Supply Chain Strategy for Developing the Fishery Industry in Aceh Province, Indonesia

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***Abstract*— The fishery sector is one of the main contributors to the economic growth of the region. It plays a significant role in sustainable livelihoods and poverty reduction in several households and communities. The purpose of this study is to investigate the supply chain strategy for developing fishery industry in Aceh province and examine the mediating role of competitive advantage in the relationship between service quality and fishery industry performance, Indonesia. This cross-sectional study through a questionnaire self-administered conducted on three fishery harbours in Aceh. A total of 150 fishermen had participated in this study, the data collected by using purposive sampling. The data analysed by utilizing the Structural Equation Modelling (SEM) via Analysis of Moment Structure (AMOS). The results of this study found that external factor and service quality have direct effect significant on competitive advantage. Further, the external factor, natural resource and energy and internal factor have direct effect significant on fishermen capabilities. In addition, we also found that the competitive Advantage and Internal Factor have a significant direct effect on fishery industry performance. In contrast, this study found that natural resource and energy and service quality do not significant effect directly on fishery industry performance. Also, after conducting the mediating test, we found that competitive advantage has mediated the relationship between service quality and fishery industry performance. Using the Multi-Group Analysis (MGA), this study found that the role of Panglima Laot (as leader of fishery community) does not important for fishery industry performance.**

***Keywords*—** *Supply chain strategy, fishery industry performance, service quality, competitive advantage, natural resource and energy, fishermen capabilities, Panglima Laot.*

1. Introduction

Fishery management becomes a strategic issue in sustainable fishery activities in Aceh, Indonesia. The fishery industry is a great motivator for fishing activity. It has been supporting the livelihood of more than 600 thousand people or 12.24 per cent of Aceh's total population, directly and indirectly, starts from fish catching activity until its marketing. The fishery sector is one of the food industry sectors which renowned globally. This sector runs in the liberal trade globally and the more market-oriented economy. It is noticed by the rapid change toward the consumer and market demand, especially in fish quality and safety issues [1]. A total of fishery production in Aceh in the year of 2016 is 266, 883 tons, with the production value IDR 8,488,741,984.00. The significant production volume is used to fulfil the need of the consumed fish, a raw material for processed-fish production in the region and export commodity. In 2016, the consumed fish need per capita in Aceh was 49.8 kg/ capita/ year, with a growth of 6.3%. This value was far above the average of the national fish need, which 43.88 kg/capita /year, with the growth of 6. 74%. Processed-fish units produced the processed-fish production in all regions in Aceh. In 2016 there were 1, 603 units processed-fish unit in Aceh.

The development of the fishery industry in Aceh is caused by the maritime and fishery sector investments. Investment from investment agency in the country on the processed-fish, fish preservation industry and the fish product is done on the fish freezing industry (marine fishes), fish freezing industry with the value of IDR 10 billion until the 3rd quarterly of 2016. Besides that, there also the investment by foreign agency on the canned preservation fish and seafood industry, fish freezing and other kind of seafoods and ice industry on frozen prawn commodity, ice cube, canned fish fillet, frozen squid, canned surimi, with the investment IDR193,300,000,- until the 3rd quarterly of 2016 [2].

A region economic growth is measured by using the gross regional domestic product or the capability of each sector in giving a contribution [3-5]. The fishery sector contributed only 4.46% in the gross regional of Aceh income in 2017. This

value is very small compared to other sub-sectors. The implementation of government regulation to save the economic sector by savings the security of marine resources is done by destroying illegal fishing (reported and unregulated). Government regulation outlined in the provision of the ministry of fishery and maritime no. 56 2014 about a moratorium of capture fishery business operational approval in the fishery management region of the Republic of Indonesia, which later changed by regulation of ministry of fishery and maritime No.10 2015.

