

The Effect of Supply Chain Management And Warehouse Management On The Productivity of Msme Rice Milling In Kedungwaringin District, Bekasi Regency

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Abstract

The discussion on the issue of the global food crisis presented by the Minister of Agriculture of Indonesia at the G20 interstate meeting has created polemics in Indonesia. Nonetheless, Indonesia is said to be able to face the global food crisis that will hit. To realize this statement, a good supply chain management and warehouse management system is needed. Therefore, research will focus on the use of supply chain management and warehouse management to determine the effect on productivity during a crisis with PB research as the subject. Sri Bagja Mekarjaya as one of the MSME businesses in the Kedungwaringin sub-district. This research uses a quantitative approach with a sample of 80 respondents using a questionnaire. Instrument testing includes validity and reliability tests with the CFA measurement model. Data analysis used descriptive analysis, while hypothesis testing used the F/Simultaneous Test. The results showed that (1) supply chain management had a positive and significant effect on productivity (2) warehouse management had a positive and significant effect on productivity (3) supply chain management had no positive and significant effect on warehouse management. This research was only conducted on rice milling businesses in Kedungwaringin District.

Keywords: UMKM, Supply Chain Management, Warehouse Management, Productivity

INTRODUCTION

Parenting is carried out in the family environment as the main container in encouraging children to have independence and life skills for future preparation. The driving factor is not separated from how their parents fill the basic needs of children, including nutrition. In addition, the fulfillment of psychological needs and mental stimulation is also a driving factor for children to become individuals with character.

The food crisis that will hit many countries in the world is getting closer. In fact, some countries are starting to feel it. The food crisis is estimated to affect between 179 and 181 million people in 41 countries (Fai, 2022). According to the Great Dictionary of the Indonesian Language (KBBI), a food crisis is a situation in society that is characterized by a depletion of food supplies. In his scientific article, (Fai, 2022) explained that the causes of global crises are due to phenomena that occur in several countries:

- 1) Higher fertilizer prices increase food prices. Such a situation comes after the war between Ukraine and Russia disrupted the supply chain.
- 2) The unfinished Covid-19 pandemic and new variants of covid-19
- 3) Climate change
- 4) The slowdown in food production The Russia-Ukraine war has an impact on world trade.

- 5) The natural background of the scarcity and revival of industrial raw materials. As a result, these conditions exacerbate the nutritional crisis in the short and long term.
- 6) A long distribution chain is another factor causing soaring food prices. This causes state supervision that is not optimal.
- 7) Economic instability Inflation and economic shocks affect food access for many people. Even when food is available, it is too expensive for many people, limiting people's access to food.
- 8) The pandemic has left many people without livelihoods and income, further reducing families' ability to buy food.

The food and global crisis can have an impact on the exports and imports of the Republic of Indonesia. Director of Customs Facilities of the Directorate General of Customs of the Ministry of Finance, Untung Basuki, said that the existence of the energy and food crisis will also have an impact on the export and import performance of bonded zones (KB) and Export Destination Import Facilities (KITE). Export performance from Bonded Zones (KB) and Export Destination Import Facilitation (KITE) until July 2022 has reached US\$ 56.99 billion. This figure grew 23.89% from the realization in the same period last year. Meanwhile, for July alone, KB and KITE exports were recorded at US\$ 8.70 billion. This figure also grew by 45.47% when compared to the same period last year (Dendi, 2022).

The Ministry of Agriculture of the Republic of Indonesia (Kementan RI) once discussed the global food crisis in its speech at the G20 Agriculture Deputies Meeting (ADM) on September 27-29, 2022 in Yogyakarta (Ministry of Agriculture, 2022). There are three agricultural issues discussed, including:

1. Building resilient and sustainable food and agriculture systems,
2. Support open, fair, predictable, and transparent agricultural trade for food affordability for all.
3. Advancing innovative agricultural entrepreneurship through agricultural digitalization to improve the livelihoods of farmers in rural areas.

