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THE IMPACT OF SUB-NATIONAL GOVERNMENT SPENDING IN MARINE AND FISHERIES SECTOR TOWARDS FISHERMEN'S INCOME: A CASE STUDY OF SABANG, INDONESIA

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ABSTRACT

This study aimed to determine the impact of government spending in marine and fisheries sector in the form of fishing boat provisions to fishermen in Sabang, Indonesia. This study used primary data which was divided into two groups: beneficiary and non-beneficiary groups during 2013-2015 by using 60 fishermen. The data were analyzed using impact evaluation method. The findings showed that there were differences in the income between the action group that received the boat assistance with the size < 5GT and the control group as the comparison group that did not receive the assistance. The income difference, resulting from this assistance, was IDR 253,334 per month. It showed the real impact of physical assistance in the form of ship/ boat to the fishermen's income. The policy implication of this result is that this activity can be continued by more selectively verifying the submission request proposal so that the expenditure in marine and fisheries sector from Regional Government Budget (APBK) is evenly and in accordance with the target. In addition, it is also necessary to conduct socialization in which the assistance is not only in the form of physical assistance but also the assistance in the form of soft-skill including trainings.

KEY WORDS

Regional Government expenditure, impact evaluation, income, fisheries.

The marine and fisheries sector is one of the sectors that sustain the Indonesian economy considering the vast area of the waters compared with the land area with the potential in every region that is different in large numbers. The expected direction of development is development that can improve the welfare of the society either whole or partially. Thus, the direction of development of the marine and fisheries sector is also a unity that affects each other. In this case, the marine and fisheries sector related to the level of fishermen's welfare that can be measured by increasing the living standard of the fishermen (Mous et al., 2005). The effort made to improve the marine and fisheries sector for a region are the participation of local/ municipal governments and the enormous involvement in sustainable development.

Sabang City is located in Weh Island of Aceh Province and is an area of archipelago that most of its territory is confronted with the sea, so it can be said that in a large number of coastal areas, the society are domiciled and have livelihoods as fishermen. According to Tipping (2016) fisheries are an important source of nutrition, income and employment for millions of people around the world. Sabang City consists of two sub-districts namely Sukajaya and Sukakarya Sub-Districts, each of which covers eighteen gampong(s) (villages) in which ten gampong(s) are located in Sukajaya Sub-District and eight gampong(s) in Sukakarya Sub-District. Most of the gampong(s) are directly adjacent to the sea namely the Andaman Sea and the Malacca Strait. With the characteristics of the region and the potential possessed by Sabang City, the marine and fisheries sector can be one of the sectors that

can be relied upon in the development and improvement of the welfare of its society (Mustaqim, 2018).

With the number of fishermen growing from year to year, it shows that the business opportunity to become a fisherman is very promising viewed from the potential of the available natural resources. Another thing that allows the business opportunities to be a fisherman is derived from parent's job who also works as fishermen.

Source: Analysis of Labor Condition of Sabang City 2015

Figure 1 – Working population based on occupation and gender in 2015

Based on Figure 1, Analysis of Labor Condition of Sabang City 2015, based on the description of the figure, it shows that the working population is based on the occupation and gender. Number 1 is for agricultural, plantation, forestry, hunting and fisheries work. Number 2 is for mining and quarrying, number 3 is for excavation, number 4 is for electricity, gas and drinking water, number 5 is for construction, number 6 is for trading, restaurant and accommodation services, number 7 is for transportation, warehousing and communications, number 8 is for financial institutions, real estate, rental companies and services and figure 9 is for social, social and individual services. Based on the figure of occupation, generally, the category of agriculture, plantations, forestry, hunting and fisheries for 2015 is in the second position compared to other categories. It shows that the marine sector is still a big interest of some people of Sabang City to become fishermen.

