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Farmers' Perception and Engagement with the Role of Middlemen: A Case Study of the Vegetable Farmers

Persepsi Petani dan Keterlekatan terhadap Peran Tengkulak: Studi Kasus pada Petani Sayuran

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ABSTRACT

The role of middlemen in rural areas is often controversial, particularly because of the positive or negative roles they play in the farmer livelihood. This study aims to understand the farmers' perception of the role of middlemen in facilitating their farming system and to find out the socioeconomic factors that determine to what degree farmers attach themselves to middlemen. To get this information, we conducted a case study survey of 92 respondents from the subdistrict of Rasau Jaya, Kubu Raya, West Kalimantan, Indonesia. Approximately 95% of the farmers had a positive perception of the role of the middlemen, which was considered important in the farm produce marketing and also the transportation of both fertilizer and crops. Older farmers, farmers with a higher education level, and farmers with more vegetable commodities were less attached to the middleman in the marketing of their agricultural products. These farmers often changed the middleman to get a higher price. Conversely, farmers producing sweet maize and farmers with a higher income level were more attached to a middleman. A high level of engagement with a middleman is one of the farmer strategies to avoid marketing risks.

ABSTRAK

Peran tengkulak di daerah pedesaan seringkali kontroversial, khususnya mengenai peran positif atau negatif mereka terhadap nafkah petani. Studi ini bertujuan memahami persepsi petani terhadap peran tengkulak dalam memfasilitasi sistem pertanian mereka, dan mengetahui faktor-faktor sosial-ekonomi yang menentukan keterlekatan (kesetiaan) petani pada tengkulak. Studi kasus ini menerapkan metode survei dengan mewawancarai 92 responden di Kecamatan Rasau Jaya, Kabupaten Kubu Raya, Kalimantan Barat-Indonesia. Sekitar 95% petani memiliki persepsi positif, dan peran tengkulak dianggap penting dalam pemasaran hasil pertanian serta pengangkutan pupuk dan hasil panen. Petani yang lebih tua, petani dengan tingkat pendidikan yang lebih tinggi, dan petani yang memproduksi beragam komoditas sayuran, cenderung kurang setia terhadap tengkulak tertentu dalam pemasaran hasil pertanian mereka. Petani tersebut sering berganti tengkulak untuk mendapatkan harga yang lebih tinggi. Sebaliknya, petani yang memproduksi jagung manis dan yang memiliki tingkat pendapatan lebih tinggi, cenderung lebih setia pada seorang tengkulak. Tingkat kesetiaan yang tinggi terhadap tengkulak merupakan strategi petani untuk menghindari risiko pemasaran.

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1. Introduction

The presence of middlemen as marketing institutions in farmer societies is very strategic. However, their existence often creates controversy. Although several studies have shown the negative role of middlemen (Russell, 1987; Syahyuti, 1999; Febrianto & Rahardjo, 2005; Ali & Peerlings, 2011), many other studies have proven the role of the middlemen to be positive

(Pollnac, 1978; Gabre-Madhin, 2001; Koo & Lo, 2004; Pokhrel & Thapa, 2007; Enete, 2009; Rustinsyah, 2011; Ferrol-Schulte et al., 2014; Sulistyowati et al., 2014; Abebe et al., 2016). Agricultural policy makers, particularly in Indonesia, tend to perceive middlemen as parasites who often take a huge share of the price in agricultural product marketing.

Although there is some controversy, the role of middlemen is essential because they are capable of

distributing the agricultural products from rural areas. In fact, without the middlemen, the farmers would not be able to sell their agricultural products in large quantities. For example, when farmers sell their products directly to the market, the marketing ability of a retail trader in a certain market location is limited. Conversely, the marketing of products in small volumes is also inefficient, so it will still invite this marketing agency.

