Institutional Fishermen Economic Development Models and Banking Support in the Development of the Innovation System of Fisheries and Marine Area in North Sumatera

I Muda[*], Rahmanta, Marhayanie and A S Putra
Faculty of Economic and Business, Universitas Sumatera Utara, Jl. Prof. TM
Hanafiah SH No.12 Medan-Indonesia. Postal Code 20155

[*]iskandar1@usu.ac.id

Abstract. This study aims to analyze Institutional Model of Fishery and Marine Economy Development and Banking 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 support are able to establish Regional Innovation Systems of Fisheries and Marine Affairs in North Sumatra.

1. Introduction

The development of marine fisheries in North Sumatra requires guidance on development direction in the form of fisheries development roadmap to support local government program on the east coast, which is described in an integrated manner. RoadMap is intended for fishing management system [1, 2,3]. The roadmap is capable of reaching the international, national and regional fishing riverboat maps in the future, so that sustainable fishing can be more effective, efficient, cost-effective, and time consuming and offer alternative options. Synergize development activities on an ongoing basis conducted jointly by stakeholders. The gap between urban and rural areas and rural poverty has encouraged development efforts in rural areas. Nevertheless, the rural development approach is often separated from urban areas. This has resulted in the process of urban bias, namely the development of rural areas that were originally intended to improve the welfare of rural communities even resulted in the opposite of the potential exploitation of rural to urban areas both in terms of human resources, nature, and even capital. In addition, the development paradigm so far is so oriented towards the mainland that the development of various sectors in coastal areas and small islands are lagging behind. To overcome or minimize such trends, efforts to accelerate the development of coastal areas, small islands and outer islands in the future. Accelerated development should be able to create employment opportunities, economical and attractive investment, so as to withstand capital-drain and brain-drain can even reverse the flow of urbanization [4]. In addition, the development of coastal areas, small islands and outer islands is also expected to utilize the comparative advantage (comparative advantage) owned into a competitive advantage (competitive advantage) in a sustainable manner [5]. The preparation of fishery and marine development roadmap to support the provincial government

program of North Sumatra and Regency of City in the case of fisherman empowerment is based on the data of fisheries evaluation result along the coast of North Sumatra. Constraints faced in the form of infrastructure facilities and spatial development of existing fisheries. While the catch fishery evaluation is based on the result of field observation which consist of data of the number of fisherman household, the number of fishing gear, the type of fishing gear, the catch type, the existing fishing facilities and infrastructure as well as other supporting facilities such as road facilities, marketing of the harvested catch etc. [6]. With the spatial plan and development of marine fishery program developed by the central government [7]. This study is needed to see what factors are the determinants of fishery and marine innovation success in North Sumatera Province. The model developed from the theories was:
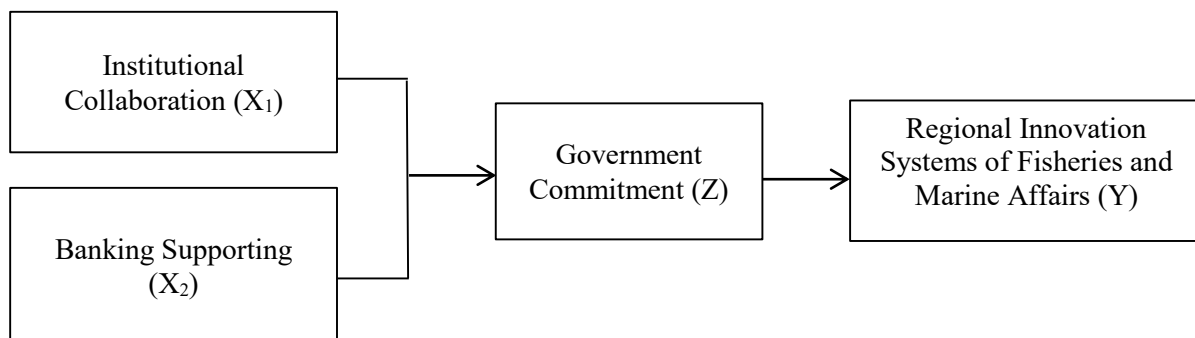

Figure 1. Research Model

Based on the model shows that if Institutional Collaboration is stronger than Regional Innovation Systems of Fisheries and Marine Affairs will be more integrated and run by Regency of East Coast in North Sumatera and vice versa.

