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Impact of waiting time on customer satisfaction in quick commerce: The moderating role of compensation strategy

Dr. Thiruchelvi, Sudhiksha S *, Varuni Tamilmarai, Aasia Parveen Shabbir, Deebadarsene Sundaram and Prasheetha Balamurali

Department of Management Studies, Faculty of General Management, Anna University, CEG Campus, Chennai, Tamil Nadu, India, 600025.

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Abstract

In today's changing service environment, establishing and maintaining customer happiness is a critical factor in determining success of a business and maintaining customer's loyalty. This study investigates how waiting times affect customer satisfaction and determines if compensation plans may effectively offset unhappiness. Structured questionnaires were used to gather information from consumers in a variety of quick commerce industries, including food delivery and retail. The findings demonstrated a clear inverse relationship between consumer satisfaction and higher wait times. Although it was discovered that compensatory methods somewhat improved satisfaction, they were unable to completely offset the detrimental effects of prolonged delays. These findings highlight the need for service providers to focus on cutting wait times rather than relying solely on compensating measures. The study highlights that timely service delivery is still crucial to maintaining customer loyalty and overall satisfaction, and it offers helpful guidance for businesses trying to manage operational constraints and enhance the customer experience.

Keywords: Customer Satisfaction; Waiting Time; Compensation Strategies; Service Delay; Service Quality; Consumer Behavior

1. Introduction

Customer satisfaction has taken center stage in academic study as well as commercial practice. As markets get more crowded and sectors get more competitive, businesses are shifting their focus from just offering products or services to providing extraordinary client experiences. One of the most crucial yet usually overlooked aspects of this experience is the length of time clients must wait to acquire a service or product.

Waiting time extends beyond basic delays and is often perceived as a passive loss of control. It could result in negative emotional responses like frustration, anxiety, and irritation. These emotional reactions can significantly distort the customer's overall evaluation of the service's quality, even in cases where it is actually good. Many companies have tried to reduce this dissatisfaction by using compensation systems. These could be in-kind gestures like providing priority service or apologizing sincerely, or they could be monetary incentives like discounts or refunds.

However, whether or not such compensation arrangements are truly effective in restoring client happiness is unknown. Is compensation enough to make up for the emotional and experiential harm caused by long wait times? Is it a good approach for businesses trying to build long-term customer loyalty?

* Corresponding author: Sudhiksha S

This study looks at how waiting times impact customer satisfaction in rapid commerce industries like food delivery and retail in order to provide answers to these issues. Additionally, the study evaluates whether compensation strategies significantly lessen this impact. In view of existing theories and market observations, the following hypotheses are proposed:

- **H0:** Waiting time has no impact on customer satisfaction.
- **H1:** Increased waiting time has a negative effect on customer satisfaction.
- **H2:** Offering compensation for waiting moderates the negative impact, but the improvement in customer satisfaction is marginal.

This study intends to offer evidence-based insights into how waiting time and compensation impact customer satisfaction in order to help service providers develop more successful customer experience management strategies.

2. Literature review

Ruan and Mezei (2022) investigate the comparative influence of human frontline employees (HFLEs) and AI chatbots in online shopping, highlighting that customer satisfaction is mediated by perceived information quality, perceived waiting time, and emotional experience. Their findings suggest that HFLEs are more effective when experiential product attributes are prioritized, while chatbots perform better when functional attributes are the focus.

Lahap et al. (2018) emphasize that longer waits negatively affect perceptions of service quality in fast-food contexts. Their research shows that customers dissatisfied with waiting are less likely to return, even when the quality of food is high. Similarly, Kumar et al. (1997) argue that offering waiting time guarantees can shape customer expectations and influence satisfaction through psychological framing.

Ayodeji et al. (2022) explore service delivery in airport settings and conclude that self-service technologies, when paired with reduced wait times, enhance customer loyalty. The study confirms that satisfaction with waiting time mediates the relationship between technology use and loyalty outcomes, pointing to a synergistic effect of convenience and customer empowerment in such environments.

Further research in the restaurant industry by Baladi et al. (2021) reveals that while high overall service quality encourages return visits, long waiting times remain a significant deterrent. Their findings underline that even when other aspects of the service are strong, delays and inefficiencies in time management can undermine customer loyalty.

Consumer behavior studies in Iran's FMCG market by Miremadi and Faghani (2012) indicate that product features such as packaging and perceived effectiveness significantly influence purchasing decisions. The study also emphasizes that trust, perceived value, and satisfaction form the foundation of brand loyalty, all of which are closely tied to timely delivery in e-commerce settings.

