

Flash Sales - Only A Few Left, Limited Time Offers and Scarcity's Influence on Consumer Buying Behavior.

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ABSTRACT

This study investigates the psychological impact of limited-time offers and scarcity marketing on consumer anxiety and purchasing behaviour. The analysis reveals that these tactics effectively drive impulse purchases, with a significant portion of respondents reporting feelings of pressure and stress when exposed to scarcity messaging. Despite widespread skepticism toward these tactics, many consumers continue to seek out limited-time deals, highlighting their effectiveness in creating a sense of urgency and influencing purchasing decisions.

The findings suggest that while scarcity marketing is successful in driving sales, it can also lead to negative emotional outcomes such as anxiety and regret. The study's results from linear regression and ANOVA analyses indicate that the relationship between scarcity marketing and consumer anxiety is complex, influenced by various factors beyond just the frequency of impulse purchases. Key implications for businesses include the need to balance the use of scarcity marketing with ethical considerations to maintain consumer trust and avoid negative brand perceptions. Future research directions should focus on adapting scarcity marketing to be more consumer-friendly and sustainable.

Key Words: Scarcity Marketing, Consumer Anxiety, Impulse Purchases, Ethical Marketing, Digital Commerce.

INTRODUCTION

In today's highly competitive market, businesses continuously seek strategies to capture consumer attention and drive sales. Among the most influential tactics are limited-time offers (LTOs) and scarcity marketing, which create a sense of urgency and exclusivity. These strategies—commonly seen in "flash sales," "only a few lefts," and "limited stock available" messages—exploit psychological principles such as fear of missing out (FOMO) and perceived value enhancement to encourage immediate purchases. While these techniques have been proven effective in boosting short-term sales, their psychological impact on consumers remains a subject of increasing scrutiny.

Scarcity marketing operates on the premise that limited availability increases desirability. Consumers often interpret scarcity as a signal of high demand or superior quality, making them more inclined to act quickly. However, beyond its commercial success, this strategy can lead to heightened consumer anxiety, stress, and post-purchase regret. Many consumers experience psychological pressure when confronted with time-sensitive deals, often making impulsive purchasing decisions driven by emotions rather than rational consideration. This raises important questions about the

ethical implications of such marketing practices and their long-term effects on consumer well-being and brand perception.

This research aims to investigate the psychological effects of scarcity marketing, focusing on how these tactics influence consumer stress levels, decision-making processes, and overall shopping behaviour. Using a combination of linear regression and ANOVA analyses, this study examines the extent to which scarcity-driven marketing contributes to consumer anxiety and whether external factors—such as prior shopping experiences, personality traits, and digital commerce trends—moderate this relationship. By exploring both the benefits and drawbacks of scarcity marketing, this study seeks to provide insights for businesses on how to balance profitability with ethical marketing practices. The findings will be crucial in understanding how to refine these strategies to maintain consumer trust while maximizing engagement and sales.

PROBLEM STATEMENT

This study examines the psychological impact of scarcity marketing tactics, such as limited-time offers and flash sales, on consumer anxiety and purchasing behaviour. While these strategies effectively drive sales by creating urgency, they may also induce stress, fear of missing out (FOMO), and post-purchase regret. Despite their widespread use, the emotional consequences of these tactics remain underexplored. This research aims to analyse the link between scarcity marketing, impulse buying, and consumer stress, providing insights for businesses to balance effective sales strategies with ethical considerations and long-term customer trust.

REVIEW OF LITERATURE

Scarcity marketing has been widely studied across various contexts, highlighting its influence on consumer behaviour, decision-making, and psychological responses. Broeder and Wentink (2022) found that limited-time offers heighten competitive arousal, leading to impulsive purchases in e-commerce settings. Similarly, Föbker (2018) examined gender differences in responses to scarcity messages in hotel booking apps, confirming their effectiveness in driving bookings. Harikrishnan et al. (2022) explored how scarcity promotions can escalate consumer aggression, emphasizing the negative consequences of competition-driven scarcity.

Meta-analyses by Oruc (2015) and systematic reviews by Kuba (2022) synthesized findings on scarcity's impact on consumer perceptions and behaviours, highlighting variations across product categories and digital commerce environments. Jang et al. (2015) and Huang et al. (2022) demonstrated how scarcity enhances perceived value and desirability, particularly for limited-edition products and service firms. Additionally, Hamilton et al. (2019) developed an integrative framework outlining scarcity's role across consumer decision-making stages, while Nguyen (2021) explored its psychological impact, including stress and cognitive load.