2. Methods
This study uses primary data the hypothesis was tested using Structural Equation Modeling (SEM) with the aid of SMART PLS software. The data analysis technique in this research employed Structural Equation Modeling (SEM). SEM is a set of statistical techniques allowing testing of a series of relationships simultaneously [8,9]. 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. The definition of research variable is as the following:

Table 1. Operational Variable

Variables	Operational Definitions	Indicator	Measure Scale
Regional Innovation Systems of Fisheries and Marine Affairs (Y)	Optimizing management & marketing of fishery production.	- Government Program - Database information systems	Interval
Institutional Collaboration (X₁)	Institutional Collaboration is an interagency work program agreement between urban districts in fisheries and marine development	- Fisheries program - marine development program	Interval
Banking Supporting (X₂)	Banking support in the provision of working capital for fisheries and marine business	- Banking Loan - Credit scheme	Interval
Government Commitment (Z)	The seriousness of local governments to prepare documents Regional Innovation Systems in the field of fisheries and marine	- Regional documents, - SKPD work program	Interval

The hypotheses were tested using Structural Equation Modeling (SEM) with AMOS software tools. The equation is formed as follows:

$$Y = \alpha + b_1X_1 + b_2X_2 + e \ \ldots\ldots\ldots\ldots\ldots\text{. (1)}$$
$$Z = \alpha + b_1X_1 + b_2X_2 + b_3Y + e \ \ldots\ldots\ldots\ldots\ldots\text{. (2)}$$

Where:

Y	= Regional Innovation Systems of Fisheries and Marine Affairs
X_1	= Institutional Collaboration
X_2	= Banking Supporting
Z	= Government Commitment
b1, b2, b3	= 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.

3. Results

3.1. Measurement model
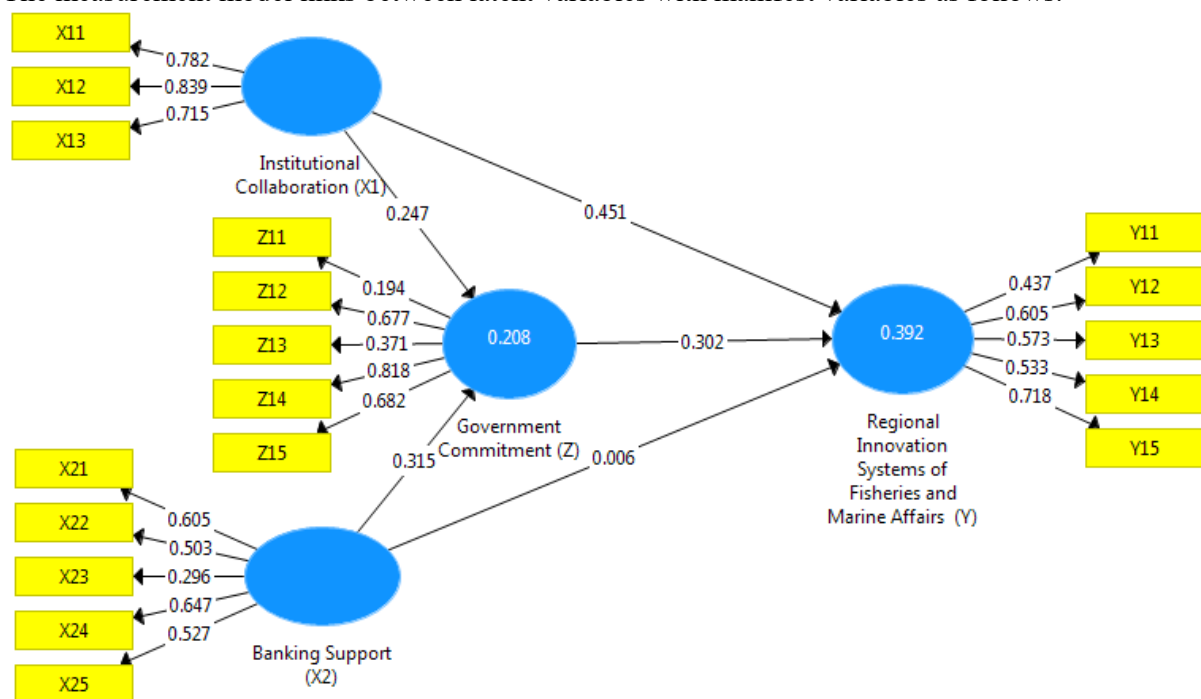The measurement model links between latent variables with manifest variables as follows:

Figure2. Standardization Coefficient

3.2. Structural model

3.2.1. Total effect
Inner model evaluation through the bootstrapping menu also generates T-statistics values that will be used to test the hypothesis. The criterion is T-statistic> 1.96. The result of T-statistics value in the table path coefficients is presented in the following Table:

Table 2. *Path Coefficients*

	Banking Support $(X2)$	Government Commitment (Z)	Institutional Collaboration $(X1)$	Regional Innovation Systems of Fisheries and Marine Affairs (Y)
Banking Support (X_2)		0,315		0,006
Government Commitment (Z)				0,302
Institutional Collaboration (X_1)		0,247		0,451
Regional Innovation Systems of Fisheries and Marine Affairs (Y)				

Sources: PLS Output.

