

# Social capital relationship model and the empowerment of fishery institutional identity: a study of purse seine group of Hitu village, Ambon

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**Abstract.** The government's objective is to decrease the community's poverty level, usually through community empowerment programs. In many cases, the establishment of community empowerment groups seemingly faces obstacles since the majority is based on a top-down approach; the basic need in empowering the community is often identified by the government and not based on the community needs. Social capital is seen as a stronghold of community institutions which can be an alternative way of community empowerment. This study aimed to analyze the relationship model between social capital and the institutional empowerment identity of the purse seiner fishers group on Ambon Island. The result shows a relationship between social capital with fisher institutional identity with the path coefficient of 0.845. The social capital model produced was considered valid where all exogenous latent variables and endogenous latent variables have a value  $> 0.7$ . Good benchmark values, norms, reciprocity, networking, and trust of the fisher will positively affect spiritual aptitude, ethical, uniting ability, ability to use marine resources, and equality between the fishers and between fisher groups. It was suggested that fishermen empowerment programs should consider the social capital factors.

**Key Words:** artisanal fishermen, fisher group, inner model, poverty alleviation, social capital.

**Introduction.** Indonesia is one of the world's largest archipelagic states, where the water area is nearly four times larger than its land area. The ocean, therefore, plays a vital role in Indonesia's development. Indonesia derives significant benefits from the sea for its economy, geopolitics, culture, and natural environment (CEA 2018). In terms of fish production, Indonesia is the eighth-largest country producer globally (MMAF 2021), mainly a captured base fishery. Fish production tends to increase from 6.58 m t in 2016 to 8.02 m t in 2020 (BPS 2021).

With a bounty of fish resources, the fishers' wellbeing should be adequately fulfilled; however, poverty is still a common problem faced by Indonesian fishermen, especially artisanal fishermen (Retnowati 2011; Goso & Anwar 2017; Latief et al 2021). The number of poor people in Indonesia in 2016 was 16.2 million, of which 14.58 million were fishers (Goso & Anwar 2017); it increased slightly by 2.56% in 2021 (Latief et al 2021). The poverty condition of Indonesian fishers, especially traditional fishers, is mainly due to limited capital, pressure from capital owners, an unfair share of income, untransparent fish trading by middlemen, and weak authorization in the regulation (Retnowati 2011). Fish production from Maluku Province between 2000-2018 showed a fluctuation and some signs of unsustainable status (Tetelepta et al 2019; Kepmen KP 19 2022).

Maluku Province contributes 37% to Indonesia national fishery potency (Haris 2021). However, from the poverty index, Maluku Province is considered the fourth poorest province in Indonesia (BPS 2021). The highest potency, the fisher status, and stock status that lead to unsustainable condition should be managed with cautious to

enable sustainable fishery management and better community well-being (FAO 2009; CEA 2018).

Maluku Province is generally known as a thousand island province since there are approximately 1,340 islands in this province, 99.92% are small islands, where only a small proportion of these islands are inhabited. The vast majority (92.4%) of the area is dominated by seawater. Pakpahan (2018) reported that 32.4% of poverty in Indonesia is found in the coastal area of a small island, including Maluku. The village of Hitu is situated in the coastal area of Ambon Island that classified as a small island. Majority of the people of Hitu work as artisanal fishermen characterized by conventional fishing gear, limited capital, low education level, a small fishing boat, revenue sharing between owner and fishers, limited market primarily local market (Charles 2001; Ermayanti et al 2015; Magego et al 2021).

One of the approaches to increasing fishers' welfare is the empowerment of fisher social institutions. The ineffective and weak fisher institution in building up companionship values, low meekness in norms exist in the fisher community, and low trustfulness between the member of fisher institution renders the growth of solid fisher social institution (Tulin et al 2018; Syarifudin & Ishak 2020). The study by Pakpahan (2018) regarding fisher social institution in Nusaniwe sub-district of Maluku Province shows a lack of communication, the difference in fisher views concerning collaboration in fisher institution empowerment, the attitude among individuals. This condition will affect the effort to increase fisher institutions essential for empowering the fisher community.

