

# THE IMPACT OF ATTITUDE AND KNOWLEDGE PERFORMANCES ON FISHERY DEVELOPMENT OF THE BAJAU TRIBE IN NAIN VILLAGE OF WORI DISTRICT, NORTH MINAHASA REGENCY, NORTH SULAWESI PROVINCE

*Pengaruh sikap dan pengetahuan terhadap pengembangan perikanan pada suku Bajau di Desa Nain, Kecamatan Wori, Kabupaten Minahasa Utara, Provinsi Sulawesi Utara*

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**Abstrak.** Penelitian ini bertujuan mempelajari hasil dampak dari sikap dan pengetahuan dari suku Bajau di Pulau Nain Sulawesi Utara, Indonesia, pada pengembangan kegiatan perikanan mereka. Hasil penelitian ini juga dibandingkan dengan parameter yang sama pada komunitas lain dari pulau yang sama, suku Sangihe. Hasil penelitian menunjukkan bahwa sikap dan pengetahuan tidak memiliki pengaruh signifikan pada pengembangan kegiatan perikanan suku Bajau di Pulau Nain.

**Kata kunci:** Sosial-ekonomi, Bajau, petani rumput laut, Nain

## INTRODUCTION

The Nain island in which Nain village located is administratively included in North Minahasa regency of North Sulawesi Province, Indonesia, situated at 1°47'-1°48' N and 124°48'-124°49' E. One of the communities on Nain island is the Bajau tribe that the majority of them work as fishermen which inherited from their parents related to their habitudes lived along the coastal area, and the consequence of their inappropriate attitude and lack of knowledge (Mantjoro, 1993). Rejecki (1990) defined attitude as a learned predisposition to respond cognitively, affectively, and behaviorally to a particular object in a particular way. Similarly, Rockeach (1948) defined attitude as a learned orientation or disposition, which provides a tendency to respond favorably or unfavorably to the object or situation. Knowledge is all things known about a certain object including science (Suriasumantri, 1985), while Mar'at (1988) defined 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 on 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 both 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, North Minahasa regency, North Sulawesi province, Indonesia, during March to October 2003.

Samples were taken according to the cluster sampling method. The 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 village who work as fishermen and seaweed farmers.

The parameters observed are attitude ( $Y_1$ ), knowledge ( $Y_2$ ) and the rate of the fishermen efforts development ( $Y_3$ ) as the dependent variables, whereas age ( $X_1$ ), education ( $X_2$ ), experience ( $X_3$ ) and income ( $X_4$ ) as the independent variables. The data were collected using the questionnaire sheets, and the collected data are analyzed statistically with multiple regression approach.

## RESULTS AND DISCUSSIONS

The data classification of the survey on the fishermen and seaweed farmers of the Bajau and

Sangihe tribes in Nain village is shown in Table 1 and the characteristics of the data are shown in

Table 2. 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 38.0 years. So the respondents of the Bajau tribe are younger than 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). There are two elementary schools in Hain island. To proceed to secondary school or high school, people must go to Manado City.

Table 1. Data classification of the survey on Bajau and Sangihe tribes in Nain village

Variable	Classification	Bajau tribe		Sangihe tribe	
		Quantity	%	Quantity	%
Age (X <sub>1</sub> )	19-35 yrs	42	56.0	28	37.3
	36-50 yrs	33	44.0	47	62.7
	> 50 yrs	0	0.0	0	0.0
Education (X <sub>2</sub> )	High	0	0.0	3	4.0
	Middle	57	76.0	45	60.0
	Low	18	24.0	27	36.0
Experience (X <sub>3</sub> )	Much	5	6.7	7	9.3
	Middle	69	92.0	29	38.7
	Few	1	1.3	39	52.0
Income (X <sub>4</sub> )	High	5	6.7	0	0.0
	Middle	20	26.7	5	6.7
	Low	50	66.7	70	93.3
Attitude (Y <sub>1</sub> )	Agree	50	66.7	5	6.7
	Hesitate	25	33.3	60	80.0
	Not agree	0	0.00	10	13.3
Knowledge (Y <sub>2</sub> )	Much	75	100.0	25	33.3
	Middle	0	0.0	32	42.7
	Few	0	0.0	18	24.00
Effort development (Y <sub>3</sub> )	Full initiative	8	5.3	6	4.0
	Less initiative	64	92.7	66	94.0
	No initiative	3	2.0	3	2.0

