

Institutional Fishermen Economic Development Models and Banking and Financing Institution Support in The Development of The Innovation System

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Abstract—This study aims to analyze Institutional Model of Fishery and Marine Economy Development and Banking and Finance Institution Support in Development of Innovation System of Fishery and Marine Region in North Sumatera. This type of research is descriptive quantitative. The data used are primary data. The population and samples used are the stakeholders of marine and fisheries development in North Sumatra Province. The analysis used with Structural Equation Modeling. The results show that institutional collaboration and Banking and Finance Institution support are able to establish Regional Innovation Systems of Fisheries and Marine Affairs in North Sumatra.

Keywords—Institutional Model; Banking; Financing Support and Investor

I. INTRODUCTION

The causes of fishermen poverty include those related to fish-misim timeliness fluctuations, limited human resources, capital and access, an exploitative fish trade network to fishermen as producers indicated by the dependence of fishing communities with skipper or middleman. This last factor becomes a cultural problem that until now still faced by fishermen. This dependence also causes the fishing community always lose in obtaining access production, access distribution and marketing access, thus becoming one factor of low productivity of fishermen. The poverty of fishermen should be viewed as a phenomenon involving many aspects, structural and cultural, their poverty not only because of their individual aspects, but also concerns about environmental issues, organization and mis-implementation of government

policies [1]. Thus, empowerment should be conducted with a comprehensive and holistic approach framework with due regard to value systems, institutions that grow and develop in local communities, local potentials, community business units and environmental carrying capacity. The Economic system formed among fishermen in the form of horizontal relationships among economic actors in the marine sector such as skipper, middleman, fisherman and trust between the government as a development agent with fishermen. As of July 2017 credit disbursements have been distributed to the Marine Sector amounting to Rp. 14.4 trillion to 2,359 debtors, consisting of the Marine and Fisheries sector of Rp 2.1 trillion to 2,004 debtors. Other sectors were Rp. 12.3 trillion for 355 debtors from shipping and shipping segments (52%), shipyards (20%), cultivation and fishing (14%), processing and fishery industries (6%), trading of fishery products (6%), and port construction (2%) [12].

The important thing about social capital is to revitalize local institutions among fishermen groups, fishermen cooperatives, financing institutions, profit-sharing systems, auction systems, marketing systems. The institutional function must be truly empowered as a container that accommodates and articulates the interests of fishermen. Institutional institutions should be able to act as an intermediary between the interests of fishermen and external parties. In terms of network marketing, it is necessary immediately established cooperation between fishermen with the company. The role of fisherman must be changed from labor to market participants who have access to the market. It even becomes a wise move if the government establishes a regulation on the basic price of fish in the market to help fishermen who are marginalized

groups. Efforts that have been carried out by the government include holding the banks that will manage the funds State Budget by government [35]. In addition, to channel credit to the partners in the marine and fisheries industry to provide education on banking services to fishermen. The Bank provides various solutions and support to the government such as the acceleration of loan disbursement of programs and general credit, either directly or linkage to marine and fishery business actors. It then provides data exchange and information services and banking function services to foreign loan and or grant projects. so far micro-enterprises such as fishermen are very difficult to meet criteria 5-C (character, condition of economy, capacity to repay, capital, collateral) which is the rule/mechanism of the banking standard lending to finance business and capital [28]. Therefore, it is natural that the government through various programs community empowerment and more poverty alleviation tend to create and provide program credit schemes which is more a revolving grant to various funds community groups engaged in micro businesses involving banks and financing institutions.

II. METHOD

This study uses primary data. The hypothesis was tested by using with SMART PLS software. The data analysis technique in this research using Structural Equation Modeling (SEM). SEM is a set of statistical techniques allowing testing of a series of relationships simultaneously. Furthermore, in the data processing, the writer used the aid from software SMART-PLS Structural Equation Modeling, which was one of the multivariate analyses capable of analyzing the variable relationships in complex manner [19], [20], [21], [22] & [23]. The hypotheses were tested using Structural Equation Modeling (SEM) with Smart-PLS software tools. The equation is formed as follows:

$$Y = \alpha + b_1X_1 + b_2X_2 + e$$

X_1 = Banking Institution
 X_2 = Finance Institution
 Y = Regional Innovation Systems of Fisheries and Marine
 b_1, b_2 = Coefficient
 α = Constant
 e = Error

This phase is done to test the suitability of the model to evaluate the goodness-of-fit index. Analysis using SEM requires some suitability index to measure the correctness of data and models to be filed.