The model concludes that the role of Institutional Collaboration (X_1) does not play a significant role in the application of Regional Innovation Systems of Fisheries and Marine Affairs. While the variable role of Banking Support (X_2) has a significant effect on the implementation of Regional Innovation Systems of Fisheries and Marine Affairs. The significance of these variables is due to the role of government policy as a mediating variable that mediates the relationship between these variables. It is shown from the level of significance in the alpha 5%.

3.2.2. Indirect Effect
Tests of indirect effects on hypotheses can be seen in the following indirect effect test Table:

Table 3. The result of Indirect Effect

	Banking Support (X_2)	Government Commitment (Z)	Institutional Collaboration (X_1)	Regional Innovation Systems of Fisheries and Marine Affairs (Y)
Banking Support (X_2)				0,095
Government Commitment (Z)				
Institutional Collaboration (X_1)				0,075
Regional Innovation Systems of Fisheries and Marine Affairs (Y)				

Sources: PLS Output.

Based on the Table of indirect influence in the above Table shows that hypotheses are accepted because the statistical value of each hypothesis is greater than 1.96 so that the decision of hypothesis testing reject H0 and accept alternative hypothesis [10,11,12]. In addition to hypothesis testing through the bootstrapping menu that produces T-statistics, inner model evaluation is also done by reviewing the value of R-Square (coefficient of determination). The R-square value generated from the inner model evaluation is presented in the following Table:

Table 4. *R-Square Value*

	Square	Square Adjusted
Government Commitment (Z)	,208	,200
Regional Innovation Systems of Fisheries and Marine Affairs (Y)	,392	,382

Sources: PLS Output, (2017).

4. Results and discussion

The results show that banking support are able to establish Regional Innovation Systems of Fisheries and Marine Affairs in North Sumatra. The People's Business Credit (KUR) is one of credit/financing schemes provided by the Banking under the guarantees scheme, which is carried out in cooperation with the Government, the guarantor institution and the banking, with the guarantee provided by the Government. This KUR can be utilized to finance all productive businesses including marine and fishery sectors that are feasible but not yet bankable from the aspect of additional collateral [13]. Fisheries, especially in coastal areas, in fact include the poor among other community groups. This is because the main fishing communities living in the coastal areas are still considered as marginal communities that are not fully addressed, including access to capital [5]. Traditional fishing communities and SMEs in the mining and fishery sector are classified into micro and small businesses that are at high risk, making it difficult to be accessed by capital facilities from both banking institutions and other funding agencies [3]. Various rules applied by financial institutions actually make the community marine sector increasingly powerless in the absence of collateral (collateral) which became one of the requirements in accessing capital [9]. The objective of socializing KUR access is to (a) increase credit distribution/financing of KUR to fishermen, fish farmers, processors and marketers of fish incorporated in MFI/MSME and other fishery business actors; (B) to facilitate and improve access of MFIs / SMEs to obtain credit facilities from the KUR program; (C) accelerate the development of activities in the marine and fisheries sector. The duties of the Government, both at the central and regional levels (districts/municipalities), among others: (1) preparing Micro, Small, Medium Enterprises and Cooperatives that undertake productive businesses that are individual, group, partnership and/or cluster to be financed by credit/and (4) facilitate the relationship between Micro, Small, Medium Enterprises and Cooperatives with other parties who are required to provide guarantees for credit/financing; Contribute and support for business smoothness. The duties of the Executing Bank are, among others, to undertake a business feasibility assessment and to decide on the grant of credit/financing and the duty of the Guarantor Company, among other things, to grant credit/ financing approval granted by the implementing Bank [14]. The expected objectives through this KUR Access Socialization are (a) implementation of KUR distribution to coastal community groups facilitated by capital so as to increase socio-economic benefits in coastal areas; (B) the fulfillment of capital for business groups and business actors in coastal areas; (C) the increase of business groups and business actors in coastal areas utilizing KUR. All stakeholders should think about ways banks can increase their funding in the fisheries sector as their potential will be greater in the future. In addition, he hopes the government will also disburse low-cost financing program through Bank Perkreditan Rakyat (BPR) for the fishery and marine sector to reduce the poverty of coastal communities reaching more than 25 million people. In addition to the fishery sector, he said, the marine sector and the salt industry are also potential to be developed into one source of public income.

5. Conclusion

The results show that institutional collaboration and banking support are able to establish Regional Innovation Systems of Fisheries and Marine Affairs in North Sumatra.

Acknowledgments

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