

## Fishermen's poverty reduction based on integrated marketing system

Mochamad Ridwan <sup>1\*</sup>

<sup>1</sup>University of Bengkulu, Bengkulu, Indonesia

\*Corresponding author: [mridwan@unib.ac.id](mailto:mridwan@unib.ac.id)

### KEYWORDS

Poverty  
Fishing Communities  
Marketing System  
Integrated

**ABSTRACT** Abstract. Poor small fishing communities in rural areas are always faced with a detrimental marketing system trap for marine fish catches. This study aims to reveal the characteristics of fishermen's poverty (poverty depth and severity index), detrimental marketing systems in poor fishing communities, the factors that determine them, and to build a qualitative model of an integrated (mutually beneficial) marketing system to reduce fishermen's poverty in rural areas. This research is a case study by setting the North Bengkulu Regency, Bengkulu Province, as the sample location. Data collection is done by interview, focus group discussion, observation, and documentation. The results showed that fishermen's poverty's depth and severity index in the sample villages were 0.645 and 0.257 (both of which had quite high scores). Quantitative analysis shows that the depth and severity of fishermen's poverty are determined by the quality of the marketing system (detrimental or profitable) and the quality of capital (captures facilities). Qualitative analysis shows that fishermen's poverty is determined by the cooperation factor, the role of cooperative institutions, the role of the government, and the role of universities. The qualitative model that can be built is an integrated marketing system model (improvement of a detrimental marketing system to be profitable for fishing communities).

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### 1. INTRODUCTION

In their daily lives, the fishing communities are faced with abundant marine natural resources; until now, most of the population is still living in poverty. This condition indicates the inability of fishing communities, both individually and in groups, on managing marine natural resources that are open access (natural resources are common resources) and as an endowment asset (Owusu & Andriese, 2020). The consequence of this phenomenon of fishing community poverty is that their poverty is getting deeper and worse (the gap between the poverty of fishing communities and their poverty line is getting bigger). Theoretically, the accumulation of poverty is confirmed by Nurkse (1953) in his theory of the vicious circle of poverty. This theory explains that poverty is actually a trap whose form is not clearly visible, and the mechanism tends to move in a circular manner and is cumulative (poverty will get deeper and worse) (Kuncoro, 2004). It is corroborated by several previous studies that the poverty trap can occur due to cultural factors (making a culture of poverty). The culture of poverty that occurs in coastal communities (fishing communities) is generally shown through slum housing conditions, irregular lifestyles, and others (Azis et al., 2017; Hakim, 2019; Praseityo, 2019). Through macroeconomic and microeconomic approaches, the accumulation of fishermen's poverty can occur due to systemic, localisation processes and powerlessness or other cultural and structural causes (Wijaya & Fauzie., 2014). A policy in breaking the chain of poverty in the fishing community will not work effectively if it does

not involve the fishing community as one of the important elements of the coastal communities, which acts as a local strategic power (as the spearhead). Management or utilisation of marine natural resources that involve local forces is not only focused on fishermen's human resources but also involves resources originating from the fishermen's family environment, such as from fishermen's wives (Tobarasi, 2019; Wantini et al., 2014).

Bengkulu is one of the provinces in Indonesia where most of the territory has a coastal character. This condition has the consequence that most of the population live in coastal areas and work as fishermen. Bengkulu Utara Regency is one of the regencies in Bengkulu Province with the characteristics of the area being mostly a coastal area (next to the Indian Ocean), where small fishermen/traditional fishermen are the largest proportion of the entire fishing communities there and marine natural resources are the major natural resources (as an endowment asset). Statistical data indicate that the development of poverty in Bengkulu Utara Regency has a declining trend, although it moves slowly (graphically, this trend can be seen in Figure 1) (Badan Pusat Statistik Provinsi Bengkulu, 2020). Other information indicates that most of the marine natural resources produced are sourced from small fishermen/traditional fishermen (Sabihaini et al., 2018). The factual/empirical conditions (Das Sein) are shown by the contradictory phenomenon of poverty in the Bengkulu Utara Regency (the contradiction between the still high poverty rate and the declining trend of poverty) (shown by Figure

1) and the abundant potential of marine natural resources (as normative conditions) (das solen), showing that there are research gaps (main problem) which can be uncovered, namely those relating to the characteristics of poverty in terms of the depth and severity of poverty and its determinants.