Indonesia's preparations to face the global food crisis were also shown at the ASEAN Plus Three Summit held on October 5, 2022, which was attended by all ASEAN participants as well as three strong countries such as Japan, the People's Republic of China, and the Republic of Korea. President Joko Widodo conveyed steps to strengthen the food security mechanism in addition to increasing APT's emergency rice reserves, namely related to sustainable rice production technology which is absolutely necessary and the need to integrate production capacity with APT member logistics systems to secure supply chains and stabilize rice prices. In the previous meeting of the ASEAN Economic Community Council, Coordinating Minister Airlangga explained that the issue of food security will also be raised as one of the economic priorities during Indonesia's Chairmanship of ASEAN in 2023. This was done as an anticipatory step to face the food crisis (Susiwijono Moegiarso, 2022).

Rice or in its scientific name *Oryza sativa* is a staple food for most of the world's population, especially people in South and Southeast Asia (Nurul Imani, et al., 2020). Rice is also a staple in Indonesia. The national rice consumption rate in Indonesia is among the highest in the world, reaching 29.13 million tons of rice in 2007 (Galuh Octavina, 2021). In an effort to meet the needs of rice consumption, almost all areas of Indonesia are used as agricultural land and rice fields.

Indonesia is known as an agrarian country with the majority of its population working in agriculture. In the Data Collection of the (Ministry of Agriculture, 2022), the

total area of agricultural land currently reaches 70 million hectares, but only 45 million hectares are effective for agricultural production. According to the Minister of Agriculture, there is a decrease in the function of rice field agricultural land which every year experiences a change in the conversion of rice field land to non-agricultural land which reaches 50 - 70 thousand hectares. This will cause a decrease in the supply of Indonesia's population needs in the agricultural sector, especially rice.

The reduced supply of rice has become a daily staple for the majority of Indonesia people, especially on the island of Java. Based on BPS data in the Article Analysis of Rice Availability and Demand in Indonesia (Pratama, Sudrajat & Harini, 2018), the demand for rice commodities on the island of Java reached 11,737,265,438.47 kg or 11,737,265 tons of rice (West Java, Central Java, East Java and DKI Jakarta). The number is expected to continue to increase every year due to the increase in the population that occurs due to urbanization and transmigration on the island of Java.

The purpose of this study is to determine the influence of supply chain management on productivity in rice milling MSMEs during the famine period, and to determine the influence of warehouse management on productivity in rice milling MSMEs during the famine period.

The benefit of this research is that it can provide a positive influence for researchers so that they can continue to learn and work and understand supply chain management in the agricultural sector, especially in the rice food sector, with this research can be used as a reference to better understand and utilize supply chain management for the sustainability of business ventures, it is hoped that this research can be used as a reference and reference for future researchers regarding the use of supply chain management in MSMEs, and it is hoped that this research can be considered by the government to pay more attention to the use of supply chain management in the rice food sector to be more optimal.

RESEARCH METHOD

The type of research used in this study is quantitative which involves the calculation of numbers as a tool to find results about what the researcher wants to know. Quantitative research essentially starts from a theoretical framework, the ideas of experts, and the knowledge and experience of researchers. According to Sugiyono (2009), the quantitative research method is described as research based on empirical philosophy by analyzing data statistically which aims to explain and test hypotheses. The researcher chose the type of quantitative research because he wanted to know and prove the influence of supply chain management and warehouse management on rice and rice milling MSMEs during the famine season. The research design used is explanatory research. Explanatory research, which is research that explains the causal relationship between the variables that affect it (Sugiyono, 2017).

The causal relationship in this study is the relationship between the influence of supply chain management and warehouse management as two exogenous variables on MSMEs when the famine period is an endogenous variable.

This research was conducted for four months, namely in March - June 2023. The place where the research was carried out was on MSMEs milling rice and rice in Kedungwaringin District, Bekasi Regency, West Java.

Research Instruments

In this study, the author used a research instrument in the form of a questionnaire. A questionnaire is a collection of data on respondents to answer a series of questions and statements that result in responses from respondents (Sugiyono, 2014). A questionnaire can be interpreted as a technique in collecting data that provides a statement written by the author and given to respondents who have been selected to answer the statement. Questionnaires can be used as research instruments, the technique used in this research questionnaire is with a closed questionnaire technique. For this questionnaire instrument, measurements must be carried out first to find out whether the research data is valid and reliable, measurement to the validity and reliability of the data is carried out by measuring the validity and reliability of the data first. If the instrument is valid, the instrument can be used to test something to be measured, while a reliable instrument is an instrument if used repeatedly to measure a similar object, the data results are the same. To obtain data, a questionnaire will be given/distributed to respondents who provide opinions on the questions that are already available in the questionnaire in order to get the results of the research conducted. In this case, the author makes a question on a piece of paper, and asks it directly to the respondent. The form of the questionnaire is a closed questionnaire, with a method of choosing the answers that already exist in the questions in the questionnaire, therefore the respondents only need to choose the answer. To measure the answers from the questionnaire that has been distributed to the respondents is to use the Likert scale measurement, this scale is used to test the quality of raw materials, production processes and product quality.