Studies on advertising and promotions (Kim et al., 2021; Al Hitmi, 2022) revealed that scarcity-based ad strategies improve recall and engagement but may also intensify consumer pressure. Research by Weiyi (2022) and Ramberran (2023) showed that perceived price discounts and time constraints in online promotions significantly drive impulsive purchases and loyalty. Meanwhile, Phan and Hoai (2025) and Zhou (2024) investigated FOMO and emotional experiences, confirming their role in scarcity-driven purchasing decisions in collectible markets and live-streaming e-commerce.

Overall, existing literature underscores the effectiveness of scarcity marketing in driving consumer urgency and sales, but also highlights concerns regarding consumer anxiety, impulsive buying, and ethical considerations. This study builds on these findings to explore the psychological impact of scarcity tactics and their implications for marketing strategies.

RESEARCH OBJECTIVES

1. To assess the psychological impact of limited-time offers on consumer anxiety levels.
2. To analyse the effectiveness of scarcity marketing in driving impulse purchases.
3. To evaluate consumer perceptions of brands that frequently use scarcity tactics.
4. To measure the correlation between perceived scarcity and product desirability.
5. To identify the most effective types of scarcity messages in influencing consumer behaviour.
6. To examine the long-term effects of scarcity marketing on brand loyalty and trust.

RESEARCH METHODOLOGY

This study focuses on online retail environments where scarcity marketing tactics are prevalent. It targets adult consumers (18-65) who shop online and covers various product categories. A mixed-method approach is used, incorporating surveys, experiments, and focus groups to analyse the psychological and behavioural effects of scarcity marketing.

Research Hypotheses

- **H1:** Scarcity marketing tactics significantly increase consumer anxiety levels.
- **H0:** Scarcity marketing tactics do not significantly affect consumer anxiety levels.

Research Design

A mixed-method approach is employed, combining descriptive and exploratory research. Quantitative methods, such as surveys and controlled experiments, measure consumer responses, while qualitative focus groups explore deeper psychological impacts.

Data Collection Methods

- **Primary Data:** Collected via online surveys (150 respondents), controlled shopping experiments, and focus groups.
- **Secondary Data:** Derived from academic research, marketing reports, and industry publications.

Sampling Plan

- **Sampling Unit:** Online shoppers (18-65 years).
- **Sample Size:** 150 responses.
- **Sampling Technique:** Stratified random sampling for diverse representation.

Data Collection Tools & Techniques

- **Survey:** Structured questionnaire with Likert-scale responses.

- **Observation:** Controlled online shopping simulations.
- **Focus Groups:** Discussions to understand consumer perceptions of scarcity tactics.

DATA ANALYSIS AND INTERPRETATION

Demographic Analysis

Table 1: Age Group Distribution of Respondents

Age Group	No. of Respondents	Percentage (%)
18-24	42	28.0%
25-34	53	35.3%
35-44	29	19.3%
45-54	18	12.0%
55+	8	5.3%
Total	150	100.0%

- **Interpretation:** The majority of respondents are young adults (25-34), who are likely digitally active and familiar with online shopping environments.

Table 2: Gender Distribution of Respondents

Gender	No. of Respondents	Percentage (%)
Male	78	52.0%
Female	64	42.7%
Non-binary/Third gender	5	3.3%
Prefer not to say	3	2.0%
Total	150	100.0%

- **Interpretation:** The sample has a relatively balanced gender distribution, providing insight into how scarcity marketing affects different gender groups.

Consumer Behaviour Trends

Table 3: Online Shopping Frequency

Frequency	No. of Respondents	Percentage (%)
Daily	14	9.3%
Weekly	63	42.0%

Monthly	48	32.0%
Few times a year	22	14.7%
Rarely/Never	3	2.0%
Total	150	100.0%

- **Interpretation:** A majority shop online regularly (weekly or monthly), making them highly exposed to scarcity marketing tactics.

Table 4: Pressure from Limited-Time Offers

Response	No. of Respondents	Percentage (%)
Strongly Disagree	7	4.7%
Disagree	19	12.7%
Neutral	32	21.3%
Agree	68	45.3%
Strongly Agree	24	16.0%
Total	150	100.0%

- **Interpretation:** A majority (61.3%) feel pressured to buy when exposed to scarcity messages, confirming their effectiveness in creating urgency.

Table 5: Impulse Purchases from Flash Sales

Response	No. of Respondents	Percentage (%)
Strongly Disagree	5	3.3%
Disagree	12	8.0%
Neutral	23	15.3%
Agree	76	50.7%
Strongly Agree	34	22.7%
Total	150	100.0%

- **Interpretation:** Over 73% of respondents admit to making impulse purchases due to scarcity tactics, validating their strong influence on consumer behaviour.

