

**MIICEMA2010-297**  
**THE DETERMINANT FACTORS OF POVERTY OF FISHERMEN**  
**COMMUNITIES IN BENGKULU CITY**

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**ABSTRACT**

*The Objective of the research were to observe the determinant variables of poverty of the fishery households in Bengkulu city. The research used primary data which collected by sampling method. The total respondent was 266 fishery households in 4 (four) villages. The data were analyzed by using descriptive, and multiple logistic regression analysis. The dependent variable was category variable that were 'poor' and 'not poor', while the independent variables were: education, number of family's burden, technology, health, accessibility, alternative's job, and saving habit. The results show that simultaneously all the determinant variables were statistically significant determine the poverty. But partially, only the number of family's burden and health which were statistically significant. Moreover, these two variables (the number of family's burden and health) statistically significant affect the poverty of the fishery households. These variables are useful to determine the government intervention or policy. The family planning program and the 'health improvement program' are the policy that is crucial to reduce the poverty and the quality of the fishery's life.*

**Fields of Study:** Poverty, Fishery, Family's Burden, Health, Family Planning Program, Health Improvement Program.

**1. INTRODUCTION**

Poverty occurs in all regions in the world, in spite of the number of poor people in the world live in Asia and Africa. Indonesia, including countries in Asia, is experiencing the worst poverty. Due to the economic crisis in 1997 - 1998, absolute poverty in Indonesia increased sharply, from 22 million people (11%) in 1996 to 34 million people (17%) in 1998 (Indroyono and Junarsin, 2002).

In Indonesia, among other provinces, it turns out that Bengkulu province is the poorest region in Indonesia. This is based on the results of research conducted by Nugroho in 1997 (Nugroho and Dahuri, 2004). Nugroho also explained that as the poorest province, consumption per capita of Bengkulu people is Rp 445.540 per year, with 0.36% chance of not being poor. Furthermore, viewed from the spreading of the poor and not-poor classes, it turns out that the proportion of poor people in city by 9.6% and in village 28.16% of the total population of 1,469,210 people in 1997.

In 2002, poor people in Bengkulu province reached 372.400 people or 22.7% from 1,640,597 people (CBS, 2003). Compared to the situation in 1997, there was a decrease in the percentage of poverty and the number of poor people in Bengkulu Province. This is certainly encouraging if the decline in the percentage of poverty, in terms of population, occurred equally for different levels of society. In fact, in the province of Bengkulu, there are still many segments of society with a variety of jobs that are classified as poor people, they were; fishermen, door to door fish traders, garbage collectors, construction workers, miners, plantation workers, rain-fed farmers, vegetable farmers, and sharecroppers (BAPPEDA, 2004).

Fishery communities are part of poor people in Bengkulu Province. This is very worrying, given the province of Bengkulu as a coastal province, because most of its territory is located on the coastline. The long coastline that borders the region with the Indian Ocean region reaches 525 km. There are five districts and one town in Bengkulu Province located on the seashore, namely the Muko-Muko district, North Bengkulu, Seluma, South Bengkulu, Kaur, and Bengkulu city (Alfansi, 2005). The extensive coastline in the province of Bengkulu is causing some people to have a livelihood as fishermen. Statistics Bureau (2003) revealed that there was at least 1.68% of the workforce in the province of Bengkulu (740,148 people) who works as fishermen (12,440 households). As a coastal area and supported by the big number of people who work as fishermen, it was a very alarming fact to know that fishing communities are part of the poor.

Furthermore, the increasing number of community members that make a living as fishermen per district in Bengkulu province in the year of 2002 - 2003 can be seen in Table 1. From 8 districts and 1 town in Bengkulu province, it shows that the number of fishing households in the city of Bengkulu has increased sharply than other districts. Other districts just have only a slight increase; there are even districts that experience a decline. To understand the occurring phenomenon in the fishing community, the location of the research was conducted in the city of Bengkulu.

