

Analysis of Dominant Factors in the Supply Chain Management Process that Affect Consumer Loyalty in Student Cooperatives

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Abstract: Supply Chain Management (SCM) plays a strategic role in improving competitiveness and consumer loyalty. This study aims to analyze the SCM factors that influence consumer loyalty to the BS UPI Student Cooperative (Kopma). The approach used is quantitative with a survey method, involving 40 respondents who are students of the University of Education Indonesia who have made purchases at Kopma in the past three months. Data was collected through questionnaires and analyzed using confirmatory factor analysis. The results of the study indicate that product variety, price, timeliness, facilities, availability, and product quality are important factors influencing consumer loyalty. From the analysis, it was found that product variety is the dominant factor most influencing consumer loyalty. The decline in Kopma's sales over the past two months underscores the need to enhance SCM strategies to maintain and improve consumer loyalty. These findings are expected to serve as a reference for Kopma managers in formulating more effective SCM strategies to address competitive challenges and meet consumer expectations optimally.

Keywords: Customer; Loyalty; Supply Chain Management

1. Introduction

Supply Chain Management (SCM) plays a crucial role in enhancing a company's or organization's competitiveness. SCM is not merely about managing the flow of goods and services but also encompasses strategic aspects that influence customer relationships (Sirine, 2024). Furthermore, SCM describes the interconnectedness of all supply chain activities, from raw materials to satisfied customers (Heizer & Render, 2015). Effective implementation of SCM not only enhances company performance and competitive advantage but also helps maintain customer loyalty (Zaid et al., 2021). To implement SCM practices across all organizations, customer relationships are crucial (Hussain et al., 2014). Therefore, the effective implementation of SCM is crucial to ensure that consumer needs are well met. However, challenges arising from increasing consumer expectations, competition with other businesses, and changes in consumption patterns among the public have become significant issues. Customers switching to competitors indicate a decline in customer loyalty and retention (Melville & Weybridge, 2019).

Consumers can easily switch to competitors offering better deals at lower prices (Merdi-ani, 2021). Consumers are considered loyal if they frequently purchase items or meet certain conditions, such as making at least two purchases within a specific timeframe (Griffin & Herres, 2007). Customer loyalty is crucial for the survival of retail companies in a competitive

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environment and is an important component of retail company growth and performance (Suriyansha, 2023). Loyalty is the key to a company's success. Without consumer loyalty, a company will not thrive or may even lose its business, which could threaten its survival (Krisanto, 2018).

Cooperatives with professional management and loyal consumers can advance and develop and will successfully achieve their jointly established goals (Risnawati, 2022). Kopma BS UPI implements both offline and online marketing strategies in its operations. Febryanti et al. (2024) and Oiku et al. (2022) explain that fluctuations in sales figures lead to a decline in consumer loyalty. This aligns with the situation at Kopma UPI, where sales revenue has fluctuated, as shown in Figure 1. Kopma's sales revenue in the last two months decreased by Rp42,340,324.00 in 2024, specifically in November and December.

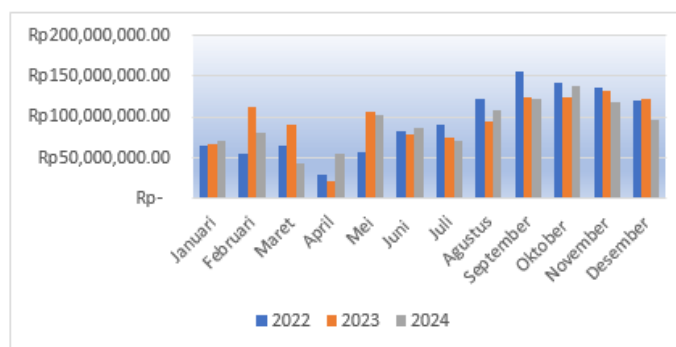


Figure 1. Kopma Turnover Chart 2022–2024

Kopma Sales Revenue Chart 202To achieve higher sales targets, it is necessary to implement effective sales strategies and efforts to build customer loyalty (Novijanti et al., 2020). Kopma stated that the number of visitors or customers is directly proportional to the revenue generated. Pre-survey data collected from 40 students at the Indonesia University of Education (UPI) provides insight into this issue. The pre-survey results can be seen in Figure 2.

