

Analysis of Decision Making Using the Composite Performance Index Method in Improving Product Handling at UMKM Warung Nasi, Bogor City

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Abstract

Competition for the MSME rice stall business in the city of Bogor is currently very high where business actors are trying to increase consumer loyalty. The problem currently occurring in MSME rice stalls in Bogor City is a lack of knowledge regarding proper handling of food products. This problem means that MSME players only have a limited market share. In this PKM activity, evaluation and implementation of priority improvements are carried out using the Composite Performance Index (CPI). The experts used in developing criteria and alternatives to the CPI method are academics from nutrition science and food security. The CPI method uses four alternative options, namely improving service, improving serving facilities, improving food processing methods and improving production layout. The results of determining repair priorities using the CPI method showed that the repair process must be carried out at serving facilities with a value of 106.09. The priority results of this improvement are improvements to the display cases, serving areas and consumer dining tables.

Keywords: Alternatives, Criteria, Composite Performance Index (CPI), Food Serving

INTRODUCTION

The development of Micro, Small and Medium Enterprises (MSMEs), food stalls currently have very high business competition. Business competition cannot be separated from how MSMEs can prepare raw materials, production processes and food serving processes that are good and hygienic. (Pandiangan and Nainggolan 2021). Rice stall MSMEs currently have limited knowledge of developing products and facilities to increase competitiveness with other MSMEs (Bilqis Alifia Adzani and Erwindi Saputra 2022)

Developing clean, neat and hygienic facilities is one of the problems that rice stall MSMEs cannot fulfill. Availability of capital and knowledge is a problem in business development to obtain added product value (Hidayat, Santosa, and Siskandar 2022; Nadziroh et al. 2023). Currently, the MSME rice stall business has a huge opportunity to develop because it has consumers with a very broad segmentation, from students, workers, housewives and other general public. Business management in terms of products, production processes and facilities must be carried out in culinary businesses in order to increase product marketing (Kaligis, Mandey, and Roring 2021).

The process of transferring knowledge to MSME business actors is currently never carried out so that business actors only do business traditionally without paying attention to improvements or innovations that can be made to develop existing business processes (Santosa, Hidayat, and Siskandar 2022). The condition of processing facilities and food serving is currently carried out without following procedures for good food serving at MSME rice stalls. The process of serving healthy food cannot be separated from the facilities used in serving food so that customer trust and satisfaction increases (Agustin, Kanom, and Darmawan 2020).

There are several factors that influence product service improvements, namely facility development, resource management and optimal technology management (Mopangga 2015; Santosa et al. 2023). Based on these conditions, a program is needed to increase the knowledge of MSME rice stall players accompanied by a process of mentoring, evaluation and implementation of improvements to improve the performance of MSMEs in serving healthy food. The process of serving good and healthy food is an important factor in increasing consumer loyalty (Hafsah 2004; Ngatirah1 2021).

hygienic product presentation process is one of the success factors in increasing consumer satisfaction in MSME Food products (Putri, Larasati, and Sani 2022; Sesar Husen Santosa et al. 2024). This research was conducted to evaluate and implement appropriate priority improvement decisions for the Pa De Umar rice stall MSMEs in Bogor City. The CPI method is used because the criteria used in making decisions to improve product handling have different trends and value units. The novelty of the research is that decisions on improving product handling use the Composite Performance Index (CPI) approach so that the results obtained are immediately implemented to increase the competitiveness of MSMEs.

METHOD

The method used in the research is divided into stages, namely field observation and quantitative decision making analysis. The method used for decision making is the Composite Performance Index (CPI). The CPI method is used using 4 alternatives and three criteria for determining improvement priorities. The stages of the research method carried out are as follows:

a. Field Observation

Field observations are carried out to collect data related to the study that we will observe (Joesyiana 2018). (Joesyiana 2018). Field observations were carried out to determine criteria and alternatives in solving problems (Saleh 2017). Field observations were carried out to find out problems related to the process of handling products to serving food in MSME rice stalls in Bogor City.

b. Composite Performance Index (CPI)

