Research Article

Factors Affecting Delivery Performance of Pamarican District Farmers' Unhulled Rice Grain Supply Chain System of Ciamis Regency with PT Mitra Desa Pamarican

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ABSTRACT

One of the problems in fulfilling the staple food consumption of rice in Indonesia is the rice distribution system. Delivery performance is one of the important measurements in the supply chain system since it is an indicator of the accuracy of the quantity and time of grain delivery from rice farmers involved in partnership with PT MDP. Respondents used in this study consisted of 30 rice farmers chosen through purposive sampling technique in Pamarican District, Ciamis Regency, West Java. The analytical method used is multiple linear regression or multiple linear regression model with Ordinary Least Square to analyze the influence of the distance of the farmer to the grain collection point, the length of time the farmer makes inventory, the experience of farming, the farmer's storage capacity, and the method of payment for grain or the transaction system on the delivery performance. The results of the analysis show the variables of distance, inventory, and transaction systems. The distance variable has a significant positive effect, the inventory variable has a significant negative effect, and the cash transaction system will improve the delivery performance of farmers to PT MDP. Farmers make cost efficiency for grain delivery by collecting grain first. A decrease in delivery performance occurs when farmers store the grain longer.

INTRODUCTION

Rice is a commodity regulated by the government, especially in determining its prices and national reserves, for it is categorized as a staple food. Problems faced by farmers in developing farming scale include narrow land, limited access to market information and distribution networks, and inefficient use of production factors (Fadia et al., 2019). Rice farmers are the parties who experience these problems first-hand since, generally, rice farming is carried out in rural areas in a traditional way. Inadequate production facilities and distribution infrastructure in rural areas serve as the main problems in fulfilling consumer demand for rice. The more parties are involved in the rice distribution, the potential of rice price increase will be higher. Improvement of the rice distribution chain is needed in order to achieve the availability and affordability of the staple food nationally. Several studies have been conducted on the issue of rice distribution as it greatly impacts the

fulfilment of staple food consumption and national food security (Pratama et al., 2019; Santosa & Sudrajat, 2017; Syaifullah, 2013). The distribution system can be a determining factor for the welfare of rice farmers in terms of price determination (Farmer & Betz, 2016).
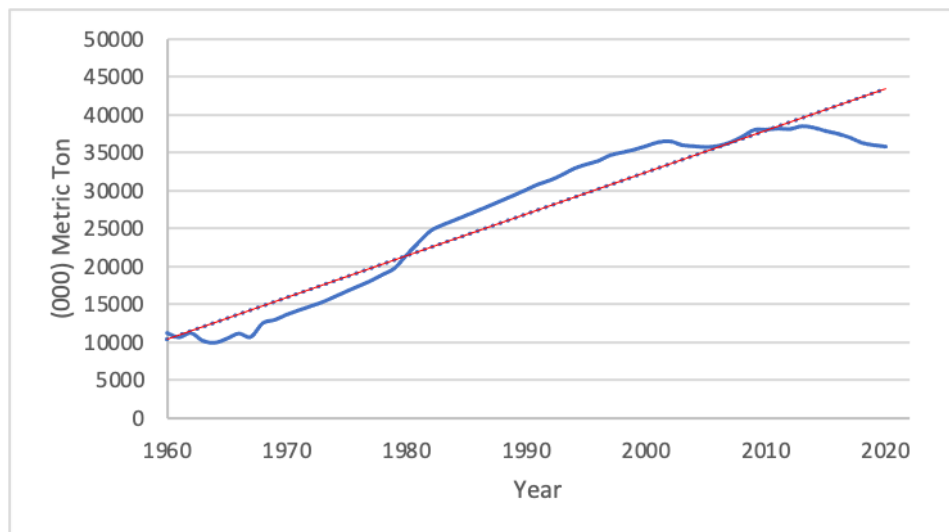

Figure 1. Trend of Rice Consumption in Indonesia in 1960-2020
Source: United States Department of Agriculture, 2021

Delivery in the supply chain serves an important step in the timely movement of products from producers to consumers. Management of the effective delivery activities in the use of time, means of transportation, management of human resources, as well as the right quantity and quality of products will determine the success of supply chain performance (Nyamah et al., 2018). Perishable and bulky agricultural products require an effective and efficient product distribution system. Delivery performance can affect customer-producer relationship and market share (Handayani et al., 2019; Keco et al., 2019). Consumer loyalty can be built by providing a timely delivery process, place, and number of products. In addition to maintaining customer loyalty, a good delivery system can affect other supply chain activities, namely procurement and purchasing, storage, and production processes. Consumer satisfaction in buying a product can be identified through their willingness to pay and repeat purchase behavior. The service quality provided by producers is indicated by the ability to responsively fulfil consumer's needs leading to consumer satisfaction (Zhafirah et al., 2021). Consumer preferences for buying products can be influenced by various factors, including price, packaging, and attributes (Agustina et al., 2021).