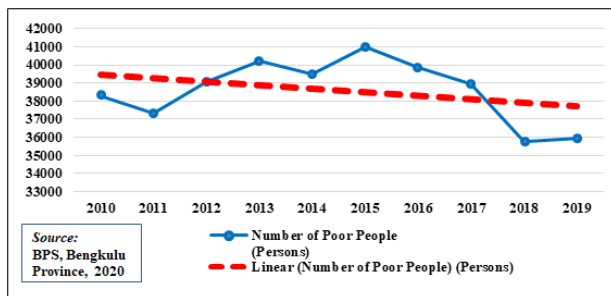


FIGURE 1. Number and Trend Linear of Poor Population in Bengkulu Utara Regency (2010-2019)

Empirical facts show that the phenomenon of poverty that occurs in small fishing communities (traditional fishermen) in Bengkulu Utara Regency is followed by the increasing number of marketing agents (fish collectors) who act as buyers of fishermen's marine fish catches. Anriani et al. (2019) say that generally, fish market agents who usually act as providers of working capital for small fishermen mostly come from large fishermen/modern fishermen. Based on the facts in Bengkulu Utara Regency (as the research area/location), the phenomenon of the rise of marketing agents is caused by the malfunctioning of the fish auction place/market in the fishing community. The normative condition shows that the place/centre of the auction/marketing of fish catch is a place or market that makes the price of fish much better (according to the market price/expected price) and transparency for all parties. This phenomenon is corroborated by several research results which show that the downturn of small fishermen is generally caused by the ability of fishermen who can only market their products to one agent (tends to harm small fishermen/traditional fishermen) and leads to the form of "pattern-client" (Aida et al., 2020; Priyanga & Yasyfi, 2020).

A study shows that an important factor that makes it difficult to reduce the poverty rate of fishermen, especially traditional fishermen, is a policy that limits economic movement (in the aspect of marketing fish products), which has an impact on the increasingly difficult mechanism for marketing transactions between fishermen and consumers and the impact on decreasing the selling price of their products of marine fish catch (?). Another study also shows that the failure of fishing communities (small fishermen/traditional fishermen) in managing (marketing) the results of marine natural resources/marine fishing is caused by strong pressure from fish marketing agents on small/traditional fishermen (detrimental marketing system), pressure in the capital, and low quality of fishing facilities (low quality of fishing fleets, fishing gear, etc.) (Kornitasari et al., 2018). The marketing system for fish catches from fishermen is not detrimental (mutually beneficial for all parties), in principle focusing on how to build a marketing system through the most efficient marketing chain. In this context, the marketing system must be built with the principle of openness, no pressure from one another (for example, pressure from the big fishermen on small/traditional fishermen), and accom-

panied by a sense of belonging, compliance, and togetherness in the utilisation of facilities/infrastructure of fish auction/marketing places (in real conditions this infrastructure is almost abandoned by most small fishing communities/traditional fishermen in carrying out their marketing transactions) (Awel et al., 2020; Azad et al., 2017).

Empirical conditions related to the proliferation of unprofitable (detrimental) marketing systems for small/traditional fishermen have become a trap for the selling price of marine fish catches which is much lower than the price in the real market (as a reflection of the normative conditions or das solen). The essence shows a research gap (main problem), which is expressed through several statements in the form of questions as follows: why this detrimental marketing system can occur?, can this detrimental marketing system be considered as the main determinant of fishermen's poverty (poverty is difficult to reduce/difficult to eradicate)? And what marketing system model can be built?. Based on several research gaps (main problems) that have been revealed/explained previously, three research objectives can be stated: (1) revealing the characteristics of poverty (covering the depth and severity of poverty) of the fishing community and identifying the determinants, (2) reveal the occurrence of a detrimental marketing system in fishing communities, and (3) build a marketing system for marine fish catches in an integrated/integrated qualitative model (transformation from a detrimental marketing system into a marketing system that is beneficial for all parties).