Table 6: Regret After Time-Limited Purchases

Response	No. of Respondents	Percentage (%)
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Strongly Disagree	9	6.0%
Disagree	24	16.0%
Neutral	46	30.7%
Agree	54	36.0%
Strongly Agree	17	11.3%
Total	150	100.0%

- **Interpretation:** 47.3% of respondents regret purchases influenced by scarcity marketing, suggesting potential drawbacks in consumer experience.

Table 7: Trust in Scarcity Messaging

Response	No. of Respondents	Percentage (%)
Strongly Disagree	22	14.7%
Disagree	47	31.3%
Neutral	41	27.3%
Agree	31	20.7%
Strongly Agree	9	6.0%
Total	150	100.0%

- **Interpretation:** A majority (46%) distrust scarcity messaging, indicating consumer scepticism about these marketing tactics.

Financial Impact

Table 8: Spending More Due to Time-Sensitive Promotions

Response	No. of Respondents	Percentage (%)
Strongly Disagree	6	4.0%
Disagree	15	10.0%
Neutral	27	18.0%
Agree	73	48.7%
Strongly Agree	29	19.3%
Total	150	100.0%

Interpretation: 68% of respondents admit to spending more than intended due to scarcity marketing, confirming its role in increasing consumer expenditure.

The data analysis reveals that scarcity marketing significantly influences consumer behaviour by increasing pressure, driving impulse purchases, and affecting spending habits. While these tactics create urgency, they also lead to post-purchase regret and growing consumer scepticism. These insights highlight the psychological and financial impact of limited-time offers and scarcity messaging on online shoppers.

Hypotheses

- **H1 (Alternative Hypothesis):** Limited-time offers and scarcity marketing tactics significantly increase consumer anxiety levels.
- **H0 (Null Hypothesis):** Limited-time offers and scarcity marketing tactics do not significantly affect consumer anxiety levels.

Linear Regression Analysis

To assess the impact of scarcity marketing on consumer anxiety, a linear regression model was applied. The model fit statistics indicate that the regression model does not significantly explain the variation in consumer anxiety levels ($R^2 = 0.142$, Adjusted $R^2 = 0.0393$, $F(16, 133) = 1.38$, $p = 0.160$). This suggests that scarcity marketing and limited-time offers do not have a substantial predictive power over consumer anxiety levels.

Model Coefficients

The coefficients for key predictors related to limited-time offers and scarcity marketing messages were analysed. None of the predictors demonstrated statistically significant effects on consumer anxiety, as all p-values exceeded the conventional threshold of 0.05.

- **Limited-Time Offers & Scarcity Messages:**
 - The predictor variables measuring reactions to limited-time offers (e.g., "Only a few lefts!") showed negative but non-significant effects on consumer anxiety (e.g., $\beta = -0.892$, $p = 0.051$).
 - Responses related to impulse purchases due to limited-time offers also failed to yield significant coefficients (e.g., $\beta = 0.002$, $p = 0.997$).
 - Trust in scarcity messages did not significantly correlate with consumer anxiety (e.g., $\beta = 0.337$, $p = 0.239$).
- **Cook's Distance:**
 - The Cook's distance values indicate no high-leverage points affecting the model, as the maximum value observed (0.154) is within acceptable limits.

ANOVA Analysis

A one-way ANOVA was conducted to examine whether consumer anxiety levels differ based on impulse purchases due to limited-time offers. Both Welch's ANOVA ($F = 1.03$, $p = 0.412$) and Fisher's ANOVA ($F = 0.966$, $p = 0.428$) suggest no statistically significant differences in consumer anxiety across different groups.

Descriptive Statistics

- The mean consumer anxiety scores across groups ranged from **3.26 to 3.83**, with no clear trend suggesting a significant increase due to scarcity marketing.

- Standard deviations and standard errors were relatively consistent across groups, reinforcing the lack of significant variation.

The hypothesis testing results suggest that limited-time offers and scarcity marketing tactics do not significantly contribute to increased consumer anxiety levels. The regression analysis demonstrated a low explanatory power for consumer anxiety, and the ANOVA results confirmed no significant differences between groups exposed to scarcity-driven marketing tactics. These findings indicate that while scarcity messages and limited-time offers may influence purchasing behaviour, their direct psychological impact on anxiety levels appears to be minimal.