The process of ordering and sending raw materials by processing industry can affect the production process if there is a change in the quantity of finished product orders by the final consumer. Upstream flexibility in apple chip processing research in Batu City shows an increase in orders of 20% for apple chips; therefore, the industry takes two days to process the finished product, namely apple chips (Alim et al., 2018). Additional raw materials more than the average order period require additional time for the ordering and delivery process. The important role of the delivery process is related to lead time; companies that can minimize the variability of waiting times can improve delivery performance (Hsu et al., 2013). Delivery performance is included in the reliability performance attribute. Preventive actions by producers at the collector level can develop transportation management in collaboration with the expedition system, while at the producer level it can be carried out through sanction application on late deliveries. High reliability values can increase consumer confidence and more responsive activities (Pamungkassari et al., 2018). The poor delivery performance occurring at the producer or farmer level is due to a lack of knowledge on the quality standards desired by consumers to meet market demand (Putri et al., 2020).

Delivery performance in the supply chain is the ability to provide services for moving goods from producers to consumers successfully meeting consumer demands and expectations (Hartati & Efendi, 2016; Mutaqin & Sutandi, 2020). Calculation of delivery performance based on the percentage of product delivery on time or in accordance with the customer's order schedule is performed by calculating the total quantity of delivery on time divided by the total quantity of products sent multiplied by one hundred percent. Based on the

research of Mor et al. (2021), the process of delivery and distribution is an important factor with the largest standardized β coefficient using SEM model analysis on the supply chain of fresh cow's milk products. Distribution activity ranks first on order of importance since it determines the success of milk marketing, including products at risk of perishability. Internet of Things (IoT) technology plays a role in creating a transparent, efficient, and traceable movement of goods (Bumblauskas et al., 2019). The component of shipping costs is related to delivery performance (Rao et al., 2011). The oblique cost graph accompanied by the oblique of improved work performance graph illustrates the minimum total cost. The conformity of costs and modes of transportation needs to be analyzed because the business scale is strived to continue to grow (Hidayat et al., 2019). Variations in delivery time describing delivery performance can be categorized into early delivery, on time delivery, and late delivery. This variation of time serves an uncertainty potentially causing extra costs in delivery performance, namely costs that must be incurred from handling or maintaining stored products and costs incurred for customer complaints from the number of late goods per unit (Ngniatedema et al., 2016).

