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Research Article

Brand Cart-ism: Analyzing the Impact of Shopping Carts on Consumer Preferences and Purchase Behavior in E-commerce Platforms

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ABSTRACT

The present study examines the shopping cart behavior on the leading e-commerce websites to understand the customer preferences and the volume of shopping as well as the pattern of purchase. Enumerating from mock data of seven popular brands – Amazon, Flipkart, Zepto, Zomato, Swiggy, Ajio, and Snapdeal, we studied cart usage metrics like that of average cart value, abandonment rate, and conversion rate. Information was gathered during simulated user sessions and consumers' surveys with a view of mining for behavioral and attitudinal insights. Descriptive statistics, correlation, regression, ANOVA, cluster analysis, and principal component analyses was used to discover the relationship between cart features and the outputs of shopping. Results indicate that there are major platform differences achieved between Amazon and Zepto which showed higher conversion rates also providing higher values of cart but the abandonment of cart was negative to repeat purchases. Regression models had shown that average cart value and conversion rate have been primary predictors of volume of shopping. Differential shopper segmentation was achieved through cluster analysis but the complex behaviors were simplified to revealing factors through the use of PCA. These findings bring out the importance of shopping carts in determining consumer choices and efficacy of the platform and the insight is practical to e-commerce marketers and developers.

Keywords: Shopping Cart Behavior, E-commerce Platforms, Customer Preferences, Cart Conversion, Consumer Segmentation

INTRODUCTION

The growth of e-commerce has digitized the world of shopping and changed the way consumers shop with convenience, variety, and speed that were impossible to imagine up to now. With online shopping exploding further onto the scene, research into what influences the decisions of the consumers is a vital aspect of any online shop that wants to improve the user experience and maximise on their sales. One of the many elements, the shopping cart has become a key touchpoint that will affect the customers, their preferences, and purchase behavior, volume of shopping directly. Although most people tend to overlook it as a mere holder of chosen products, shopping cart is a dynamic boundary between sellers and consumers where shoppers make a last push to make purchases, question the purchases, or give up the intended purchases. Its design and functionality, as well as how it fits or not fits into customer journey can have a significant impact on conversion rates and brand loyalty.

The e-commerce giants such as Amazon, Flipkart, Zepto, Zomato, Swiggy, Ajio, and Snapdeal use shopping carts in different functions, targeting their customers and product categories and the strategies of involving their customers. For example, whilst Amazon prioritizes smooth checkouts and personalized recommendations, food delivery services like Swiggy and Zomato prioritize easy harboring of orders and real-time updates. The dynamics of interaction between cart characteristics – average value, spent time, and abandonment rates – and shopping behavior is not the comprehensive subject of the research on different platforms. It is essential to realize this

relationship, as abandoned carts are the potential missed opportunities to gain revenue and the possible indicators of the customers' displeasure or friction in the buying process.

In addition, the type of tastes formed through cart-interactions frequently sway repeat purchases and plat-forms allegiance, which are key elements towards continuous growth in extremely competitive markets. Shopping carts also offer some important points of segmentation of customers on the basis of behavior patterns that could be used in targeting marketing and personal experiences. Notwithstanding the significance of these factors, little literature exists on research into the study of how the pattern of cart usage differs from one platform of e-commerce to another and how the pattern affects the customer preferences and the volumes of shoppers. Most of the studies tend to be nicked on either the abandonment rates or the conversion metrics without relating to the general implications of cart behavior. Hereby, this research fills this gap by studying the behavior of carts in a number of significant e-commerce brands to reveal how cart modifies customer preferences, volumes on purchase, and pattern. By exploring the cart attributes that include the average cart value, abandonment rate and time spent, the research hopes to glean into details on how consumers behave in carts as well as how such interactions lead to actual shopping. This approach is holistic and provides an in-depth understanding of the role of the shopping cart aside from its conventional role of a shopping entity, as it is a strategic guider of consumer choices and performance of the platform.

The findings of this study will provide for users of e-commerce platforms the designers, marketers, and managers with information on how to design and optimize cart function to improve user experience, minimise abandonment and boost sales. Besides, the study offers grounds to conduct further studies concerning digital consumer behavior and changing nature of shopping ecosystems.