Musalem et al. (2022) explore operational strategies in service platforms, particularly the trade-off between agent retention and customer responsiveness. Their model shows that while faster response times boost conversion rates, overstaffing can reduce agent utilization, leading to dissatisfaction and higher attrition among workers. This highlights the need to balance operational efficiency with workforce morale, especially in gig-based service models like quick commerce.

3. Research Methodology

3.1. Research Design

This study employs a quantitative research design to examine the impact of waiting time on customer satisfaction in quick commerce services. It also investigates the role of compensation strategies—such as discounts or refunds—as a moderating factor that may reduce dissatisfaction caused by delays. Data is collected through a structured, self-administered questionnaire containing closed-ended and Likert-scale questions to ensure measurable results. The approach allows for statistical analysis to test relationships and provide actionable insights for improving service quality.

3.2. Target Population

The target population includes customers who have experienced varying waiting times while availing quick commerce services.

3.3. Sampling Method

The sampling technique employed in this study is convenience sampling, which involves collecting data from respondents who are easily accessible and willing to participate. This method was selected due to its practicality and efficiency which enabled the researcher to reach a sufficient number of participants quickly while still ensuring relevance to the study's focus on customers of quick commerce services.

3.4. Sample Size

A total of 60 respondents participated in the survey.

3.5. Data Collection

Data was collected through an online survey conducted over a three-week period to allow ample time for participation and follow-up. A structured questionnaire served as the primary data collection instrument and was designed based on validated constructs and prior academic literature to ensure reliability and relevance. Prior to full deployment, the questionnaire underwent pilot testing with a small group of respondents to assess clarity, ease of understanding, and design quality. Based on the feedback, minor adjustments were made.

The questionnaire was divided into four main sections:

- **Demographic Details:** Included variables such as age, gender, occupation, frequency of quick commerce usage, and the preferred service provider.
- **Waiting Time:** Measured using Likert-scale items assessing expected vs. actual delivery time, subjective perceptions, and satisfaction related to wait durations.
- **Customer Satisfaction:** Captured overall satisfaction, likelihood of future use after delays, willingness to recommend the service, and the effect of unmet expectations on satisfaction.
- **Compensation Strategies:** Assessed whether compensation was offered, the type of compensation (e.g., discounts or refunds), and its effect on perceived fairness and value.

Most items used a five-point Likert scale, ranging from "Strongly Disagree (1)" to "Strongly Agree (5)," enabling respondents to express degrees of agreement and providing data suitable for statistical analysis.

The survey was distributed through Google Forms, shared via academic groups and institutional mailing lists to ensure accessibility and broad participation. Ethical considerations were upheld by maintaining anonymity and confidentiality. Participants were informed about the voluntary nature of the study, and informed consent was obtained before beginning the questionnaire.

3.6. Analysis Technique

Data was analyzed using SPSS (Statistical Package for the Social Sciences). The analysis comprised both descriptive and inferential statistics, aligned with the study's objectives.

3.6.1. Descriptive Statistics

Descriptive analysis provided an overview of the sample. This included:

- Frequencies and percentages for categorical variables (e.g., gender, occupation, frequency of service usage).
- Measures of central tendency (mean, median, mode) and dispersion (standard deviation) for continuous variables such as perceived waiting time and satisfaction.

3.6.2. Inferential Statistics

To examine relationships between variables and test the study's hypotheses, the following methods were used:

Multiple Linear Regression Analysis

Evaluated the effect of waiting time (independent variable) on customer satisfaction (dependent variable). Output included:

- R^2 values: Explained variance in satisfaction.
- Beta coefficients: Indicated the strength and direction of relationships.

- p-values: Assessed statistical significance of predictors.

Normality Testing

The Shapiro-Wilk test was conducted to assess normality of variable distributions. Histogram plots were also examined. A p-value > 0.05 indicated that data did not significantly deviate from normal distribution, supporting the use of parametric tests.

Correlation Analysis

Pearson’s correlation coefficient measured the strength and direction of linear relationships between variables such as waiting time and customer satisfaction. Values ranged from -1 to +1, indicating negative to positive correlations.