Pamarican District of Ciamis Regency is one of the areas in West Java Province where most of the population has a livelihood as rice farmers. PT Mitra Desa Pamarican (PT MDP) is a company that performs rice grain milling, packaging, and marketing. PT MDP and rice farmers have collaborated in partnership since 2018. The farmers involved in the partnership act as suppliers of grain. PT MDP seeks to increase the added value of the grain supplied by farmers and provide marketing channels. The implementation of product excellence by PT MDP causes the company to impose requirements for incoming grain to be processed by PT MDP. The quantity, quality, shape, and water content are PT MDP's main concerns in the processing stage. The production process by PT MDP requires continuous raw material supply from rice farmers. Fluctuating rice collection activities from farmers from January to May of 2021 can be seen in Figure 2. The problems faced by PT MDP are the acquisition of raw materials that do not meet market standards, high water content, and the late delivery process. This has led to a low price purchase by PT MDP because the products sold are unable to compete with higher quality products in the market. Farmers tend to do storage as there are precautionary motives and household consumption purpose. Delivery of grain by farmers is very dependent on the amount of grain collected in farmer groups. Changes in the selling price of grain from farmers were due to changes in the quality of the grain, the length of time the grain was collected, and the nominal loan funds accessed by the farmer group to PT MDP which were returned in the form of grain. The lower the price of grain, the more needed the quantity of grain that must be paid by farmer groups to PT MDP.
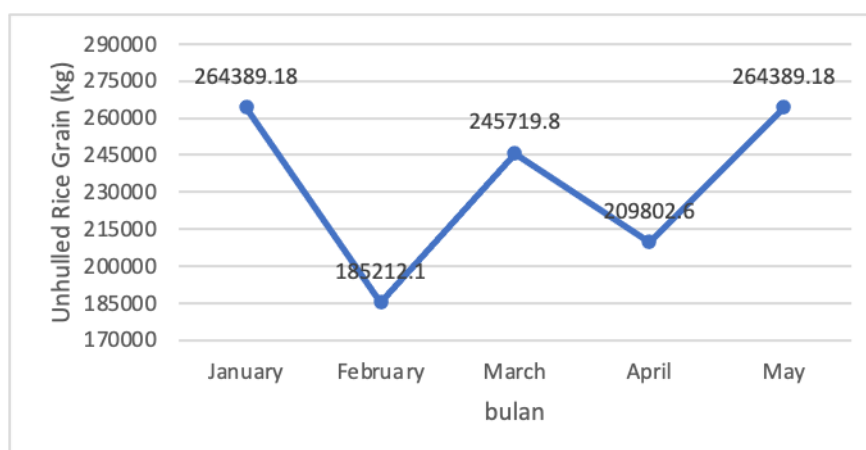

Figure 2. Quantity of Unhulled Rice Grain Sent by Pamarican District Paddy Farmers to PT MDP
Source: Data on Unhulled Rice Grain Reserve of PT MDP, 2021

One of the problems that needs to be analyzed is the delivery performance by rice farmers to PT MDP since the delivery process is an important stage in the supply chain. The process of delivering rice depends on the ability of rice farmers to provide and fulfill the grain requirements demanded by PT MDP. Even though PT MDP has provided support from cultivation, production, and marketing, if farmers have not been able to understand the importance of factors affecting delivery performance, then the goal of the partnership cannot be realized optimally, that is providing mutual benefits from the production process and market opportunities. Delivery performance is related to farmers' treatment of grain at the post-harvest stage and the grain distribution process. PT MDP said that the shrinkage due to broken and damaged grain reached 50%. Damage to the product is one of the problems indicating that the exact quality of delivery conditions is not met. Damage

can be caused by the cultivation, production, and post-harvest processes that do not have operational standards applied simultaneously or comprehensively to individuals in farmer groups. Farmers do not use uniform seed varieties, or they use seeds susceptible to changes in weather and geographical conditions such as *inpari* species. The farmer group does not have a drying machine; hence, manual drying uses sunlight is applied which may result in uneven drying process particularly during rainy season. Therefore, it is necessary to analyze the factors influencing the performance of grain delivery by rice farmers in Pamarican District. Optimal delivery performance can be useful in reducing price disparities because the shorter the distance and faster the delivery of commodities from producers to consumers, the more reasonable the prices will be.

METHODOLOGY

The study used primary data consisting of 30 respondents from rice farmers to meet the normal distribution. The purposive sampling technique was selected based on criteria that were in accordance with the research objectives. The criteria for the selected rice farmers are PT MDP partners, having a land area of more than 0.10 ha, and delivering grain for five consecutive months. The analytical method used is multiple linear regression model with the Ordinary Least Square method - a regression equation which is an estimation function of a dependent variable using more than one independent variable. Before performing OLS regression, a normality test was performed on the data. Normality test on linear regression estimation is an analysis to see the distribution of data. The normal distribution of data is shown from the results of the Jarque-Bera normality test with a probability value greater than the alpha level used in the estimate. The Jarque-Bera test is based on kurtosis and skewness; b_1 and b_2 are skewness and kurtosis. Jarque-Bera is zero if skewness and kurtosis is 3. The greater the value of skewness and kurtosis, or more than 3, then the null hypothesis of normality is rejected (Ahmad & Khan Sherwani, 2015; Jarque & Bera, 1987; Yap & Sim, 2011) . The delivery performance variable as the dependent variable measures the delivery performance from producers to consumers on time, quantity, and type (Arhim et al., 2019). The multiple linear regression equation with the number of independent variables as much as n is formulated as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \mu$$