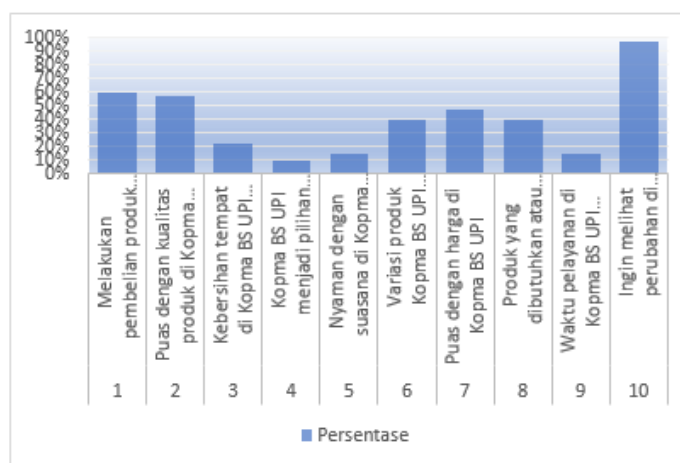


Figure 2. Persentase

From the data and observation results, it is known that SCM factors such as product variety, price, timeliness, facilities, availability, and product quality play an important role in

building customer loyalty (Chopra & Meindl, 2016; Pujawan & Mahendrawathi, 2017). These findings indicate gaps in SCM management at Kopma that affect customer loyalty.

The study aims to analyze the dominant SCM factors influencing consumer loyalty among students using confirmatory factor analysis. This research is not only limited to the development of knowledge but also to the improvement of Kopma BS UPI's operations. Kopma managers can learn about SCM strategies to increase consumer loyalty. Affordable price management, consistent product quality, and stable product availability will increase customer satisfaction. Timely service, adequate facility support, and attractive product variety also contribute to a positive consumer experience.

2. Literature Review

SCM is an activity that involves managing activities related to the flow of goods and services from suppliers to end customers with the aim of achieving competitive advantage, maximizing value, improving efficiency, and effectively meeting customer needs (Chatra et al., 2023). SCM is a process that encompasses the flow of goods and services within the supply chain, involving various activities such as the procurement and management of raw materials, product distribution by suppliers, and the delivery of products to consumers (Crandall et al., 2015). The key to achieving strategic alignment is a company's ability to find the right balance between responsiveness and efficiency that best suits the needs of target customers, influenced by SCM factors (Chopra & Meindl, 2016; Pujawan & Mahendrawathi, 2017).

Customer loyalty is the behavior where someone consistently chooses to buy the products offered and regularly makes purchases over a certain period of time, faithfully following all offers provided by the company (Rifa'i, 2019). Customer loyalty is a customer's loyalty to a brand, store, or service provider, based on a consistent positive attitude toward making purchases over the long term (Tjiptono, 2004).

CRM is a business strategy that combines processes, people, and technology in its implementation. Its objectives include helping to attract sales prospects, converting potential customers into customers, and retaining existing customers, turning satisfied customers into loyal customers (Akbar, 2021). CRM functions as a company-customer relationship management system to strengthen engagement and maintain loyalty (Siswati et al., 2024).

3. Method

Research methods are scientific procedures used to collect data to achieve specific objectives. This study uses a quantitative approach, which is a research method based on positivism philosophy. This approach is applied to study a population or sample, where sampling techniques are generally conducted randomly. Data collection is carried out using research instruments, such as questionnaires, while data analysis is conducted statistically with the aim

of testing previously formulated hypotheses (Sugiyono, 2019). The population used in this study was students at the Indonesia University of Education who had made purchases at Kopma in the last three months. Since the number of people in the population that met the criteria was unknown, the researcher selected a sample of 40 respondents.

Supporting data is needed for the analysis of SCM factors that influence customer loyalty at Kopma. In this study, the researcher collected primary and secondary data. The primary data used in this study came from questionnaire responses. Questionnaires as a data collection method involve gathering information by sending instruments (questionnaires) to respondents to be filled out in writing, then returned to the researcher. Secondary data is data obtained indirectly by researchers through intermediary media. The secondary data used in this study was collected by reading and studying published reports, conducting literature studies by reading articles and journals, books, and other sources.

