THE ATTITUDE AND KNOWLEDGE PERFORMANCES OF THE BAJAU TRIBE ON THE DEVELOPMENT OF FISHERY ACTIVITIES IN NAIN ISLAND, NORTH SULAWESI, INDONESIA

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ABSTRACT

This paper presents the results of the impact of the attitude and knowledge of the Bajau tribe in Nain Island of North Sulawesi, Indonesia, on the development of their fishery activities. The results are also compared with the same parameters on another community of the same Island, the Sangihe tribe. The results show that attitude and knowledge have no significant influence on the development of fishery activities of Bajau tribe in Nain Island.

Key words: Socio-economics, Bajau, Seaweed Farmers, Nain Island

INTRODUCTION

The Nain Island is located at 1°47'-1°48' North Latitude and 124°48'-124°49' East Longitude in the Regency of North Minahasa, North Sulawesi Province, Indonesia. One of the communities on Nain Island is the Bajau Tribe. The most people or families of the Bajau community are fishermen. The occupation as fisherman is usually inherited from their parents. The sea is an important part of their life since they were young. They spend the most of the time on the sea; swimming, fishing or just traveling by boat. They got the lessons of swimming, rowing a boat, and even catching fish in their early age. They also got lessons in early age about the nature traditionally: how to determine direction, weather, when and where to find fish, etc. But the fact is that their living standard is not improved. Their income and production are still low.

According to Mantjoro (1993), the condition above is a consequence of their inappropriate attitude and lack of knowledge. Rejecki (1990) defines attitude as a learned predisposition to respond cognitively, affectively, and behaviorally to a particular object in a particular way. Similarly, Rockeach (1948) defines attitude as a learned orientation or disposition, which provides a tendency to respond favorably or unfavorably to the object or situation. According to Suriasumantri (1985), knowledge is all things known about a certain object including science, while Mar'at (1988) defines knowledge as a component of attitude, which can produce a certain behavior.

It is interested to have a good description about the attitude and the level of knowledge of the fishermen and seaweed farmers of Bajau Tribe in Nain Island and their impacts to the development of their fishery effort. This is the main purpose of this research. Moreover, the aims of this research are (1) to clarify the impact of the Attitude and Knowledge of the Bajau Tribe to the fisheries development, especially to the Fishermen and Seaweed farmers at Nain Island, (2)

to compare and to analyze the attitude and the knowledge of the Bajau fishermen and the non-Bajau fishermen in Nain island, in this case the Sangihe tribe, (3) to set up a relationship between age, education level and experience of the Bajau fishermen and the Sangihe fishermen on one side and their attitude and knowledge on the other side and to analyze the impact of these factors to the development of their fishery efforts.

METHODS

The research was done in Nain Village, District of Wori, in the North Minahasa Regency, North Sulawesi Province, Indonesia, in the period of March to October 2003. Samples were taken according to the cluster sampling method. There are 150 respondents picked up from the fields as samples in this research, consisting of 75 respondents of the Bajau tribe and 75 respondents from non Bajau, in this case Sangihe tribe, as comparison. The samples were taken from about 30 % of the total population of the Nain Island, who work as fishermen and seaweed farmers.

The parameters observed are attitude (Y1), knowledge (Y2) and the rate of the fishermen effort's development (Y3) as the dependent variables, whereas age (X1), education (X2), experience (X3) and income (X4) as the independent variables. The data were collected using the questionnaire sheets, and the collected data are analyzed statistically with multiple regression approach.

RESULTS

The data classification of the survey on the fishermen and seaweed farmers of the Bajau Tribe and of the Sangihe Tribe, in Nain Island, is shown in Table 1 and the characteristics of the data are shown in Table 2 below.

Table 1. Data classification of the survey on Bajau Tribe and Sangihe Tribe in Nain Island

No.	Variable	Classification	Bajau tribe		Sangihe tribe	
			Quantity	%	Quantity	%
1	Age (X1)	19-35 yrs	42	56.00	28	37.33
		36-50 yrs	33	44.00	47	62.67
		> 50 yrs	0	0.00	0	0.00
2	Education (X2)	High	0	0.00	3	4.00
		Middle	57	76.00	45	60.00
		Low	18	24.00	27	36.00
3	Experience (X3)	Much	5	6.67	7	9.33
		Middle	69	92.00	29	38.67
		Few	1	1.33	39	52.00
4	Income (X4)	High	5	6.67	0	0.00
		Middle	20	26.67	5	6.67
		Low	50	66.66	70	93.33
5	Attitude (Y1)	Agree	50	66.67	5	6.67
		Hesitate	25	33.33	60	80.00
		Not agree	0	0.00	10	13.33
6	Knowledge (Y2)	Much	75	100.00	25	33.33
		Middle	0	0.00	32	42.67
		Few	0	0.00	18	24.00
7	Effort Development (Y3)	Full initiative	8	5.33	6	4.00
		Less initiative	64	92.67	66	94.00
		No initiative	3	2.00	3	2.00

Table 2. The characteristics of the data.