One of the impacts of implementation of the regulation is the increase in fishery production, especially capture fishery. The average percentage of the national capture fishery increase before the regulation implementation was 3.32% (in the period of 2011-2013) to 3.61% (after the implementation of the regulation, in the period of 2014-2016). Aceh province is a larger authority on the sea region. It impacted on production increase as the regulation implementation. The average percentage of Aceh capture fishery increase before the regulation implementation was 2.67 % (from 2002-2013) to 5.53% (after the implementation of the regulation, (from 2014-2016).

The development of the fishery sector aims to increase the welfare of fisheries actors, especially fishermen [6]. The value of a large amount of fishery production has not brought a significant impact on the growth of the Aceh economy, especially fishermen's welfare. The small effect on fishery production towards the fishermen welfare can be identified from the Aceh fisherman exchange rate [7]. The data showed that the Aceh fisherman exchange rate in 2016 was 101.3 was smaller than the national fisherman exchange rate, i.e. 108.2. The data at the end of January 2017 showed that the Aceh fisherman exchange rate was 104.8; it is smaller than the national fisherman exchange rate 109.85. The Aceh fisherman exchange rate was at the 26th position among 34 provinces, where there were 13 other provinces whose fisherman exchange rate higher than the national fisherman exchange rate. The increase of Aceh fisherman exchange rate from 2016 to 2017 only 0.4%, while the national statistics data showed the national fisherman exchange rate in each province increased dramatically because of the price increase on several fish commodities, especially mackerel and skipjack fish. The maritime sector should be maintained and developed for the sake of country welfare [8]. Fishery industry development which has a great resource in Aceh and its serious development, needs effective and efficient management. An appropriate fishery industry development model is needed for all steps of improving people's welfare can be achieved well.

2. Literature Review

The ability to use technology becomes another internal influence on the fishery industry. For the industry to be strong internally, the interaction and various needs related to the aspects should be paid good attention, synergy, and efficiency [9]. Some factors that determine fisherman technology adoption; education level, finance, the role of fishery instructor, expectation and fisherman future prediction, behaviour and other demography factors [10]. In the sailoring process, a fisher will consider catching area, catching time, and how many fishes they will catch. The combination of those three aspects is setting in ecosystem-based fishery management [11].

A study by Matsuzaki [12] stated that fishery diversification and agroecosystem could increase production and income, although ecosystem and market change cannot be predicted. The catching tool hurts the quality of seafood. Its misuse will decrease the value of catching results [13]. There are some basic principles that fishers do a fishing activity: prior knowledge, knowledge, skill and faith or values [14]. An external factor that influences the fishery industry is technology development in the fishery sector. Boopendranath [15] pointed out that dynamic development has done in the technology of fish harvesting in the last decades. Optimum allocation of the fishing fleet should be determined optimally for the utilization of fish resources are not wasted and preventing a future horizontal conflict of fighting from getting a catching area among the fishermen [16].

The government, through regulatory policy No. 7 2016 about the acceleration of national fishery development, issued the regulation with the primary objective is the acceleration of national fishery development. The ministry of fishery and maritime targets the increase of export value and the volume addition of processed product are 11.79% and 4.85% per year, respectively (2018). The government eases the accessibility for fishery industry actors by building an adequate infrastructure such as an integrated marine and fisheries centre (SKPT) in the small outer islands of Indonesia. Aceh government in Qanun (region policy) no. 7 2010 about fishery also set out the policy about the fishery industry market.

Fish stock, ecosystem and fisherman's community are one unity in a dynamic system. Thus, the adaptation is needed for technical and economic factors which often ignore the consideration of bio-ecology fish sources [17]. The strength of the market significant effect on fishery management [18]. Fishery resources management is required to consider ecology, economic, social, and technology, law and institution aspect [19]. Ceyhan & Gene [20] pointed out that some commercial fisheries decrease dramatically because of excess production capacity. Kirkley & Squires [21] explained that the ability of fish catch is vital to consider in fish catching activity.