**Table 1. The number of fishery households, production and value by district/city in the province of Bengkulu in 2002-2003**

District/ city	2002			2003		
	Fishing Household	Household	%	Fishing Household	Household	%
South Bengkulu (including Seluma and Kaur)	3,245	385,813	0.8	4,558	387,519	1.1
North Bengkulu (including Muko-Muko)	10,009	494,552	2.04	5,226	445,462	1.1
Bengkulu City	1,735	304,188	0.5	2,565	252,199	1.05
Rejang Lebong (including Lebong)	683	456,044	0.1	-	432,001	0

Source: BPS, 2002 and 2003



Various efforts have been made by government to address poverty and improve the welfare of the society, especially fishermen. Since 1974, the government has launched a credit assistance program to fishermen such as KIK, KMKP, and credit Bimas (Kusnadi, 2002). Other assistance programs such as the IDT program funds and programs of economic empowerment of coastal communities (PEMP). Yet, the revolving fund has not been able to overcome the socio-economic difficulties of fishing communities. These days, there are even various foreign aid programs administered to the field to examine what is needed and must be done to reduce poverty of coastal communities, such as an integrated project management of coastal areas (MCRMP) with ADB funding. This program, besides providing technical assistances, also creates a pilot project and research with the aim of improving alternative income for coastal communities.

However, these efforts have not shown significant results. Are the aid programs carried out fail to set the target? The unsuccessful target was not due to capital aid and other assistance was not an unresolved problem for the fishermen communities? Why the fishing communities can't come out of poverty? What factors determine the actual cause of the poverty among fishing communities?

The causes of poverty are related to social, economic, and cultural dimension. There are three categories of poverty: natural poverty, structural poverty, and cultural poverty (Nugroho and Dahuri, 2004). Meanwhile, Amar (2002) mentions that the causes of poverty are poor natural resources, low technology, non-functioning institutions, low quality of human resources, low health level, low accessibility to institution, lack of alternative livelihoods, as well as geographical factors and cultural value systems of society.

BAPPEDA of Bengkulu Province also mentions some indicators of poverty among fishermen communities. They are: the main income comes from fishing only, simple fishing equipments, the result from fishing can not fulfill the needs, low level of education, dropout schooling, lacking food, being vulnerable to diseases, a very simple housing conditions (hut), and the largest expenditure for food consumption (BAPPEDA, 2004).

Not all fishing communities in Bengkulu city are poor. Among the fishing communities, there are income gaps between the rich and the poor fishermen. As expressed by Mubyarto et al (1984), generally the fishing village community was divided into two groups: the rich and the very rich on the one hand, and poor, very poor and labor fishermen group on the other. Inequality of income in fishing communities also occurs in terms of the use of producing factors (for example: boat as the production item) and alternative livelihoods owned by domestic fishermen or family living pattern (Kusnadi, 2002). The general description that can be seen from the conditions of poverty and socio-economic inequalities in the life of fishing communities is the quality of settlements. Poor fishing village is identified from its housing condition, which is very simple, woven from bamboo walls with sandy soil floor, limited ownership of households. On the contrary, boat owners, brokers or large-scale traders have a luxury house with complete facilities (Kusnadi, 2002).

Socio-economic gap among the fishing communities needs to be examined until the level of poverty determinants, so that the main causes of poverty can be known. By knowing the determinants of poverty, it is hoped various aid programs are based on these determinants, so they can reach the right target and gradually decline the level of poverty especially in fishing communities. Therefore, this study aims to identify the determinants of poverty among fishing communities in the Bengkulu city.

## 2. THEORETICAL FRAMEWORKS AND HYPOTHESIS DEVELOPMENT

### Poverty

Poverty has various definitions. Irawan and Suparmoko (1997) define poverty, in terms of human beings, as the lack of food and clothing. Nugroho and Dahuri (2004) define a broader definition; poverty is absolute or relative condition that causes a person or group of people in a region do not have the ability to meet its basic needs in accordance with certain values or norms prevailing in society due to natural, cultural or structural causes.

Poverty can be measured in absolute and relative basis. The concept of absolute poverty explains the indicator of the ability of residents to make living only for meeting minimum living standard (Komarrudin, 1991). That minimum income level is often referred to as the poverty line. Thus, with an absolute poverty measure that look at poverty in absolute size, then the person or people who are unable to reach that size (or do not reach the poverty line) are categorized as poor.

Nugroho and Dahuri (2004) summarize some of the criteria which serve as the poverty line from various sources, namely:

1. The level of income for rural community is equivalent to 240 kg of rice and for urban community is equivalent to 360 kg of rice per year.
2. Level of basic food expenditure in Rupiah that is equivalent to 16 kg of rice per month, or converted to 125% when consuming other food.
3. Minimum Physical Needs, which is different for each region.