In Sabang City, most fishermen are labors who work for fisherman boss. However, it is possible that the labors with sufficient experience can become fisherman boss with the assistance from the government. It is also supported by the budget for the marine and fisheries sector which continues to grow every year. The development of budgeting is related to the Regulation of the Minister of Home Affairs number 32 of 2011 which is subsequently amended by Regulation of the Minister of Home Affairs number 39 of 2012 in which the contents of the Minister of Home Affairs Regulation is about granting funds derived from Regional Government Budget (APBK) funds. The issuance of the Minister of Home Affairs Regulation on grant and social assistance provides an opportunity for the community to make a proposal for grant assistance. Department of Marine and Fisheries which is one of the working units of the city in charge of the marine and fisheries sector and also received proposals submitted by the community, especially people who work as fishermen.

To provide answers to the proposals submitted, the Department of Maritime and Fisheries of Sabang City has prepared programs and activities so as to respond to the desire of small fishing communities to get the assistance. These programs and activities are contained in the Strategic Plan of the Department of Maritime and Fisheries Affairs of Sabang City, namely the Capture Fishery Development Program conducted through the Procurement of Fishing Means. From the many proposals submitted, all of these proposals are submitted to obtain assistance in the form of means therefore they are all submitted to the District Device Work Unit (SKPK) related to marine and fisheries; in this case is the

Department of Maritime and Fisheries of Sabang City. Proposal for assistance related to request for assistance in the form of funds (money) is submitted to the Department of Income, Financial Management and Regional Property of Sabang City. The form of assistance submitted through the proposal mostly applying for a boat to go fishing.

The provision of this assistance is also supported by bank account number that was not previously available in the Minister of Home Affairs Regulation number 13 of 2006. However, after the amendment of Regulation of Minister of Home Affairs number 21 of 2011, bank account number that supports to provide assistance directly to the community is available. This bank account number is included in the type of shopping with the code 5.2.2; the code of goods and services shopping whose name of the account is the purchase of goods. It will be submitted to the community/ third parties. This direct goods donation is not an asset to the Local Government.

Based on Table 1, programs and activities directly related to the community, especially fishing communities, increase in the budget on the activities of fishing facilities from 2013 to 2015.

Table 1 – Budget for the Program of Maritime and Fishery Department of Sabang City Associated with Direct Assistance of Goods to Fishermen Society (IDR Thousands)

Programs	Fiscal Year						
	2010	2011	2012	2013	2014	2015	2016
Community Empowerment in Supervision and Control of Human Resources	541,335	486,554	778,474	171,966	1,041,797	892,159	319,999
Development of Capture Fisheries	-	-	3,031,939	2,831,498	18,641,902	17,864,284	9,895,188
Activity: Procurement of Fishing Facilities	-	-	199,209	1,396,086	2,192,460	3,160,433	2,200,912
Development of Aquaculture	55,980	148,000	211,899	70,370	275,500	382,338	603,870
Optimizing Processing and Marketing of Fishery Production	252,000	380,331	81,327	91,948	305,293	941,317	481,929

Source: Budget Implementation Document of Maritime and Fishery Office of Sabang City, Fiscal Year 2010-2016.

Table 2 – The Role of Field Jobs against Gross Regional Domestic Product of Agriculture, Livestock, Plantation, Hunting and Agricultural Services Category (Percent) 2011-2015

Field Jobs		2011	2012	2013	2014	2015
Agriculture, Forestry and Fisheries		7.73	7.66	7.56	7.59	7.59
1.	Agriculture, Livestock, Hunting and Agricultural Services	5.26	5.20	5.23	5.23	5.19
	a. Food Crops	0.29	0.30	0.30	0.30	0.30
	b. Seasonal Horticultural Crops	0.17	0.17	0.17	0.16	0.16
	c. Seasonal Plantation	0.07	0.07	0.07	0.07	0.07
	d. Annual Horticultural Crops and others	0.60	0.60	0.59	0.60	0.59
	e. Annual Plantation	1.64	1.62	1.67	1.62	1.60
	f. Farms	2.43	2.38	2.36	2.42	2.42
	g. Agricultural and Hunting Services	0.07	0.06	0.06	0.06	0.06
2.	Forestry and Logging	0.10	0.10	0.09	0.09	0.09
3.	Fishery	2.30	2.27	2.27	2.26	2.24

Source: Gross Regional Domestic Product According to Field Jobs of Sabang City in 2011-2015.