Further research with a larger sample size or alternative methodologies (e.g., experimental designs, physiological stress measures) could provide deeper insights into the psychological effects of scarcity marketing.

RESEARCH OUTCOMES

1. The study sample consists of a diverse age group, with the majority (35.3%) falling in the 25-34 age bracket, followed by 28.0% in the 18-24 range, indicating a young adult dominance in online shopping behaviors.
2. Males constitute 52.0% of the sample, while females make up 42.7%, showing a slight male majority among respondents, which could influence how different genders respond to scarcity marketing.
3. A significant portion (37.3%) of respondents hold a Bachelor's degree, indicating a well- educated sample that might be more discerning about marketing tactics.
4. The majority (34.7%) of respondents have a monthly disposable income between 20000- 30000, suggesting moderate financial capacity that could be influenced by scarcity marketing.
5. Weekly online shoppers form the largest group at 42.0%, indicating frequent exposure to online marketing strategies like scarcity tactics.
6. A substantial 45.3% of respondents agree that they feel pressured to buy when seeing limited-time offers, highlighting the effectiveness of these tactics in creating urgency.
7. A significant 50.7% of respondents admit to making impulse purchases due to limited- time offers, demonstrating the strong influence of scarcity marketing on purchasing decisions.
8. Approximately 41.3% of respondents experience stress or anxiety during flash sales, indicating that scarcity marketing can have negative emotional impacts on consumers.
9. Seeing scarcity messages compels 47.3% of respondents to feel like they must buy immediately, showing how these tactics create a sense of urgency.
10. About 36.0% of respondents regret purchases made under time pressure, suggesting that while scarcity marketing drives sales, it can lead to post-purchase dissatisfaction.
11. Only 20.7% of respondents trust scarcity messaging, while 31.3% disagree with trusting such messages, indicating widespread skepticism toward these tactics.
12. A notable 38.0% of respondents actively seek out limited-time deals, indicating that despite skepticism, many consumers find value in these promotions.
13. Approximately 32.7% of respondents avoid websites using high-pressure sales tactics, suggesting that aggressive marketing can deter consumers.
14. A significant 48.7% of respondents admit to spending more than intended due to time- sensitive promotions, highlighting the financial impact of scarcity marketing.
15. About 42.7% of respondents believe that scarcity marketing influences their perception of a product's value, demonstrating how these tactics can alter consumer perceptions.
16. The regression model did not strongly support the hypothesis that scarcity marketing significantly increases consumer anxiety, with a low R^2 and non-significant p-value, suggesting that other factors may influence anxiety levels more significantly.
17. The ANOVA test showed no significant difference in consumer anxiety across different categories of impulse purchases, indicating that anxiety levels may not be directly influenced by the frequency of such purchases.

18. The data reveals a high level of skepticism toward scarcity messaging, with many respondents expressing distrust and avoiding websites that use aggressive tactics, which could impact the long-term effectiveness of these marketing strategies.

19. The findings highlight the emotional impact of scarcity marketing, with significant portions of respondents experiencing stress, anxiety, and regret, which could have implications for consumer well-being and brand loyalty.

CONCLUSION

This study investigated the effects of limited-time offers and scarcity marketing on consumer anxiety and purchasing behaviour. The findings suggest that while these tactics are highly effective in driving impulse purchases and creating urgency, they also contribute to consumer stress, anxiety, and post-purchase regret. A significant proportion of respondents reported feeling pressured by scarcity messaging, with many experiencing stresses during flash sales.

Despite the widespread scepticism toward scarcity marketing, a considerable number of consumers continue to seek out limited-time deals, demonstrating the strategy's effectiveness in boosting sales. However, the findings also indicate that overuse or inauthentic application of scarcity tactics can erode consumer trust and negatively impact brand perception.

The results from linear regression and ANOVA analyses suggest that while scarcity marketing influences purchasing behaviour, its direct impact on anxiety levels is more complex and influenced by multiple factors. Anxiety may not be solely attributable to scarcity tactics but could be shaped by individual differences, financial constraints, and prior experiences with such marketing strategies. Given these insights, businesses must balance the use of scarcity marketing with ethical considerations to maintain long-term consumer relationships. By ensuring authenticity and transparency in scarcity claims, companies can leverage these tactics effectively while protecting consumer well-being.

FUTURE RESEARCH SCOPE

Future research should explore how different demographics respond to scarcity marketing, the impact of digital fatigue on scarcity tactics, and strategies for balancing effectiveness with consumer well-being. Additionally, examining the role of social media in amplifying scarcity effects and developing ethical guidelines for scarcity marketing could provide valuable insights.

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