## 2. LITERATURE REVIEW

### 2.1 Poverty and its Causes: A Theoretical Review in the Frame of Poverty Theory

Poverty is a form of community powerlessness that occurs both in rural and urban areas. Two forms of characteristics that indicate community poverty are the level of depth and severity of poverty. Theoretically, the causal factors or determinants have been revealed by the theory of Ragnar Nurkse's: "the Vicious Circle of Poverty" (1953). This theory explains that the phenomenon of community poverty begins with the imperfect of the market system, lack of capital (poor capital system), and underdevelopment conditions. These three factors influence the lower productivity of a person or community. This low productivity, in turn, affects the income of a person or community to be lower (more deepening and exacerbating poverty conditions). The next impact is lowering the ability of a person or community to increase their savings. The inability on increasing this saving will reduce investment in the business sector. If this condition cannot be overcome, it will further deepen/aggravate the level of poverty and underdevelopment with circular and structural influences (Kuncoro, 2004). The results of Bauer's review of the vicious circle of poverty theory show that in poor countries, poverty conditions do not always give birth to new poverty in a circular mechanism (poor countries will one day get out of the trap of the vicious cycle of poverty). This is due to logical and empirical reasons where the development process must always occur continuously in order to improve the welfare of the community (Bauer, 2019). Chronologically, this circular mechanism of poverty can be observed in Figure 2.

Nurkse's logic in the theory of the Vicious Circle of Poverty (see Figure 2), substantially contains the conse-

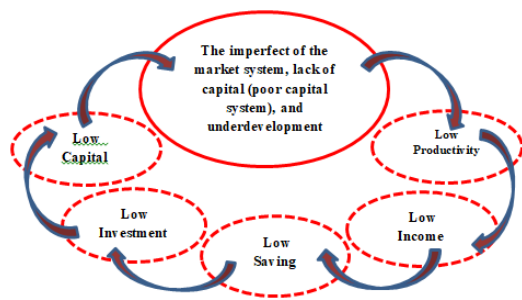


FIGURE 2. Figure 2: The Vicious Circle of Poverty Theory (Ragnar Nurkse, 1953)

quence that by improving the three initial causes of poverty in society, namely an imperfect market system, lack of capital, and underdevelopment of society, the condition of low productivity, low income, the low ability to increase savings, and low investment in the business sector will be overcome. In other words, the level of poverty that occurs in the community is not getting deeper and not getting worse (Kowalczyk & Kwasek, 2020)

## 2.2 Detrimental Marketing Systems Versus Mutually Beneficial Marketing Systems in Fishermen's Communities

Implicit in the poverty theory of Sharp et al. (1996) in Kuncoro (2004) is that from the economic side, the imperfect of the market system is an exogenous variable that results in low community productivity. If the quality of resources (including natural resources) is low, it will certainly make people's productivity becomes low. The low productivity of the community is also caused by the low access to capital owned by the community. Low productivity will deepen and worsen the poverty that occurs, with indicators of income received by the community getting lower. Poverty arises due to differences in the quality of human resources. The low quality of human resources causes low productivity, which in turn lowers the wages (income) received. The low quality of human resources is caused by several factors such as low education, discrimination, and other social factors. By looking at the facts of poverty that occurs in fishermen's communities, this poverty theory seems to be able to be used as a basis in explaining the process of fishermen's poverty by focusing on the imperfect market variable (imperfection of the market system) and at the same time making it a strategic variable in reducing poverty that occurs in the fishermen's communities. The relationship between the poverty of fishing communities and the imperfections of the marketing system that surrounds them is very strong. This theoretical statement is corroborated by research which shows that fishing communities whose fish catches are marketed only through a closed marketing system (only one marketing channel between fishermen and one buyer/middleman), are generally unable to increase their profits normally or have relatively low marketing margins. This condition is generally caused by the fact that fishermen do not have information about prices that actually occur in the actual market and very low utilisation of the functions of infrastructures such as fish auction markets/centres or fish landing centres as marketing centres for fish catch (Haase et al., 2018; ?).

The theory of poverty from Nurkse (1953) and Sharp et al. (1996) both contextually can explain the process

of poverty that occurs in fishermen's communities, especially in rural areas (in the case of research, it occurs in the coastal village of Pasar Palik). The reality shows that in almost all coastal rural areas, small fishermen/traditional fishermen are generally faced with an unfavourable/detrimental market (the occurrence of imperfect market competition – monopsony competition market). The imperfection of the market system for fish caught from the sea and coupled with powerlessness in the aspect of capital in the form of fishing facilities can result in the catches of small fishermen being forced to be marketed/sold directly to middlemen (usually concurrently as buyer and lender of capital). This system of "pattern-client" marketing brings small fishermen into a "marketing trap" that is pressing, where the selling price is determined unilaterally by the middleman/investor/big fisherman. In general, this price agreement is not open and is detrimental to small fishermen (in general, the price is set much lower than the price prevailing in the market). Contextually, the marketing system in the form of monopsony competition is in principle the same as monopsony competition in other market conditions. Monopsony market in the marketing system of fish catches, buyers are played by fish middlemen and sellers are played by fishermen (Aida et al., 2020; Lavee & Regev, 2020; Misra et al., 2020; Wijaya & Fauzie., 2014).