III. RESULT AND DISCUSSION

A. Result

1) Evaluation of Structural Model (Inner Model)

The bootstrap method is a method based on resampling the sample data with the condition of returning the data in completing the statistics of the size of a sample in the hope that the sample represents the actual population data, usually resampling size taken thousands of times in order to represent the population data. Bootstrap allows one to perform statistical inference without making strong distribution assumptions and requires no analytical formulation for the sampling distribution of an estimator [18], [22], [4]. Instead, the bootstrap uses an empirical distribution to estimate the sampling distribution. So if an analytical solution is not possible where the assumption normalized data is not met then using Bootstrap can still be done an inference. The result of T-statistics value in the table path coefficients is presented in the following figure:

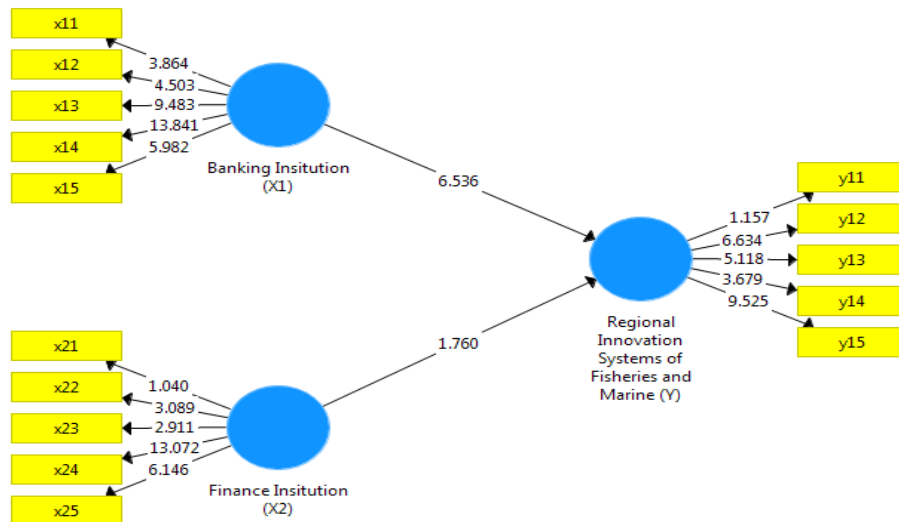


Figure 1. Overall Model with Coefficient

The effect test can be seen in the following table:

Table 1. The result of bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values
Banking Insitution (X1) -> Regional Innovation Systems of Fisheries and Marine (Y)	0,565	0,587	0,086	6,536	0,000
Finance Insitution (X2) -> Regional Innovation Systems of Fisheries and Marine (Y)	0,192	0,194	0,109	1,760	0,079

Source: PLS Output (2017).

The bootstrap method can be used for many things, one is to specify a statistical t value as done in the Partial Least Square model. The bootstrap method with up to 500 times, it will be able to calculate the standard error value if it is called standard error, then it can calculate the value of t statistic by dividing the regression coefficient with the default error. Just every time bootstrap the statistical t value will vary because it uses random iteration and the result is stable so that if seen from

the value of statistical significance will be consistent result although the value of t is different.

Based on the test results show that banking institutions more dominant role in the empowerment of fishermen compared to financing institutions.