Characteristic	Y1	Y2	Y3	X1	X2	X3	X4
Total samples	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Average	18.79	56.13	12.23	35.46	2.03	12.90	4,382.00
St. Deviation	3.09	7.59	2.33	8.82	0.82	2.33	1,994.00
St. Error	0.25	0.62	0.19	0.72	0.07	0.19	163.00
Lowerbound 95% C.I	18.29	54.92	11.86	34.04	1.89	12.53	4,062.89
Upperbound 95 % C.I	19.28	57.34	12.60	36.87	2.16	13.27	4,701.11
Var. Coefficient (%)	16.44	13.52	19.05	24.87	40.39	18.06	45.50
Median	20.00	59.00	12.00	36.50	2.00	14.00	3,900.00
Minimum	7.00	40.00	8.00	20.00	1.00	8.00	2,020.00
Maximum	23.00	65.00	19.00	49.00	4.00	18.00	11,400.00

The respondents were divided into three age classifications: 19-35 yrs, 36-50 yrs, and > 50 yrs. The average age of the Bajau respondents is 32.65 years and that of the Sangihe respondents is 38 years. So the respondents of the Bajau tribe are younger that those of Sangihe tribe. The respondents of both communities are in the productive age.

The education backgrounds of the respondents are separated into high (high school), middle (secondary school), and low (elementary school). Nain Island has only two elementary schools. To proceed to secondary school or high school, people have to go to Manado City.

The respondents of both communities have middle size experience, namely 13.88 years for the Bajau respondents and 11.92 for the Sangihe respondents, and so the respondents from Bajau tribe have more experience that those of the Sangihe tribe. This also implies that the Bajau tribe have been involved in their job earlier that the Sangihe tribe. The Bajau children get involved in the fishery earlier. After finishing their schools, they choose immediately the job as fisherman or seaweed farmer. This explains why the Bajau respondents have lower education background, which is slightly different than the case of the Sangihe tribe. Many of them choose to find other job in the city first. When they cannot find job there, they come back to Nain and make their living as fishermen or as seaweed farmers.

The Bajau respondents have more income than the Sangihe respondents. Their average income of the Bajau respondents is USD 340 per year while that of the Sangihe tribe is just USD 285 per year. Both tribes are categorized as low-income communities.　The Bajau people have more open attitude to the introduction of new technology; 66.67 % respondents agree to adopt a new technology while this is just about 6.67 % of the Sangihe respondents. Most of the Sangihe respondents hesitate to adopt the new technology. The Bajau people fully concentrate on the fishery while the Sangihe tribe people have more variation of jobs. This may cause the difference of these attitudes.

The Bajau people remarkably have enough knowledge on fishery. This is because the Bajau people have more focus on the fishery while the Sangihe people have variations in works. Since the Bajau people prefer to stay in Nain, so they have more time to transfer their knowledge to the younger generation.

The data shows that both Bajau and Sangihe people take less initiative to develop their fishery effort. There are 92.67 % of the Bajau and 94 % of the Sangihe respondents in the middle category in the development of their effort.

CORRELATIONS OF ATTITUDE, KNOWLEDGE AND DEVELOPMENT OF FISHERY

Table 3 shows the correlations between attitude and knowledge of the fishermen and seaweed farmers in Nain Island to the development of fishery effort.

Table 3. Correlation between attitude and knowledge of the fishermen and seaweed farmers in Nain Island to the development of the fishery effort.

Variable	Y1	Y2	Y3
Y1	1	0.648**	0.023
Y2	0.648**	1	0.093
Y3	0.023	0.093	1

** Significant

Table 3 shows that there is no significant correlation between attitude (Y1) and development of fishery effort (Y3). There is also no significant correlation between knowledge (Y2) and development of fishery effort (Y3). There is, however, a significant correlation between attitude and knowledge. This means that there is only 64.8 % that can be explained about the influence of attitude and knowledge to the development of fishery effort. Moreover, Table 3 also implies that both attitude and knowledge of the Nain fishermen and seaweed farmers have neither direct nor indirect influence to the development of fishery effort.

FACTORS DETERMINING ATTITUDE, KNOWLEDGE AND EFFORT DEVELOPMENT

The regression analysis on attitude (Y1) as dependent variable, with age (X1), education (X2), experience (X3), and income (X4) of the fishermen and seaweed farmers in Nain Island, is shown in Table 4 and the regression equation is:

$$Y1 = 9.340 - 0.080\ X1 - 0.348\ X2 + 0.854\ X3 + 0.00045\ X4$$

Table 4. Regression analysis on Attitude with Age, Education, Experience, and Income

Model	Coefficient	St. deviation	t	P
Constant	9.340	1.487	6.28	0.000
Age (X1)	-0.080	0.023	-3.51	0.001
Education (X2)	-0.348	0.296	-2.29	0.198
Experience (X3)	0.854	0.086	9.98	0.000
Income	0.00045	0.000	4.88	0.000

Dependent Variable: Y1   S = 2.205   R-sq = 50.3 %   r-sq (adj) = 49.0 %

From Table 4, it can be read that only education is not significant. This is because the education level that is quite low and almost homogenous. So we take the variable X2 away and get the regression analysis shown in Table 5.