4. Results and Discussion

The validity test in this first stage serves to measure whether the questionnaire is valid or not. The validity test in this first stage uses Pearson's Correlation with the help of SPSS 27 software. The validity test results can be seen in Table 1 as follows:

Table 1. Validity Test Results

Variable	Pearson's Correlation	r Table	Description
Product Variety (X1)	0,747	0,312	Valid
Price (X2)	0,689	0,312	Valid
Timeliness (X3)	0,702	0,312	Valid
Facility (X4)	0,652	0,312	Valid
Quality (X5)	0,666	0,312	Valid
Product Availability (X6)	0,529	0,312	Valid

Source: Data processed by researchers, 2025

Based on the validity test in the table, the questionnaire consists of 5 variables with a total of 24 questions that were answered by 40 respondents in this study. To determine which questions are valid and which are not, the first step is to calculate the r table value. The formula used is $df = N - 2$, so $40 - 2 = 38$. Thus, the r table value obtained is 0.3120. From the validity calculation results listed in the table, it can be seen that all 24 questions are valid because the calculated r value is greater than the r table value.

Reliability testing was conducted to evaluate whether the research instruments were reliable or not. In this study, the method used to test reliability was Cronbach's Alpha technique with the help of SPSS software version 27. The results of the reliability analysis can be seen in Table 2.

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Cronbach's Alpha Level	Description
Product Variety (X1)	0,950	0,7	Reliabel
Price (X2)	0,951	0,7	Reliabel
Timeliness (X3)	0,951	0,7	Reliabel
Facility (X4)	0,952	0,7	Reliabel
Quality (X5)	0,951	0,7	Reliabel
Product Availability (X6)	0,951	0,7	Reliabel

Source: Data processed by researchers, 2025

Using confirmatory factor analysis with the help of SPSS software. This technique is used to confirm the factor structure of the research variables and identify the dominant factors.

Table 3. KMO and Bartlett's Test Results

KMO and Bartlett's Test	
KMO Test	0,567
Bartlett's Test	0,011

Source: Data processed by researchers, 2025

The KMO and Bartlett's test output tables help determine whether a variable is suitable for further processing using this factor analysis method. The method involves examining the KMO value. If the value is greater than 0.50, then factor analysis techniques can be used. Based on the information above, the KMO value of 0.567 is greater than 0.050, and the Bartlett's test value of 0.001 is lower than 0.005. Therefore, factor analysis in this study can be conducted as it meets the criteria.

Table 4. Anti Image Correlation Test Results

Anti Image Correlation	Product Variety	0,595
	Price	0,649
	Timeliness	0,607
	Facility	0,363
	Quality	0,534
	Product Availability	0,668

Source: Data processed by researchers, 2025

Anti-image correlation helps identify and determine which variables are suitable for use in factor analysis. Of the six variables, only the facility variable had a value of less than 0.5, so that variable was excluded from the test. Therefore, the test was restarted from the KMO and Bartlett's test.

Table 5. Results of KMO and Bartlett's Tests

KMO dan Barlett's Test	
KMO Test	0,665
Barlett's Test	0,012

Source: Data processed by researchers, 2025

After retesting without facility variables, the KMO value became 0.665 and the Barlett's value became 0.012. Thus, the KMO and Barlett's test requirements were met. Next, we looked again at the anti-image correlation values in the table below.

Table 6. Results of KMO and Bartlett's Tests

Anti Image Correlation	Product Variety	0,60
	Price	0,625
	Timeliness	0,685
	Quality	0,650
	Product Availability	0,730

Source: Data processed by researchers, 2025

The table above shows that the five variables tested meet the requirements, i.e., values above 0.5, so they can proceed to the next test.

Table 7. Communalities Test Results

Communalities	
Product Variety	0,737
Price	0,675
Timeliness	0,556
Quality	0,664
Product Availability	0,580

Source: Data processed by researchers, 2025

This communalities table shows whether the values of the variables studied are capable of explaining the factors or not. A variable is considered capable of explaining a factor if its value is greater than 0.5. Based on the table above, it can be seen that the values for all variables are greater than 0.5, so all variables can be used to explain the factors.

