherman. With income derived from the business activities of the fisherman itself. The level of fisherman's welfare is determined by the catch. The amount of equipment is also reflected the amount of income that will be received for the fulfilment of their daily needs (Lubis & Pane, 2012).

Fishermen do this work to earn income for the necessities of life. For the execution required some equipment that is influenced by many factors to support the expected result. According to Bailey (1988) the factors that affect the income of fishermen business include the social and economic sectors consisting of capital, the amount of labour, work experience and technology. Hence, the size of fish catch and fisherman's income is largely determined by these factors, such as the operational costs and fishermen's fishing for the operational which causes the income of the fishermen to decline. This phenomenon is the objective of researchers to see the development of fishermen income in the western coastal region of Indonesia (Lhokseumawe City).

LITERATURE REVIEW

The Relationship between Capital and Income

Capital is one of the factors of production that contribute to the production; it can rise due to the use of efficient machine tools production. In the production process, there is no difference between own capital and loan capital, each of which contributes directly to production. Capital accumulation occurs when a portion of the revenue is saved and re-invested with the aim of enlarging output and income in the future. The procurement of new factories, machinery, equipment and raw materials raises the physical capital stock (i.e. the real value of all physical capital goods productively), and this allows for future increases in output (Kasperski & Holland, 2013). Capital is an input (factor of production) which is very important in determining high-income low. But that does not mean it is the only factor that can increase income. So, in this case, the capital for traders is also one of the factors of production that affect the level of income.

Labour Relations with Income

Labour is a very important factor in production because labour it is driving to other input factors, in the absence of labour, other factors of production will be meaningless. With the increase in labour productivity will encourage increased production so that income will also increase. Defines human capital as the result of a person's skills, knowledge, and training, including investment accumulation including educational activities, job training, and migration. The main fishermen's assets, especially traditional fishermen are only labour and skill, and relative creativity is still low (Ferse et al., 2012). Although employment as fishermen quickly generates results, often the income is not sufficient for their household needs. Fishermen have a very substantial role in the modernization of life. They include agents of development that are mutually reactive to environmental change. A more open character than a community group living in the interior, which became a stimulator to accept modern development (Campling et al., 2012).

Employment Relations with Revenue

Work experience is knowledge or skill that has been known and mastered by a person who is the result of an act or work that has been done for a certain period. Experience as a fisherman

directly or indirectly gives effect to the fishing result. The longer a person has experience as a fisherman, the higher the yield of fishing and income gained (Teniwut, 2016).

Technology Relationship with Revenue

Fishermen are categorized as someone whose job is to catch fish by using simple fishing gear, ranging from fishing lines, nets, nets, trawls, and so forth. But in its development is categorized as a person who works fishing with a more modern tool is a fishing boat with modern fishing gear. The more sophisticated technology that fishermen use will increase the productivity of the results further increase the production, which implicitly implies that society will earn a higher income (Adhuri et al., 2016).

According to Satria (2015), the existence of fishers is classified into 4 levels seen from the capacity of technology (fishing gear and fleet), market orientation and market characteristics. The four groups, among others, are traditional fishermen (peasant-fisher) oriented to self-fulfillment; post peasant-fisher or fisherman who uses more advanced fishing technology, such as outboard motors or motorboats; commercial fisher or fisher-oriented fisherman, and a fishery industry with several characteristics, such as organized, capital-intensive, higher-income, and export-oriented (Ferse et al., 2010). Fishermen are categorized as workers who perform their production activities by hunting fish at sea or sea. Generally, they have the main production equipment such as ships, fishing rods, nets, charts, and others. Based on their fishing techniques and tools, traditional fishermen are fishermen who still maintain their catch using motorized boats (KTM) without technological innovation, without strong capital support, without established business institutions, tends to be subsystems, and has gone through the horology activities for generations. Unlike the case with modern fishermen, its catching techniques adopt technological developments, such as motorboats to satellite image technology for example.

