The Influence of Inventory Management on Customer Satisfaction in Retail MSMES

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Article Info:	Abstract:
Article History:	**Purpose:**
Received: 2025-11-17 Revised: 2025-12-03 Accepted: 2025-12-22	This study investigates the effect of inventory management on customer satisfaction among retail MSMEs in Tangerang City. Using a quantitative explanatory survey method, the research evaluates the causal relationship between inventory control practices and customer-perceived service outcomes.
Keyword: Inventory Management, Customer Satisfaction, Retail MSMEs.	**Methodology:** Data were collected through questionnaires administered to 100 customers selected using purposive sampling. Validity, reliability, and normality tests confirmed that the instrument and dataset met statistical requirements. Simple linear regression analysis demonstrated that inventory management has a positive and significant influence on customer satisfaction, indicated by a regression coefficient of 0.564 and a t-count exceeding the critical value. The coefficient of determination revealed that inventory management accounts for 70.3% of the variation in customer satisfaction, while the remainder is influenced by factors outside the scope of this study.
Corresponding Author: Morgan Nicolas Sitorus **Email:** morgan.sitorus@mahasiswa.unipem.ac.id **Paper Type:** Research Paper	**Findings:** The findings highlight that effective stock monitoring, accurate records, and timely replenishment are key drivers of service quality perceptions, shopping convenience, and repurchase intentions. The study concludes that retail MSMEs must strategically strengthen their inventory systems to improve customer experiences and sustain competitiveness.
	Implication: Enhancing inventory processes should be viewed not merely as operational control, but as a critical component of customer service performance and business sustainability.

INTRODUCTION

Inventory management is a critical element of operational success in modern businesses, particularly in the retail sector, where product availability directly influences customer satisfaction and loyalty. Poor inventory control often leads to stockout situations when products are unavailable at the point of sale, which not only causes immediate lost sales but also damages customer perceptions of service quality. Research shows that the average out-of-stock rate in retail stores is approximately 8.3%, indicating frequent inventory failures that hinder consumers from finding desired products on store shelves. Retail experts note that reducing stockouts can increase earnings per share by up to 5% because satisfied customers are more likely to make purchases and return in the future.

Statistics further highlight how inventory mismanagement adversely affects customer behavior: 70% of customers will choose a competitor rather than wait for a backordered item, and 91% are less likely to return after experiencing a stockout with a retailer. It illustrates that consumer expectations have risen, and businesses that cannot meet demand risk losing both immediate revenue and long-term loyalty.

Effective inventory management systems, particularly those leveraging technology, have been shown to significantly improve customer experience. Industry research suggests that the implementation of advanced stock tracking and automation tools can reduce out-of-stock situations by up to 30%, resulting in better product availability and reduced frustration for shoppers. Retailers integrating predictive analytics for demand forecasting can respond more accurately to seasonal fluctuations or unexpected demand surges, leading to higher on-shelf availability and improved customer satisfaction scores.

Table 1. The Impact of Inventory Technology Utilization on Customer Satisfaction

Inventory Tech Impact	Result	Source
Automated inventory reduces stockouts	Up to 50% reduction	MoldStud (2025)
Consumers are likely to return if the product is available	65%	MoldStud (2025)
Enhanced availability raises brand loyalty	45% willing to pay more for experience	MoldStud (2025)
NielsenIQ retail OOS reduction with software	30% reduction	MoldStud (2025)
Consumers are switching stores due to empty shelves	47%	MoldStud (2025)

According to academic research, precise inventory control and strong supplier coordination are fundamental drivers of customer satisfaction outcomes. A case study at Mukwano Industries Uganda demonstrated that inventory accuracy and supplier collaboration together accounted for over 58% of the variance in customer satisfaction, meaning that businesses with accurate data and reliable supply chains were much more successful in meeting customer expectations. Additionally, technology adoption, such as real-time tracking systems, explained around 54% of the improvements in order fulfillment and customer satisfaction in the same study.