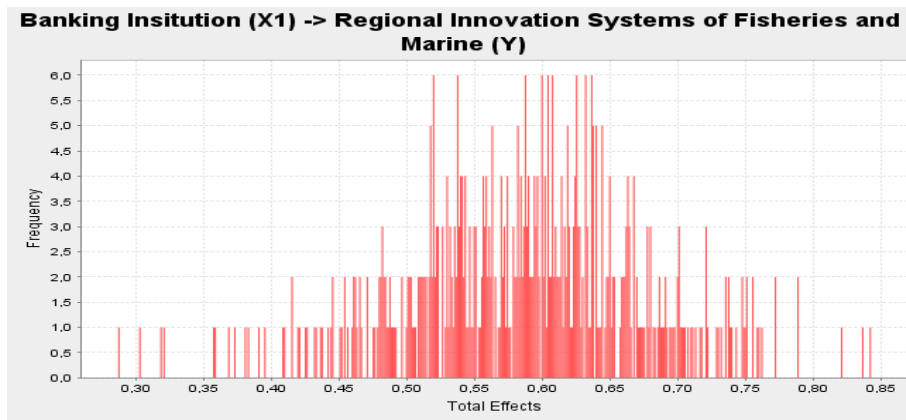


Figure 2. (X1) Regional Innovation Systems of Fisheries and Marine (Source: PLS Output 2017)

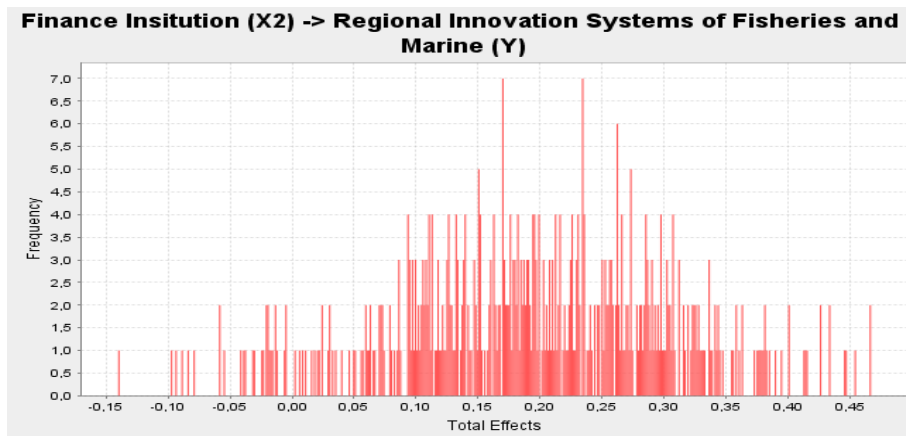


Figure 3. (X2) Regional Innovation Systems of Fisheries and Marine (Source: PLS Output 2017)

Based on the above table the indirect effect produces coefficient of 0.005, smaller than 1.66 then the decision of hypothesis testing reject H0 and accept the hypothesis Ha [3], [7], [8], [9]&[25]. In addition to hypothesis testing through the bootstrapping menu that produces T-statistics, inner model evaluation is also done by reviewing the R-Square value [4], [5], [6], [13], [14], [15]&[17]. The R-square value generated from the inner model evaluation is presented in the following Table:

Table 3. R-Square Value

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O-STDEV)/V)	P Values
Absorption of Labor	0,701	0,799	0,114	6,132	0,000

Source: PLS Output. (2017)

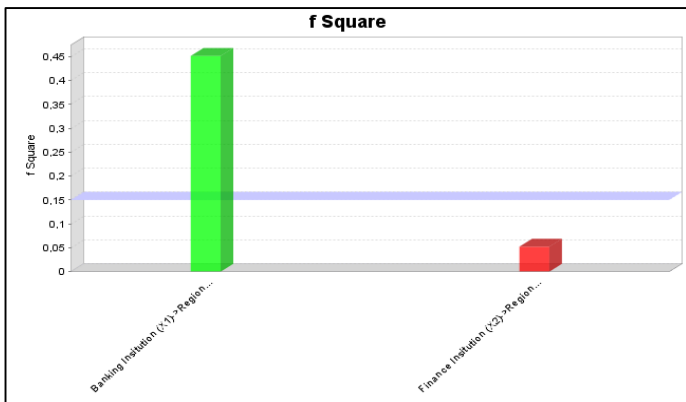


Figure 4. F Square

2) Discussion

Small fishermen are faced with many problems to get them survive to meet the needs of everyday life. Starting from the low the selling price of the fish catch, the weak bargaining position with the owners capital, low quality of human resources, low mastery and technology and the rampant illegal fishing practice is a picture of the injustice of the system fisheries and marine [30], [31], [32], [33] & [34]. One of the fundamental issues for marine development and fisheries, especially those engaged in micro and small scale, are difficult access to capital from formal banking/financial institutions. As a result the fishermen are often entangled who offering loans quickly and easily but balanced with high interest rates. This capital limitation is exacerbated with sales systems that tend to be monopolized by middlemen.