METHODOLOGY

Data analysis methods used to explain the reflected income of fishermen such as working capital variable, labour, work experience, and technology toward fisherman income in the coastal region of Indonesia is doubled linear regression in the form of the linear log using Eviews-8. The formula is as follows:

$$LnY = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

Where, Y=income of fishermen, X_1=working capital, X_2=labor, X_3=work experience, X_4=technology and ε_i=error term.

RESULT AND ANALYSIS

The criteria of a good model of the parameters produced to the extent possible illustrate the actual conditions appropriately or not biased. The (goodness of fit) model due to the basic strength of the regression analysis is to explain as much as possible the variation in the dependent variable due to the explanatory variables in the model. For the model analysis is good and appropriate there are tests that must be fulfilled/free from the test of classical assumptions, such as Multicollinearity test.

The multicollinearity test is a condition in which there is a strong correlation between the independent variables (X) which are included in the formation of a linear regression model (Gujarati, 2009). To detect multicollinearity by using Eviews can be done by looking at the

correlation between the independent variables (Correlation Matrix). In Table 1 Correlation Matrix shows that there is no multicollinearity in the model of this equation since all independent variables have a weak correlation below 0.80.

Table 1
CORRELATION MATRIX

Variable	X_1	X_2	X_3	X_4
X1	1.000000	0.254973	0.343141	0.308491
X2	0.254973	1.000000	0.142672	0.048053
X3	0.343141	0.142672	1.000000	0.303893
X4	0.308491	0.048053	0.303893	1.000000

Next look at the Heteroskidity test is a state where the variance of any interference is not constant. Heteroskedity tests can be performed using White Heteroskedasticity (Baltagi, 2001; Gujarati, 2009) available in the Eviews program, as shown in Table 2 below.

Table 2
HETEROSCEDASTICITY TEST

Heteroskedasticity Test: White			
F-statistic	1.176122	Prob. F (4.56)	0.3312
Obs*R-squared	4.72739	Prob. Chi-Square (4)	0.3164
Scaled explained SS	4.036978	Prob. Chi-Square (4)	0.401

To identify the presence or absence of heteroscedasticity then by comparing the observation value*R-squared and table χ ^ 2: From the results of the output above it appears that the value obs*R-square for the test results "*white no coss terms"* amounted to 4.727 and the value of χ ^ 2 tables with 5% confidence degree and df: X_2 is 9.49. Because the value of R-squared<χ ^ 2 table or 4.727<9.49, it can be concluded that the above model is free from heteroscedasticity test. It can also be seen from the probability of chi-square 0.401>0.05.

Based on the results of data processing using Ordinary Least Square (OLS) method, the value of variables as shown in Table 3 for fisherman income revenues such as working capital, labour, work experience, and technology to fisherman income in coastal areas of Indonesia.

Table 3
RESULTS OF MULTIPLE LINEAR REGRESSION ANALYSIS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.745245	2.10629	2.727661	0.0085
LOG (X1)	0.525593	0.136651	3.846257	0.0003
X2	0.214032	0.057702	3.709254	0.0005
X3	0.015429	0.005034	3.065119	0.0033
X4	0.005593	0.002894	1.932808	0.0583
R-squared	0.597351	Adjusted R-squared		0.56859
F-statistic	20.76971	Durbin-Watson stat		1.992187
Prob (F-statistic)	0			

Based on the results of the analysis, the multiple regression equations as follows:

$$LnY = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

Thus, the regression equation becomes as follows:

$$Ln\ Y = 5.745 + 0.526 LnX_1 + 0.214 X_2 + 0.015 X_3 + 0.006 X_4$$

Based on the data estimation in the regression model, there is a constant value of 5.745. This indicates that the working capital, labour, work experience, and technology variables are considered constant, so the income of fishermen will also be constant at 5.745. The coefficient value for the working capital variable (X_1) is 0.526 where working capital significantly and positively affects the income of fishermen in Lhokseumawe. If there is an increase in working capital (X_1) of 1%, it will affect the increase in fisherman income (Y) of 0.526% (caters paribus). According to (Khagram et al., 2003), efforts to make a more secure and sustainable life must have assets used to develop a business. While capital is the capital of natural resources, economic capital, physical capital and social capital. In this study, the capital in question is working capital which includes fuel (solar), preservative fish (ice beams) and others.