The marketing system for fish catches that is detrimental is different from the profitable marketing system (mutually benefiting various parties). The study, which was conducted in South Malang Regency, provides an overview of the mutually beneficial marketing system for fish catches from the sea through the "auction process" at the Fish Auction Market. This marketing system is an example of a marketing system practice process that is mutually beneficial for all parties involved (fishermen, fishery cooperatives, government, fish buyers/sellers, and universities). All of these stakeholders (directly or indirectly) witnessed the process of determining market prices in a transparent, open and responsible manner through the auction process. This mutually beneficial marketing system is supported by various factors, one of which is the capital factor. The capital used by fishermen (small/traditional fishermen or large/modern fishermen) generally comes from their capital, borrowed capital from external parties (e.g. marine cooperatives), and capital providers (usually at the same time working as big fishermen) (Kornitasari et al., 2018).

### 2.2.1 Theoretical Thinking Framework

The initial conditions that occur in the poverty of fishermen's communities (based on the theory of the vicious circle of poverty) involve economic variables, namely the imperfect of the market system, lack of capital (poor capital system), and conditions of underdevelopment in fishermen's communities. Four social variables that are assumed to also determine fishermen's poverty are the low quality of the cooperation (one of the social capital factors), the low role of the cooperative institutions (marine cooperatives), the low role of the government (department of marine and fisheries), the low role of the related university (this linkage is based on by the poverty theory of Nurkse, 1953 and Sharp et al., 1996). These seven determinants have a structural influence, either directly or indirectly, on the level of depth and severity of poverty that occurs in fishermen's communities, especially in rural areas. If the three initial conditions (initial problems – concerning economic vari-

ables) can be improved and efforts are also made to improve social variables through an empowerment process (education, mediation, and literacy), surely the poverty conditions of fishermen's communities, especially in rural areas will be able to reduced/remedied quickly (Kamarni et al., 2019; Megawanto et al., 2020)

### 3. METHOD

This study is a case study conducted in Pasar Palik Village, Air Napal District, Bengkulu Utara Regency, Bengkulu Province. There are two reasons why Pasar Palik Village was chosen as the sample location for this study: (a) Pasar Palik Village is located in the main district (Bengkulu Utara Regency) and is a coastal village that is relatively close to the provincial capital, so that Pasar Palik Village, which is assumed to have a more advanced socio-economic condition; and (b) In Bengkulu Utara Regency, Pasar Palik Village has the largest number of fishermen in poverty. This is because most of the population work as small fishermen/traditional fishermen, who are mostly poor fishermen.

Based on empirical conditions, theoretical reviews, and various results of previous researches (Kowalczyk & Kwasek, 2020; Kuncoro, 2004; Wijaya & Fauzie., 2014), there are seven variables used in this study, which are divided into three economic variables and four social variables. Three Economic Variables: 1) The quality of the marketing system is a reflection of the imperfect market system. This variable is a form of economic variable that describes the marketing system intended for the results of marine natural resources from fishing communities, where is measured by an interval scale. 2) The quality of the marine fisheries facilities/capital. This variable is also a form of economic variable related to the capital used by fishermen for marine fishing facilities, which is measured by a ratio scale. 3) The quality of the fishermen's capability. This economic variable indicates the quality of the capability possessed by fishermen, which is based on the quality of formal education and experience/ length of the profession as a fisherman. This variable is measured by a ratio scale. Four Social Variables: 1) The quality of the cooperation, that shows the quality of the cooperation attitude (one of the elements of the social capital factor) owned by the fishermen's community, especially the cooperation between internal parties (fishermen's communities) and external parties (outside the fishermen's communities) in improving the performance of fishermen. This social variable is measured by a Likert scale (opinion of the fishermen's communities). 2) The cooperative institutions' role shows the quality of the role of cooperative institutions (as economic institutions in the fishermen's communities) in improving the performance of fishermen. This social variable is measured by a Likert scale (opinion of the fishing community). 3) The role of the government, which shows the quality of the government's role (proxied by the department of marine and fisheries), which functions as one of the relevant government institutions to empower fishermen's communities through education, mediation, and literacy methods. This social variable is measured by a Likert scale (opinion of the fishermen's communities). 4) The role of higher education institutions (faculty or department) related to marine and fishery sciences, shows the quality of its role in empowering (increasing knowledge) the fishermen's communities through education, mediation, and literacy methods. This

social variable is measured by a Likert scale (opinion of the fishermen's communities).