The CPI method is a Multi Criteria Decision Making (MCDM) decision making method where each criterion has a different trend (Pandian 2013; Rumandan 2022). The formulation of the CPI method is as follows: (Simangunsong, Simanjorang, and Fahmi 2022; Trianto, Shalahudin, and Riyanto 2023)

$$X_{ij(\min)} = 100$$

$$A_{(i+1, j)} = (X_{i+1, j} / X_{ij(\min)}) \times 100$$

$$I_j = \sum_{j=1}^n I(ij)$$

dimana:

$X_{ij(\min)}$ = smallest criteria CPI value

$A_{(i+1, j)}$ = CPI value based on trend criteria

I_j = Total Alternative CPI value

Basically, these two methods are used to identify priority improvements to be made for handling MSME products. Based on these two methods, the results of the evaluation can be determined and implemented based on the improvement priority values obtained from the CPI method.

RESULT AND DISCUSSION

This research activity began with training activities on Good Food Production Methods. The second stage of the PKM process, namely evaluation and implementation, to make improvements begins with conducting field observations to see and assess the initial conditions related to the implementation of CPMB carried out by selected rice stall MSMEs. The initial identification results showed that there were problems related to safety in the food serving process, including the use of food serving display shelves made of wood, and the use of serving stations and dining tables made of worn

wood, which allowed contamination of the stored food. The initial identification process can be seen in Figure 1.



Figure 1 Serving food in a display case

Processed products are stored in display cases using containers made of plastic in hot conditions which can cause the materials contained in the plastic to be absorbed into the food. The process of serving food outside a display case causes the food display to become unhygienic, making it possible for consumers not to buy food products again. The product presentation location can be seen in Figure 2.



Figure 2 Product Presentation Place

The next serving process is related to the table used which is still made of worn wood. This condition causes unhygienic presentation of the food served. The problem of using a dining table is an important factor in serving hygienic food because currently all the food is not neatly arranged and this causes consumers to often not feel comfortable when choosing the food served. The pores of the wood on the dining table can potentially become a place for food waste which can cause unhygienic use of the products being served. The dining table used by UMKM Warung Nasi Pa de Umar can be seen in Figure 3.



Figure 3 Where consumers eat

Based on the results of identifying product handling activities in MSMEs, several problems were found that had to be corrected based on improvement priorities. The identification and evaluation

process is carried out using the MCDM method, namely CPI, to determine priorities for improving the handling of food products to be served.

The criteria identification process uses three variables, namely repair costs, profits for MSMEs, and the number of workers required. Alternative variables are improving service, improving product presentation facilities, improving how to process food and improving production layout. All of these variables were obtained from studies and observations in the field. These alternatives and criteria are assessed to determine the CPI value for priority improvements that will be made to the handling of the food products produced. The results of the assessment of alternatives and criteria in the process of improving the handling of Pa De Umar MSME products can be seen in Table 1.

Tabel 1 Kriteria dan Alternatif prioritas perbaikan penanganan produk

Alternative	Repair Cost (K1)	Profit (K2)	Number of Workers (K3)
Service Improvement (A1)	Rp 1.600.000	4	6
Improvement of food serving facilities (A2)	Rp 2.300.000	5	4
Improved Ways of Processing Food (A3)	Rp 1.500.000	4	5
Production Layout Improvements (A3)	Rp. 4.500.000	3	5
Weight	0,4	0,3	0,3

Based on the results of identifying the value of the criteria for each alternative, a different trend was obtained for each criterion. The lowest value for each criterion will be changed to a value of 100 where the initial value becomes the divisor or denominator according to the trend of the criteria. The repair cost criterion (K1) has a negative trend where the lower the value, the better. The CPI value obtained for Repair Costs (K1) is as follows:

$$A1K1: (1.500.000/1.600.00) \times 100 = 93,8$$

$$A2K1: (1.500.000/2.300.000) \times 100 = 65,2$$

$$A3K1: 100$$

$$A4K1: (1.500.000/4.500.000) \times 100 = 33,3$$

The profit improvement criteria for MSMEs (K2) has a positive trend where the higher it is, the better the value obtained. The CPI values obtained for profits for MSMEs (K2) are as follows:

$$A1K2: (4/3) \times 100 = 133,3$$

$$A2K2: (5/3) \times 100 = 166,7$$

$$A3K2: (4/3) \times 100 = 133,3$$

$$A4K2: 100$$

The number of workers (K3) criterion has a negative trend where the lower it is, the better the score obtained. The CPI values obtained for the number of workers (K3) are as follows:

$$A1K3: (4/6) \times 100 = 66,7$$

$$A2K3: 100$$

$$A3K3: (4/5) \times 100 = 80$$

$$A4K3: (4/5) \times 100 = 80$$

Based on the results of calculating the CPI value, the relationship between alternative and criteria values is obtained. The results of the evaluation of CPI values on alternatives and criteria in determining improvements in the handling of Pa De Umar rice stall MSME products can be seen in Table 2.