Table 2. The characteristics of the data

Characteristic	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>
Total samples	150	150	150	150	150	150	150
Average	18.79	56.13	12.23	35.46	2.03	12.90	4,382.0
St. deviation	3.09	7.59	2.33	8.82	0.82	2.33	1,994.0
St. error	0.25	0.62	0.19	0.72	0.07	0.19	163.0
Lower bound 95% C.I	18.29	54.92	11.86	34.04	1.89	12.53	4,062.89
Upper bound 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	20.0	59.0	12.0	36.5	2.0	14.0	3,900.0
Minimum	7.0	40.0	8.0	20.0	1.0	8.0	2,020.0
Maximum	23.0	65.0	19.0	49.0	4.0	18.0	11,400.0

The Bajau respondents have middle size experience of 13.88 years and Sangihe respondents of 11.92 years. In other word, the respondents from Bajau tribe have more experience than those of the Sangihe tribe. This also implies that the Bajau tribe have been involved in their job earlier than 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.

**Correlation of attitude and knowledge on fishery effort development**

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 shows that there is no significant correlation between attitude (Y<sub>1</sub>) and development of fishery effort (Y<sub>3</sub>). There is also no significant correlation between knowledge (Y<sub>2</sub>) and development of fishery effort (Y<sub>3</sub>). 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.

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

Variable	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>
Y <sub>1</sub>	1	0.648**	0.023
Y <sub>2</sub>	0.648**	1	0.093
Y <sub>3</sub>	0.023	0.093	1

Remarks: \*\* Significant

**Factors determining attitude, knowledge and effort development**

The regression analysis on attitude (Y<sub>1</sub>) as dependent variable, with age (X<sub>1</sub>), education (X<sub>2</sub>), experience (X<sub>3</sub>), and income (X<sub>4</sub>) of the fishermen and seaweed farmers in Nain village, is shown in Table 4 and the regression equation is:  $Y_1 = 9.340 - 0.080 X_1 - 0.348 X_2 + 0.854 X_3 + 0.00045 X_4$ . Table 4 (left) shows that only education is not significant because the education level is quite low and almost homogenous. So we take the variable X<sub>2</sub> away and get a new regression analysis (right) which have significant influence (p<0.05), with

regression equation:  $Y_1 = 9.340 - 0.068 X_1 + 0.811 X_3 + 0.00047 X_4$ .

The regression analysis on knowledge (Y<sub>2</sub>) with X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, and X<sub>4</sub> of the fishermen and seaweed farmers in Nain village, yielded a regression equation as  $Y_2 = 25.202 - 0.122 X_1 + 1.089 X_2 + 2.282 X_3 + 0.0008 X_4$  (Table 5, left), while on development of fishery effort (Y<sub>3</sub>), obtained a regression equation as  $Y_3 = 10.56 + 0.008 X_1 + 0.077 X_2 + 0.035 X_3 + 0.00025 X_4$  (Table 5, right).

Table 4. Regression analysis on attitude with age, education, experience, and income

Model	Dependent variable, Y <sub>1</sub> (attitude)				Dependent variable, Y <sub>1</sub> (attitude)			
	Coeff	St. dev	t	p	Coeff	St. dev	t	p
Constant	9.340	1.487	6.28	0.000	8.707	1.407	6.19	0.000
Age (X <sub>1</sub> )	-0.080	0.023	-3.51	0.001	-0.068	0.021	-3.26	0.001
Education (X <sub>2</sub> )	-0.348	0.296	-2.29	0.198				
Experience (X <sub>3</sub> )	0.854	0.086	9.98	0.000	0.811	0.079	10.28	0.000
Income (X <sub>4</sub> )	0.00045	0.000	4.88	0.000	0.00047	0.0001	5.08	0.000
S	2.205				2.210			
R-sq (%)	53.3				49.8			
r-sq (adj) (%)	49.0				48.7			

Table 5. Regression analysis on knowledge with age, education, experience, and income

Model	Dependent variable, Y <sub>2</sub> (knowledge)				Dependent variable, Y <sub>3</sub> (effort development)			
	Coeff	St. dev	t	p	Coeff	St. dev	t	p
Constant	25.202	3.0890	8.16	0.000	10.56	1.550	6.81	0.000
Age (X <sub>1</sub> )	-0.122	0.0470	-2.58	0.011	0.008	0.024	0.33	0.739
Education (X <sub>2</sub> )	1.089	0.5580	-2.29	0.198	0.077	0.280	-0.27	0.785
Experience (X <sub>3</sub> )	2.282	0.1780	12.82	0.000	0.035	0.089	0.39	0.695
Income (X <sub>4</sub> )	0.001	0.0002	4.30	0.000	0.00025	0.000	2.60	0.010
S	1.581				2.298			
R-sq (%)	64.6				5.1			
r-sq (adj) (%)	63.6				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 a 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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