The data used in this study are primary data (as main data) and secondary data (as supporting data). Primary data was collected through the interview method, observation method, and focus group discussion method. Secondary data was collected through the documentation method. The selected research samples are small fishermen or traditional fishermen, those who live in Pasar Palik Village, Air Napal District, Bengkulu Utara Regency. Research sampling (for respondents) was conducted using a simple random sampling method, while sampling for key informants, consisting of fishermen community leaders, leaders from related institutions, and other stakeholders, was conducted using a purposive sampling method.

Two methods used to analyse the collected data are Quantitative and Qualitative Analysis Methods. The Quantitative Analysis Method consists of 1) The Depth and Severity of Poverty in the Fishermen's Communities Analysis Method, used to measure and analyse the Depth and Severity Index.

$$(P \alpha = 1/n \sum_{(i=1)}^q [(Z-y_i/Z)]^1.$$

Where  $\alpha=1$  is the depth of poverty index and  $\alpha=1$  is the severity of poverty index (Badan Pusat Statistik Provinsi Bengkulu., 2019); and 2) Discriminant Analysis Method, used to determine and analyse which economic variables are significant or insignificant at  $\alpha = .05$ , seen from their influence in differentiating the level of poverty (poor or non-poor) that occurs in rural fishermen's communities (Fajrianti et al., 2019; Dakwah & Sutanto, 2020; Oda et al., 2020). The Qualitative Analysis Method (The Descriptive Qualitative Analysis Method), used to reveal and analyse the ability of social variables (non-metric variables) that cannot be analysed through quantitative analysis methods, namely to explain their effect on the level of poverty (poor or not poor) that occurs in rural fishing communities.

## 4. RESULTS AND DISCUSSION

### 4.1 Results

Through the use of the formula for calculating the index number of the poverty depth and severity (P1 and P2) as one of the important characteristics of identified fishermen's poverty in Pasar Palik Village and by entering the magnitude of n (number of fishermen's communities in Pasar Palik Village) = 498 fishermen, q (number of fishermen's communities below the poverty line in Pasar Palik Village) = 281 fishermen,  $y_i$  (average monthly per capita expenditure of fishermen's communities below the poverty line in Pasar Palik Village) = 165,000; and z (poverty line in Bengkulu Utara Regency) = 369,367 per capita per month. Finally, it found P1 (Depth of Poverty Index) = 0.645 and P2 (Severity of Poverty Index) = 0.257, where both of these index numbers are said to be fairly high. Contextually, this result can be explained by linking it with the two existing poverty theories. This fairly high poverty depth and severity index in rural fishermen's communities is assumed to be directly related to economic variables, which theoretically affect/determine the poverty level of fishermen's communities. These economic variables are the quality of the marketing system's variable, the quality of marine fisheries facilities capital's variable, and the variable of the quality of fishermen's capability based on experience.

The results of the quantitative analysis conducted through the discriminant analysis method show that there are two significant determinants (economic variables) on differences in poverty levels (depth and severity of poverty) from fishermen's communities, namely the quality of the marketing system as a reflection of the imperfect market system and the quality of the marine fisheries fishing facilities capital. One variable that is not significant is the variable of the quality of the fishermen's capability based on education and experience. The mathematical model of the causality relationship is  $Z = f(X1, X2, X3^*)$ ; where:  $Z$  = Differences in poverty levels (depth and severity of fishermen's poverty),  $X1$  = The quality of the marketing system as a reflection of the imperfect market system (significant variable,  $\alpha = .05$ ),  $X2$  = The quality of the marine fisheries fishing facilities capital (significant variable,  $\alpha = .05$ ), and  $X3^*$  = The quality of the fishermen's capability based on education and experience (not significant variable,  $\alpha = .05$ ). The matrix of the values calculated by the discriminant analysis method is presented in Table 1.