Mkong [22] stated that the advantage for fish farmers could increase through capacity building of fish farmers. The fishery sector, especially fish-catching experienced pressure because of the increase in demand for fishes [23]. According to Sukiyono dan Romdhon [24], characteristics of a fishing fleet are a crucial factor and significant which influences technical efficiency. Three factors influence the fish capture activity, those are the duration of the trip, the supply of ice and the cost for fish capture activity [25] (Wiyono and Hufiadi, 2014). Fishers are one of the critical factors in maritime and fishery sector development [26].

Park [27] found that trade is positively related to economic growth. The Foreign market tends to be more varied and competitive affects the export performance of the fishery sector more attractive to policymakers, business manager and marketing researchers [1]. The competitiveness concept is expressed differently by some people and institutions. It is productivity which defined as an output value produced by labour [28].

Kleynhans [29] pointed out that competitiveness depends on four main factors: input, market demand, company structure, strategy, and competition, supporting the related company and supporting the association. Other variables that influence fishery industry performance is the financial condition capability, marketing and human resources that involves in the fishery industry [30]. Managing human resources e is also crucial. Profitability and productivity can increase fishery competitiveness [31]. The study conducted by Vutete et al. [32] stated that a balanced scorecard is an ideal dimension to measure performance management in the public sector. Pana et al. [33] stated that the use of a balanced scorecard on harbor performance analysis produces a strategy that is related to each perspective. A significant change must happen in a global economy because it must migrate to Industry 4.0 [34].

Panglima Laot is a coastal culture developed in Aceh, that’s why Panglima Laot is known as a traditional leader for fishers in Aceh. Panglima Laot has a strategic position in the fisherman community as a traditional leader. One of his authorities is managing the fisherman community as a coastal community unity that depends on their life at marine to fulfil fisherman's living needs [35]. Panglima Laot focuses on the local culture in managing and ensuring marine sustainability as an essential economic resource for the community in Aceh. Panglima Laot also manages marine resources that can be exploited and empower the community to do a maritime activity based on the culture requirement and community interests. In ensuring the effectiveness of these functions, the role of Panglima Laot is strengthened by the particular regulation about marine and fishery activities that have been practised from generation to generation through marine culture (marine culture of Aceh), It is to ensure the long-term conformity and sustainability of Aceh marine resources [36].

3. Methodology

This study designed using cross-sectional study through a questionnaire administered. The sampling technique selected utilizing purposive sampling for 150 fishermen harbours in three locations namely (1) Samudera (PPS), Kutaraja Banda Aceh; (2) Labuhan haji (PPP), South Aceh district; and (3) Idi Aceh Timur district (PPN). Also, this study involved as much as 10% from each group of government, fishery businessman, fish carrier, fisherman and Panglima Laot. The data analysed using the analysis of moment structure by utilizing the structural equation model (SEM) with assisted by statistical software, namely IBM SEM AMOS Version 23. As usual, Hair et al. [37], the SEM consist of two underlying requirements, i.e. measurement and structural model.

The measurement model will report the result of validity (indicators and constructs), reliability (composite reliability), convergence validity (Average Variance Extracted) and Discriminant validity (Square root of Average Variance Extracted). Further, the structural model will present the value of SRMR (standardized root-mean-square residual) for indicating which variables load on which factors and which factors are correlated.

Also, we report the result of hypotheses testing, including direct and indirect effect. Also, this study employs the mediating role of competitive

advantage in the relationship between Natural Resource and Energy, Service Quality with fishery industry performance. For those, we use the underlying theory developed by Hayes [38].

4. Results and Discussion

As discussed in the previous section, this study applied the causality model for testing the structural relationship among variables. Using the data that obtained, we use the structural equation model for investigating the supply chain strategy for developing fishery industry in Aceh province, Indonesia.

According to Haryono [39] stated that the SEM is the second generation of multivariate analysis techniques that enables the researcher to test the relationship among complex variables, either recursive or non-recursive to gain a full description about all models.