Studies have been done concerning social capital and the empowerment of coastal communities (Arowolo et al 2019; Vidya & Reddy 2020); that focus on the social relations in the community (Fathy 2019); the collaboration between several resources regarding poverty alleviation of the coastal community (Rosyadi et al 2018); the impact of social capital investment on the rural household in Indonesia (Rustiadi & Nasution 2017). A growing analysis suggests that the concept of fishery institution should be extended to include regulative, normative, and cultural cognitive to inform the design and maintenance of institutional fishery arrangement adequately. The effective institutional fishery will legitimately govern and address the current global fisheries problem (Kooiman et al 2005; Chuenpagdee & Song 2012). This study was intended to investigate the relationship between social capital and fisher institutions' identity empowerment. The fisher institution identity analyzed was the Hitu's purse seiners.

**Material and Method.** The research was conducted at Hitu village, Liehitu Peninsula sub-district of Central Maluku Province (Figure 1). The local purse seiner fishers were purposively selected for institutional identity analysis to represent a small island's artisanal coastal fishers community. The total respondents used was 140 local purse seiner fishers from Hitu village. The study was conducted between May to July 2021.



Figure 1. Map of study site.

Partial Least Square Structural Equation Model (Purwanto & Sudargini 2021; Fan et al 2016) was used to analyze the relationship of social capital factor and fishery institutional identity empowerment. Variables composing the social capital (SC) cover existing fishers interaction values (SC 1), norms (SC 2), mutual reciprocity among fishers (SC 3), networking between fishermen (SC 4), and trust among fisher (SC 5); while variable comprising institutional identity empowerment (IIE) cover: spiritual aptitude (IIE 1), ethic competence (IIE 2), unifying ability in the fisher group (IIE 3), individual sovereignty in resources management (IIE 4), and equality aptitude within the fisher group (IIE 5).

Data were collected through a questionnaire, in-depth interviews with fishers, and thorough field observation and documentation. A list of close questionnaires containing aspects observed was distributed to the fishers. A three-level Likert scale was used for the answer option in the questionnaire. Smart Partial Least Square – Structural Equation Model was used to analyze the relationship between SC and institutional fishery identity (Wong 2013; Purwanto & Sudargini 2021; Fan et al 2016).

Test of the outer model was conducted using validity convergent, discriminant validity, and reliability; while the inner model test was conducted using R-square, Q-square, and Path coefficient following Wong (2013) and Ghozali & Latan (2015).

**Results.** The outer model test shows that the convergent validity values of both SC and institutional identity were relatively high, shown by the loading factor with the value range from 0.600 to 0.927 (Table 1). Indicator with loading factor > 0.7 corresponding to construct measured was considered valid; however, Bagozzi & Yi (1988) in Wong (2013) and Garson (2016) recommended that the value  $\geq 0.5$  was considered valid. Table 1 shows that all the latent variable indicators (SC) and construct variables have the loading factor > 0.5 and were considered valid.

Table 1

Convergent Validity based on loading factor to evaluate outer model

<i>Variable</i>	<i>Indicator</i>	<i>Loading factor</i>	<i>Explanation</i>
Social capital (SC)	Value (SC 1)	0.927	Valid
	Norm (SC 2)	0.877	Valid
	Reciprocity (SC 3)	0.757	Valid
	Networking (SC 4)	0.600	Valid
	Trust (SC 5)	0.649	Valid
Institutional identity empowerment (IIE)	Spiritual aptitude (IIE 1)	0.717	Valid
	Ethic competence (IIE 2)	0.660	Valid
	Unifying ability (IIE 3)	0.805	Valid
	Individual sovereignty (IIE 4)	0.821	Valid
	Equality aptitude (IIE 5)	0.618	Valid

Discriminant validity for the testing of the outer model also shows that the model is valid shown by Average Variance Extracted (AVE), which was 0.509 for SC and 0.508 for institutional identity empowerment. The value of AVE > 0.5 was considered valid (Wong 2013; Garson 2016). Another outer model test, composite reliability, is also considered valid, shown by the value of 0.738 for SC and 0.718 for institutional identity since the value of 0.5 is considered valid (Achjari 2004; Garson 2016). The composite reliability test also explains that the outer model was valid since the composite reliability value was 0.738 for SC and 0.718 for IIE. Both values were greater than 0.7 (Achjari 2004; Wong 2013; Garson 2016).