As a result Fishermen do not have sufficient bargaining position so income earned to pay off debt and eat. This circle of poverty always revolves and causes the sector marine fisheries closely associated with poverty. Addressing capital issues cannot be solved with inviting banks to disburse

loans or with subsidy facilities interest, because it does not lead to the manifestation of independence and sustainability [2], [10], [11] & [12]. Resolving capital issues should be done simultaneously, includes empowerment, access opening broad market information, the creation of a fair auction system, and the embodiment of independent assistance by partnering with banks and financing institutions [16], [24], [26], [27] & [29]. Development policy of marine and fishery based on economy democracy directed at the micro, macro, and global level. In micro, the marine and fisheries sector should be able to provide improvements income and welfare for Fishermen. By macro, fisheries and marine is expected to contribute to improved performance national economy, through enhancement of marine and based industries fishery. And globally, fisheries and marine sector is expected can become a national foreign exchange contributor through exports. Therefore, the development of the fishery and marine sector requires the existence of harmony and a balance between economic, social, and environmental aspects [28]. Ignoring any of these aspects will only lead to systemic imbalances in marine and fisheries management.

Management of the marine and fisheries sector frequently run on the basis of material/economic considerations with time dimensions short, to meet revenue targets. While the aspects socio-cultural communities and the environment tend to be neglected. Case decreased carrying capacity of the forestry sector and the poverty cycle occurs to people who live around forests exploited, may be used as a reference about the bad management that is based solely on material aspects. as a result massive exploitation of the maritime and fisheries sector with environmental degradation inevitable.

IV. CONCLUSIONS

The results show that institutional collaboration and Banking and Finance Institution support are able to establish Regional Innovation Systems of Fisheries and Marine Affairs in North Sumatra Province. Based on the partial test results show that banking institutions more dominant in the empowerment of fishermen compared to financing institutions.

REFERENCES

[1]. Azlina, Nur., Amir Hasan, Desmiyawati&Muda, I. "The Effectiveness of Village Fund Management (Case Study at Villages in Coastal Areas in Riau)". *International Journal of Economic Research*. Vol.14 Issue 12. (2017). pp.325-336.

[2]. Buang, A., Habibah, A., Hamzah, J., & Ratnawati, Y. S. "The promise of community-based fishery resource management". *World Applied Sciences Journal*, 13(13), (2011).pp.104-109.

[3]. Dalimunthe., D.M.J.,Fadli, and Muda, I. "The application of performance measurement system model using Malcolm Baldrige Model (MBM) to support Civil State Apparatus Law (ASN) number 5 of 2014 in Indonesia". *International Journal of Applied Business and Economic Research*. Vol.14 Issue 11. (2016). pp.7397-7407.