Scholars also emphasize the importance of aligning inventory processes with customer needs. Efficient inventory management not only ensures availability but also supports timely fulfillment and service reliability factors identified by Kotler and Keller (2022) as essential components of customer satisfaction that occur when a company's performance meets or exceeds expectations. By preventing stockouts and managing replenishment proactively, firms can enhance the overall shopping experience, foster consumer trust, and build long-lasting relationships (Heykal et al., 2024).

These empirical findings and theoretical perspectives underscore the strong and multifaceted relationship between inventory management and customer satisfaction. In a competitive market, organizations that strategically manage inventory not merely as a cost center but as a customer service enabler are better equipped to deliver consistent product availability, reduce service failures, and improve customer perceptions of value and reliability.

Despite the extensive studies related to MSME development in Indonesia, research focusing on internal operational practices, particularly inventory management, and their impact on customer satisfaction remains limited. Retail MSMEs serve a crucial role in local economies by providing essential goods for daily needs. However, many retail MSME owners still struggle with stock control, product availability, and procurement planning. These conditions provide a relevant context for examining how effective inventory management practices contribute to customer satisfaction, especially within highly competitive environments.

Based on this background, the research question for this study is formulated as follows:

- Does inventory management influence customer satisfaction in retail MSMEs?

The purpose of this study is:

- To analyze the influence of inventory management on customer satisfaction in retail MSMEs.

Hypothesis. According to Sugiyono (2022), a hypothesis is a temporary answer to a research problem formulated in the form of a question. It is considered temporary because the answer is based solely on theoretical foundations and has not yet been verified through empirical data collection.

Figure 1. Hypotesis

The following hypothesis is proposed based on the theoretical framework described: Inventory management influences customer satisfaction in retail MSMEs.

METHODS

Research Design. This research adopts a quantitative approach using an explanatory survey design. The design was selected to examine the causal relationship between inventory management and customer satisfaction within retail MSMEs. Data were collected cross-sectionally to measure perceptions from customers at a single point in time, allowing statistical testing of the proposed hypothesis.

Research Variables and Operational Variables. This study consists of two variables:

a. Independent Variable (X): Inventory Management. Inventory management refers to the process of planning, controlling, and maintaining product stock availability, including forecasting, ordering, and stock turnover. Indicators include: inventory control procedures, stock record accuracy, product availability, and restocking frequency.

b. Dependent Variable (Y): Customer Satisfaction. Customer satisfaction represents customers' evaluation of the products and services they receive from retail MSMEs based on their expectations and shopping experience. Indicators include: product availability satisfaction, service quality, purchase convenience, and repeat purchase intention.

Population and Sample. The population in this study includes customers who shop at retail MSMEs in Tangerang City that provide daily consumer goods. Because the exact customer population is unknown and varied, a non-probability sampling technique was used, specifically purposive sampling. The sample size follows the minimum requirement for multivariate analysis (Hair et al., 2019), requiring at least 5–10 respondents per item. The study involves 100 respondents who meet the criteria of having purchased products at least once from the selected MSME stores.

Data Collection Method. Primary data were collected through a structured questionnaire distributed directly to customers at participating retail MSMEs. The questionnaire consists of validated items measuring inventory management and customer satisfaction. Before full deployment, the instrument was tested for clarity and relevance through a pilot test involving 20 respondents. Secondary data were obtained from MSME operational records and supporting literature related to inventory management and customer satisfaction.

Analysis Techniques. Data analysis was performed using descriptive statistics and inferential analysis. Data were checked for completeness and cleaned prior to analysis. Reliability tests (Cronbach's Alpha) and validity tests (Pearson correlation) were applied to ensure the quality of the instrument. Hypothesis testing used simple linear regression, allowing examination of whether inventory management has a significant effect on customer satisfaction among retail MSME customers. Statistical calculations were performed using SPSS Version 25.