Tabel 2 CPI Value Priority for Product Handling Improvements

Alternative	Repair Cost (K1)	Profit (K2)	Number of Workers (K3)	Alternative Value	Ranking
Service Improvement (A1)	93,8	133,3	66,7	97,50	3
Improvement of food serving facilities (A2)	65,2	166,7	100	106,09	1
Improved Ways of Processing Food (A3)	100	133,3	80	104,00	2
Production Layout Improvements (A3)	33,3	100	80	67,33	4
Weight	0,4	0,3	0,3		

Based on the results of calculating priorities for improving the way products are handled at rice stall MSMEs, improvement values were obtained based on the CPI method. The results of the CPI value calculation will be ranked based on the weight of the x value as follows:

$$A1 = (93,8 \times 0,4) + (133,3 \times 0,3) + (66,7 \times 0,3) \\ = 97,50$$

$$A2 = (65,2 \times 0,4) + (166,7 \times 0,3) + (100 \times 0,3) \\ = 106,09$$

$$A3 = (100 \times 0,4) + (133,33 \times 0,3) + (80 \times 0,3) \\ = 104,00$$

$$A4 = (33,3 \times 0,4) + (100 \times 0,3) + (80 \times 0,3) \\ = 67,33$$

The calculation results for determining priorities for improving the handling of food products in the MSME rice stall Pa De Umar showed that the priority for improvement was food serving facilities (A2) with a CPI value of 106.09. This improvement priority is implemented in the form of improving facilities for serving food. The priority for improvements made is to repair the food serving display case using more hygienic materials, namely aluminum and acrylic, which can be seen in Figure 4.



Figure 4 Repair of food serving display cases

Improvements to the serving process outside the display case are carried out by using acrylic materials to make it more hygienic and the cleaning process is more maintained so that consumers are more comfortable with the cleanliness and hygiene of the food served. The improvement process is carried out in stages according to the priority scale. The results of implementing improvements to serving facilities outside the display case or at the serving table can be seen in Figure 5.



Figure 5 Results of improvements to serving facilities outside the display case

The next improvement process is to carry out food serving facilities, namely consumer dining tables. Based on the results of the CPI analysis, it was found that the highest priority for improvement was the food serving facilities where the dining table was one of the serving facilities. The results of improvements to consumer dining tables in the implementation process can be seen in Figure 6.



Figure 6 consumer dining table repairs

Based on the evaluation results, it was found that the priority for improvement was changes to food serving facilities. This improvement provides a feeling of comfort and safety for consumers to consume rice stall MSME products. Improvements are made based on the priority values of the decision making model using the CPI method. The results of the evaluation and implementation of this research are an effort to improve the way food products are handled properly. The weight in CPI decision making is the level of priority between criteria which can be seen in this improvement. The most dominant weight in the criteria is the repair cost. The priority of improving food serving facilities using the CPI approach has been carried out well by MSMEs at rice stalls so that they can improve the quality of food serving.

CONCLUSION

Evaluation and implementation activities using the CPI method are an effort to implement CPMB where one of the outputs produced is how to serve food in a hygienic and safe manner for consumer health. This improvement process is carried out using the highest priority scale using the CPI method because the criteria used have different trends. The implementation carried out is how the MSMEs of Pa de Umar rice stalls improve food serving facilities with the highest CPI value, namely 106.09. The next research that must be carried out is to develop a canvas model business for the development of Bogor City rice stall MSMEs based on the facility improvements carried out. The process of changing hygienic food serving facilities is carried out thoroughly in all components used, starting from the display case, the food serving area outside the display case and the dining table so that it can provide consumers with a feeling of comfort and safety when consuming the food served.

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