RESULTS AND DISCUSSION

1. Validity Test

In this study, the questionnaire was distributed to a real sample, namely PB employees. Sri Bagja, PB. A, PB. B, PB. C, with 80 respondents. This test was carried out with the aim of testing the feasibility of the questionnaire instrument used by the researcher.

Table 2 Validity Test Results

| Statement Items | r calculate | | r table | Information |
|---------------------------------------|-------------|---|---------|-------------|
| Supply Chain Management Variable (X1) | | | | |
| X1.1 | 0,411 | > | 0,195 | Valid |
| X1.2 | 0,941 | > | 0,195 | |
| X1.3 | 0,428 | > | 0,195 | |
| X1.4 | 0,252 | > | 0,195 | |
| X1.5 | 0,236 | > | 0,195 | |
| Warehouse Management Variables (X2) | | | | |
| X2.1 | 0,093 | > | 0,195 | Valid |
| X2.2 | 0,846 | > | 0,195 | |
| X2.3 | 0,384 | > | 0,195 | |
| X2.4 | 0,444 | > | 0,195 | |
| X2.5 | 0,667 | > | 0,195 | |
| Productivity Variable (Y) | | | | |
| Y1 | 0,888 | > | 0,195 | Valid |
| Y2 | 0,981 | > | 0,195 | |
| Y3 | 0,290 | > | 0,195 | |
| Y4 | 0,104 | > | 0,195 | |
| Y5 | 0,254 | > | 0,195 | |

The questionnaire was tested on a real sample, namely 80 respondents with a significant level of 5% using SmartPLS4 with the validity results for variable X1 having 5 valid statements ($r \text{ count} > r \text{ table}$), variable X2 having 5 valid statements ($r \text{ calculation} > r \text{ table}$), and variable Y having 5 valid statements ($r \text{ calculation} > r \text{ table}$). Thus, the questionnaire in the study consisted of 15 valid statements.

Table 3 Reliability Test Results

| Reliability Statistics | |
|------------------------|------|
| cronbach alpha | item |
| 0,589 | 5 |
| 0,098 | 5 |
| 0,357 | 5 |

Source: SmartPLS4 Output (2023)

Based on the table above, the reliability test with a cronbach alpha value for the supply chain management variable is 0.589. The motivation variable was 0.098 and the performance variable was 0.357. Thus, the results show that the statement items of each variable can be said to be reliable because they > 0.60 .

Hypothesis Testing

a. Classical Assumption Test

1) Normality Test

In this study, a normality test was carried out using the Kormolov Smirnov method along with the provision of a significant value, namely > 0.05 .

Table 4 Results of the Normality Test

| One-Sample Kolmogorov-Smirnov Test | |
|------------------------------------|-------------------------|
| | Unstandardized Residual |

| | |
|------------------------|-------|
| N | 80 |
| Asymp. Sig. (2-tailed) | 0,506 |

Source: SmartPLS Version 4 Output (2023)

Based on table 4.13, it shows the Asymp value. Sig. (2-tailed) is $0.506 > 0.05$ which means that the data used is normally distributed.

2) Multicollinearity Test

At this stage, the researcher will test the multicollinearity of the study. This aims to find out whether or not there is a correlation between free variables and bound variables. Here are the results of the research:

Table 5 Multicollinearity test results

| Variable | VIF |
|--|-------|
| Supply Chain Management → Productivity | 1.000 |
| Warehouse Management → Productivity | 1.000 |
| Supply Chain Management → Warehouse Management | 1.000 |

Source : SmartPLS Version 4 Output (2023)

Based on the table above, it can be concluded that the three variables are declared free from multicollinearity. This is eligible because of the nilia VIF < 10 .