The ownership of social networks is a basic component in economic exchange. The social network of middlemen, according to Granovetter (1985), can be grouped into two types, that is, relational and structural embeddedness. Relational embeddedness is an attachment between individuals (dyadic personal relations). Meanwhile, structural embeddedness is a dyadic attachment to a wider range of individuals or groups (Granovetter, 1985). In the marketing of agricultural products, relational embeddedness is the most common form in Indonesia, because, generally, the relationships established between middlemen and farmers and also between middlemen and merchants are just informal and without any written contract.

Furthermore, the ownership of social networks in farming communities is useful in fulfilling various needs, such as obtaining information regarding cultivation, as well as acquiring seeds and agricultural equipment. These social networks are also used to get information pertaining to a broader livelihood, such as health, education, government development program, and others (Jana et al., 2013). The role of the middlemen includes acquiring information regarding cultivation technology (Sulistiyowati et al., 2014).

The farmer engagement with middlemen as a form of economic exchange in a rural community is strongly influenced by the reciprocities that exist in a social relationship structure. In this context, it can be associated with the term relationship marketing (Morgan & Hunt, 1994; Parry & Westhead, 2017). Relationship marketing is the mutual beneficial exchange between the seller and the buyer (Morgan & Hunt, 1994).

Exploring the role of middlemen is important in terms of vegetable farming in Rasau Jaya, a rural area not far from Pontianak, the capital city of West Kalimantan Province, Indonesia (see Figure 1). It is based on the fact that the farmers in this area are very dependent on the presence of middlemen, in both farming and marketing activities.

There is a need to understand what factors determine the farmers' dependency on the middlemen and what risk factors are faced by the farmers in terms of producing and marketing vegetables in Rasau Jaya. This is an important aspect, because, according to some opinions

about the structure of this relationship, the middlemen are often regarded as having a more powerful position than the farmers, thereby making it possible for them to exploit the weaker farmers. In order to verify this, it is necessary to investigate the farmers' perception of their dependency on this relationship structure and also the socioeconomic factors that affect the farmers' attachment to the middlemen.

Being an empirical study, we hoped that it will be able to explain the farmers' perception of the middlemen. Hence, determining the extremity of any positive or negative perception from the farmers' viewpoint is a crucial step in the formulation of policies on rural economic empowerment. In this study, we focused on understanding the farmers' perception of the role of middlemen in facilitating the farming system and identifying the social and economic factors that determine to what degree farmers are attached to the middlemen. In general, our objective was to understand the reasons for the farmers' behavior in making the decisions that affect their livelihood.

2. Methods

This study was conducted from 2017 until early 2019 in the resettlement (transmigration) area of Rasau Jaya, a rural area in the district of Kubu Raya, West Kalimantan (see Figure 1). It is an agricultural area on tropical peatlands that concentrates on sweet maize as the main crop, tubers, and various vegetable commodities. Some of the other vegetables produced are long bean, cucumber, tomato, and chili, while the tubers consist of purple yam, red yam, and taro. This area was opened by the Indonesian government in 1972 as part of a resettlement area program for the people from Java – the most populated island in Indonesia. Therefore, the ethnic majority is Javanese.

To represent the condition of the study area, we deliberately determined six subvillages (*dusun*) from the three villages as the samples. These six subvillages, namely, Bina Karya, Kebun Jeruk, Banjar Laut, Banjar Tengah, Sido Mulyo, and Mulyo Rejo, are the center of vegetable production. We collected data by observation, structured and unstructured interviews, and focus group discussion (FGD). The structured interviews used questionnaires, which included open and closed question forms, as the primary data collection tool. The purpose of the unstructured interviews was to deepen the understanding of the important findings concerning the relationship between the farmers and the middlemen, including the institutional norms or the play rules in trading. Unstructured interviews were also conducted to the selected middlemen. In practice, we also conducted FGD on selected farmers to verify and cross-check the data obtained through the interview sessions.