4. Results and discussions

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Compensation_Strategy	.063	60	.200 [*]	.983	60	.557
Customer_Satisfaction	.112	60	.057	.976	60	.273
Waiting_Time	.109	60	.074	.967	60	.106

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Figure 1 SPSS Tests of Normality Output for Key Study Variable

Correlations			
		Customer_Satisfaction	Waiting_Time
Customer_Satisfaction	Pearson Correlation	1	-.281 [*]
	Sig. (2-tailed)		.030
	N	60	60
Waiting_Time	Pearson Correlation	-.281 [*]	1
	Sig. (2-tailed)	.030	
	N	60	60

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 2 Pearson Correlation Between Customer Satisfaction and Waiting Time

H1: Increased waiting time has a negative effect on customer satisfaction.

To investigate the relationship between waiting time and customer satisfaction, a Pearson correlation analysis was performed. The correlation coefficient obtained between **Customer Satisfaction** and **Waiting Time** is **-0.281**, which indicates a **moderate negative correlation** between the two variables. This suggests that as the waiting time increases, customer satisfaction tends to decrease, although the relationship is not extremely strong.

The significance value (**p-value**) for the correlation is **0.030**, which is **less than the standard significance level of 0.05**. This implies that the observed negative correlation is statistically significant at the 0.05 level, meaning the likelihood that this relationship is due to random chance is low.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.627 ^a	.393	.372	.32306

a. Predictors: (Constant), Compensation_Strategy, Waiting_Time

Figure 3 Regression Model Summary Predicting Customer Satisfaction

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.532	.334		4.586	<.001
	Waiting_Time	-.229	.107	-.324	-2.136	.037
	Compensation_Strategy	.707	.130	.825	5.435	<.001

a. Dependent Variable: Customer_Satisfaction

Figure 4 Regression Coefficients for Waiting Time and Compensation Strategy Predicting Customer Satisfaction

H2: Offering compensation for waiting moderates the negative impact, but the improvement in customer satisfaction is marginal.

To examine the second alternate hypothesis (H2)—which posits that compensation strategy moderates the negative impact of waiting time on customer satisfaction—a multiple linear regression analysis was performed using Waiting Time and Compensation Strategy as independent variables and Customer Satisfaction as the dependent variable.

The model summary indicates an R value of 0.627 and an R² value of 0.393, meaning that approximately 39.3% of the variance in customer satisfaction can be explained by the model incorporating both waiting time and compensation strategy. The adjusted R² of 0.372 confirms that the model remains reliable even after accounting for the number of predictors. The standard error of the estimate is 0.32306, indicating a relatively low average deviation of the observed values from the predicted values.

The coefficients table provides further insight into the predictive power of each variable:

- Waiting Time has an unstandardized coefficient (B = -0.229) with a significant p-value (< .001). This confirms that, holding compensation constant, an increase in waiting time negatively affects customer satisfaction.
- Compensation Strategy shows a strong positive unstandardized coefficient (B = 0.707) and is also statistically significant (p < .001), indicating that effective compensation strategies significantly improve customer satisfaction.
- The Beta value for Compensation Strategy (0.825) is much higher than that of Waiting Time (-0.324), suggesting that compensation plays a stronger role in predicting customer satisfaction compared to the negative effect of waiting time.

5. Discussion

This study investigated the negative impact of waiting time on customer satisfaction and examined whether compensation moderates this relationship. The results clearly indicate that increased waiting time significantly reduces customer satisfaction. Customers experiencing longer delays reported lower levels of satisfaction, reaffirming the well-established notion that waiting, especially when unanticipated or unexplained, detracts from the overall service experience.

Importantly, the study also found that compensation—such as apologies, discounts, or complimentary services—serves as a moderating factor. While compensation did improve satisfaction levels among customers who experienced delays, its effect was only partial. That is, although compensation helped reduce the dissatisfaction caused by waiting, it did not entirely offset the negative experience. This finding suggests that compensation acts as a mitigating factor rather than a complete remedy.

These results are in line with the Expectation-Disconfirmation Theory, which states that customer satisfaction is influenced by the gap between expectations and actual service experiences. Customers expect efficient service, and long waiting times result in a negative disconfirmation of those expectations. Compensation can partially bridge this gap, aligning with Equity Theory, which suggests that customers assess fairness in transactions. When they feel compensated fairly for their inconvenience, their sense of satisfaction is restored to some extent.

From a practical perspective, these findings emphasize the importance for service providers to minimize waiting times through operational efficiency, accurate time estimations, and transparent communication. When waiting is unavoidable, timely and appropriate compensation can play a crucial role in maintaining customer satisfaction. Businesses should tailor the type and form of compensation based on the context, severity of the delay, and customer expectations.

While compensation has a moderating effect on the relationship between waiting time and customer satisfaction, it cannot completely eliminate the negative impact of delays. Businesses should prioritize efficient service delivery while using compensation strategically to maintain customer trust and satisfaction.