Having that, using SEM AMOS, we used 7 (seven) factor structure model for conducting the confirmatory analysis (measurement model). It consists of Internal and external factors, service quality, natural resource and energy, fishermen capabilities, competitive advantage and fishery industry performance. The result of confirmatory testing, as seen in Figure 1 below:

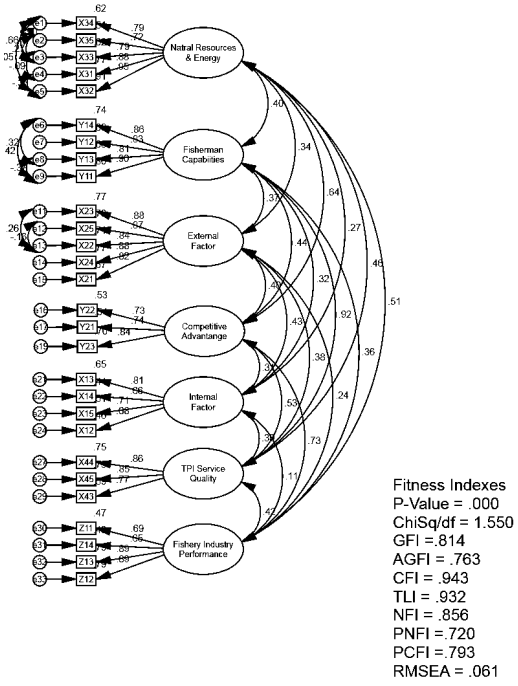

Figure 1. The confirmatory factor analysis with 7 (seven) factor structure

Besides displayed by the figure, we also reported the result for confirmatory analysis in Table. It can be seen as follow:

Table 1. The result of convergent validity (AVE) and composite reliability (CR)

Variable(s)	CR	AVE
Service Quality	0.869	0.689
Natural Resource and Energy	0.915	0.686
Fishermen Capabilities	0.912	0.721
External Factor	0.933	0.736
Competitive Advantage	0.812	0.591
Internal Factor	0.809	0.516
Fishermen Industry Performance	0.864	0.619

Table 1 displays that the value of composite reliability (CR) is more than 0.70 (refer to Hair et al., [40]). It means that the measurement scale used in this study is reliable. Also, for testing the convergence validity, we used the value of Average Variance Extracted (AVE) and found that the amount of AVE is higher than 0.50. The minimum value of AVE is 0.516 (Internal Factor), and the maximum is 0.736 (External Factor). After that, we also employed testing discriminant validity. This study uses the value of the square root of AVE. The result, as seen below:

Table 2. The result of discriminant validity testing

V	1	2	3	4	5	6	7
1	**0.830**						
2	0.455	**0.828**					
3	0.819	0.404	**0.849**				
4	0.384	0.338	0.373	**0.858**			
5	0.529	0.636	0.445	0.402	**0.769**		
6	0.300	0.266	0.324	0.426	0.314	**0.718**	
7	0.416	0.505	0.360	0.241	0.730	0.106	**0.787**

Note:1. Service Quality, 2. Natural Resource and Energy, 3. Fishermen Capabilities, 4 External Factor, 5. Competitive Advantage, 6. Internal Factor, 7. Fishermen Industry Performance

Table 2 above indicates that the total value of Square root AVE for its construct is higher than others construct. It means that the variable in this study fulfils the requirement of discriminant validity, or in other words, the variable is discriminant each other.