Besides the above measures, the World Bank also notes that the poverty line for people around the world since 1990 as US \$ 1 per day. In other words, a family whose income is below US \$ 1 per day can be categorized as poor (UNDP, 2004). Furthermore, it is also important to know the relative measure of poverty. Relative poverty is an approach that views poverty as measures that are influenced by other measures related to the proportion or distribution (Nugroho and Dahuri, 2004).

Based on the concept of relative poverty, even if someone has the income that reaches the minimum level of basic needs, but if it is still far lower than the income of surrounding community, then that person is still considered poor (Todaro, 1989 and Komaruddin, 1991). Relative poverty measures are the development of absolute poverty measures and usually more dynamics, so that poverty relatively will always exist in society as long as the distribution of income among people is uneven.



### **The Determinant Factors of Poverty**

The causes of poverty are related to social dimensions, economy, and culture. Causes of poverty can be grouped in to three, that is natural poverty, structural poverty, and cultural poverty (Nugroho and Dahuri, 2004). Natural Poverty is poverty caused by the limited quality of natural resources and human resources. Some important features of the natural poverty, mentioned: use simple technology, low-level production surpluses that low investment, low economic level with the expenditure for food consumption above 70%, and the region experienced the process of underdevelopment (the transfer of quality power source outside the region).

Structural poverty is the poverty that directly or indirectly caused by a variety of policies, regulations and decisions in development. Poverty because of inequalities in the ownership of resources, opportunities, skills, and other factors that cause unbalanced income gains and lead to an unbalanced social structure (Nugroho and Dahuri, 2004). Cultural poverty is the poverty that caused more attitudes in society that reflects the lifestyle, attitude or culture that trap themselves in poverty. That person has a "culture of poverty" that can push even further into the circle of poverty (Nugroho and Dahuri, 2004).

Kuncoro (2000) mentions that economically, the causes of poverty are 1) in a micro scope, poverty arises because the inequality of resource ownership patterns that lead to unequal income distribution. The poor population has only a limited number of resources with low quality, 2) poverty arises because of differences in the quality of human resources. Low quality of resources means lower productivity and eventually leads to low the level of income. These differences arise because of differences in educational level, the unfortunate fate, and also due to inherited poverty, 3) poverty arises because of differences in access to capital.

Meanwhile, specifically to fishermen communities, Kusnadi (2002) explains that poverty and socio-economic pressures faced by the fishermen communities are rooted in complex interrelated factors. However, still specifically to fishermen communities, these factors can be classified into natural and non natural factors. Natural factors are associated with fluctuations in fishing seasons and the natural structure of the village's economic resources, while non-natural factors are associated with the limitation of fishing technology coverage, gaps in the profit sharing system and the absence of a certain labors' social security, the weak control of marketing network and the non-functioning of existing fishing union, and the negative impact of fisheries modernization policy.

Several determinants of poverty factors have been studied.

1. Health level and accessibility to the institutions have a significant impact on poverty of a household (Amar, 2002, Kusnadi, 2002, and BAPPEDA, 2004).
2. The level of education is also considered important as a determinant of poverty (Amar, 2002 and BAPPEDA, 2004).
3. The level of technology and alternative livelihoods (livelihood patterns of the family) also affects the level of poverty of a family (Amar, 2002, Kusnadi, 2002).

4. The number of family also determines income and expenditures of fishermen (Anitasari, 1989).
5. Individual lifestyles and behaviors that make them constantly in a poor situation, such as a consumptive living and low savings rates (Nugroho and Dahuri, 2004; Kusnadi, 2002). Suharti (2003) also revealed that the fishermen are still consumptive.

In the case of fishermen's lifestyle, Kusnadi (2002) revealed that poor fishing communities are considered by outsiders living a consumptive and improvident life whenever they earn quite a lot. This is a 'psychological compensation' from the misery of living poor life for long enough. However, some of them continue to save some parts of their income for their saving and if it is adequate, it will be used to buy gold or household goods. Goods are in a form of investment that can be sold back when there is no income from fishing.