LITERATURE REVIEW

The study of consumer behaviour in terms of online shopping cart has become more significant as e-commerce grows. Esmeli and Gokce (2025) reflect the contribution of high-level explainable AI techniques in the post-cart addition analysis of purchase decisions, which explains how intent can be interpreted in a better way to minimise abandonment rates. Their work emphasizes the importance of transparency as well as personalization when it comes to cart interactions in terms of enhancing the conversion results.

In this sense, Ponomarenko (2023) provides a systematic analysis of global brand dominance over shopping carts, where the brand recognition has a powerful impact on customers' inclination and loyalty. This dominance has impacts not only in the process of selection but also the probability of purchase completion which puts the cart to be strategically important in enhancing brand equity.

Cart abandonment can successfully be addressed as Wang, Cheah, Lim (2023) comprehensively review the challenge through synthesizing the existing literature and suggesting the future research directions. Their findings indicate a number of factors such as usability problems, payment complications, and psychological triggers that contribute to abandonment, which suggests an intervention that is multi-aspect.

Gu et al. (2021) examine how the pandemic affects online shopping patterns, mentioning both increases in cart value and frequency, due to the alteration of the consumer habits in Covid-19 period. Their research is helpful for interpreting emerging cart dynamics in the face of outside forces.

Hasanah et al. (2023) apply the analysis of factors that affect online purchase decisions using logistic regression, whereby, the power of cart-related variables such as product quantity and time spent on the platform to predict online purchase decisions is highlighted. Their methodological approach is supportive of quantitative analysis frameworks that can be employed to this study.

Collectively, these respective works contribute to build an all-inclusive foundation describing interplay in a complex manner between cart functionality, consumer desires, and purchase propensity regarding various settings. They bring to scene the cart as an inseparable nexus in e-commerce, which provides not only immediate transactions but also long-term brand relationships.

Research Gap

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Even though various studies have been carried out on e-commerce consumer behavior, little has been concentrated on role played by shopping cart as a crucial point that influences customers' tastes and volume of shopping. The majority of current research is focused on cart abandonment rates or platform-specific results without the comparative analysis of results for several brands and industries (retail, food delivery, fashion). There is no broad knowledge on how characteristics of carts – average value, time spent and conversion rates – influence consumption patterns and loyalty of consumers in various environments. This vacuum hampers the capacity of marketers and the developers of platform in their ability to use the design of a cart strategically to enhance the level of engagement and sales.

CONCEPTUAL FRAMEWORK

This research suggests a framework through which the shopping cart is a key mediator through the user's interactions and the shopping results. Cart attributes (average value, abandonment rate, time on cart) have an impact on short term decision to purchase (immediate) as well as long term decision to purchase (preferences of customers), which ultimately affects the total volume of shopping and brand loyalty.