TABLE 1. Matrix of Discriminant Analysis

Independent Variables	Willk's Lamda	F-Test	Significant, $\alpha = .05$
X1	.107	390.388	.000
X2	.107	390.388	.000
X3	.993	.326	.571

Dependent Variable: Z

Source: Calculation Results (Discriminant Analysis)

Based on the results of the calculation/analysis of the first stage, which resulted in two significant variables at  $\alpha = .05$  ( $X1$  and  $X2$ ), then in the next calculation/analysis, a re-analysis was carried out on the two significant variables in order to determine the variable that has the greatest power to discriminate against Variable  $Z$ . The results of the calculation/analysis are shown in detail in Table 2:

TABLE 2. Canonical Discriminant Function Coefficients

Independent Variable	Function Coefficient	Significant, $\alpha = .05$
X1	6.948	Significant, $\alpha = .05$
(Constant)	-15.597	

Dependent Variable: Z

Source: Calculation Results (Discriminant Analysis)

Through mahalonologic and stepwise methods, a mathematical model (unstandardised model) can be formed as follows:  $Z = -15,597 + 6,948 X1$ , where  $X1$  = the quality of the marketing system, which reflects the good or bad of the market system (presence or absence of a marketing system through the auction system at the fish auction market). This model means that  $X1$  has a significant effect ( $\alpha = .05$ ) in differentiating variable  $Z$  (the variable that distinguishes the level of poverty in fishermen's communities in rural areas).

## 4.2 Discussion

The mathematical model/equation found ( $Z = -15,597 + 6,948 X1$ ) is an equation that can explain the importance of the existence of infrastructure for the fish auction market

( $X1$ ) as a manifestation of the goodness and badness of the marketing system that occurs in the fishermen's communities ( $Z$ ). The lower the role of the fish auction market infrastructure as a form that represents the implementation of auction/marketing of marine natural resources/capture fisheries, the more small fishermen/traditional fishermen who are poor are trapped in a detrimental marketing system (which is a form of pattern-client in the marketing system in fishermen's communities). Contextually, the empirical conditions that occur in the research area can explain the reason why the  $X1$  variable is very important and has a very strong influence in determining the level of poverty or powerlessness of small/traditional fishermen's communities. The fish auction market is a very strategic place in building a marketing system for marine natural resources that is open and able to produce an "appropriate" price agreement with the expected price. This equilibrium condition occurs because there is a similarity between the sellers (coming from fishermen represented by the auction officer) and the buyers or auction winners (proxied by large-scale buyers, traders/middlemen, and free buyers).

Through direct observations in the field and focus group discussions, four important analysis results were produced, where its play a role in the marketing system transformation from being detrimental to benefits all parties (mutually beneficial and open) to be able to reduce the poverty level of fishermen's communities in rural areas (reflected by the depth and severity of poverty), namely:

1. **The quality of the cooperation.** Cooperation is one element of social capital. The results of interviews/discussions with fishermen's communities leaders, show: (1) the cooperation of the fishermen's communities in Pasar Palik Village with external parties is still weak, and (2) the weakness of this cooperation is shown by the weak cooperation of the fishermen's communities in utilising the infrastructure of the fish auction market/place or a representation of the absence of participation from fishermen's communities in utilising The fish auction market infrastructure. The main problem with this low attitude of cooperation is due to the low awareness of the fishermen's communities (generally small fishermen/traditional fishermen) of the importance of a marketing system carried out through the form of "auction", which can determine the market price is fairly and openly. The condition of market equilibrium through the auction mechanism is very different when compared to the market system, which is carried out unilaterally through fish middlemen or other buyers/distributors. The empirical conditions in Pasar Palik Village are in contrast to the conditions of the marketing system, which is carried out through an auction mechanism as happened in Sendang Biru Village, Malang Regency (Kamarni et al., 2019; Kornitasari et al., 2018; Rakhmanda & Djasmani., 2014; Sinarwati et al., 2019).
2. **The role of the cooperative economic institutions (marine cooperative)** Normatively, the role of cooperative economic institutions (marine cooperatives) is related to efforts to lift the deteriorating position of fishermen's communities, especially small fishermen or traditional fishermen. The existence of cooperative economic institutions is very much needed, especially for the "capital needs" of fishermen's communi-