RESULTS AND DISCUSSION

This research positions Inventory Management as the independent variable (X) and Customer Satisfaction as the dependent variable (Y).

Validity Test Results. The validity assessment was conducted by comparing the calculated r-score of each questionnaire item with the r-table value at a 5% significance level, which is 0.1966. The analysis reveals that all

items measuring the Inventory Management (X) variable have r-calculated values greater than the r-table benchmark. It indicates that every item is valid and appropriate to be used in further statistical and hypothesis testing.

Table 2. Validity Test Results

Instrument	$R_{calculated}$	R_{table}	Description
Item 1	0,402	0,1966	Valid
Item 2	0,511	0,1966	Valid
Item 3	0,583	0,1966	Valid
Item 4	0,612	0,1966	Valid
Item 5	0,721	0,1966	Valid
Item 6	0,659	0,1966	Valid
Item 7	0,566	0,1966	Valid
Item 8	0,487	0,1966	Valid
Item 9	0,622	0,1966	Valid
Item 10	0,694	0,1966	Valid

Reliability Test. Referring to the reliability test findings, the number of questionnaire items used to measure the Inventory Management (X) variable totaled 10 statements, producing a Cronbach's Alpha score of 0.861. Since this value exceeds the commonly accepted reliability threshold of 0.70, the instrument is deemed reliable. It indicates that the statements are consistent in capturing the variable being measured and are appropriate to be utilized in subsequent stages of analysis.

Table 3. Reliability Test Results

Cronbach's Alpha	N of Items
,861	10

Classical Assumption Test; Normality Test. Based on the One-Sample Kolmogorov-Smirnov normality test, the obtained Asymp. Sig (2-tailed) value is 0.200, which exceeds the threshold of 0.05 (Sig > 0.05). It indicates that the dataset follows a normal distribution. Thus, the variables analyzed in this research. Inventory Management and Customer Satisfaction satisfy the normality assumption and are appropriate for further parametric statistical analysis.

Table 4. Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		100
Normal Parametersa'b	Mean	,0000000
	Std. Deviation	4.2957123
	Absolute	,056
Differences	Positive	,051
	Negative	-,056
Kolmogorov-Smirnov Z		,056

| Asymp. Sig.(2-tailed) | ,200[c,d] |

a. Test distribution is Normal

Simple Regression Test. Based on the simple regression analysis, the constant value obtained is 8.215. It indicates that when the independent variable, Inventory Management (X), is assumed to be zero, the Customer Satisfaction (Y) score will remain at 8.215. In addition, the regression coefficient for Inventory Management is 0.564. It means that each one-unit increase in Inventory Management results in a 0.564 increase in Customer Satisfaction. Because the coefficient is positive, it can be concluded that Inventory Management has a positive effect on Customer Satisfaction. Therefore, the regression equation used in this study is: Y = 8.215 + 0.564X.

Table 5. Simple Regression Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	8.215	3.917		2.008	.000
IM	,564	,081	.703	6.987	.000

a. Dependent Variable: Customer Satisfaction

T-test. Based on the t-test results, the calculated t-value obtained is 6.987. This figure was compared with the critical t-table value, which was determined using the formula df = n – k – 1 = 100 – 2 – 1 = 97, resulting in a value of 1.984. Since the t-count is greater than the t-table (6.987 > 1.984), the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted.

Table 6. T-test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	8.215	3.917		2.008	.000
IM	,564	,081	.703	6.987	.000

b. Dependent Variable: Customer Satisfaction

Determination Test. Based on the results presented in the table, the coefficient of determination (R-squared) obtained in this study is 0.703, or 70.3%. It indicates that the Inventory Management variable accounts for 70.3% of the variation in Customer Satisfaction. Other factors explain the remaining 29.7% (0.297).