Table 3. The result of confirmatory factor analysis or Indicator Validity with 7 (seven) factor structure

Item (s)		Construct(s)	Estimate	S.E.	C.R.
X34	<--	Natural Resource and Energy	1.000		
X35	<--	Natural Resource and Energy	0.877	0.069	12.747 ***
X33	<--	Natural Resource and Energy	1.038	0.065	16.008 ***
X31	<--	Natural Resource and Energy	0.944	0.106	8.864***
X32	<--	Natural Resource and Energy	1.040	0.103	10.090 ***
Y14	<--	Fishermen Capabilities	1.000		
Y12	<--	Fishermen Capabilities	0.950	0.116	8.188***
Y13	<--	Fishermen Capabilities	0.953	0.068	14.110 ***
Y11	<--	Fishermen Capabilities	0.861	0.076	11.339 ***
X23	<--	External Factor	1.000		
X25	<--	External Factor	1.016	0.071	14.375 ***
X22	<--	External Factor	1.139	0.073	15.587 ***
X24	<--	External Factor	1.070	0.073	14.622 ***
X21	<--	External Factor	1.082	0.084	12.893 ***
Y22	<--	Competitive Advantage	1.000		
Y21	<--	Competitive Advantage	1.093	0.134	8.173***
Y23	<--	Competitive Advantage	1.266	0.141	8.954***
X13	<--	Internal Factor	1.000		
X14	<--	Internal Factor	0.901	0.118	7.621***
X15	<--	Internal Factor	0.983	0.121	8.095***
X12	<--	Internal Factor	0.904	0.117	7.736***
X44	<--	Service Quality	1.000		
X45	<--	Service Quality	1.098	0.096	11.396 ***
X43	<--	Service Quality	1.023	0.098	10.427 ***
Z11	<--	Fishermen Industry Performance	1.000		
Z14	<--	Fishermen Industry Performance	1.073	0.149	7.227***
Z13	<--	Fishermen Industry Performance	1.382	0.147	9.412***
Z12	<--	Fishermen Industry Performance	1.339	0.142	9.422***

Note: *, **, *** is significant at the level 10%, 5% and 1%

Table 3 depicts the whole of the items in this study under each construct are significant at the level of 1%. It means that the item used in this study is valid for conducting further analysis. Also, in the next stage, we present and report the result of the structural equation model. The result, as seen in Figure 1 below:

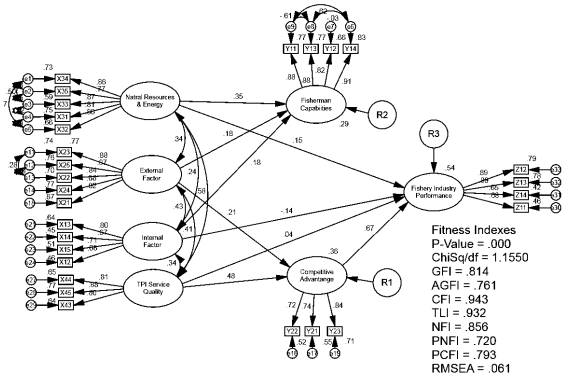

Figure 2. The Structural Equation Model – Final Model

After getting the final model, we also test the model proposed is fit. A study of Hair et al., [40] stated that there are 3 categories of the goodness of fit, namely Absolute Fit Indices, Incremental Fit Indices and Parsimonious Fit Indices. The summary result of the goodness of fit model as seen in Table 4 below:

Table 4. The summary result of the Goodness of Fit (GoF) model

Category	Index	Thres hold	Empirical Test
Absolute Fit Indices	Chi-Square/df	< 3.00	1.155
	RMSEA	< 0.08	0.061
	GFI	> 0.80	0.814
Incremental Fit Indices	AGFI	> 0.90	0.933
	CFI	> 0.90	0.943
	TLI	> 0.90	0.932
	NFI	> 0.85	0.856
Parsimonious Fit Indices	PNFI	> 0.50	0.720
	PCFI	> 0.50	0.793

By referring the Table 4 above, there 3 (three) categories for testing the goodness of fit model. Absolute fit indices consist of Chi-Square/df, RMSEA and GFI. The result of the analysis found that all of the values are achieved, and only GFI categorized as acceptable (0.814). Further, the incremental fit indices measured by using AGFI, CFI, TLI and NFI. The result shows that the value

of the empirical test is higher than the value of the threshold. Lastly, the result of empirical analysis for parsimonious fit indices which consist of PNFI and PCFI; both values is higher than 0.50 (e.g. 0.720 and 0.793). Having that, in the next stage, we report the result of the hypotheses testing. It can be seen in Table 5 as follow:

Table 5. The result of hypotheses testing (Direct Effect)

Path Analysis			Estimate	C.R.	SRMR
Competitive Advantage	<--	External Factor	0.127	2.302**	0.358
Competitive Advantage	<--	Service Quality	0.301	4.666***	
Fisherman Capabilities	<--	External Factor	0.181	2.006**	0.286
Fisherman Capabilities	<--	Natural Resource and Energy	0.446	4.098***	
Fisherman Capabilities	<--	Internal Factor	0.189	1.984**	
Fishery Industry Performance	<--	Competitive Advantage	0.693	5.291***	0.539
Fishery Industry Performance	<--	Natural Resource and Energy	0.118	1.615	
Fishery Industry Performance	<--	Service Quality	0.025	0.341	
Fishery Industry Performance	<--	Internal Factor	-0.09	-1.717*	

Note: SRMR is Square Multiple Correlations and CR is Critical Ratio. *, **, *** is significant at the level 10%, 5% and 1%.

Table 5 shows that the path coefficients of over identified model show that the External Factor direct effect significant at 0.05 with β is 0.127, standard deviation = 0.055 and the value of the critical ratio is upper than t table (e.g. 1.96) = 2.302 to Competitive Advantage. Further, the Service Quality direct effect significant at 0.01 with β is 0.301, standard deviation = 0.064 and the value of the critical ratio is upper than t table (e.g. 1.96) = 4.666 to Competitive Advantage. Both variables can explain their relationship on competitive advantage as much as 0.358 or 35.8%.

Also, the path coefficients of over identified model for testing the direct relationships of External Factor direct effect significant at 0.05 with β is 0.181, standard deviation = 0.09 and the value of the critical ratio is upper than t table (e.g. 1.96) = 2.006 to Fisherman Capabilities. Next, the Natural Resource and Energy direct effect significant at 0.01 with β is 0.446, standard deviation = 0.109 and the value of the critical ratio is upper than t table (e.g. 1.96) = 4.098 to Fisherman Capabilities. Also, the Internal Factor direct effect significant at 0.05 with β is 0.189, standard deviation = 0.095 and the value of the critical ratio is upper than t table (e.g. 1.96) = 1.984 to Fisherman Capabilities. After, this study found that three exogenous variables can be explained its relationship on Fisherman Capabilities as many as 0.286 or 28.6%.

Lastly, the path coefficients of over identified model for testing the direct relationships are a Competitive Advantage direct effect significant at 0.01 with β is 0.693, standard deviation = 0.131 and the value of the critical ratio is upper than t table (e.g. 1.96) = 5.291 to Fishery Industry Performance. Further, the Internal Factor direct effect significant at 0.10 with β is -0.09, standard deviation = 0.053 and the value of the critical ratio is upper than t table (e.g. 1.96) = -1.717 to Fishery Industry Performance. Unfortunately, the Natural Resource and Energy and Service Quality do not significantly affect directly on Fishery Industry Performance.

4.1. The mediating role of competitive advantage in the relationship of service quality and fishery industry

As mentioned in the previous section, this study also tests the indirect effect or the role of competitive advantage in the relationship between service quality and fishery industry performance. The result of analysis for testing the mediation variable as seen in Figure 3 below:

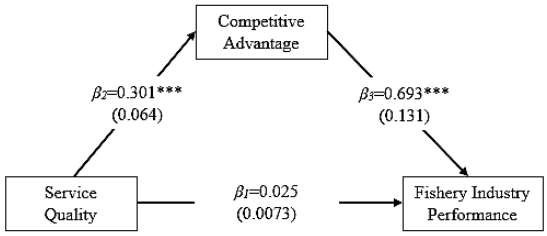

Figure 3. The standardized regression coefficient between service quality and fishery industry performance as mediated by competitive advantage

Figure 3 shows the relationship between service quality and fishery industry performance as

mediated by competitive advantage. As Figure 3 illustrates, the standardized regression coefficient between service quality and competitive advantage was statistically significant, as was the standardized regression coefficient between competitive advantage and fishery industry performance. The standardized indirect effect was (β1=0.301) (β2=0.693) = 0.208.