Y	:	Delivery performance (%)
α	:	Regression constant
$\beta_1 \ldots \beta_5$	:	Coefficient of independent variable
X_1	:	Distance from farmer to rice collection location (km)
X_2	:	Storage capacity (ton)
X_3	:	Farming experience (year)
X_4	:	Unhulled rice grain stock (ton)
X_5	:	Dummy Transaction System (1=cash or 0=tempo)
μ	:	Residual (error)

The coefficient of determination R^2 is an indicator to measure the proportion of the total diversity of the dependent variable that can be explained by the independent variable. The coefficient of determination is also referred to as the estimation model fit test. Calculation of the influence of individual independent variables on the dependent variable is a partial regression coefficient test (t test). The regression coefficient test together (F test) was used to determine the simultaneous effect of the independent variables on the dependent variable (Pindyck & Rubinfield, 1991).

The t test (t arithmetic) is the regression coefficient divided by the standard error of the independent variables. Therefore, the partial t test hypothesis is:

H_0 : t count < t table means there is no significant effect of independent variables on the dependent variable individually.

H_1 : t arithmetic > t table means there is a significant effect of independent variables on the dependent variable individually.

The components in the F test are the coefficient of determination (R^2) of the number of independent variables, and n is the number of data or samples studied. Therefore, the F test hypothesis is:

H_0 : F count < F table means there is no significant effect of independent variables together or simultaneously on the dependent variable.

H_1 : F count > F table means there is a significant effect of independent variables together or simultaneously on the dependent variable.

Classical assumption test consists of multicollinearity test and heteroscedasticity test. Multicollinearity test was used to see the correlation between variables. Multicollinearity testing can use the Variance Inflation Factor (VIF) (Daoud, 2017; Katrutsa & Strijov, 2017). In the Variance Inflation Factor with the predictor j and the variance component of the standardized slope, R^2 denotes the multiple correlation coefficient associated with the predictor p. For standardized regression coefficients and semi partial correlation, the condition of the regression model has two or more predictors of VIF (Thompson et al., 2017). Heteroscedasticity test is a test on the error or residual variance. A good estimate is the homoscedasticity error variance. The variance of the error in the regression variables that are not the same between variables or are not constant will cause heteroscedasticity. The white test on the estimate is formulated with a number of samples n with a coefficient of determination R^2 based on the Chi-Square distribution, namely $nR^2 \approx X^2$ (Hsieh, 1983; Lyon & Tsai, 1996).

FINDINGS AND DISCUSSION

Classical assumption test is needed in quantitative research. The classical assumption test is the normality test of the data distribution using Jarque-Bera. Meanwhile, the multicollinearity test uses the Variance Inflation Factor, the heteroscedasticity test uses the White test, and the autocorrelation test uses the serial correlation LM test. Classical assumption test is needed so that the estimate or prediction meets accuracy and consistency.

Table 1. Classical Assumption Test Multiple Linear Regression Estimation

Classical Assumption Test	Value
Normality	
Jarque-Bera	0.029208
Prob.	0.985502
Multicollinearity (*Variance Inflation Factors*)	
Distance	2.537463
Stock	3.165317
Experience	1.394631
Capacity	1.390061
Transaction	1.114824
Heteroscedasticity (*White*)	0.155500
Autocorrelation (*serial correlation LM test*)	0.073800
R-squared	0.512425
F-statistic	5.044648
Prob.(F-statistic)	0.002674

Source: Primary Data Analysis, 2021

Table 1 is the result of the classical assumption test analysis. The Jarque-Bera probability value is 0.985502, which is greater than the alpha significance level of 0.05. Therefore, the analyzed data were in normal distribution conditions. The estimate is declared free from multicollinearity if the VIF value in each independent variable is less than 10. The multicollinearity test results show the value of each independent variable is more than alpha 0.05, namely distance (2.537463), inventory (3.165317), experience (1.394631), capacity (1.390061), and transactions (1.114824) leading to estimates that are free from multicollinearity.

White's heteroscedasticity test shows a prob. value greater than the alpha value of 0.05, which is 0.155500, causing the estimate to be in a homoscedasticity condition. The estimate is declared free from autocorrelation because the serial correlation LM test prob is 0.073800, greater than 0.05 alpha. The R-squared value is 0.512425, meaning that the variables used in the estimation model can explain the proportion of 51.24%, while the remaining 48.76% is explained by other variables not examined. The effect of the independent variables together or simultaneously on the dependent variable shows significant results because the probability value of the F test is smaller than alpha 0.05, which is 0.002674.