- [4]. Erlina., Ari Saputra & Muda, I. "Antecedents of Budget Quality Empirical Evidence from Provincial Government In Indonesia". *International Journal of Economic Research*. Vol. 14 Issue 12. (2017). pp.301-312.
- [5]. Erlina., Ari Saputra & Muda, I. "The Analysis of the Influencing Factors of Budget Absorption". *International Journal of Economic Research*. Vol. 14 Issue 12. (2017). pp.287-300.
- [6]. Erlina., "Conflict of Interest Impact: Factors Analysis Affecting the Budget Quality in Medan City". *International Journal of Economic Research*. Vol.14 Issue 12. (2017). pp.135-145.
- [7]. Gusnardi., Riadi, R.M., and Muda, I. "Competency mapping and analysis of students competency based on economics subject national examination and its alternative solutions in state high schools at Pekanbaru". *International Journal of Economic Research*. Vol.3 Issue 5. (2016). pp.2133-2148.
- [8]. Handoko, Bagus., Sunaryo & Muda, I. "Difference Analysis of Consumer Perception of Motorcycle Product Quality". *International Journal of Economic Research*. Vol. 14 Issue 12. (2017). pp.363-379.
- [9]. Hasan., Amir, Gusnardi & Muda, I. "Analysis of Taxpayers and Understanding Awareness Increase in Compliance with Taxpayers Individual Taxpayers". *International Journal of Economic Research*. Vol.14 Issue 12. (2017). pp. 75-90.
- [10]. Jayasinghe, K., & Wickramasinghe, D. "Power over empowerment: Encountering development accounting in a Sri Lankan fishing village". *Critical Perspectives on Accounting*, Vol. 22 Issue 4, (2011). pp.396-414.
- [11]. Jentoft, S. "Fisheries co-management as empowerment". *Marine Policy*, Vol. 29 Issue 1. (2005). pp.1-7.
- [12]. KKP Appoints BNI Manages State Budget Fund and Credit Facilitation for Fishermen. Retrieved on <https://news.detik.com/advertorial-news-block/3616225/kkp-tunjuk-bni-kelola-dana-apbn-dan-fasilitasi-kredit-untuk-nelayan>
- [13]. Lubis., A., Torong, Z.B., and Muda, I. "The urgency of implementing balanced scorecard system on local government in North Sumatra – Indonesia". *International Journal of Applied Business and Economic Research*. Vol.14 Issue 11. (2016). pp.7575-7590.
- [14]. Lubis., A.F., Lubis, T.A., and Muda, I. "The role of Enterprise Resource Plan (ERP) configuration to the timeliness of the financial statement presentation". *International Journal of Applied Business and Economic Research*. Vol.14 Issue 11. (2016). pp.7591-7608.
- [15]. Lutfi., M., Nazwar, C., and Muda, I. "Effects of investment opportunity set, company size and real activity manipulation of issuers in Indonesia Stock Exchange on stock price in Indonesia". *International Journal of Economic Research*. Vol.13 Issue 5. (2016). pp.2149-2161.
- [16]. Mana, R. "The Empowerment of Pa'jala Fishermen Community of Soppeng Coastal Lake". *International Journal of Academic Research*, Vol.7. Issue 1. (2015). pp.56-69.
- [17]. Muda., I and Abykusno Dharsuky. "Impact of Region Financial Information System (SIKD) Quality, Role Ambiguity And Training on Precision of Financial Statement of Local Government Presentation In North Sumatra". *International Journal of Applied Business and Economic Research*, Vol.13 Issue 6. (2015). pp.4283-4304.
- [18]. Muda, I, Deni Yuwilia Wardani, Erlina, Azhar Maksum, Ade Fatma Lubis and Rina Bukit. "The Influence of Human Resources Competency and The Use of Information Technology on The Quality of Local Government Financial Report with Regional Accounting System as an Intervening". *Journal of Theoretical and Applied Information Technology*. Vol.95 Issue 17. (2017). pp.1432-1451.
- [19]. Muda, I, Dharsuky. A., Siregar, H.S., and Sadalia, I. "combined loading and Cross-dimensional loadings timeliness of presentation of financial statements of local government". *IOP Conference Series : Materials Science and Engineering*. Bandung, (2017). 180. doi: 10.1088/1757-899X/180/1/012099.
- [20]. Muda., I, Marlon Sihombing, Erni Jumilawati and Abikusno Dharsuky. "Critical Success Factors Downstream Palm Oil Based Small And Medium Enterprises (SME) In Indonesia". *International Journal of Economic Research*. Vol.13 Issue 8. (2016). pp. 3531-3538.