It means that the competitive advantage mediates the relationship between service quality and fishery industry performance. We tested the significance of this indirect effect using bootstrapping procedures. Unstandardized indirect effects were computed for each of 300 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect was 0.99, and the 95% confidence interval ranged from 0.395, 1.108. Thus, the indirect effect was statistically significant.

4.2. The Role of Panglima Laot as a Leader among Fishery Community

For examining the importance of Panglima Laot as a leader of the fishery community, this study conducts the Multi-Group Analysis (MGA) Structural equation Modelling. The data categorized as a dummy variable (e.g. 1 is unimportant, and 2 is important). The result of the analysis, as shown in Table 6 below:

Table 6. The result of Multi-Group Analysis (MGA) Structural equation modelling with standardized weights

Path Analysis			Unimportant		Important	
			Estimate	C.R.	Estimate	C.R.
Competitive Advantage	<--	External Factor	0.162 (0.068)	2.394**	0.087 (0.099)	0.884
Competitive Advantage	<--	Service Quality	0.277 (0.095)	2.899***	0.339 (0.079)	4.289***
Fishermen Capabilities	<--	External Factor	0.178 (0.095)	1.874*	0.489 (0.344)	1.424
Fishermen Capabilities	<--	Natural Resource and Energy	0.348 (0.123)	2.832***	2.343 (0.666)	3.520***
Fishermen Capabilities	<--	Internal Factor	-0.053 (0.087)	-0.611	-0.021 (0.966)	-0.022
Fishery Industry Performance	<--	Competitive Advantage	0.184 (0.107)	1.717*	-0.104 (0.367)	-0.284
Fishery Industry Performance	<--	Natural Resource and Energy	0.205 (0.115)	1.779*	-0.644 (0.357)	-1.802***
Fishery Industry Performance	<--	Service Quality	-0.104 (0.071)	-1.465	-0.057 (0.192)	-0.299
Fishery Industry Performance	<--	Internal Factor	0.694 (0.157)	4.421***	0.943 (0.285)	3.312***

Note: *, **, *** is significant at the level 10%, 5% and 1%.

By following the table above, it indicates that the role of Panglima Laot as a leader of the fishery community does not significantly affect the development of the fishery industry in Aceh, Indonesia. The result displays that the unimportant category has seven (7) path regression significant. Meanwhile, the important category has only four variables significantly affect the development of the fishery industry. Then, for ensuring the Multi-Group analysis has a good model, this study also reports the result of structural weight.

Model	DF	CMIN	P	NFI Delta-1	IFI Delta-2	RFI rho-1	TLI rho2
Structural weights	30	45.091	0.038	0.011	0.013	-0.002	-.003

Table 7 indicates the value df is 30, CMIN is 45.091 and P-value is 0.038 or less than 0.05. It means that the model of multi-group analysis is Good (Good of Fit).

For reducing the factors of the low industry performance, the stakeholder should be increasing and strengthening the competitiveness of the

fishery industry. The competitiveness is the most influential factor for developing the fishery industry performance and the service quality and external factors did not directly affect fishery industry performance in Aceh. Other factors need to focus on the internal function of fisherman's sub-sector, natural resources, and energy support, and fisherman production capability. The fishery development in Aceh is the elements cultural institution, namely Panglima Laot. The role of Panglima Laot as ways of the supply chain strategy for developing fishery industry is significant in Aceh. It roles currently focus on conflict resolution among fishers, it can be also optimized to support fishery industry development. This role is involved in fisherman production capability to lead increasing in fishery industry competitiveness which in turn will increase fishery industry performance.