Table 2. Multiple Linear Regression Estimation Factors Affecting Delivery Performance in Partnership

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.456587	1.957881	0.233205	0.8176
Distance	2.747892	0.695506	3.950924	0.0006***
Capacity	-0.473190	0.378194	-1.251183	0.2229
Experience	0.313846	0.638582	0.491473	0.6276
Stock	-3.301255	0.879608	-3.753097	0.0010***
Transaction	1.800553	0.719364	2.502980	0.0195**

Source: Primary Data Analysis, 2021

Rice farmers in Pamarican District who are members of farmer groups and are involved in partnerships have the right to sell and send their harvested grain to PT MDP directly or through farmer group administrators. The existence of PT MDP seeks to provide a means of marketing grain for the surrounding community. PT MDP is one of the sales destinations or markets for the harvested products of farmer groups in Pamarican District. The process of sending grain by farmers is regulated based on a farmer group partnership program with PT MDP. PT MDP does not take grain to the harvest location or store it at the home of the farmer group management. Thus, rice farmers in making deliveries to PT MDP consider the ability to provide products demanded by consumers (PT MDP), geographical conditions, and transportation infrastructure. Delivery performance is a percentage or quantity that can be fulfilled by rice farmers in accordance with consumer desires (PT MDP). Farmers are confident that they will be able to deliver their goods to MDP on time because they can reach supporting means of transportation for immediate delivery. Overall, farmers can send their harvests in various ways through self-transport by private vehicle, renting a vehicle for transportation, or requesting to collect their harvest directly from the land. The delivery performance of the interview results is the ability to convey the harvest to the consumer by the farmer according to the time of order and the quantity ordered. The results of the calculation of delivery performance on 30 respondents of rice farmers - 29 respondents with 100% delivery performance and 1 respondent with 88% performance, and the overall delivery performance average is 99.60%.
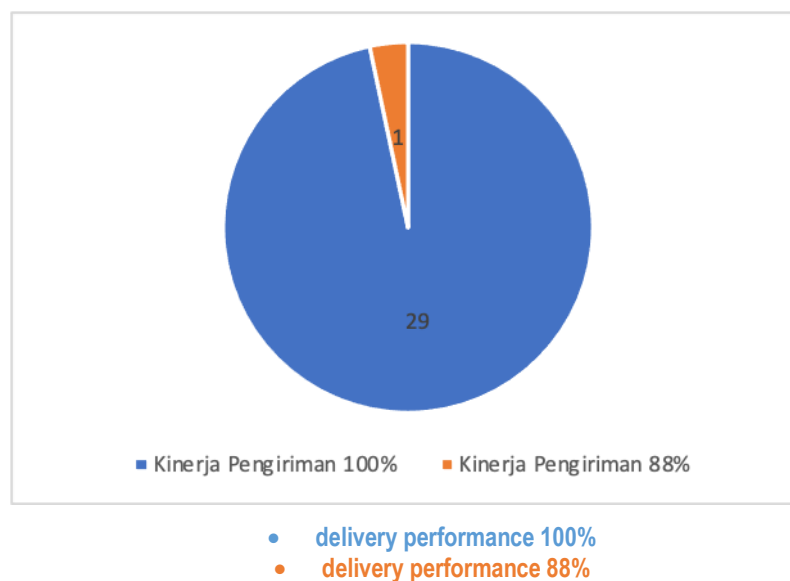

- delivery performance 100%
- delivery performance 88%

Figure 3. Graph of Delivery Performance of Pamarican District Paddy Farmers
Source: Primary Data Analysis, 2021