Figure 1. Study site in Rasau Jaya, West Kalimantan, Indonesia

The farmer household sample was determined through simple random sampling with the following steps: In the first step, we conducted a community mapping, which comprised farmer household mapping in each subvillage spatially. Then, in the second step, we conducted a lottery of all farmer households in each subvillage to randomly select the sample of households. As a result, a total 92 household samples were involved in the interview sessions. The interviews were conducted by visiting each farmer's house in the afternoon or evening. This was to ensure that the farmers felt comfortable during the interview process even after a long day of working in the fields.

To explain the first study objective concerning the farmers' perception of the role of the middlemen in the rural agribusiness system, we analyzed the data using descriptive quantitative and qualitative methods. The quantitative method was employed by making a proportion out of every answer from each question. The scope of the farmers' perception included the perception of benefiting from the middlemen's presence in facilitating the farming and marketing of agricultural products and also the perception of the fairness of the price level set in purchasing the farmers' products.

The second research objective was to identify the socioeconomic factors that determine to what degree the

farmers are attached to the middlemen, which was analyzed using a logistic regression model. Mathematically, this study model was formulated as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5, D_1)$$

$$\text{Log} \left(\frac{Y}{1-Y} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 D_1 + \mu_i$$

Y is the binary dependent variable. It is measured categorically, that is, *Y* = 1, if the farmer is attached (engaged) to one of the middlemen, and *Y* = 0, if the farmer is not attached to the middlemen. A farmer is categorized as attached to the middlemen if he continues to sell his production to one of the middlemen. β_0 is an intercept, whereas $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$ and β_6 are the parameters of each independent variable. Meanwhile, the independent variables consist of the following:

- X_1 = income level of farmer household (IDR)
- X_2 = farmer's age (year)
- X_3 = family size (person)
- X_4 = educational level (year)
- X_5 = number of vegetables commodities
- D_1 = ownership of sweet maize farm (dummy variable). This is measured as a categorical variable, that is, $D_1 = 1$, if the farmer has a sweet maize farm, and $D_1 = 0$, if they do not have a sweet maize farm.

3. Results

Farming and Farmer Characteristics

Rasau Jaya is known as the center of vegetable production in West Kalimantan. This area supplies some commodities to fulfill the demand from Pontianak and the surrounding cities. Although the land farms are classified as having less fertile soil, the climatic conditions, with high rainfall characteristics (an average of 230 mm per month) which are equally spread throughout the year with an average of 14 rain days each month, are a key driver of the development of this area in producing vegetables.

In order to resolve the low soil fertility, the farmers in the village generally raised livestock. Approximately 43% of farmers had cattle and about 14% had sheep (Table 1). The supply of organic fertilizers relied not only on cow and sheep dung but also on chicken manure which originated from the chicken farms around the village. The farmers also used inorganic fertilizers, such as nitrogen, potassium chloride, and phosphate fertilizers. The combined use of organic and inorganic fertilizers was the most commonly practiced method by the farmers in Rasau Jaya.

We found that the farmers who had sweet maize farming reached 76%, so this type of farming constituted the majority. The profits in farming and the necessary technology which was relatively simple were some of the reasons that made this type of farming particularly interesting to the farmers.

The sweet maize planting technique on one plot of land was applied step by step with a time gap of between 1 and 3 weeks. For example, a plot of land of 0.5–1 ha could be divided into 2–4 smaller plots each being 0.25 ha. Therefore, there could be crops of various ages with a difference in ages of 1–3 weeks on one plot of land. This strategy allowed the farmers to harvest sweet maize every month or every two weeks.

Furthermore, in reference to the poverty line standard of 1 USD per capita per day, the income of farmer households in the village had improved; about 70% could be categorized as not poor farmers. About 18% of the farmers had a monthly income of 2 to 3 million IDR and about 52% had a monthly income of more than 3 million IDR (Table 1).