Standardized path coefficients provide evidence of the inner model's quality (Wong 2013; Purwanto & Sudargini 2021). The result shows that the path coefficient showing the relationship between the construct was 0.845 indicating a high relationship (Figure 2). The primary criterion for inner model assessment is the coefficient of determination ( $R^2$ ), representing the explained variance of each endogenous latent variable (Hair et al 2012; Wong 2013). The coefficient of determination  $R^2 > 0.67$

indicates the high effect of exogenous latent variables towards endogenous latent variables (Chin 1998). The  $R^2$  coefficient found in this study was 0.789, which means 78.90% of the endogenous latent variable was explained by exogenous latent variable. Another goodness of fit (GoF) coefficient, the  $Q^2$ , also shows a good validity of the inner model with a value of 0.789 (Hair et al 2012; Wong 2013; Purwanto & Sudargini 2021).

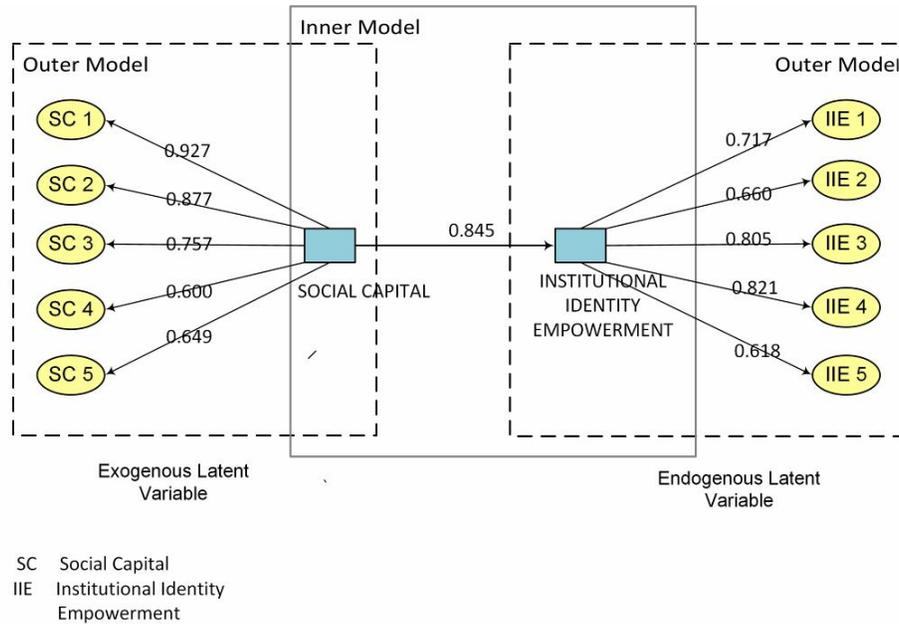


Figure 2. Path coefficient and convergent validity of the relationship between social capital and empowerment of institutional identity.

The direct effect of social capital towards institutional identity empowerment was tested using the student  $t$ -test (Hair et al 2012; Purwanto & Sudargini 2021). Table 2 shows the  $t$ -test result where  $t_{calc.} = 9.274 > t_{table}(\alpha 2: 0.05) 1.982$  explaining that SC has a positive significant effect on IIE.

Table 2

The  $t$ -student test for the relationship between social capital and institutional identity empowerment

Path-coefficient	Original sample	$t_{calc.}$	$t_{table}(\alpha 2: 0.05)$	Pvalue (Pv)	$P_{\alpha: 0.05}$	Remarks
Social capital x Institutional identity empowerment	0.845	9.264	1.982	0.000	0.05	Positive significant

In principle, the objective of the development is to create a well-off condition for the people. This objective is considered ineffective enough to achieve this objective in Indonesia's case. Globally, sustainable development goals (SDGs) are an effort to create a prosperous condition for the people, including fishers. SC is assumed as a useful concept in decreasing the community's poverty by empowering them. SC is concerned with social cohesion, which is an important asset that drives mutual collaboration (Kilpatrick et al 2003). A study on socio-economic factors influencing the SC formation of the fisher group in Nigeria shows that social capital enhances the forming of relationship in the fisher groups and effectively sustain the livelihood of the fishers (Rustiadi & Nasution 2017; Fathy 2019). The empowerment of institutional identity based on the local wisdom of the Amed community in Bali enhances the effectiveness in managing the coastal border that leads to the better livelihood of the fishermen (Adnyani 2021).