ties. Based on the results of the focus group discussion, it was revealed that many fishermen's communities from Pasar Palik Village took their capital loans to Marine Fisheries Cooperatives in other areas such as Pondok Kelapa District. This is because, in Pasar Palik Village itself, the cooperative institution is not there. The results of the observations show that this cooperative institution existed before, but because it was unable to show its role/function as expected by the fishermen's communities, finally the cooperative institution went bankrupt. The financial system offered by cooperative economic institutions should be able to help fishing communities not to be ensnared by loan sharks so that the welfare of fishermen (coastal communities) can increase. This condition can be done with the existence of a good (professional) cooperative management team (Thrishma & Veerakumaran, 2014). Musari (2017) try to offer a model of the Islamic Microfinance system as an effort to empower fishermen's communities and so that fishermen's communities are not entangled with the dominance of the funding system in the form of loan sharks, as happened in Puger District, Jember Regency, which the majority of the population is Muslim. The implication of this kind of Islamic Microfinance model, actually can be an inspiration in building the role of cooperative economic institutions that have a similar character, considering that both of them have similarities in the aspect of belief/religion adopted by the community.

3. **The role of the government (department of marine and fisheries)**The government represented by the department of marine and fisheries has an important role in building the ability of small fishermen to become empowered in exploiting marine natural resources to reduce the fishermen's poverty. As a government-owned institution, normatively, the marine and fisheries service has the role of providing guidance, counselling, mentoring, mediation, and literacy in order to improve the performance of fishermen through a process of strengthening or empowering fishermen's communities in a sustainable manner. The results of the focus group discussions show that there is a contradictory reality between what should be and what actually happened where the fishermen's communities, especially small/traditional fishermen, have not yet felt the real role of the government. The study of Widiastuti et al. (2019) show that the important role of the local government towards the rights of fishermen, especially small fishermen who generally act as crew members, is to protect various problems that still often suffocate small fishermen, such as injustice in the distribution of work wages, high risk of business (fishing activities), mediation and assistance, legal issues, fishermen's insurance as a risk guarantee in fishing activities/businesses, and highly competitive in maintaining fishery quality, the high and stable quantity of fish catches, maintained fishery environment so as to ensure the sustainability of the existence of fish in the sea.
4. **The role of higher education institutions (faculty or department) related to marine and fishery sciences.**The results of field observations show that, in reality, the role of universities in fishing villages (Pasar Palik Village) has not been clearly seen. The results

of the focus group discussions showed that until the time the research was conducted, the role of universities was only limited to conducting research/study that happened to be related to the problems of coastal communities and marine natural resources. The results of previous studies show that one of the efforts to improve the performance of fishermen's communities is through increasing the role of higher education institutions (in this case carried out by faculties or departments from universities) in the development of marine natural resources and human resources (fishermen's communities as the main managers). The strategic role of this university is carried out through increasing the empowerment of fishing groups to become "affinity groups", considering that a group that is built into an affinity group will be able to mobilise/build the motivation of all members of the group to perform better (as the affinity group, performance will increase more quickly if compared to not constructed based on affinity groups). The improvement of fishermen groups into this affinity group can be done through a process of empowerment and assistance (education, mediation, and literacy) in a sustainable manner. The results of the quantitative study show that the education factor has a significant effect on reducing the poverty level of the community. The existence of the high educational institution (e.g. university/faculty) has a fairly important and strategic role in increasing productivity, which in turn is able to reduce poverty levels (Liu et al., 2021). A study that shows the role of higher education in fishing communities has been done by Mifsud (2021), namely the introduction of tools that can assist in marine conservation or protection, which is very important in managing marine natural resources more effectively.

#### 4.2.1 Model Building as Novelty Based on Empirical and Normative Findings

Chronologically, the mutually beneficial marketing system model in fishermen's communities in a rural area, which was born as a "novelty" based on empirical findings with critical theoretical reviews and supported by various appropriate/relevant previous studies, can be explained through the following stages:

1. Empirical findings through field observations show that until the time the research was conducted, fishermen in Pasar Palik Village sold/marketed their fish catches through two channels, namely:
  - A. *First Marketing Channel* Some of the fish caught from fishermen are sold/marketed directly to fish middlemen. Furthermore, middlemen sell directly to consumers or are sent to fish collectors (wholesalers) to be exported or sold to large entrepreneurs in the city of Bengkulu (Conclusion: marketing of fish caught from fishermen is carried out without going through an auction mechanism at the fish auction market).
  - B. *Second Marketing Channel.* For the other part, fish catches from fishermen are directly sold to retail traders, which are then directly sold to consumers in local markets or by mobile sales (Conclusion: marketing of fish caught from fish-

ermen is carried out without going through an auction mechanism in the fish auction market).