Table 1. Socioeconomic description of respondents

Variable/questions	Category/descriptive results	Proportion (%)
Sample size (n)	92 respondents	
Farmer's age	26–63, average = 45 years	
Family size	Average = 4 people	
Educational level	Illiterate	14.13
	Elementary School	58.70
	Junior High School	19.56
	Senior High School	6.52
	University	1.09
Monthly Income	0–500,000 IDR	1.09
	500,500–1,000,000 IDR	8.70
	1,000,500–1,500,000 IDR	13.04
	1,500,500–2,000,000 IDR	6.52
	2,000,500–3,000,000 IDR*	18.48
	> 3,000,000 IDR*	52.17
	Lowest = 496,958 IDR	
	Highest = 11,500,000 IDR	
	Average = 3,725,916 IDR	
Do you have cattle?	Yes	43.48
	No	56.52
Do you have sheep?	Yes	14.13
	No	85.87
Do you have sweet maize farming?	Yes	76.09
	No	23.91

Note. *This income is above the poverty line standard of 1 USD per capita per day with the IDR exchange rate 1 USD = 13,300 IDR

The farmer household demographic conditions in the village were also quite good. The average family size consisted of 4 people and the ages of the farmers were between 26 and 63 years. However, the educational background of the majority was still relatively low, with about 14% estimated to be illiterate and about 59% graduating from elementary school.

Middlemen Role and Some Rules in Trading

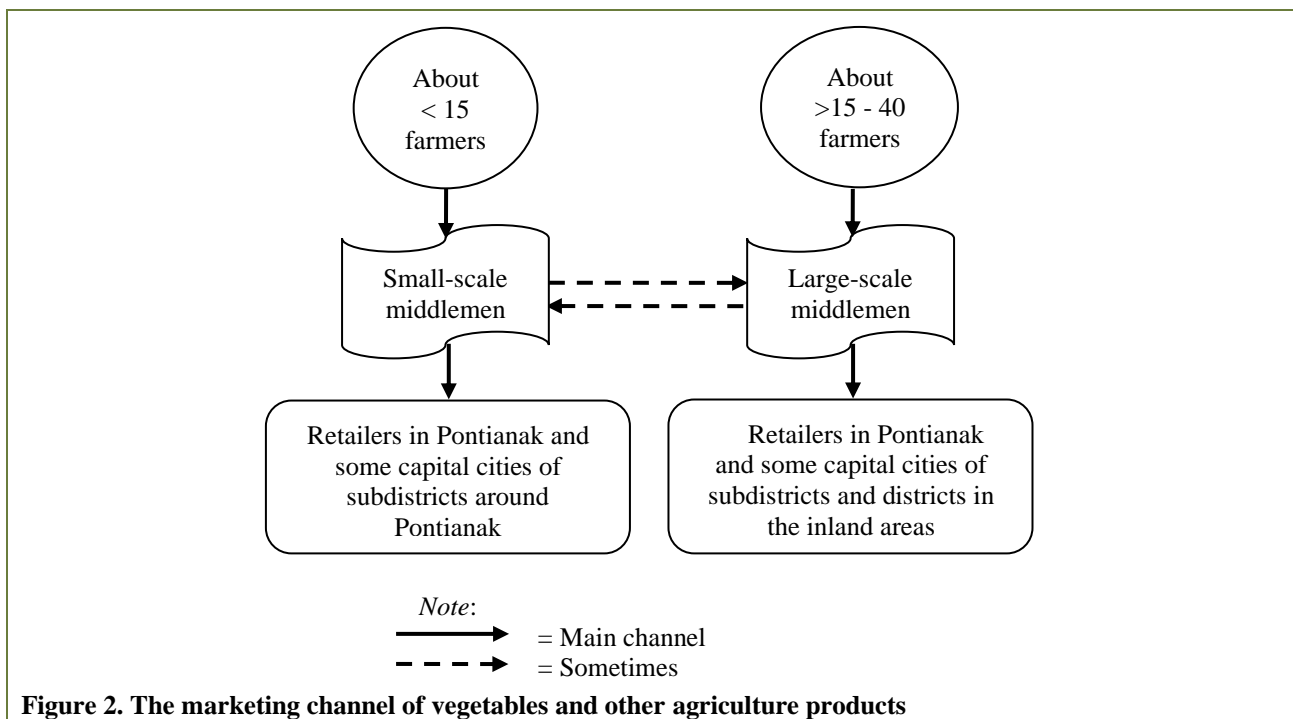
In this study area, there are many middlemen. Based on the scale of their agribusiness, the middlemen can be grouped into two categories – large-scale and small-scale middlemen. At least 10 units were large-scale middlemen and more than 80 units were small-scale middlemen. The large-scale middlemen had relationships with many farmers, ranging between > 15 and 40 farmers. In contrast, for the small-scale middlemen, the number of farmers they engaged with was fewer (about < 15 farmers). In the village, many middlemen were also farmers. Therefore, some of them still farmed, such as planting sweet maize or purple yam with the labor support from the farmers who were loyal to them.