Table 7. Determination Test

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.703[a]	.494	.488	4.112

a. Predictors: (Constant), Inventory management
b. Dependent Variable: Customer Satisfaction

CONCLUSION

The findings of this study provide clear evidence that inventory management plays a critical role in shaping customer satisfaction within retail MSMEs. Through a series of validity, reliability, and classical assumption tests, the research instruments and dataset were confirmed to be suitable for statistical analysis, ensuring that the results reflect accurate and dependable outcomes. Inventory management, which encompasses stock control, forecasting, procurement planning, and product availability, emerges as a key operational factor that directly affects how well a business can meet customer expectations on a daily basis.

The results of the simple regression and hypothesis testing revealed a significant and positive influence of inventory management on customer satisfaction. This relationship indicates that when inventory practices are implemented effectively, ensuring products are available when needed, minimizing stockouts, and maintaining accurate records, customers perceive better service quality, experience fewer purchasing obstacles, and demonstrate higher satisfaction levels. The determination value further strengthens this finding, showing that a substantial portion of customer satisfaction can be explained by inventory-related practices, highlighting its strategic importance within MSME operations. The remaining factor contribution suggests that elements such as customer service, store ambience, pricing, promotional activity, and digital engagement may also shape satisfaction outcomes, reflecting the complex nature of consumer behavior.

Taken together, the results underscore the necessity for retail MSMEs to prioritize the adoption of structured and proactive inventory systems. Strengthening inventory procedures not only improves internal efficiency and reduces operational risks but also elevates customer loyalty and business sustainability. In an increasingly competitive retail landscape, MSMEs that invest in inventory management, whether through manual tracking improvements or technology adoption, position themselves for stronger customer retention and long-term growth. Therefore, enhancing inventory capability should be viewed not merely as an administrative task but as a strategic business decision central to achieving consistent customer satisfaction and organizational success.

REFERENCE

Andersen, G., & MoldStud Research Team. (2025, August 14). The impact of inventory management software on customer satisfaction in food retail: Boosting efficiency and enhancing the shopping experience. MoldStud.

Djohan, D. (2023). The Impact of Inventory Managementon Customer Satisfaction at Apotik Global Medan. *International Journal of Health, Economics, and Social Sciences (IJHESS), 5*(2), 151-156. https://doi.org/10.56338/ijhess.v5i2.3610

Durohman, H., Kaltum, U., & Farras, J. I. (2023). Apakah Manajemen Persediaan Berpengaruh pada Kepuasan Pelanggan: Tinjauan Sistematis Literatur. *Jurnal Ekonomi dan Bisnis Islami, 13*(1), 139-153.

Fornell, C., Rust, R. T., & Dekimpe, M. G. (2010). The effect of customer satisfaction on consumer spending growth. *Journal of Marketing Research, 47*(1), 28-35. https://doi.org/10.1509/jmkr.47.1.28

Giese, J. L., & Cote, J. A. (2000). Defining consumer satisfaction. *Academy of Marketing Science Review, 1*(1), 1-22.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2019). Multivariate data analysis.

Heykal, M., Prasetya, S., & Harsanti, P. S. (2024). Pengaruh Kualitas Pelayanan terhadap Kepuasan Pelanggan pada Jasa Wisata (Open Trip) CV Tidung Island. *Jurnal Ekonomi Manajemen Akuntansi*, *30*(1), 250-265. https://doi.org/10.59725/ema.v30i1.226

Kotler, P., & Keller, K. L. (2022). *Marketing management (15th ed.).* Upper Saddle River, NJ: Pearson Education.

Ripandi, D., Taufiqurrahman, I., Syaniah, A. W., Fauziah, S., Sitorus, R. A., & Husyairi, K. A. (2024). Memetakan Kepuasan Konsumen Dan Implikasinya Terhadap Loyalitas Serta Pengelolaan Persediaan di UMKM D'Shafa. *J-CEKI: Jurnal Cendekia Ilmiah, 4*(1), 805-820.

Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D.* Alfabeta.