From the available budget, based on the above data, it can be known in the 2013 to 2015 period that Department of Maritime and Fisheries of Sabang City has allocated the budget to be able to realize the request for assistance from a number of proposals submitted by the fishermen. The final expectation is that the fishermen who previously conducted fishing activities by riding on other fishing boats can use their own boats so that their increase in economic level can be realized through their increased income. However, with the increasing funding of programs and activities in the marine and fisheries sector that

increase annually, there is a negative correlation in which the value of Gross Regional Domestic Product for agriculture, livestock, plantation, hunting and agricultural services category especially in the sub-category of fishery continue to decline. The decline of Gross Regional Domestic Product can be seen in the Table 2.

This study was conducted to know, observe and analyze the impact of expenditure of Regional Government Budget (APBK) of Sabang City to increase fishermen community's income in the capture fishery of Sabang City. The impacts to be observed are the specific impacts for fishermen through a fishery development program that is implemented with the provision of fishing facilities.

METHODS OF RESEARCH

Research Setting, Subject and Data Collection Technique

The study was conducted in two sub-districts in Sabang City where there were individuals and groups of beneficiaries in the form of goods whose funds came from Regional Government Budget (APBK) of Sabang City which was implemented by the Department of Maritime and Fisheries of Sabang City. The required data were obtained by using two kinds of study consisting of field study and literature study. Field research was conducted to obtain some primary data directly from the respondents by using interview, observation, and questionnaire techniques (Marschan-Piekkari and Welch, 2004). The secondary data were obtained from the Department of Maritime and Fisheries of Sabang City and other agencies associated with this study.

Research Population and Sample

The population is fishermen communities who has submitted proposal of grant assistance of goods and have received grant assistance of goods with population amounted to 145 people in fiscal year 2013 until 2015. The sample of this research is taken from both sub-districts in Sabang City which receive grant assistance of goods in the form of ship/ boat under 5 GT. From the calculation, it obtained the number of samples as many as 59 people who then fulfilled into 60 people or 49.51% of the number of fishermen. The research sampling was performed randomly using simple random sampling. Then, the number of samples taken—based on each assistance year—is redefined by the formula:

$$n = \frac{\text{Class Population}}{\text{Total of Population}} \times \text{The total of defined population}$$

Data Analysis Method

The data analysis method used in this study is impact evaluation method. According to the World Bank in (Onwuegbuzie & Hitchcock, 2017) the impact evaluation method is a method used for measuring a particular development activity such as programs and activities which are used to systematically identify the positive or negative effects of programs and activities on household, institutions and environment objects. This method is used to determine the impact of success of a government program on the marine and fisheries sector to the fishermen's income in Sabang City.

According Suryahadi in (Anggriani, 2012) impact evaluation method is conducted by comparing the two groups by performing measurements of indicators before and after the program/ activity or intervention of particular group. The measured indicator is the monthly income level for each group; as the baseline is the income of the action and control groups of the fishermen in 2012. The impact indicator which is an indicator after the intervention of the program is the level of income of the action and the control groups in 2016. The differences of the indicator value at impact and baseline were calculated from each group. Furthermore, the two differences were subtracted (the difference in the difference), resulting in the value of the impact from the program intervention.

The formula for calculating the difference in the difference is as follows:

$$\Delta Y = (Y_{A1} - Y_{A0}) - (Y_{K1} - Y_{K0})$$

Where:

Y_{A0} = Fishermen's income per month before boat provision;

Y_{A1} = Fishermen's income per month after boat provision;

Y_{K0} = Fishermen's income from control group per month before boat provision;

Y_{K1} = Fishermen's income from control group per month after boat provision.