The small-scale middlemen commonly only bought sweet maize. However, the large-scale middlemen bought a variety of farm products that included sweet maize and other vegetables and fruits. Hence, the large-scale middlemen also had a wider range of marketing networks, not only in Pontianak, which was about 30 kilometers in distance, but also in the inland townships comprising subdistricts and districts of West Kalimantan that were hundreds of kilometers in distance.

The large-scale middlemen could also be characterized according to whether or not they had employees involved in running their business. The employees were also involved in the transportation of fertilizer or crops. The income of the employees in terms of this transport wage was calculated based on the number of sacks they transported or according to the road conditions that they would be passing in transporting to the land farms.

In marketing practice, when the price of an agricultural commodity is relatively high due to scarcity, sometimes, some small-scale middlemen can sell their products to large-scale middlemen by taking profit faster or vice versa, the product flow from the large-scale middlemen to the small-scale middlemen (see Figure 2). However, in the case of abundant production (oversupply), the large-scale middlemen will not accept products from the small-scale middlemen, and, usually, all the middlemen will employ a variety of strategies to sell the agricultural products downstream of their marketing network.

In nurturing the farming system, the middlemen not only facilitate the marketing of products but also provide support for farming and, in some cases, become a farmer's patron for supplying basic farming needs, such as seeds and fertilizers. Most farmers at the least borrow seeds, as a sign of bonding to the middlemen so that sweet maize production would be guaranteed in marketing. Farmers were generally worried that if they did not bind with a middleman, their sweet maize could not be sold. Such events were often experienced by unfaithful farmers who established marketing relationships with a middleman from within the village because they wanted to get the highest profit.



To control the sweet maize trading, the middlemen set some rules. Referring to some of the trading rules that exist, we found three categories of farmers. The first category was that of the highly dependent farmers, wherein they borrowed seeds and sometimes fertilizers or made cash loans to fulfill the household needs. The second category was those farmers who did not depend on financing from a middleman but were always faithful to them to sell their sweet maize. The third category comprised the independent farmers who were not bound to a middleman for financing their farm or in selling their crops. These comprised risk lover farmers who always looked for buyers (middlemen) who would buy at a higher price, but this was only done by those farmers who had a strong capital foundation or perceived that they would be able to sell their crops by themselves. The number of farmers in the second and third categories was in the minority.

Each of the categories of farmers mentioned earlier had associated consequences related to the risk aspects in agribusiness. The risk aspects could be explained as follows: For the third farmer category, in cases of scarcity of production, these farmers would obtain the highest purchase price from the middleman. However, these farmers ran a high risk of oversupply. There are some occasions where none of the middlemen wanted to buy their sweet maize, so it could not be sold and would become old or even dry up on the tree. Therefore, this type of farmer is designated as a risk taker. In contrast, for the second farmer category, these farmers would obtain a slightly lower price than the third farmer category, but they would be guaranteed a market even in the situation of oversupply. These are categorized as moderately avoid risk. For the first farmer category, they were always guaranteed a market regardless of the supply condition. However, this category of farmers ran the risk of obtaining the lowest price from the middleman, particularly compared to the second or third category of farmer. The lowest price for the produce was the trade-off for the farm borrowing or receiving cash loans, even though the various types of loan were generally without interest rate calculation. This farmer was categorized as highly avoid risk.