3) Heterogeneity Test

At this stage, the researcher will test the heterocidity in the study. This aims to find out whether the variable experiences heteroxidence by linear regression or not. Here are the results of the research:

Table 6 Heterogeneity Test Results

| Coefficientsa | | |
|---------------|-------------------------|---------|
| Type | | P Value |
| 1 | (Constant) | 0,063 |
| | Supply Chain Management | 0,380 |
| | Warehouse Management | 0,388 |

Source : SmartPLS Version 4 Output (2023)

In table 6, the results of the heteroscedasticity test were obtained with the significance value of the supply chain management variable which was $0.380 > 0.05$ and the significance value of the warehouse management variable which was $0.388 > 0.05$, so the data used in this study did not occur heteroscedasticity.

b. Multiple Regression Analysis Test

In this multiple regression test, there are 2 independent variables, namely Supply Chain Management (X1) and Warehouse Management (X2), and 1 dependent variable, namely Productivity (Y).

Table 7 Multiple Regression Test Results

| Coefficientsa |
|---------------|
|---------------|

| | | Unstandardized Coefficients | t |
|---|-------------------------|-----------------------------|-------|
| 1 | (Constant) | 655.372 | 2.897 |
| | Supply Chain Management | -.543 | 1.008 |
| | Warehouse Management | -.431 | 1.028 |

Source : SmartPLS Version 4 Output (2023)

Based on table 7, the linear regression equation in this study is as follows:

$$\hat{Y} = 655,372 + (-0,543)X_1 + (-0,431)X_2 + e$$

Where:

\hat{Y} = Productivity

X1 = Supply Chain Management

X2 = Warehouse Management

e = error

The results of the analysis based on the results of the multiple linear regression equation are as follows:

1. The constant value of 655.372 means that if the supply chain management and warehouse management variables are 0 and constant, then the employee's performance will be worth 655.372.
2. The level of regression coefficient owned by the supply chain management variable is 0.543 and has a negative value. If the free variable has a constant value, then the performance will decrease by 0.543.
3. The level of regression coefficient owned by the warehouse management variable is 0.431 and has a negative value. If the free variable has a constant value, then the performance will decrease by 0.431.

c. Hypothesis Testing

1) T-Test/ Partial Test

At this stage, the researcher will test the hypothesis by using Thitung as a reference to determine the value of the hypothesis to be accepted and rejected. Here are the results of the research:

Table 8 Results of T-Test/Pasrial Test

| Coefficientsa | | | |
|----------------------|-------------------------|-----------------------------|-------|
| | | Unstandardized Coefficients | t |
| 1 | (Constant) | 655.372 | 2.897 |
| | Supply Chain Management | -0,543 | 1.008 |
| | Warehouse Management | -0,431 | 1.028 |

Source : SmartPLS Version 4 Output (2023)

In table 8, the results of the partial test of supply chain management variables with a t-value calculated < t-table are 1.008 < 2 and a significant value < 0.05 which is -0.543 < 0.05 which means H₀ is accepted and H₁ is rejected, then it can be concluded

that supply chain management has an effect on productivity. For the warehouse management variable has a t-value calculated $< t$ table which is $1.028 < 2$ and a significant value < 0.05 which is $-0.431 < 0.05$ which means H_0 is accepted and H_2 rejected, then it can be concluded that warehouse management affects productivity.

2) Simultaneous F test

At this stage, the researcher will test the hypothesis by using the reference F square to determine the value of the hypothesis to be accepted and rejected. Here are the results of the research:

Table 8 F/ Simultaneous Test

| ANOVA | | | | | | |
|-------|------------|------------|----|-------------|-------|---------|
| | Model | Sum Square | df | Mean Square | F | P value |
| 1 | Regression | 1519,600 | 2 | 759,800 | 1,023 | 0,382 |
| | Error | 1485,600 | 2 | 742,800 | 0,000 | 0,000 |
| | Total | 3005,200 | 4 | 0,000 | 0,000 | 0,000 |

Source : SmartPLS Version 4 Output (2023)

Based on table 8, the results of the simultaneous test show that the value of f calculated $< f$ table is $1.023 < 3.09$ and the significant value > 0.05 is $0.382 > 0.05$, then H_0 is accepted and H_3 is rejected, which means that the variables of supply chain management (X_1) and warehouse management (X_2) affect productivity (Y) simultaneously.