The distance between rice farmers (suppliers) and PT MDP (consumers) is related to the costs incurred from the delivery process. Transportation costs will have an impact on the formation of product prices on market prices and cycle efficiency at the time of ordering and purchasing (Moazzam et al., 2018). The distance variable that is estimated in the regression analysis is the distance of the rice farmer to the location of grain collection, namely the house of the farmer group administrator. The regression results in Table 2 show a significant positive coefficient of the distance variable, which is 2.747892. Therefore, there is an effect of the distance variable on the performance of grain delivery. The further the distance between the farmer's house and the house of the farmer group administrator, the delivery performance will increase by 2.75%. This is related to the efficient allocation of transportation costs. The distance between rice farmers who deposit grain to the administrator's house is between 100 meters and 2 km. There are farmers who choose to sell directly to middlemen to save on transportation costs because the middlemen pick up the grain to the harvest location or to the rice farmer's house shortly after harvesting or after the dry grain is dried in the sun. Farmer group members' houses are less than 500 meters apart and choose to send their grain several times by motorbike because it is considered cheaper to use fuel. Delivery to the house of the farmer group management using this method, although cheaper, is less efficient in the time and energy spent because it usually has to be done several times with limited quantity in one transportation. Transportation of grain yields of more than one ton, farmers need a carry pick type car. The use of a carry pick type car causes rental costs and driver fees between IDR 150,000 to IDR 200,000 for one time carrying out harvesting activities.

The results of the analysis of the distance variable are related to the grain delivery system for grain farmers to PT MDP. The distance between the village and PT MDP is 7 km. The distance from members of the farmer group to the house of the caretaker who collects the harvested grain is the longer the distance, the more efficient the costs incurred because once transporting grain to PT MDP can be in large quantities and accommodate the needs of more than one individual. Transportation costs can be borne by a number of people who supply grain to PT MDP. In line with research by Karo (2015), the optimum transportation costs for rice delivery can be obtained from the availability of rice that is maintained and transportation costs that can be minimized. Transportation is a risky activity in product delivery if farmers do not have market information (Mgale & Yunxian, 2020). Although the average distance between a farmer's house and a close collection point is 100 to 500 meters, this does not guarantee that farmers will immediately send their produce to the harvest location. Collectors are able to provide transaction convenience when picking up rice at the harvest location or at the farmer's house (Do, 2017; Kasimin et al., 2021). Transportation costs and product processing costs can affect the performance of a supply chain (Bidarti et al., 2021).

The regression estimation results in Table 2 show a significant positive effect of the payment transaction system on product delivery performance. The fulfilment of the right to delivery of grain by partner farmers as suppliers by PT MDP can be in cash and with a certain period of time. Payment with a tempo system with a period of between 3 to 7 days. The payment system can affect partner farmers' interest in the process of selling their grain. The faster partner farmers get payments, the better delivery performance. Payments made immediately by partners can be used by farmers to continue the rice production process and fulfil household needs. The regression coefficient shows that cash payments can improve delivery performance by 1.8 percent. Partner farmers with high delivery performance tend to prefer cash payment systems from partnership systems with partners offering higher grain prices than middlemen. The cash payment system is mostly done by small-scale farmers, while overdue payments are usually made by large-scale farmers and trusted consumers (InterCAFE IPB University, 2018). The transaction system is important for farmers as a form of certainty in obtaining income from harvests that are handed over to partners or PT MDP. Late payments can disrupt the flow of financial cash flows in farmer households and fulfil the need to purchase production facilities and infrastructure for rice cultivation. Farmers need time to buy production inputs to the city because there are more complete types of fertilizers and pesticides available. The easy and fast transaction system is one of the reasons farmers are willing to join and follow the terms of the partnership with PT MDP.

Inventories are grain storage activities by farmers which are allocated to be sent to PT MDP, sold to middlemen, and household consumption. The regression estimation results Table 2 shows a negative coefficient (-3.301255) on the inventory variable, meaning that the grain supply increases by one day in the farmer's storage room, the delivery performance decreases by 3.30 percent. Inventory is an important factor in the delivery process because it is related to the production process and sales activities. Prolonged and pile-up inventories can increase milling costs and decrease grain quality (Chopra et al., 2017). Farmers will sell grain to middlemen if they are in urgent need of cash because the middlemen always pay cash when the goods are received. The needs that cause farmers to immediately want to get cash include paying for children's education

fees, purchasing food items other than rice, paying fund for social activities, and wanting to immediately buy farm production inputs such as fertilizers and pesticides. The need to purchase fertilizers and pesticides costs quite a lot because not all farmers can access subsidized fertilizers and pesticides. By selling to middlemen, farmers do not incur transportation costs because the middlemen take the farmers' grain. The need for household food consumption and being on guard for sale if one day they need money causes farmers to stock up or store grain. The fluctuations in grain prices due to the influence of market prices at harvest and the level of grain moisture content are the cause of farmers storing grain in the hope of selling them when prices are high, while there is a risk of quality decline. Grain storage is an act of rice farmers to anticipate changes in demand from research consumers (Hossain & Jahan, 2015; Sharma et al., 2013). Decrease in quality due to storage that is too long due to consideration of supplies for daily meals and waiting for changes in selling prices is not accompanied by monitoring of temperature and humidity. This makes it difficult for PT MDP to determine the purchase price of grain under various conditions.