Farmer Perception

The business rules may vary from one middleman to another, as these depend on the management options of each middleman. The management option further determines the sustainability of their business. There are middlemen who are later abandoned by the farmers as they apply rules that are too strict in determining the quality of the products. These are not preferred by the

farmers, so this type of middleman loses relations with many farmers until their trading activities stop.

In cases of excess supply, the purchasing price level set by each middleman may be slightly different, as it depends on the marketing network of each middleman. Because there are many middlemen in the village, the farmers have many opportunities to choose a better middleman according to the assessment of each individual farmer. Even for the first farmer category, they can make a relationship with two middlemen simultaneously, but the land plots funded by each middleman are different.

About 95% of the farmers considered the presence of middlemen in the villages important for the farmer's economy in the village (positive perception), because they played the role of facilitating the sale of products, farm input lending, and cash loans and also in transporting fertilizer and crops. According to the farmers, the transportation cost was cheaper compared to the transportation done by the farmers themselves or rented out to others. The remaining 5% of the farmers have a negative perception concerning the middlemen (Table 2). In this study, the meaning of positive perception differed according to the farmer's attachment to the middlemen. The farmer's attachment refers to the loyalty in selling their products to one of the middlemen. Hence, there are about 73% of the farmers who are attached to the middlemen, and the remaining 27% are not.

Determining the Farmers' Engagement with the Middlemen

In this study, we observed the determining aspects of the attachment using logistic regression. The result of the analysis showed the correct value for the Hosmer and Lemeshow test (goodness of fit), where chi square = 8.140 and $p = 0.420$. This result was considered precise because it showed that there was no significant difference between the model and the results of its observations. Meanwhile, the value of Cox and Snell R square = 0.383 and Nagelkerke R square = 0.555. This shows that the independent variables were able to explain about 56% of the dependent variable. The remaining 44% was explained by other variables. It means there were many other variables that influenced the farmers' attachment to the middlemen, such as the social variables in terms of the embeddedness of the economic relationships in the social relationships (Granovetter, 1985) or interpersonal relationships. Next, the influence of each independent variable on the probability of the farmer being attached to a middleman is presented in Table 3.

Table 2. Distribution of farmers' perception of some aspects of the role of the middlemen

Aspect	Respondents (n)	Proportion (%)
What are the benefits you derive from the presence of middlemen?*		
It makes it easy to sell crops	89	96.74
It makes it easy to get cash loans	36	39.13
It makes it easy to get farm input	50	54.35
The presence of middlemen is important to me and also for the peasant economy in the village?***		
Agree	87	94.56
Disagree	5	5.44
To whom is the farm product sold?		
One middleman***	60	65.22
More than one middlemen***	21	22.83
Other middlemen that come from outside of the village	11	11.95

Note. *The proportion is more than 100%, because it is a question whose answer can be more than one

**This question concerning the positive or negative perception of the farmer

***The middleman originates from inside of the village

Table 3. The results of logistic regression that determine the engagement of farmers to the middlemen

Independent variables	β	S.E.	Wald	Sig.	Exp (B)
Household income*	0.000	0.000	3.733	0.053	1.000
Farmer's age **	-0.146	0.048	9.343	0.002	0.864
Family size	-0.256	0.279	0.842	0.359	0.775
Educational level **	-0.556	0.183	9.248	0.002	0.573
Number of vegetables commodities**	-1.073	0.379	8.035	0.005	0.342
Ownership of sweet maize farming **	2.539	0.785	10.462	0.001	12.667
Constant **	11.497	3.297	12.160	0.000	98449.245

Note. * significant at $\alpha = 10\%$, ** significant at $\alpha = 1\%$

The results of the analysis in Table 3 show that the farmer's age determined the probability of attachment to the middleman ($p = 0.002$). The older farmers were less attached to a middleman in the marketing of their farm products. The odds ratio value of 0.864 indicates that an increase in the farmers' age causes a decrease in the probability of attachment by 0.864 times. The formal educational level determined the probability of attachment ($p = 0.002$). Those farmers with a higher educational level were less attached to a middleman. The odds ratio value of 0.573 shows that any increase in the educational level of the farmers would result in a decrease in the probability of attachment by 0.573 times. The influence of the age factor was closely related to the existence of a past experience in dealing with middlemen that then formed a negative perception. Meanwhile, the educational factor was closely related to individual capacity in creating relations and communication, which are decisive in the decision making of the marketing of agricultural products.