The study shows that the better the SC of the fishers group will empower the fishermen's institutional identity as an individual and as a group. Strong values, norms, networking, and trust will enable the fishers as an individual within the group and between groups to enhance aptitude, competitiveness ethic, unifying capability, the sovereignty of the fish resources, and equality which are the fisher institutional identity. Therefore, a strong SC will increase fisher institutional identity, leading to a better livelihood for the fishermen.

**Conclusions.** This study shows that social capital has a significant positive effect on the fishers' institutional identity empowerment. Social capital, among other factors, affects the fishers' group identity empowerment and indirectly reduces the fishers group's poverty. The proper benchmark of values, norms, reciprocity, networking, and trust of fishers will increase their spiritual aptitude, ethical, uniting ability, ability to use marine resources, and equality between the fishers and between fisher groups. For government agency would like to do an empowerment program for the fishers is recommended to pay attention to the social capital of the fishers.

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## References

- Achjari D., 2004 Partial Least Square: another method of structural equation modeling analysis. *Jurnal Ekonomi dan Bisnis Indonesia* 19(3):238-248.
- Adnyani N. K. S., 2021 [The development of the coastal border of Amed involving the participation of traditional leaders: a study on local institutional identity empowerment]. *Jurnal IKA Undiksha* 19(1):58-69. [in Indonesian]
- Arowolo K. O., Pelemo J. J., Buharl H. L., Ongunleye A. A., 2019 Socio-economics factors influencing social capital formation on the livelihood of fisher-folks in Kainji Lake basin, Nigeria. *Journal of Agricultural, Economics, Extention and Social Sciences* 2(1): 152-160.
- BPS [Central Statistic Bureau], 2021 [Percentage of poor people in Indonesia based on Regency]. Available at: <https://www.bps.go.id/indicator/23/621/1/persentase-penduduk-miskin-p0-menurut-kabupaten-kota.html>. Accessed: December, 2021. [in Indonesian]
- CEA (California Environmental Associates), 2018 Trends in marine resources and fisheries management in Indonesia: a 2018 review. 145 pp.
- Charles A. T., 2001 Sustainable fishery systems. Wiley-Blackwell, 388 pp.
- Chin W. W., 1998 The partial least squares approach to structural equation modeling. In: Modern methods for business research. Marcoulides G. A. (ed), Lawrence Erlbaum Associates Publishers, pp. 295-336.
- Chuenpagdee R., Song A. M., 2012 Institutional thinking in fisheries governance: broadening perspectives. *Current Opinion in Environmental Sustainability* 4(3):309-315.
- Ermayanti, Effendi N., Hidayat M., 2015 [Fishing technology of fisher community at Nagari Pasar Lama, Air Haji, Linggosari Baganti sub-district, Western Coastal District]. *Jurnal Antropologi: Isu-Isu Sosial Budaya* 17(1):23-38. [in Indonesian]
- Fan Y., Chen J., Shirkey G., John R., Wu S. R., Park H., Shao C., 2016 Applications of structural equation model (SEM) in ecological studies: an updated review. *Ecological Processes* 5:19.
- FAO, 2009 Fisheries management: 2. The ecosystem approach to fisheries. 2.2. The human dimensions of the ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. Suppl. 2, Add. 2, FAO, ROME, 88 pp.