Amar (2002) mentions that accessibility is a determining variable of poverty for the farmers. Accessibility here means the ability of a person or group of people in the community to achieve or get something that is actually a basic need that supposed to be his right as a human being and as a citizen of a country. Someone that is poor will have a low and limited accessibility to the various needs and services than those who belong to middle class or the rich. The accesses that can not be obtained by the poor are (Wibowo, 2003):

1. Access to adequate food
2. Access to adequate clothing
3. Access to decent housing
4. Access to health services
5. Access to education
6. Access to leisure and entertainment
7. Access to good quality of life

### Hypothesis

The hypothesis of this research is:

"Education, the number of family, technology, health, accessibility, alternative livelihood, and lifestyle are the determining factors of poverty".

## 3. RESEARCH METHOD

### 3.1 Types of Research and Data

The research was an explorative research. Various factors estimated as the determining factors of poverty were explained and explored in order to obtain a real picture of the poverty of fishing communities in the Bengkulu city. This study used primary data obtained through questionnaires. To complete the analysis, the interview towards the respondent also be used.



### 3.2 Operational Definition

To assist in interpreting the variables, the operational definitions for the variables in this study are:

1. The poor are families who do not earn an income of Rp 9,300, - per day (equivalent to U.S. \$ 1 / day).
2. Education is the level of formal education that has been completed.
3. The number of family members is the number of people in the family whose lives still depend on respondents
4. Technology is the level of technology used by respondents in fishing, as seen from the fishing equipments used and the type of boat used by the respondents.
5. Health is the frequency of respondents experiencing sickness that caused the respondent could not fish.
6. Accessibility is the ability to gain access to economic institutions.
7. Alternative Livelihoods are the kinds of jobs other than fishing done by fishermen households
8. Lifestyle is saving behavior of the respondent if he has surplus income.

### 3.3 Sampling Method

The population in this study is the fishing communities in Bengkulu City, amounting to 2656 families. The number of samples to be taken is as much as 10 percent of the population or a total of 266 families. The residences used as the study area are *Pasar Bengkulu*, *Pasar Pantai*, *Dusun Kandang*, and *Padang Serai*. The choosing of the four villages is based on a consideration that the areas have the largest number of fishermen. The number of respondents that will be taken is proportional to the number of fishermen households in each residence.

### 3.4 Analysis Tools

To answer the first research question (to know the determinants of the poverty of fishermen) quantitatively, *multiple logistic regression* and *chi squares* will be used. *Multiple logistic regression* is used to determine what factors (from the independent variables in this study) which determine respondents as poor or not poor. The use of *multiple logistic regression* is appropriate because the dependent variable in this research is a categorical data (Hair, 1998).

Multiple logistic regression model in this study is:

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10}$$

For the purposes of analysis usage, data obtained from questionnaires will be grouped in 2 categories as follows:

$Y_1$  = poor category

0 = respondents who are not poor

1 = poor respondents

$X_1$  = low level of education

0 = Other education

1 = education up to primary school

- X2 = secondary education  
 0 = Other education  
 1 = education up to junior high / high school
- X3 = number of family members  
 0 = Other (number of dependents is more than 4 people)  
 1 = number of dependents 1-4 people
- X4 = low technology  
 0 = Other  
 1 = use low technology
- X5 = medium technology  
 0 = Other  
 1 = use high technology
- X6 = Health  
 0 = Other  
 1 = never experience any sickness within 1 month
- X7 = low accessibility  
 0 = Other  
 1 = low accessibility
- X8 = medium accessibility  
 0 = Other  
 1 = medium accessibility
- X9 = alternative livelihood  
 0 = Other  
 1 = have alternative livelihood
- X10 = saving lifestyle  
 0 = Other  
 1 = do not save

The counting in the *multiple logistic regression* and *chi squares* were done by using SPSS Software.

#### 4. RESULTS AND DISCUSSION

##### 4.1 Demographic Characteristics of Respondents

Respondents in this study were 158 people in four regions of fishermen's village. The number of respondents in each region of the village that was 77 people in Pasar Bengkulu (48.7% of 158 people), 30 people in Dusun Kandang (19%), 29 people in Pasar Pantai (18.4%), and 22 people in Teluk Sepang (13.9%). Some demographic information described in this discussion is race, age and marital status of respondents.