Likewise, the farmers with more vegetables commodities were less attached to middlemen ($p = 0.005$). The odds ratio value of 0.342 indicates that any increase in the number of vegetables commodities causes a decrease in the probability of attachment by 0.342 times.

Next, the strongest factor in determining the farmers' engagement to middlemen was ownership of sweet maize farming ($p = 0.001$). The odds ratio value of 12.667 indicates that every addition of sweet maize farm would increase the probability of farmer attachment to a middleman by as high 12.667 times. This result implies that farmers with a wider ownership of sweet maize farms would be more attached or increasingly required the presence of a middleman as an institution that would guarantee a market. In addition, the household income levels determined the probability of farmer engagement to a middleman ($p = 0.053$). Equivalently, it means that farmers with a higher

income level would attach to the middleman. The odds ratio value of 1.000 shows that any increase in the income level of the farmers would result in an increase in the probability of attachment by one time.

4. Discussion

Assessing the role of middlemen must be done carefully. The positive or negative side of their role should not be generalized from one case, but it should be seen on a case-by-case basis. The role of middlemen will be positively perceived when their presence in a rural community is able to increase agricultural product trading, as well as the farmer's household income (Satria, 2002), or when their role undertakes the protection of subsistence security and increase access to the various economic resources in the villages (Ferro-Schulte et al., 2014).

The improvement of the farmer income in these villages is due to the increase in agricultural product trade through the presence of middlemen. As a result, currently as compared to the previous periods, about 70% could be categorized as not poor farmers (Table 1). As described earlier, these villages are a resettlement area on tropical peatlands that we know as less fertile soil.

In generally, these facts also give information that the positive role of middlemen has created and strengthened the rural–urban linkage as a prerequisite for the village economic growth and the increase of the farmer income. Referring to the theory of trade (mercantilism), the development of the village economy undisputed is very dependent on the existence of commodities that could be sold outside of the village. This is because the trade will bring a flow of money into the village and then cause the multiplier economic effects.

Meanwhile, regarding degree of farmer attachment to a middleman, obviously it was closely related to the various risks in farming, mainly the risks in marketing. The sources of risks in vegetable farming cover at least five aspects, namely, investment, socioeconomic, environmental, production, and market risks, and in general, it is stated that market and production risks are the most important sources of risk (Ali & Kapoor, 2008). However, in this study, we identified two categories of risk that are very prominent—the marketing and price risks. The marketing risk is closely related to whether or not the produce can be sold, while the price risk is closely related to the price level. Sometimes, the price risk is in the form of lower purchase price level most often used by farmers to avoid marketing risks. This fact is shown in case of sweet maize marketing of the first and the second farmer category, respectively, the farmers with highly and moderately in avoiding the risk.

Sweet maize farming has a very high risk in marketing, as it should be done in a relatively short time as soon as the sweet maize reaches the harvest stage. This is common for vegetable commodities that are perishable. In addition, sweet maize is frequently oversupplied. It is associated with the greater number of farmers because of its more simple production techniques compared to other vegetables types. Therefore, in local markets, the marketing risk of sweet maize is higher. To overcome the risk, the farmers who produce sweet maize would be more attached (loyal) to the middleman. The odd ratio value in logistic regression proves that every increase in the ownership of sweet maize farming would increase the opportunity of attachment with middlemen by 13 times (Table 3).