- Fathy R., 2019 [Social capital: concept, inclusiveness, and community empowerment]. *Jurnal Pemikiran Sosiologi* 6(1):1-17. [in Indonesian]
- Garson G. D., 2016 *Partial least square: regression and partial least square*. Statistical Associates Publishers, Asheboro, NC, 262 pp.
- Ghozali I., Latan H., 2015 [Partial least squares: concept, technique, and application using Smart PLS 3.0]. Undip Publishing, Semarang, 290 pp. [in Indonesian]
- Goso, Anwar S. M., 2017 [Traditional fishermen deprivation and their impact towards slum area development]. *Jurnal Manajemen* 3(1):25-36. [in Indonesian]
- Hair J. F., Sarstedt M., Ringle C. M., Mena J. A., 2012 An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science* 40:414-433.
- Haris A., 2021 [Grand design – Maluku as national fish storage. Webinar ‘Developing fishery storage as an economy driven and prosperity’]. *Marine and Fisheries of Maluku Province*, 24 pp. [in Indonesian]
- Kepmen KP 19, 2022 [The Ministry of Maritime Affairs and Fisheries Directive concerning fish resources estimation, allowable catch, and utilization level at fisheries management area of the Republic of Indonesia]. 7 pp. [in Indonesian]
- Kilpatrick S., Field J., Falk I., 2003 Social capital: an analytical tool for exploring long-life learning and community development. *British Educational Research Journal* 29(3):417-433.
- Kooiman J., Bavinck M., Jentoft S., Pullin R. (eds), 2005 *Fish for life: interactive governance for fisheries*. Amsterdam University Press, 432 pp.
- Latief M. I., Hasbi, Sultan, Genda A., Pasmudir, 2021 [SDGs intervention in handling fishermen poverty during the Covid-19 pandemic in Makassar City]. [Proceeding of Marine and Fishery National Symposium]. Faculty of Marine Science and Fishery, Makassar, 5 June 2021, 10 pp. [in Indonesian]
- Magego J. L., Gor C. O., Kinaro Z., 2021 Artisanal fisheries socio-economic characteristics in development planning strategies. *IOSR Journal of Humanities and Social Science* 26(4):1-6.
- MMAF [Ministry of Maritime and Fisheries], 2021 [Directorate General of Marine and Fisheries product competitiveness development. Status of Indonesia tuna fisheries exporter]. Available at: <https://kkp.go.id/djpdspkp/artikel/33334-peringkat-indonesia-sebagai-eksportir-produk-perikanan-dunia-meningkat-di-masa-pandemi>. Accessed: December, 2021. [in Indonesian]
- Pakpahan R. R., 2018 [Bureaucratic accountability in coastal community empowerment at Nusaniwe sub-district of Ambon City]. *Jurnal Academia Praja* 1(2):51-76. [in Indonesian]
- Purwanto A., Sudargini Y., 2021 Partial least squares structural equation model (PLS-SEM), analysis for social and management research: a literature review. *Journal of Industrial Engineering and Management Research* 2(4):114-123.
- Retnowati E., 2011 [Indonesian fishermen in the circle of structural poverty. Social perspective, economy, and justice]. *Perspektif* 16(3):149-159. [in Indonesian]
- Rosyadi S., Fitrah E., Kusuma A. S., 2018 A development policy of networking-based creative marine small and medium enterprises as a solution for poverty alleviation in Indonesia. *E3S Web of Conferences* 47:07007.
- Rustiadi E., Nasution A., 2017 Can social capital investment reduce poverty in rural Indonesia? *International Journal of Economics and Financial Issues* 7(2):109-117.
- Syarifudin D., Ishak R. F., 2020 The importance of rural social productive space to increase the social capital of agribusiness community in agropolitan area. *Jurnal Wilayah dan Lingkungan* 8(1):67-83.
- Tetelepta J. M. S., Ongker O. T. S., Pattikawa J. M., Natan Y., 2019 [Review on some economic important fish resources of Maluku Province: management recommendation with ecosystem approach]. *National Seminar Proceeding on Maritime and Fisheries*, pp. 268-279. [in Indonesian]
- Tulin M., Lancee B., Volker B., 2018 Personality and social capital. *Social Psychology Quarterly* 81(4):295-318.

- Vidya N. V., Reddy C. M. B., 2020 Does social capital empower fisherfolks economically? *Psychology and Education* 57(9):5985-5991.
- Wong K. K., 2013 Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin* 24:1-32.

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