5.1. Inference

5.1.1. H1

The negative correlation between waiting time and customer satisfaction supports the first alternate hypothesis (H1), which posits that increased waiting time negatively affects customer satisfaction. With a Pearson correlation coefficient of -0.281 and a significance level of 0.030, we can confidently conclude that there is a statistically significant negative relationship between the two variables. This finding suggests that reducing waiting time could potentially enhance customer satisfaction, and businesses should consider strategies to minimize delays in service to improve customer experiences.

The strength of the correlation is moderate, indicating that while the waiting time has an influence on customer satisfaction, other factors may also contribute to customer satisfaction levels. Therefore, while waiting time is an important factor, it is essential to consider other variables and potential interactions in a broader context when analyzing overall customer satisfaction.

Additionally, it's important to note that satisfaction responses may also be influenced by the constraint of limited competition in the quick commerce sector. With only a few major applications dominating the market, consumers may have limited choices, which could shape their satisfaction levels regardless of waiting time. In this context, some customers may express a higher tolerance for waiting, knowing that alternatives are scarce or offer similar service experiences. This factor should be considered when interpreting customer satisfaction responses, as market competition could potentially impact perceptions of waiting time.

5.1.2. H2

The results strongly support the second alternate hypothesis (H2). The significant and positive influence of compensation strategy on customer satisfaction, alongside the persistent negative effect of waiting time, suggests that compensation can act as a moderating variable. This means that even if customers experience delays, their dissatisfaction can be effectively reduced if appropriate compensation strategies—such as discounts, refunds, apologies, or loyalty rewards—are provided.

Moreover, the high beta value of the compensation strategy demonstrates its potential to offset or buffer the negative impact of waiting time. In practical terms, this highlights a critical insight for businesses: rather than solely focusing on reducing wait times, implementing proactive and meaningful compensation mechanisms can help preserve or even enhance customer satisfaction.

It's also essential to acknowledge the broader market context. In the quick commerce sector, with limited major players, customers may have fewer alternative options and might perceive compensation more positively. The psychological

value of being acknowledged through compensation may therefore carry greater weight in retaining customer goodwill, particularly in a competitive yet narrow market landscape.

In conclusion, the regression analysis confirms that compensation strategy significantly moderates the negative relationship between waiting time and customer satisfaction, validating H2. Businesses should thus strategically invest in compensation frameworks not just as a reactive measure, but as a core component of customer relationship management.

5.2. Limitations

The sample size (n = 60) is relatively small, which may limit the statistical power and generalizability of the findings. The use of non-random (convenience) sampling could lead to selection bias. The data collected was based on self-reported perceptions, which may be subject to personal bias. The sample was also limited to a specific demographic group, which may affect the generalizability of the findings. Future research could explore industry-specific implications, differences across cultural contexts, and the effectiveness of different types of compensation (e.g., monetary vs. non-monetary).

5.3. Ethical consideration

Participants were informed about the purpose of the study, assured of the confidentiality of their responses, and participation was voluntary. No personally identifiable information was collected. The research adhered to ethical guidelines for human subject research

6. Conclusion

This study set out to examine the impact of waiting time on customer satisfaction in the context of quick commerce and to explore the moderating role of compensation strategies. Through the use of structured questionnaires and statistical analysis via SPSS, the research has produced meaningful insights into customer perceptions and behavioral patterns.

The findings from the correlation analysis confirmed a statistically significant negative relationship between waiting time and customer satisfaction, thereby supporting the first hypothesis (H1). This underscores the critical need for quick commerce platforms to minimize delays in order to retain and satisfy their customers.

Furthermore, the multiple regression analysis revealed that compensation strategies not only have a strong positive influence on customer satisfaction but also significantly moderate the negative impact of waiting time, thus validating the second hypothesis (H2). This indicates that while long waiting times can negatively affect customer satisfaction, effective compensation mechanisms can serve as a powerful tool to buffer or even reverse that dissatisfaction.

Additionally, it is important to consider the unique characteristics of the quick commerce sector, where limited competition may influence customer expectations and satisfaction responses. Consumers may demonstrate a level of tolerance toward service issues if appropriate compensatory responses are in place, especially when alternative service providers are few.

Overall, this study highlights that both operational efficiency and customer-centric recovery strategies are essential in managing customer satisfaction in fast-paced service environments. Future research can expand on this by incorporating a broader sample size, exploring additional mediators and moderators, or conducting longitudinal studies to assess how these relationships evolve over time.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest to be disclosed.

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