The results of this study in accordance with research ever conducted by (Sasmita, 2006) and (Mukherjee et al., 2003). The working capital variable in the research shows that there is a significant correlation between working capital variable with the income of fisherman business in Asahan regency. The coefficient value for labour variable is 0.214 meaning that labour has the significant and positive effect on fisherman income in Lhokseumawe. If there is an increase in labour (X_2) of 1%, it will affect the increase in fisherman income (Y) of 0.214% (caters paribus). This is in line with the research conducted by (Sasmita, 2006), in research on the analysis factors affecting the fisherman's business in Asahan Regency, where the previous research variable of labour affects the income of fishermen business.

Every effort of fisherman activity that will be performed require manpower, the amount of manpower needed must be by the capacity of the operated motor vessel so that it will reduce the cost of operating. An appropriate number of labour expected the income of the workforce (Allison & Ellis, 2001). The coefficient value for the work experience variable is 0.0154 meaning that the work experience significantly and positively affects the income of fishermen in Lhokseumawe. If there is an increase in work experience (X_3) of 1%, it will affect the increase in fisherman income (Y) of 0.015%. The longer the fishing experience, the greater the catch, because fishing businesses do not use guidelines or technology to know the locations of fishing, but only rely on working experience at sea.

The coefficient value for technological variables is 0.006 which means the relationship of technological variables with the income of the fisherman is significant. If there is an increase in technology (X_4) of 1%, it will affect the increase in fisherman income (Y) by 0.006%. Technological variables significantly influence the income of fishermen in Lhokseumawe. The results of this study are in line with previous research conducted by (Prakoso, 2013) in the Research of Role of Labor, Capital, and Technology on Increasing Fishermen's Income in Asem Doyongvilage. According to Escapa & Prellezo (2003), for the development of fishery sub-sector can continue, it must always happen technological change, technological change is considered the absolute requirement for the development of fishery sub-sector, if it is not done, fishery sub-sector development will be halted in and result production does not increase, can even decrease.

CONCLUSION

Based on the result of research that has been done to see the determinant of fisherman income is working capital variable, labour, work experience, and technology to fisherman's income in the west coastal area of Indonesia, hence can be concluded that: income of fishermen business in the western coastal area of Indonesia. The higher the business capital, the greater the chances of getting more haul. Labour variable significantly influences fisherman's business income in the coastal area of western Indonesia, and this is because labour is needed in catching fish because in jarring appointment is needed by manual labour directly from labour itself so that it can maximize catch from the business fisherman.

Work experience variables positively and significantly influence fishermen's income in the western coastal area of Indonesia, the longer the fishing business experience the greater the return get more catch, because the fisherman's business does not use guidelines or technology to know the locations of fishing, but rely solely on working experience at sea and technological variables have a positive and significant influence on fishermen's income in the western coastal areas of Indonesia, due to the increasing number of technologies used primarily in lighting technology, the greater the chance of catching more catches , because the fisherman's effort to do fishing activities at night that require better lighting to pull fish hordes into the net.

The following suggestions should be that capital should be used effectively and efficiently, resulting in higher value for use. For the determination of manpower, preferably before making a choice, must know in advance the expertise possessed, so that more and more expert labour will increase the catch and will make it easier to run a fishing business. For the work experience, it is expected that the owner of the fishing business to utilize the experience to be used as a learning or as a teacher to apply the existing experience for better performance in the future to increase the number of fish production. Technological variables, better use of technology to increase catches by what is required and expected to provide more income to save capital. Local government support is needed to establish an edible fish processing industry.

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