Next, in Table 3, it is also showed that the farmers with a higher income level would be more attached to a middleman. This result proves that most farmers in these villages tended to avoid the risk. As described earlier, there are only a few risk-taker farmers (the third farmer category). This is in line with previous study findings (Lucas & Pabuayon, 2011; Kwesi Ndzabah Dadzie & de-Graft Acquah, 2012; Sulewski & Kłoczko-Gajewska, 2014). On the contrary, the farmers who produce other vegetables types are less likely to be attached to the middlemen. These farmers often change the middleman to get higher prices. This is because their marketing risk is lower than the sweet maize.

Although there are farmers that are more attached or less attached to the middlemen, the presence of middlemen is necessary for most of the farmers in these villages. Evidently, there are many farmers (95%) that have a positive perception of the role of the middlemen (Table 2). The middlemen are considered very important in the marketing of farm produce and also the transportation of both fertilizers and crops.

This result has reinforced the statement that the role of the middlemen is very necessary in the marketing of agricultural products in the rural areas of developing countries such as in Indonesia. Similar case findings were also reported by Hayami et al. (1988) in soya bean marketing in Garut-Indonesia, by Pokhrel and Thapa (2007) in the marketing of mandarin oranges (*Citrus reticulata*) in Nepal, and by Enete (2009) in the marketing of cassava in Africa. According to Sandika (2011), it is unfair to always regard a middleman as an institution that exploits the farmers because they play an important role in creating a marketing channel at the local level. In the marketing of vegetables, the middleman will set the price level as follows. When the retail and producer price levels are high, the bargaining power of the farmer is strong, and the middleman will control the price by lowering the marketing margin. Conversely, when the retail and producer price levels are low, the bargaining power of the farmer is weak, and

the middlemen will take greater profits by increasing the marketing margins. This is a rational behavior in business (Sandika, 2011).

The exploitation events are very likely to occur when agricultural locations face weak infrastructure (e.g., because of remote areas or buyer's monopoly spatially), so this lowers the bargaining power of the farmer. In such cases, the hard bargaining will create a risk that the middlemen leave their area in the future. In order to face this risk, the farmer will set a lower price for their farm produce (Ranjan, 2017).

5. Conclusion

The middlemen play a strategic role for farmers in rural areas. The positive role of middlemen has been perceived by farmers as an institution that facilitates the sale of agricultural products, lender of farming inputs, and cash loans. Their role as a money lender institution is often regarded negatively or as causing controversy. However, this study found that 95% of the farmers had a positive perception of the role of middlemen. The middlemen were regarded as important in terms of the farm produce marketing and also in the transportation of fertilizer and crops. The remaining 5% of farmers had a negative perception. This was influenced by the perceived benefit and previous experience of dealing with middlemen.

The study also found that the probability of farmers engaging with middlemen was influenced by the farmer's household income, age, educational level, number of vegetables commodities, and ownership of sweet maize farming. Older farmers, farmers with a higher educational level, and farmers with more vegetables commodities were less attached to middlemen in the marketing of their agricultural products. In contrast, the farmers producing sweet maize and the farmers with a higher income level were more attached or increasingly required the presence of middlemen as a marketing institution. A high level of engagement by the farmers with the middlemen was one of the strategies to avoid marketing risks. In this case, we found three categories of farmer under the risk of marketing and price, that is, highly avoid risk, moderately avoid risk, and risk taker. The marketing risk is the greatest risk, and usually the price risk is in the form of lower purchase price level most often used by the farmer to avoid the marketing risk. A high level of positive perception indicated that the farmer did not feel exploited by the middlemen. Meanwhile, the engagement behavior of the farmers that is shown by the lower purchase price level is understood to be a safety-first effort when facing a high marketing risk. This finding proves that the farmer's attachment with the middleman is related to the risk level in marketing. When the marketing risk of the vegetable commodities

increases, the engagement in the form of loyalty to the middleman will increase. In contrast, when the marketing risk of the commodities is low, the farmers will often change the middleman to get higher prices. Thus, the marketing risk is one of the main aspects in determining of the farmer's loyalty to the middleman.

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