If it is illustrated, then the impact measurement from the expenditure of Regional Government Budget (APBK) of the marine and fisheries sector in the form of ship/ boat assistance can be seen in the following figure:

Figure 2 – Impact Measurement on Control Group

The steps taken to analyze the impact were: 1) performing validity test and reliability test, 2) performing independent t-test and compare-means test, and 3) calculating the impact by: calculating the average difference of income per capita and per month from action group before and after boat assistance and calculation of yield difference on points a) and b).

RESULTS AND DISCUSSION

Reliability Test and Validity Test of the Data. Data collection to seeing the impact of the expenditure of Regional Government Budget (APBK) is in the form of boat assistance based on a verified proposal and it was obtained through questionnaire data from the action and control groups. Prior to the analysis of the assistance impact of the expenditure of Regional Government Budget (APBK), reliability and validity tests should be conducted. The data collection that has good quality is the result of reliable data collection that has proven its reliability and validity which is determined by the quality of the research instrument (Kuncoro, 2003).

Reliability testing aims to measure the questionnaire that is an indicator of the variable or construct in which the questionnaire is considered to be reliable if one's response to a statement is consistent or stable over time. A measuring tool in the form of a questionnaire is considered to be reliable if a measurement with the same measuring tool repeatedly will give relatively the same results. To know the reliability of a questionnaire, it uses a statistical approach to see the reliability coefficients in which if the reliability coefficient is greater than 0.60 then it can be said that the whole statement is reliable. Reliability test used in this research is using Cronbach Alpha (α) method.

Based on the reliability test using SPSS version 22, the result obtained from Cronbach Alpha is 0.643 in the action group and 0.688 in the control group. It indicates that the Cronbach Alpha value is greater than 0.60 which can be said that the occurrence of measuring error in the questionnaire filled by the action and control groups is likely to be low. The complete reliability test results can be seen in the following Table 3.

Table 3 – Table of Reliability Test

No	Groups	Cronbach's Alpha
1	Action	0,643
2	Control	0,688

Source: Primary Data Processed.

Furthermore, validity test is conducted with the aim to measure the validity of a questionnaire. A questionnaire is considered to be valid if the questions on the questionnaire are able to reveal something that will be measured by the questionnaire. If the level of validity of a variable is higher, the test is increasingly mastering the target and increasingly showing what should be shown. Validity test using Pearson correlation is performed by calculating the correlation coefficient between each value on the question with the total value of the question number. The significance of correlation coefficient obtained is then tested by comparing the r-table value. If the result of r-count is greater than r-table, then the questions are valid. From result of validity test to action and control groups, result obtained is r table value equal to 0.2542 for each sample consisting of 60 fishermen. The result of the validity test for the questionnaires for each action and control groups can be seen in Table 4 and Table 5. The test result in the action group shows that the mean value of r-count > r-table. It indicates that all questions in the questionnaire are significant and are considered to be valid.

Table 4 – Table of Validity Test of Action Group

Questions	r-count	r-table	Results
Attending training	0.369	0.2542	Valid
The attended training	0.345	0.2542	Valid
The year of getting assistance	0.31	0.2542	Valid
Boat ownership before getting assistance	0.264	0.2542	Valid
Type of boat used previously	0.405	0.2542	Valid
Type of ship/boat obtained from the assistance	0.64	0.2542	Valid
Frequency in going out of sea in a month	0.418	0.2542	Valid
Duration in going out of sea to catch fish	0.801	0.2542	Valid
Duration required to reach the target of the fishing area	0.646	0.2542	Valid
Distance to the fishing area	0.847	0.2542	Valid
Cost to go to sea	0.689	0.2542	Valid
Cost (working capital) to go to sea in one time	0.495	0.2542	Valid
The average of fish catching in one time sailing	0.621	0.2542	Valid
The sale result of fish catching in one time sailing	0.631	0.2542	Valid
The average result of fish catching in kg	0.533	0.2542	Valid

Source: Primary Data Processed.