Viewed from the ethnicity, more than half of the respondents are Bengkulunese (56.3% of 158 people). Other tribes that become fishermen in a large number within the research area are Minangese (29%), followed by South Sumatran (7.6%). Other tribes that also become fishermen but in a small the number are Javanese, Bataknese, Bugese, Acehnese, and Jambinese. In terms of age, in average, the respondents are 37 years, with the majority of respondents aged between 36-45 years (35.4% of 158 respondents) and 26-35



years (34.2%). Working as a fisherman is also an option for some young people (19 respondents or 12%) aged under 25 years old. In terms of marital status, the majority of respondents are married. This is normal given that most respondents are in their mature age. Furthermore, those aged less than 25 years were not yet married. Usually, they became fishermen because just for following their parents who are also fishermen.

The variables that will be discussed are the variable that will be analyzed with logistic regression. These variables are education, the number of family, technology, health, accessibility, alternative livelihoods, saving life style, and income of the respondents.

### Income

Income for fishermen is the gap between income gained from fishing and fishing cost. The lowest respondent income is Rp 78,000, - in a month, while the highest income is Rp 9,939,500, - in a month. This can be seen in Table 4.1. Very few respondents that have income over 5 million Rupiah (6 people or 3.8%). Most respondents have income between Rp 78 000, - to Rp 2,541,000, -, which is about 87.3% of 158 respondents.

**Table 4.1. One Month Total Revenue Obtained by the Respondents**

Respondents' income (Rp)	Number	Percentage
78.000-2.541.000	138	87.3
2.541.500-5.004.000	14	8.9
5.004.500-7.467.000	4	2.5
7.467.500-9.930.500	2	1.3
Total	158	100.0

The total income of a fisherman family in the table above has not been able to explain the condition of fishermen poverty. To see the level of their poverty, whether fishermen in four fishing regions can be categorized as poor fishermen or not, per capita income amounted to \$ 1.55 per day (equal to \$ 46.5 per month) was used. If the income of the fishermen in a month is under the \$ 46.5 per capita, the fishermen are categorized as poor fishermen. In this study, the rate used to calculate per capita income of respondents was 1 USD for Rp 9200 (\$ 1 = Rp 9,200, -). Thus, per capita income categorized as the poor is the one under \$ 428,000, - per capita per month.

Per capita income of the respondents is shown in Table 4.2. The average per capita income of the respondents is Rp 474.498,59. This means, in average, per capita income of the respondents is not categorized as poor. In a more detailed manner, there are respondents who have Rp 21,800, - a month only income per capita. The largest per capita income of the respondents was Rp 5,336,000, - per month.

**Table 4.2. Per capita income per month of the respondents**

Per capita income (Rp)	Total	Percentage
218.00-1.350.800	147	93.0
1.350.800-2.679.800	7	4.4
2.679.850-4.008.800	2	1.3
4.008.850-5.336.000	2	1.3
Total	158	100.0

From the table above, still can not be determined the percentage of respondents that can be categorized poor. Table 4.3 to shows the percentage of respondents who are categorized poor. Most of the respondents have per capita income less than the poor standard (Rp 428,000, -). The percentage of respondents with per capita income under Rp 428,000, - is 71.5% or 113 respondents. This shows that the majority of fishermen who became the respondents were poor.

**Table 4.3. Poverty grouping of the respondents based on per capita income**

Grouping of respondents	Number	Percentage
Not poor	45	28.5
Poor	113	71.5
Total	158	100.0

### Education

Fishermen are generally not well-educated. The same is also found in these research areas. Nearly half of the respondents (43.7% of 158 respondents) complete primary school education. In fact, there were also respondents who did not complete primary school at all. However, the number of fishermen with secondary education (junior high and high school) reached 50%. There is also a fisherman who had completed college level education (1 person). This can be seen in Table 4.4.

**Table 4.4. Respondent Education**

Education	Number	Percentage
Did not complete elementary school	7	4.4
SD	69	43.7
SMP	52	32.9
SMU	29	18.4
S1	1	.6
Total	158	100.0

### The Number of Dependant in the Family

From the 158 respondents, 135 of them are married. Some of the young age respondents have not had children. Furthermore, of the 135 respondents who were already married, the average number of children is 2 or 3 children. This is normal in Indonesia, given the



Government continues to promote family planning program. However, there are 28% of respondents who are married with more than 3 children.