- The occurrence of two marketing channels for fish catches carried out by fishermen in rural areas (Pasar Palik Village) as described in points (1a) and (1b) due to the malfunctioning of the fish auction market/place in Pasar Palik Village. Observations show that contradictory conditions occur at the fish auction market location, where the facilities/infrastructure, which is already available and of good quality, turn out to be empty (there are no auction activities every day).
- The contradictory conditions as described in point 2, were supported by the results of the analysis through a quantitative approach/discriminant analysis method of two significant economic variables at  $\alpha = .05$ , namely X1 and X2, where the variable X1 (the quality of the marketing system as a reflection of the imperfect market system) becomes the greatest power to discriminate against Variable Z (fisherman poverty level).
- Based on the findings of point 3, it can be concluded that the poverty problem of fishermen in Pasar Palik Village is occurred to originate from the problems that occurred in X1 (the quality of the marketing system as a reflection of the imperfect market system). That is, in reducing the poverty level of fishing communities in rural areas, the initial action that must be taken is to build/improve the function of a detrimental marketing system into a marketing system that is able to have a beneficial impact on all parties through an "auction" mechanism at the fish auction market/place.
- Strengthened by 4 social aspects (the findings of the focus group discussion), namely (1) the quality of cooperation, (2) the role of the cooperative economic institutions, (3) the role of the government/department of marine and fisheries, and (3) the role of universities (faculty or department); finally, a model of an "integrated" marketing system can be built (involving all stakeholders, not detrimental, and mutually beneficial), which is expected to increase fishermen's income and have an impact on poverty reduction in fishermen's communities quickly.
- In detail, the "integrated and mutually beneficial" marketing system model can be seen in Figure 3.

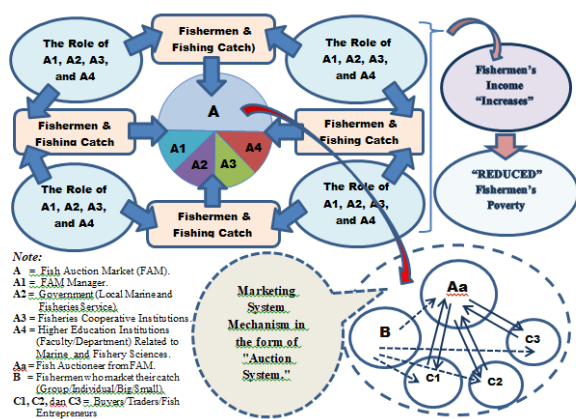


FIGURE 3. The Integrated Marketing System Model for Fishermen's Communities Poverty Reduction

Figure 3 shows a marketing system carried out through an auction mechanism that occurs at the fish auction market (indicated by initial A). The auction is carried out by the auction officer (with the initials Aa), with the following mechanism:

- The arrival of the fishermen (who brought their catch) was accepted by the managers of FAM, and the auction process was led by an auctioneer (with the initials Aa).
- Usually, in the customer process, the price is determined/offered from the lowest price until it stops at the highest price (the "same" deal price with the market equilibrium price).
- The price that has been agreed upon through the auction mechanism can be publicly and openly witnessed by all stakeholders in the auction arena (the stakeholders consist of Aa, A1, A2, A3, A4, B, C1, C2, and C3).
- The price agreement that occurs is a price level that is profitable for all parties (price is mutually beneficial), so it is predicted to be able to increase fishermen's income from time to time, which in turn will be able to reduce poverty in fishermen's communities through decreasing the depth and severity index of poverty, especially for small/traditional fishermen's communities.

## 5. CONCLUSIONS

The characteristics of fishermen's poverty in the rural coastal area in Pasar Palik village (as sample villages), which are seen from the level of depth and severity, are fairly high. This condition is caused by seven factors (three economic factors and four social factors), namely (A) Three economic factors, consisting of 1) The quality of the marketing system, 2) The quality of marine fisheries facilities capital, and 3) The quality of fishermen's capability based on experience; (B) Four social factors, consist of 1) The quality of cooperation, 2) The role of cooperative institutions (marine cooperative), 3) The role of government (department of marine and fisheries), and 4) The role of higher education institutions (faculty or department) related to marine and fishery sciences. Quantitatively, from the three analysed economic factors (with the discriminant method), two factors were significant, while the one other factor was not significant. The model that can be built as a solution for reducing poverty in rural fishermen's communities is the Integrated/Mutually Beneficial Marketing System Model.

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