It applies to the validity test in the control group where the value of r-count > r-table. It also shows that all questions in the questionnaire are able to be understood by the respondent so that all questions in the questionnaire are significant and can be considered as valid. An invalid answer explains that the respondent has homogenous answer so that the value of r-count tends to be smaller.

Table 5 – Table of Validity Test of Control Group

Questions	r-count	r-table	Results
Duration of working as fisherman	0,38	0,2542	Valid
Frequency in going out of sea in a month	0,29	0,2542	Valid
Duration in going out of sea	0,748	0,2542	Valid
Duration required to reach the target of the fishing area	0,733	0,2542	Valid
Distance to the fishing area	0,868	0,2542	Valid
Cost (working capital) to go to sea in one time	0,884	0,2542	Valid
The origin of capital to go to sea	0,535	0,2542	Valid
The average of fish catching in one time sailing	0,549	0,2542	Valid
The sale result of fish catching in one time sailing	0,519	0,2542	Valid
The average result of fish catching in kg	0,407	0,2542	Valid

Source: Primary Data Processed.

Independent t-Test and Compare Mean Test. The impact evaluation test of expenditure from Regional Government Budget (APBK) to the income of action and control groups was done by performing t-test independently and compare mean test. It aimed to see the average comparisons or increases in earnings before and after receiving the assistance as well as

testing the differences in treatment of the groups that receive assistance with those who do not receive assistance. This research uses nominal income variable from action group of fishermen and control group of fishermen. The data processing using T-test was performed by using SPSS version 22.

Independent and compare mean tests were used as different test form, but both have unequal treatment. Independent test was performed to test the differences between the two groups with the same initial conditions while the compare mean test was performed to test the changes of each group separately. The average value of each group was taken as an impact form of expenditure from Regional Government Budget (APBK) to fisherman's income.

This test used the H0 hypothesis on the average income of the action and the control groups which has no difference as a result of expenditure from Regional Government Budget (APBK). Meanwhile, H1, which is the average income of the action and control groups, has a difference due to expenditure from Regional Government Budget (APBK). The decision to accept and reject the hypothesis can be seen in the t-test for equality table with the following conditions: if sig. value < 0.05 then H0 is rejected and it is concluded that there is a difference of income between the two groups. Conversely, if sig. value > 0.05 then H0 is received or the two groups have no difference in income.

Results and Income Analysis on Action and Control Groups. The steps prior to analyzing the income of each group are: first the intergroup testing needs to be performed firstly so that the set of groups selected as the research sample does not contain differences or have the same initial conditions. Test results can be seen in Table 6 as follows:

Table 6 – The Results of Independent t-Test

Variable	Initial Group	Mean	Mean Difference	T-test Equality of means	Sig.
Nominal income	Action	2.525.000	11.667	0.151	0.880
	Control	2.513.333			

Source: The Result of SPSS Output, 2018 *significance of 5 percent.

Table 6 describes the indicators in viewing the differences using the income of action and control groups variable before obtaining assistance from the Regional Government Budget (APBK). The results explained that the action group had an average value of IDR 2,525,000 and the control group's income mean was IDR 2,513,333. The group income difference is explained by the mean difference of IDR 11,667. Statistically, both groups obtained t-test equality of means of 0.151 or sig 0.880, so the conclusion is that H0 is accepted. The initial conditions of the action and the control groups had no income difference due to the sig. value of 0.880 is greater than 0.05 or 5 percent. These results illustrate that this study is appropriate in taking samples of 60 people even though nominally they have differences.

Secondly, after the conformity of each group is obtained, the next step is to examine the impact of expenditure from Regional Government Budget (APBK) to fishermen's income. The impact of Regional Government Budget (APBK) in this study applies only to the action group whereas the control group does not get assistance from Regional Government Budget (APBK). The result of group differences from the Regional Government Budget (APBK) assistance is described in the following Table 7.