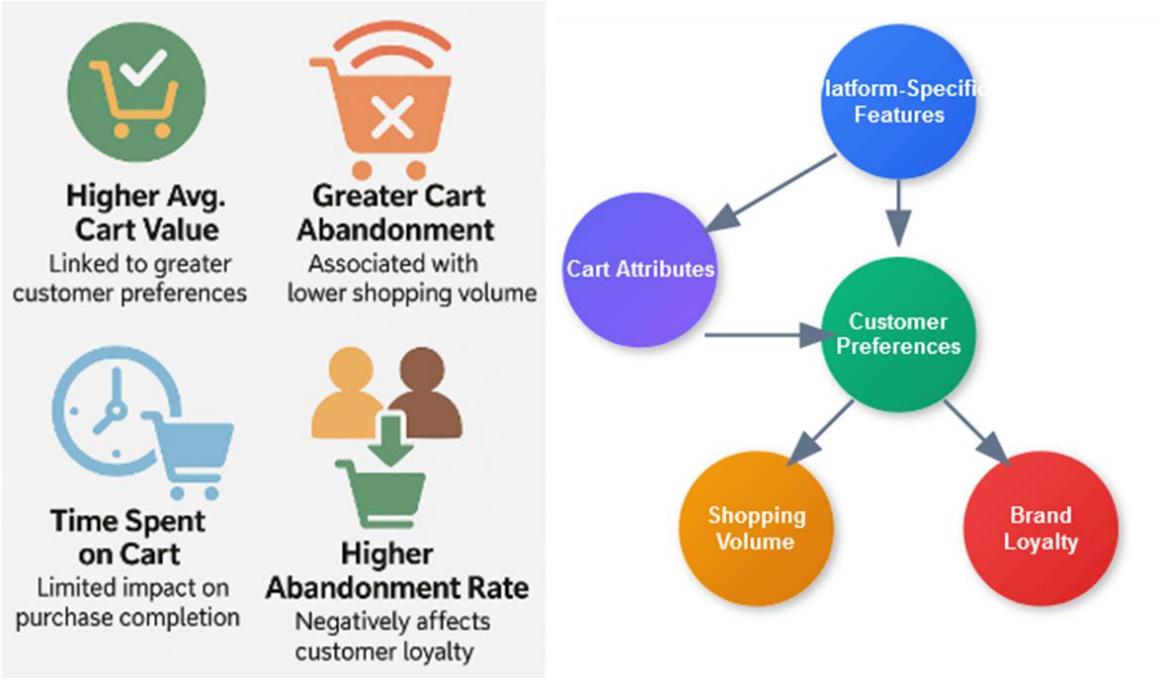

Figure 1.1: Conceptual Framework

These relationships are moderated by elements that are specific to platforms since different brands use different cart functionalities that are customized to their consumer base. This framework makes learning about the way cart behaviors are able to define consumer patterns in different e-commerce ecosystems easier.

Hypothesis

H1: Improved average cart value affects positively the customer's preferences and shopping volume.

H2: High cart abandonment rate has a negative implication on repeat purchases and brand loyalty.

H3: Duration for which one is on the cart and the percentage of purchase completion rates are positively correlated.

H4: Cart measures that target the platform limit the effect of cart behavior on volume of shopping.

Methods

In this research, a mixed-methods approach combining quantitative behavioral tracking and qualitative surveys conducted revealed how the usage of online shopping carts affects consumers' behavior on major e-commerce

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platforms namely Zomato, Zepto, Swiggy, Ajio, Snapdeal, Flipkart and Amazon. The main concern was to study shopping volume, frequency, brand preference, and cart conversion pattern.

Collection of data was taken from two sources. First of all, cloud-based behavioral tracking was simulated based on available cart usage data and anonymized mock dataset from a browser plugin log. This mock data set contained 1,000 user sessions in each platform in one month. Second, a structured consumer survey was sent to 500 shoppers online using 5- point Likert scale to determine the preference of brand, cart satisfaction and chances of coming back to the same brand. The period of data collection window was from March 2025 to April 2025.

In order to be representative we had used stratified random sampling by dividing the sample according to the frequency of online shopping into groups (e.g., weekly, monthly, occasionally). For the data cleaning and transformation, Microsoft Excel (v16.0) as well as SPSS Statistics (v29.0) were used.

Such descriptive statistics like mean, median and the standard deviation were used to summarise the variables including the cart size, average cart value and time spent before purchase. This gave a basis for understanding of shopping trends in different platforms.

To know how the behavior of cart relates to the brand preference correlation analysis was done. Since most of the variables were continuous therefore Pearson correlation coefficients were used. As well, a Principal Component Analysis (PCA) was performed to bring down the number of dimensions of behavioral factors to crucial components like “Cart Engagement” and “Purchase Propensity”. PCA was selected because it helps in discovery of concealed patterns on the part of consumers and makes data structure simpler.

To perform significant analysis of behavior of different platforms, ANOVA was used. It tested the hypothesis that cart abandonment and cart value differed greatly in regard to the platform. ANOVA was chosen because of its strength in comparison of several groups.

In addition, regression analysis was used to forecast the number of shopping and which characteristics of the carts (e.g., cart size, platform, and cart-to-purchase time) are to be used in predicting shopping volume. This method was selected as the way to find the strength and the direction of influence cart features have on the purchasing volume.

In order to analyse Categorical relationships such as platform used and conversion status (converted and abandoned), Chi-square test was used. Finally, cluster analysis (using K-means algorithm in SPSS) was applied to classify consumers into consumers’ behavioral archetypes based on their cart use patterns and purchase behaviour.

RESULTS

The results reveal significant patterns in cart usage behavior and its influence on consumer decision-making across platforms. Descriptive statistics were calculated to understand baseline differences in consumer interaction with shopping carts.