Table 8. Total Variance Explained Test Results

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	1,991	39,819	39,819	1,991	39,819	39,819
2	1,122	22,442	62,261	1,112	22,442	62,261
3	0,762	15,239	77,500			
4	0,569	11,382	88,882			
5	0,556	11,118	100,000			

Source: Data processed by researchers, 2025

The total variance explained table shows the value of each variable tested. In this study, there are five variables analyzed. There are two types of analysis to explain a variance, namely initial eigenvalues and extraction sums of squared loadings. The initial eigenvalues variance shows the factors formed. When all factors are summed, they indicate the number of variables, which is 5. Meanwhile, the extraction sums of squared loadings indicate the amount of variation or the number of factors that can be formed. In the table above, there are 2 factor variations, namely 1.991 and 1.112. The total values of components 3, 4, and 5 are not calculated because their eigenvalues are less than 1, so they cannot be factors.

Table 9. Component Matrix Test Results

	Component	
	1	2
Price	0,536	-0,671
Product Variety	0,595	0,566
Timeliness	0,739	0,104
Quality	0,708	-0,405
Product Availability	0,551	0,420

Source: Data processed by researchers, 2025

The component matrix shows the correlation values of each variable with the factors that will be formed. To determine which factor a variable belongs to, look at the rotated component matrix and find the highest correlation value between the variable and the factors formed. The correlation values from the rotated component matrix can be seen in the table below.

Table 10. Results of Rotated Component Matrix Test

	Component	
	1	2
Price	-0,062	0,856
Product Variety	0,882	-0,012
Timeliness	0,613	0,425
Quality	0,245	0,777
Product Availability	0,690	0,066

Source: Data processed by researchers, 2025

The results of the analysis of one variable, namely price, show that the correlation value of this variable with factor 1 is -0.062 and with factor 2 is 0.856. Since the correlation value of factor 2 is greater than that of factor 1, the price variable is included in factor 2. Next is the determination of factors from the component transformation matrix.

Table 11. Component Transformation Matrix Test Results

Component	1	2
1	0,734	0,679
2	0,679	-0,734

Source: Data processed by researchers, 2025

The table above shows that in component 1, the correlation value of 0.734 is greater than 0.5, and in component 2, the correlation value of 0.679 is greater than 0.5. Therefore, the two factors formed can be said to accurately summarize the seven existing variables. Based on the two indicator components formed in the cumulative % loading, the two indicator factors explain 62.261% of the five variables. This means that of the five variable diversities, 62.261% can explain the two components of the predetermined variables. This indicates that the level of consumer loyalty to the student cooperative is at a fairly satisfactory level because it can explain more than 50%. The results of the testing on the price variable indicate that it can be a factor in the loyalty of student cooperative consumers. This can be seen from the eigen value of 1.991 and the variance percentage of 39.819%. The price factor is also a dominant factor influencing the loyalty of student cooperative consumers. This is because it has the highest contribution to the loyalty of student cooperative consumers with the highest eigen value and percentage of variance compared to other factors.

5. Comparison

This study contributes to the development of knowledge, particularly in the field of supply chain management (SCM) in student cooperatives. The finding that price is the most dominant factor influencing consumer loyalty indicates that price management in the supply chain plays a strategic role in maintaining and increasing consumer attachment to cooperatives. Practically, these results can serve as a reference for student cooperative managers to focus their SCM strategies on controlling and setting competitive prices, without neglecting other factors such as product quality, delivery timeliness, product variety, and information reliability. Thus, cooperatives can enhance their competitiveness and strengthen the loyalty of their members as primary consumers. Additionally, this study provides a foundation for further research to explore the role of price factors in greater depth, both through qualitative and quantitative approaches, and to test their relationship with other variables within the context of cooperatives or similar business entities.

6. Conclusions

Based on the results of the research conducted by analyzing the factors of supply chain management on the loyalty of student cooperative consumers, it was found that the price variable was the most dominant factor, as it had the highest eigen value and percentage of

variance compared to the other four factors. The conclusion presents a summary of the findings and discussion, referencing the research objectives. Based on these two aspects, new key ideas are developed, which constitute the essence of the research findings.

For future researchers, it is recommended to expand the variables by incorporating factors such as location, customer service, and others to gain a more comprehensive understanding of the dynamics of consumer loyalty. Additionally, it is important to explore the role of technology and innovation in cooperative supply chain management and validate the findings in various contexts of student cooperatives. The research results are expected to not only contribute academically but also provide practical recommendations for cooperative administrators in developing more effective and sustainable loyalty enhancement strategies.

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