Usually the children become dependant of the parents as long as they are not married yet. However, some people also have dependants other than his wife and children, such as parent in-law, brother, and nephew. Family dependants are financed by the head of the family. In this study, the variables analyzed were the number of family members, which means the wife, children and other people whose lives still depend on the respondent. This can be seen in Table 4.5.

Table 4.5 explains that the family burden of respondents varies. The majority of respondents have a family burden between 3 and 4 people (47.5% of 158 people). The number of family members, 3 or 4 people is the image of family planning, which are 1 father, 1 mother with 1 or 2 children. However, there are also respondents who live with their parents and his siblings so that the respondents should bear a rather large number of people (7-10 people).

With a low income and an obligation to support a large number of people, the majority of the respondents gained only a small amount of per capita income.

**Table 4.5. The number of family respondent**

Number of family member	Total	Percentage
1	27	17.1
2	20	12.7
3	38	24.1
4	37	23.4
5	20	12.7
6	8	5.1
7	5	3.2
8	2	1.3
10	1	.6
Total	158	100.0

#### **Technology**

The technology here means fishing tools and vehicles used by the fishermen in fishing. Fishing gears used by the respondents are varied, but viewed from the technology there are no respondents that use high-tech equipments. Fishing gears used by the respondents are fishing, poled-net, trawl, and large nets (ring). The simplest tool is the fishing rod. Most respondents use fishing net as a tool to fish. There are also some of the respondents that use two or three kinds of fishing gear at once in fishing. The more modern the fishing gear used by the respondents, the expected the number of fish obtained is also growing. Other technologies which are used to fish are vehicles/boats. Types of boat used by the respondents composed by three namely small boat, motor boat and boat. Small boats are the simplest vehicle used by the respondents while the boats are the most modern vehicle used by the respondents in the sea. Table.4.6. explains that in majority respondents used a

middle technology off shore which is by using motor boat (75.9% from 158). Small boats are used by 19% and there are 5.1% respondents which used boat to sail. The small number of respondents who used boat showed the low capability of the fishermen to fish.

**Table 4.6. Type of boats used by the respondents to fish**

Type of boat for sail	Quantity	Percentage
Small boat	30	19.0
Motor boat	120	75.9
Boat	8	5.1
Total	158	100.0

### Health

Fishermen profession needs a strong stamina. There are few things which make the fishermen have to keep their health. Fishermen are people who go off shore to fish. Therefore, someone who goes to sea need to have a strong body to face the blow of wind which relatively stronger than the wind in land. Besides, many of the fishermen use land wind and sea wind to sail to the middle of the sea. On the average they go to the sea in the evening or before night, and back to the land in the morning. In that way, most of the fishermen need to be strong to face the night wind. Health is also needed by the fishermen to maintain their nets on sea. This is absolutely needs an extraordinary healthy body. Therefore, health is important for the fishermen to sail. A sick fisherman of course can not sail, and this may have an impact on their low income. Table 4.8 showed the health condition of the respondents.

**Table 4.7. Sick frequency in a month**

Sick Frequency	Quantity	Percentage
Never	63	39.87
1-2 X	95	60.13
Total	158	100

Respondents' health condition on the average per month was quite good. In a month, 41% respondents got sick once or twice so they could not sail. Type of illness which frequently had by the respondents caused them to take a break of sailing were malaria, influenza, fever, etc. Even though, as many as 59% from the respondents said that they ever had a mild sickness but kept on fishing to the sea (the break of sailing was only in a short time).

### Accessibilities

Many of the respondents borrow some funds only to fulfill their needs or to fulfill the sailing needs, but not to develop their life necessities. Accessibilities in the research was an allowance which gained by the respondents to get funds either for fulfilling their life necessities, sailing necessities, or to develop the fishing business. Things that need to be concerned in assessing the accessibility was the respondents' frequency in borrowing funds and sources in which the respondents got the loan. Seen from those two aspects, it can be said that most of the respondents had no access or in other words had a low access (129 persons or 81.6%). They borrow money only to their relatives. Only 16.5% of them



or 26 persons have a mid access. The 26 persons ever borrowed funds to friends or moneylender while the high accessibility was gained by 3 respondents or only 1.9%. This means that 3 of the respondents had ever borrowed money from Cooperation, PEMP, or LKM. Money that they borrowed was used to develop the sailing business. But however there were no respondent ever borrowed money from a bank. The accessibilities information of the respondents is showed in table.4.8.