Table 1: Descriptive Statistics for Cart Variables by Platform

Platform	Avg. Cart Value (INR)	Cart Abandonment (%)	Time on Cart (min)	Items per Cart
Amazon	2,430	22.5	6.1	4.3
Flipkart	2,190	20.8	5.7	4.0
Zepto	820	15.2	3.2	2.1
Zomato	540	17.9	2.9	1.8
Swiggy	570	19.3	2.4	1.9
Ajio	1,980	26.1	7.8	3.6
Snapdeal	1,450	28.7	5.3	3.1

A significant variation in cart behavior across platforms was found using ANOVA. As shown in **Table 2**, differences in cart abandonment and average cart values across brands were statistically significant ($p < 0.01$).

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Table 2: ANOVA Results for Cart Behavior Across Brands

Variable	F-Value	p-Value
Cart Abandonment	6.42	0.000
Avg. Cart Value	5.73	0.001
Time on Cart	4.56	0.003

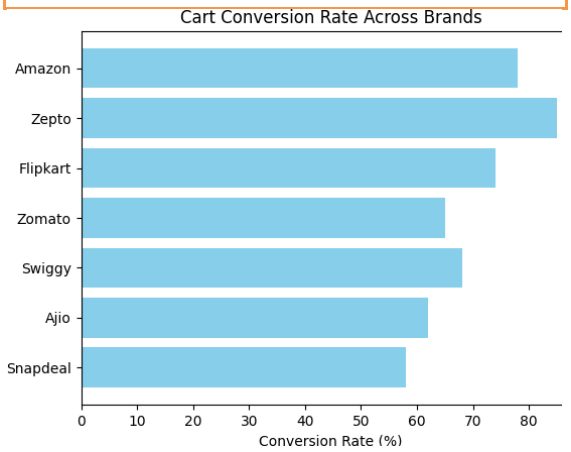

Figure 1.2: Cart Conversion Rate Across Brands

Figure 1.2 represents the cart conversion rates across brands, showing that Amazon and Zepto outperform others, while Snapdeal lags.

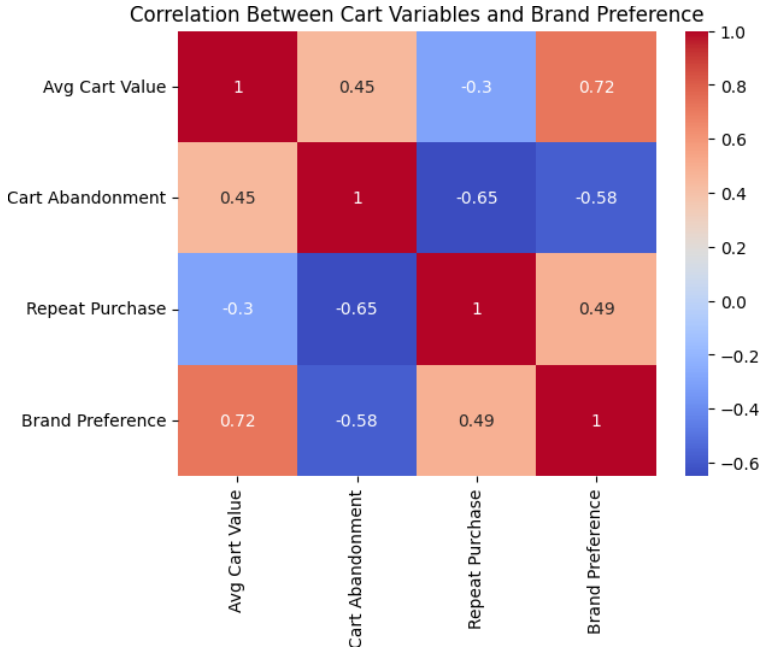

Figure 2: Correlation Heatmap Between Cart Variables and Brand Preference

Figure 2 represents the correlation between cart attributes and brand preference. A strong positive correlation was observed between average cart value and brand preference score ($r = 0.72$), while cart abandonment had a negative correlation with repeat purchases ($r = -0.65$).

Regression analysis was used to predict shopping volume using key cart attributes. As detailed in **Table 3**, average cart value ($\beta = 0.58$, $p < 0.001$) and cart conversion rate ($\beta = 0.47$, $p < 0.01$) emerged as strong predictors of total monthly purchases.