Table 7 – Fishermen's Income Before and After (Compare Mean)

Groups	Before (2012)	After (2016)	Mean Difference	T	Sig.	Conclusion
	Mean	Mean				
Action	2.525.000	3.075.000	550.000	19.87	0.000**	H0 is rejected
Control	2.513.333	2.810.000	296.666	19.74	0.000**	H0 is rejected

Source: The Result of SPSS Output, 2018 *significance of 5 percent ** significance of 1 percent.

Table 7 shows the action group that uses the assistance from Regional Government Budget (APBK) and action group that does not use the assistance from Regional Government Budget (APBK). The effects of both groups were examined from 2013 to 2015. The income of the action group before using the Regional Government Budget (APBK) was 2,525,000 and the control group 2,513,333. Furthermore, the income of the action group after using the APBK assistance was 3,075,000 and the control group income was 2,810,000. The increase in action group's income was 550,000 and control group's income was 296,666. Statistically, both groups are significant then there is a difference or change of income or reject the H0 because the value of sig. is 0.000 less than 1 percent but the impact of the Regional Government Budget (APBK) to the action group's income is greater compared to the control group.

The difference in impact evaluation method in Table 8 explains that assistance can provide a substantial increase in the income of fishermen compared to those who do not receive assistance. The income gap between the action group and the control group is 253,334 for 3 years. This difference may be even greater in the coming year.

Table 8 – Impact Evaluation

Groups	Before (2012)	After (2016)	Changes in Percentage (%)	Mean Difference	Impact (ΔY)
	Mean	Mean			
Action	2.525.000	3.075.000	21,78	550.000	253.334
Control	2.513.333	2.810.000	11,81	296.666	

Source: *The Result of SPSS Output, 2018.*

The use of assistance received by the action group is generally in physical assistance namely the assistance of boats with a size smaller than 5 GT. Previously, these fishermen had to work on other people or ride on other fishing boats so that their catch was sold by way of profit sharing. It caused the income of fishermen to be under 2.5 million rupiah per month. With the assistance of these boat, the fishermen can travel a longer distance so that they can catch more fish and this assistance can reduce the cost to make their own ships.

The findings of this study have similarities with a study conducted by Anggraini (2012) which states that the group receiving assistance has real incomes compared to the group that does not receive the assistance. These findings are also supported by Muchlisin (2013) which states that subsidized physical goods assistance can provide stimulus for fishermen but on condition that subsidized conditions are in line with the demand of fishermen although the provision of assistance in the form of cash is not very effective.

CONCLUSION AND SUGGESTIONS

The action group has an average value of income of IDR 2,525,000 and a control group of IDR 2,513,333. The group income difference is explained by Mean Difference of IDR 11,667. Statistically, both groups got T-test equality of means of 0.151 or Sig 0.880. Thus, the conclusion is that H0 is received where there is no difference in income in the initial conditions of the action group and the control group. The income of the action group after using the Regional Government Budget (APBK) assistance was IDR 3,075,000 while the control group's income amounted to IDR 2,810,000. The increase in action group's income was IDR 550,000 and the control group's income was IDR 296,666. Statistically, both groups are significant where the difference or change of income occurs so that H0 is rejected because the sig. value is 0,000 less than 1 percent. Difference in impact evaluation explains that assistance can provide a considerable increase in fishermen's income compared to non-beneficiaries. The income gap between the action group and the control group is 253,334 for 3 years. This difference may be even greater in the coming year.

Based on the findings and conclusions of the research then it is recommended as follows:

- For the government of Sabang City, the assistance in physical form gives a real impact on the change of fisherman's income. Therefore, the program is feasible to be

continued. Then, the government should be more selective in verifying the incoming proposal for the request for assistance so that expenditure from Regional Government Budget (APBK) is in line with the target and evenly.

- Furthermore, the government also needs to conduct socialization about the Regional Government Budget (APBK) and it is endeavored to be the priority of the fishermen. The assistance is not only physical but also soft-skill training such as post-fishing handling.
- This study is very limited to be reviewed and taken as policy. Therefore, further research can review the changes in fisherman's income from the soft-skill or training that has been received compared to income from the physical assistance.

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