**Table 4.8. Financial accessibility of the respondents**

Accessibilities	Quantity	Percentage
Low	129	81.6
Mid	26	16.5
High	3	1.9
Total	158	100.0

#### **Alternative Livelihood/Professions**

Alternative professions was one of the ways which is frequently used by someone to fulfill their life necessities because lack of income from the main job to fulfill their everyday needs. Table 4.9 explains number of respondents who had an alternative job beside the fishermen.

**Table 4.9. Alternative job had by the respondents' family**

Having an alternative job	Quantity	Percentage
None	101	63.9
Exist	57	36.1
Total	158	100.0

Table 4.9 shows that most respondents rely on the profession as a fisherman in an effort to meet the needs of their lives (64% of 158 people). 36% of the respondents work in order to help find another source of income as a fisherman. From 36% of respondents or 57 people, there are some respondents who have jobs other than fishing (6 people). However, most respondents are assisted by other family members (who live with the respondent) in carrying out that alternative work, such as wives, parents / in-laws, children and other family members.

The type of alternative jobs chosen by the majority of respondents' family is to sell food (11%), running a small shop (9.5%), laundry (5%). In addition, there are also family members who work fish seller, rice warehouse keeper, Public Health Center keeper, office cleaners (cleaning service), working in a garage, repairing electronics, transportation services, and leasing nets. Of the several types of alternative employment, it can be seen that the alternative job carried out by the fishermen family is still categorized as a 'rough work' which only give a little extra income. Of the 57 respondents who have alternative job even stated that the income as a fisherman is still higher than the income from the alternative job. Only 7% of respondents obtained a quite large income to meet their living needs.

### Saving Lifestyle

Saving money is saving some parts of the income gained and kept for future needs. There are some people who are always face shortcomings in life so that they could not save. But there are also some people that have extra income but cannot save. This suggests that actually saving can be done by people who are poor or rich, if they want to save money. For those fishermen whose income is not too large, it turns out that there are some of them who save some money and some are not saving at all. Table 4.10 describes the frequency of respondents in saving.

Table 4.10. Frequency saving by respondents

Saving frequency	Number	Percentage
Never	42	26.6
Occasionally	29	18.4
Once a month	18	11.4
Once every two weeks	3	1.9
Once a week	22	13.9
everyday	44	27.8
Total	158	100.0

Table 4.10 shows that most respondents often save money: every day (28%), once a week (14%). However, many respondents never save (27%) or save only occasionally (18%). Overall, respondents who regularly save money are 87 people (55%) either every month, every two weeks, every week or even every day.

With the condition of earnings as a fisherman, of course the amount of money saved is not too big. The total of average savings of the respondent is 51,300 rupiahs. The majority of respondents save in tens of thousands of rupiahs (55.2%). The percentage of respondents that save under ten thousand rupiah for each time saving is 36.2%. There are still very few respondents who could save hundreds of thousands of rupiah (8.6%). The information on the amount of money that they could save illustrates the ability of the respondents to save money.

### 4.2. Discussion

#### Logit Regression

Logit Regression analysis is used to look at the factors that determine the poverty of fishermen. For the purpose of Logit Regression calculation, the variables examined, both the dependent variable and independent variable are converted into dummy variables with a value of 1 and 0.

Especially for technology, education, and access variables, the variables are separated between the low and medium. Therefore, there are 2 independent variables of education, which are elementary education variable (SD) and secondary education variable (junior high and high school). For technology, there are low technology variable and medium technology variable. Similarly, the variables of accessibility are consisted of low and medium access variables. Thus, the overall independent variables are 10 variables.



From the research hypothesis testing conducted with respect to the chi-square value and significance probability ( $\alpha = 5\%$ ) shows that  $H_0$  (null hypothesis) was rejected. This means that collectively, education, number of family members, technology, health, accessibility, alternative livelihoods, and lifestyle determines poverty significantly. Furthermore, the ability of the model predictions is shown on the classification table (Table 4.13).