- [21]. Muda., I., Rafiki, A., & Harahap, M. R. "Factors Influencing Employees' Performance: A Study on the Islamic Banks in Indonesia". *International Journal of Business and Social Science*, Vol.5 Issue 2. (2014). pp. 73-80.
- [22]. Muda., I., Dharsuky, A., Sadalia, I., and Siregar, H.S. "Impact of capital investments and cash dividend policy on Regional Development Bank (BPD) PT. Bank Sumut to the district own source revenue and economic growth". *International Journal of Applied Business and Economic Research*. Vol.14 Issue 11. (2016). pp.7863-7880.
- [23]. Muda., Iskandar. "The Effect of Supervisory Board Cross-Membership and Supervisory Board Members' Expertise to The Disclosure of Supervisory Board's Report : Empirical Evidence From Indonesia". *European Research Studies Journal*. Vol. XX Issue 3A. (2017). pp.702-716.
- [24]. Muhammad, S., Islamy, I., & Sukoharsono, E. G. "Empowerment of Fishermen Household Saptagon Accessibilities To Solve Their Poverty". *The International Journal of Accounting and Business Society*, Vol.18 Issue 1, (2010). pp.105-117.
- [25]. Nasir, Azwir., Yesi Mutia Basri, Kamaliah & Muda, I. "Effectiveness of Potential Tax Region as the Real Local Revenue Sources in Riau Coastal Area". *International Journal of Economic Research*. Vol.14 Issue 12. (2017). pp.313-324.
- [26]. Pérez-Ramírez, M., Ponce-Díaz, G., & Lluch-Cota, S. "The role of MSC certification in the empowerment of fishing cooperatives in Mexico: The case of red rock lobster co-managed fishery". *Ocean & coastal management*, Vol.63, 2012. Pp.24-29.
- [27]. Ratnawati, S., & Sutopo, H. H. "The Development Of Model Empowerment Poor Society In Coastal Area Through Net Marketing Fishery Product In East Java". *Academic Research International*, Vol.5 Issue 1, (2014). 237-249.
- [28]. Sadalia, Isfenti., Nur Ahmadi Bi Rahamani & Muda, I. "The Significance of Internet Based Financial Information Disclosure on Corporates' Shares in Indonesia". *International Journal of Economic Research*. Vol.14 Issue 12. (2017). pp.337-346.
- [29]. Sendow, G. M., Lopian, S. J., & Tumbel, A. L. "The Strategic Role of Human Resources and Empowerment through the Commitment of the Government in Alleviating Poverty on Fishermen Society Coastal of South Minahasa District Indonesia". Unpublished Report North Sulawesi Center.
- [30]. Setiawan, I., Monintja, D. R., Nikijuluw, V. P., & Sondita, M. F. A. "Analysis of dependence of fishery areas as the basis for implementation of fishermen empowerment program: case study in Cirebon and Indramayu districts (fisheris dependences indices analysis as a basic implementation)". Fishermen empowerment program: case study). (2007).
- [31]. Soeprijadi, L. S., Yuli, E., Susilo, E., & Rudianto, R. Fishermen Community Economic Empowerment through Joint Development Business Group in Cirebon City. *International Journal of Marine Science*, Vol.3. Issue.1. (2013). pp.55-69.
- [32]. Susanti, G., Alwi, L. T., & Tamba, L. "Resources Exchange Model in Implementation Network of Fishermen Community Policy in Makassar City". *Jurnal Studi Pemerintahan: Journal of Government and Politics*, Vol. 8 Issue 1. (2017). 202-214.

- [33]. Sutrisno, E., & Warassih, E. "Harmonization of Fisheries Law For Fishermen Empowerment In Indonesia. 2016". Retrieved on www.seajbel.com. Accesed on 01 July, 2017.
- [34]. Wiber, M., Charles, A., Kearney, J., & Berkes, F. "Enhancing community empowerment through participatory fisheries research". *Marine policy*, Vol.33 Issue 1. (2009). pp.172-179.
- [35]. Yahya., Idhar., Torong, Z.B., and Muda, I. "Influence Behavior in Legislature Budget Development of Regions in the Province of Aceh and North Sumatra". *International Journal of Economic Research*, Vol.14 Issue 8. (2017). pp. 147-159.
- [36]. Sirojuzilam, Hakim, S., and Muda, I. "Effect of Private Collaborative as a Moderation of Success of Agropolitan Program". *International Journal of Economic Research*. 14(16). 2017.304-315.
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