The setting of development strategy manifests the implementation of a regulation. A supply chain strategy for developing fishery industry performance is a tool to implement the regulation. It is formulated by focusing on factors that interact based on model analysis that has been constructed. This strategy is expected to answer the interaction needs of the significant factors, so fishery industry development more optimal. This development strategy in more detail is shown in table 8.

Table 8. Table 2. The strategy for developing Fishery Industry Performance

No.	Factor	Strategy
1.	Internal Industry Fisherman Sub Sector	- Fishery human resource capacity building (Fisherman, process, and marketing) - Increase of ability in using fishery technology for the capture phase - Consistency of handling procedure of capture fish to maintain product quality on the fleet - Increase of ability for capture fish production diversification - Increase of ability **to** maintain cold chain of supply and value chain on the fleet
2.	External Industry	- Development of fishery technology - Issue of conducive government regulation - Increase of supplier readiness in supplying capture tool in the fishery industry - Increase of supplier readiness in supplying multifunction fleet in the capture fishery industry - Increase of competitiveness intensity in obtaining raw material (sportive competition between fisherman to get the fishing spot, competition between fish supplier for marketing to get fish from fisherman)
3.	Natural resources and energy support	- Stock optimization to support adequate marine fish resources - Measurement of an adequate fish capture area or fishing spot - The choice of water climate environment in a friendly spot fishing - Fulfilment of adequate electricity resources, water, and diesel for the fishery industry - The choice of fishing spots that can supply kinds of high commercial fish
4.	Fishery harbour service quality	- Increase of fleet anchorage service - Supply of fuel station - Supply of ice fabric - Supply of fish auction - Supply of cold storage rent
5.	Fisherman production capability	- Choice of fisherman boat type which is suitable for the potential of existing fish - Choice of capture tool type which is suitable for fish resources - Increase of capture technology adoption and storage after catching in fisherman fleet - Increase of fish capture amount - Increase of fish capture quality
6.	Fishery industry competitiveness	- Determination of production cost, labour productivity, the use of production capacity, and supply. - Increase of product appearance, product acceptance time, product durability, speed of consumer complaint resolution, and product compatibility towards design specification. - Determination of accuracy of production time,

		production waiting time reduction, and accuracy of product delivery time. - Diversification of product types, speed adjusted to demand which is always change
7.	Fishery industry performance	- Determination of financial condition: stock price, net income, return on sales, return on investment, residual income, and economic value-added. - Fulfilment of market condition: market share in various areas, customer satisfaction, brand image, and an average number of repeat visits. - Creation of a comfortable business atmosphere. - Increase of learning and growth perspective: labour education and skill level, labour turn over level, amount of training, ISO standard achievement, etc.

5. Conclusion

In conclusion, this study found several most influential variable as supply chain strategy for developing the fishery industry performance in Aceh, namely the consistency of capture fish's procedure handling for maintaining the boat product quality on fisherman sub-sector of industry (internal factor). For the external factor, the readiness of the capture tool in the fishery industry. Further, the variable of natural resources and energy is an adequate electricity resource, water and diesel for the fishery industry. Also, support for cold storage rent on fishery harbour (service quality). Compatibility fisherman boat type with the potential of existing fish on fisherman (production capability variable). Delivery time on the variable of the fishery industry (competitiveness) and a Consumer Perspective on the variable of fishery industry performance. Besides, this study found that the competitiveness variable is the most dominant variable that affects to increase fishery industry performance. The service quality towards fishery industry performance is not significant, neither direct nor indirect. Overall, the role of the Panglima Laot model did not have a significant influence on fishery industry performance. However, it plays a prominent role in strengthening the relationship between fisherman production capability and industry competitiveness, which in turn will increase fishery industry performance.

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