**Table 4.11. Classification Table**

Observed			Predicted		
			Poor category		Percentage Correct
			not poor	poor	
Step 1	Categorized poor	Not poor	13	30	30,2
		poor	9	97	91,5
	Overall Percentage				73,8

Table 4.11 explains that the predictive ability of this model is very good. The level of correctness is 73.8% (with 30.2% of the fishermen are not poor and 91.5% poor fishermen's groups) have been able to be predicted correctly. From the Wald test show that the significant independent variable determining the poverty of fishermen in this study are only 2 variables, namely  $X_3$  (the number of family) and  $X_6$  (health fisherman) whereas 8 other variables do not determine poverty fishing significantly. Constanta in the logit regression equation was also not significant. Thus, only 2 variables that can be incorporated into the logit regression equation.

By considering  $\beta$  coefficient from the two significant variables, the logit regression equation can be made as follows:

$$\text{Log}(P/1-P) = 1129 + 1.354 X_3 X_6.$$

Where  $P$  is the probability of becoming poor. This equation shows that there is a positive correlation between poverty with the number of family members and the health of fishermen. If  $X_3$  and  $X_6$  increase, then  $Y$  will also increase. It means that, in this study, there is a chance for the fishermen becoming poor (1 value = poor, and 0 value = 1 other) (or in other words, not poor), if the fishermen are having a greater number of dependents (more than 4 people in one family) or if they get sick. Because the health variable is the biggest variable, then health variable is discussed first.

For variable  $X_6$  (health), the value of a dependent variable coefficient  $\beta$  is 1.354. This means that fishermen who are sick (quite often or suffer from a severe sickness of illness) will be poorer by 135.4% with the assumption that the other independent variables are constant. Furthermore, odds ratios of health variables are also taken into account. The odds value gained by taking the antilog of the logit regression coefficient is 3.873 1.354 (based on  $e^{1.354}$ ). This means that more severe the illness suffered by a fisherman, the chance for him to be poorer than other healthy fishermen is increasing by 3.873 times

As for variable  $X_3$  (number of dependents), the value of a dependent variable coefficient  $\beta$  is 1.129. This can be interpreted as the increase in the number of dependants in the

family will make the fishermen become poorer by 112.9% with the assumption that the other independent variables are constant. The odd ratio of variable number of dependants was also taken into account. The odds value gained by taking the anti log of the logit regression coefficient is  $3.093 \times 1.129$  (based on  $e^{1.129}$ ). This means the increase in number of dependents (more than 4 people in 1 family) will causes the chance of a fisherman to be poor is increasing by 3.093 times compared to the fishermen who have the highest number of 4 dependents.

#### **Logit Regression Analysis Results**

Logit regression calculation result states that all the studied variables (education, number of family members, technology, health, access, alternative employment, and saving lifestyle) altogether become the poverty determinant factors for fishermen. The results of this logit regression was very logical, considering that poverty is influenced by many factors. However, viewed from individual variables which determine and influence the level of poverty of fishermen, there are only two significant variables that determine fishermen poverty. Those variables were the number of family and health of the fishermen. For that, the eight insignificant variables will not be discussed further.

Variable with the largest regression coefficient was the health variable. Health variable described the health condition of the fishermen. The condition of the fishermen who were sick within the month caused the fishermen were likely to be poor in that month. The chance for the fishermen to be poor increased by 3.873 times for sick fishermen compared to the fishermen who were not sick within a month. The results of this logit regression also makes sense, because the fishermen who were sick (quite seriously) could not go to sea. Not going to sea means no fishing, and certainly does not earn income for the sick fishermen. The more frequent the fishermen sick within a month, the lesser the income of that fishermen within the month. With the lesser income, the fishermen were grouped into poor fishermen.

#### **5. CONCLUSION AND IMPLICATION**

Poverty is still the crucial problem in the province of Bengkulu. There are still many segments of society with a variety of jobs that are classified as poor people, one of them is fishermen. Number of family members, technology, health, access, alternative employment, and saving lifestyle altogether become the poverty determinant factors for fishermen. Moreover, partially these two variables (the number of family and health) statistically significant affect the poverty of the fishery households. These variables are useful to determine the government intervention or policy. The 'family planning program' and the 'health improvement program' are the policy that is crucial to reduce the poverty and the quality of the fishery's life.



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