Inventory is closely related to scheduling orders and applying safe limits for the quantity of products available (safety stock). Farmers do not schedule and limit the level of safety because there is an allocation of grain for household and social needs. If the farmer's supply does not match the number of consumer orders, it will be counted as a debt in the form of grain which is added in the next period if the farmer takes a loan from a farmer group facilitated by PT MDP. This requires farmers to increase inventories in the next period to cover the lack of quantity that must be paid to PT MDP in the previous period. The risk of price changes in the quantity that must be deposited which is recorded as a debt becomes the burden borne by the farmer. This risk is a cost if the price of grain in the next harvest period is lower. The speed of delivery by farmers to meet consumer demand and respond to changes in demand is the ability of delivery flexibility. The speed of delivery will then be responded to by consumers with willingness to pay, frequency of repurchase, and consumer behavior that leads to the level of consumer loyalty. Consumers can make changes to the number and frequency of large quantities in less frequency as a form of saving on transportation and transportation costs or frequency that is more frequent but in smaller quantities because the supply of suppliers or producers is not able to meet consumer demand at a certain time.

The variables of storage capacity (ton) and farmer's experience from the regression results are not significant. The treatment of grain storage by farmers has not been educated with the layout, completeness of temperature and humidity measurement equipment, and yield monitoring. The storage capacity of grain at the farmer's house is in accordance with the production produced by the farmer and there is no attempt to expand the capacity of the grain storage space. Grain is stored only from the harvest by each farmer and tends not to reach the maximum capacity when storing because there are farmers who sell directly if they have a loan from the farmer group management or there is an urgent need. Farmers do not experience a storage process that exceeds capacity (overcapacity). Farmers do not apply the concept of safety stock to inventories, so they do not consider storage capacity. The concept of safety stock is important in order and inventory management according to storage space capacity (Violenta et al., 2019). The farmer experience variable is the length of time the farmer has cultivated rice in years. The longer farmers practice rice cultivation does not determine farmers' understanding of the supply chain process in achieving good product delivery performance. Farmers attend informal training and the educational background of farmers is average at the elementary and junior high school levels, so they are still focused on the cultivation improvement process and do not yet understand the supply chain process, especially the product delivery process on product delivery performance. Delivery performance and related processes in delivery performance play an important role in determining the accuracy of the product to the consumer. Farmers have not been able to identify the factors that determine delivery performance and do not observe consumer satisfaction related to the timely delivery of ordered products and specifications of consumer expectations. The cultivation process carried out by farmers is still experiencing problems with the planting process and post-harvest handling of grain, so that these factors affect the delivery process more.

CONCLUSION

The process of grain yields from rice farmers to consumers (PT MDP) as a partner can be measured for its performance through delivery performance. Timeliness of delivery, quantity, and quality in fulfilling the requirements for farmers' grain to enter PT MDP is related to various factors, including the partnership system, geographical conditions of cultivation by producers, harvest and post-harvest treatment, and grain distribution. The results of multiple regression analysis showed variables that had a significant effect, namely the distance

between the rice farmer's house and the grain collection point to be sent to partners, the period of time the farmer kept the grain in the warehouse or inventory, and the payment system received by the farmer. The quantity of grain harvested by farmers to be collected is a consideration in traveling the distance to the collection location using a motorbike or a carry pick car as it takes into account the cost of fuel and driver if using a car. The farther the distance and the more grain is deposited, the more efficient it is in the allocation of transportation costs, thus increasing delivery performance. A decrease in delivery performance occurs when farmers store the grain longer. This will hamper the continuity of delivery to partners and risk a decrease in quality. As for payment, farmers prefer the cash payment system because it can be used immediately for household needs and purchasing inputs for rice cultivation. The cash payment system can improve the performance of farmers' grain delivery to partners (PT MDP).

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