Table 5. Regression analysis on Attitude with Age, Experience, and Income

Model	Coefficient	St. deviation	t	P
Constant	8.707	1.407	6.19	0.000
Age (X1)	-0.068	0.021	-3.26	0.001
Experience (X3)	0.811	0.079	10.28	0.000
Income	0.00047	0.00009	5.08	0.000

Dependent Variable: Y1   S = 2.210   R-sq = 49.8 %   r-sq (adj) = 48.7 %

Now all variables have significant influence ($P < 0.005$). Hence we get the following regression equation:

$$Y1 = 9.340 - 0.068\ X1 + 0.811\ X3 + 0.00047\ X4$$

The regression analysis on knowledge (Y2) as dependent variable, with age (X1), education (X2), experience (X3), and income (X4) of the fishermen and seaweed farmers in Nain Island, is shown in Table 6. The regression equation is:

$$Y2 = 25.202 - 0.122\ X1 + 1.089\ X2 + 2.282\ X3 + 0.0008\ X4$$

Table 6. Regression analysis on Knowledge with Age, Education, Experience, and Income

Model	Coefficient	St. deviation	t	P
Constant	25.202	3.089	8.16	0.000
Age (X1)	-0.122	0.047	-2.58	0.011
Education (X2)	1.089	0.558	-2.29	0.198
Experience (X3)	2.282	0.178	12.82	0.000
Income	0.0008	0.0002	4.30	0.000

Dependent Variable: Y2   S = 4.581   R-sq = 64.6 %   r-sq (adj) = 63.6 %

The regression analysis on development of fishery effort (Y3) with age (X1), education (X2), experience (X3), and income (X4) of the fishermen and seaweed farmers in Nain Island, are shown in Table 7. The regression equation is:

$$Y3 = 10.56 + 0.008\ X1 + 0.077\ X2 + 0.035\ X3 + 0.00025\ X4$$

Table 7. Regression analysis on Development of Fishery Effort with Age, Education, Experience, and   Income

Model	Coefficient	St. deviation	t	P
Constant	10.56	1.550	6.81	0.000
Age (X1)	0.008	0.024	0.33	0.739
Education (X2)	0.077	0.280	-0.27	0.785
Experience (X3)	0.035	0.089	0.39	0.695
Income	0.00025	0.00009	2.60	0.010

Dependent Variable: Y3   S = 2.298   R-sq = 5.1 %   r-sq (adj) = 2.4 %

Age has clear influence to the attitude and knowledge of the respondents. The younger the Bajau people the more interested they are in the introduction of new technology. The younger people have more open mind and very responsive in comparing with the older people. This is in the line with Koluge (1990) who said that the older the people are the more difficult it is for them to adopt new things. However, age has no significant influence on the development of fishery effort.

Education is not a significant factor to determine either attitude or the development of fishery effort of the fishermen and seaweed farmers in Nain Island. The education level of the most respondents is only at secondary school which is basically can be categorized as low educated. Moreover, they have rarely got non-formal education especially on fishery, business or management. This may explains why education does not play important role to determine their attitude. However, education plays important role in getting more knowledge. The higher the

education level people have the more flexible and the faster they are to adopt new technology. According to Roger (1983), education level plays important role in adopting technology.

Experience has influence to determine attitude and knowledge of the fishermen and seaweed farmers in Nain Island. The more experience they have the easier it is for them to decide for adopting new technology. It is also clear that experience contributes positively to the knowledge. In contrary, experience has no significant influence for the people in Nain to develop their fishery effort.

Income is the only significant factor in determining the development of fishery effort of the people in Nain Island. The regression coefficient of 0.00025 means that every increasing of about 10 cents (USD), income will improve 2.5 % of the development of fishery effort. The low income of the communities in Nain Island seems to have created the perception that when their income goes up, their fishery effort will improve.

CONCLUSIONS

Attitude and knowledge have no significant influence on the development of fishery activities of Bajau tribe in Nain Island. Age and experience of the Bajau tribe may give significant contribution to the attitude of the fishermen and seaweed farmers to the technology. In particular, income has significant influence to the attitude, knowledge, and the development of the fishery effort of the Bajau tribe in Nain Island. The younger people of Bajau tribe are more skilful and more open to the transfer technology than the older people. The knowledge is also correlated with age, education, experience and income.

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