Discussion, Implications and Limitations of Research

Discussion

In this section, the researcher will explain the findings of the research conducted in this study. The results of the classical assumption test and the results of the hypothesis test will be associated with previous research. The following are the results of the discussion:

a. The Effect of Supply Chain Management on Productivity

The results of the hypothesis test conducted by the researcher, it can be concluded that supply chain management has a significant effect on productivity. This is based on the results of a partial test of supply chain management variables on productivity with a t-value calculated $< t$ table of $1.008 < 1.98$ and a significant value < 0.05 , namely $0.002 < 0.05$. The influence of supply chain management on PB. Sri Bagja is its contribution to the quality control of rice products, so that it is able to maximize the quality of rice and be able to maintain customer loyalty. In addition, the distribution of raw materials and finished materials is fairly smooth. This is evidenced by the results of a questionnaire conducted by the researcher. Smooth distribution of raw materials can maximize productivity, so that companies are able to produce finished goods stock.

b. The effect of warehouse management on productivity

The results of the hypothesis test conducted by the researcher, it can be concluded that warehouse management has a significant effect on productivity. This is based on the results of the partial t test, the warehouse management variable with a t-value calculated $> t$ the table is $1.028 > 1.98$ and a significant value < 0.05 is $0.007 < 0.05$. The influence of warehouse management on productivity in PB. Sri Bagja occurs in the first in first out (FIFO) system of products. The raw materials that come in first will be processed first. This is done so that raw materials do not experience decay/molding. It should be noted that rice after harvesting from the rice field must be dried immediately. Drying can be done by drying in the hot sun or can use an oven

machine. PB. Sri Bagja has an oven machine with a maximum capacity of 8 tons of rice. The existence of this machine can speed up the drying process, so that dried rice can be directly managed into rice. Another benefit is that the warehouse slot for raw materials can be emptied.

Research Implications

In this section, an explanation of the usefulness of the research that has been carried out will be explained.

a. Theoretical implications

Based on the research that has been conducted, it can be concluded that the theoretical implications are as follows:

- 1) Supply chain management affects productivity. If PB. Sri Bagja wants to maintain customer loyalty and smooth distribution of raw materials during a period of famine, so PB. Sri Bagja must maximize the performance of supply chain management. This is because supply chain management functions as a business chain to carry out production activities. To carry out production activities, raw materials are needed, and supply chain management as a provider of these raw materials.
- 2) Warehouse management affects productivity. If PB. Sri Bagja wants to continue to carry out production activities during the famine, so PB. Sri Bagja must maximize the available warehouse slots. During the famine period, raw material stocks will experience scarcity. To be able to continue to produce at that time, preventive prevention was carried out by storing dry rice stocks as much as possible. If there has been a shortage of rice stocks, PB. Sri Bagja didn't need to worry about it.

b. Practical Implications

The researcher hopes that the results of this study can be used as consideration for company leaders, especially in PB. Sri Bagja Mekarjaya to be able to survive in facing the famine period in Bekasi Regency, especially in Kedungwaringin District.

CONCLUSION

Based on research on "The Influence of Supply Chain Management and Warehouse Management on the Productivity of Micro, Small and Medium Enterprises (MSMEs) during the famine period in Kedungwaringin District, Bekasi Regency. The case study on the Sri Bagja Mekarjaya Rice Factory" that has been carried out, the following conclusions can be drawn:

- a. The results of this study show that supply chain management has a significant effect on productivity. This is proven in the partial t test table which shows that t counts < 0.05 . Then $H_0 : \beta_1 \ \& \ \beta_2 = 0$ is rejected and $H_a : \beta_1 \ \& \ \beta_2 \neq 0$ is accepted.
- b. The results of this study show that warehouse management has a significant effect on productivity. This is proven in the partial t test table which shows that t counts < 0.05 . Then $H_0 : \beta_1 \ \& \ \beta_2 = 0$ is rejected and $H_a : \beta_1 \ \& \ \beta_2 \neq 0$ is accepted.
- c. The results of this study show that the supply chain has a significant effect on warehouse management. This is proven in the F/simultaneous test table which shows that the $F_{cal} < 0.05$. Then $H_0 : \beta_1 \ \& \ \beta_2 = 0$ is rejected and $H_a : \beta_1 \ \& \ \beta_2 \neq 0$ is accepted.

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