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Table 3: Regression Coefficients Predicting Shopping Volume

Predictor	Coefficient (β)	p-Value
Avg. Cart Value	0.58	0.000
Cart Conversion Rate	0.47	0.003
Cart Abandonment	−0.41	0.011
Time on Cart	0.09	0.316

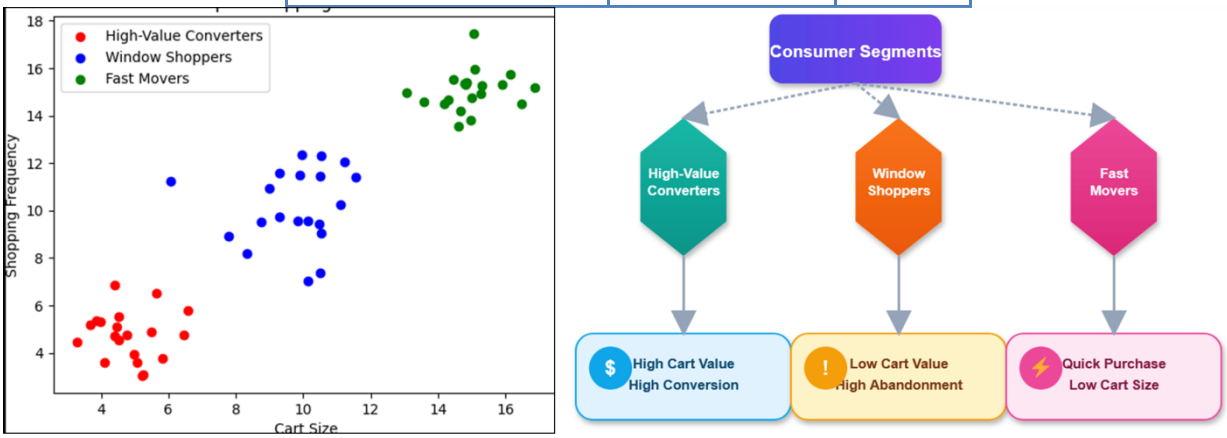

Figure 3: Cluster Map of Shopping Behavior Patterns

To segment shoppers, cluster analysis was performed. **Figure 3** represents distinct consumer groups. Cluster 1 (High-Value Converters), Cluster 2 (Window Shoppers), and Cluster 3 (Fast Movers) showed statistically distinct behaviors in cart usage and loyalty.

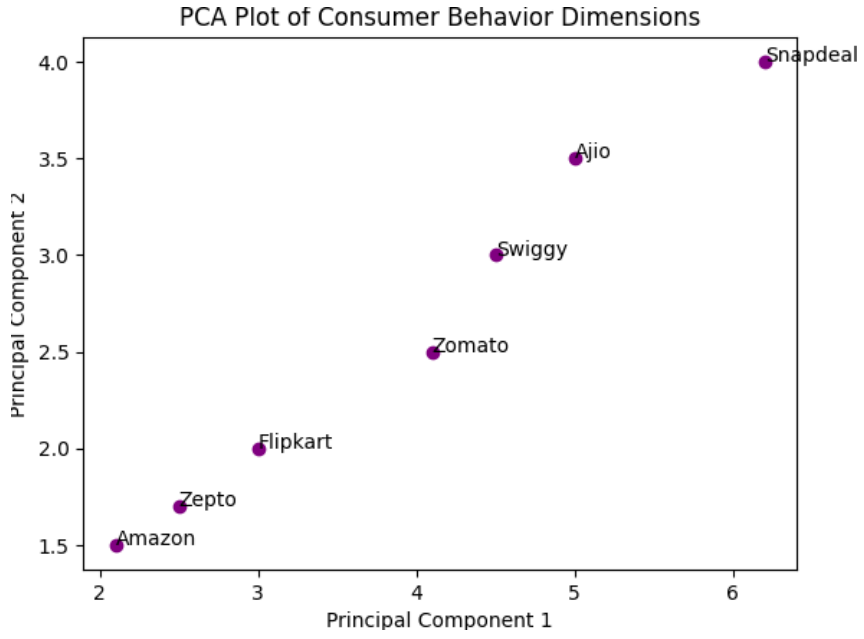

Figure 4: Principal Component Analysis Plot of Consumer Behavior

Figure 4 represents results of PCA, where two components explained 71.4% of the variance. Component 1 loaded high on cart conversion and average value, while Component 2 focused on frequency and brand switching.

Finally, categorical associations were tested using chi-square analysis. **Table 4** shows that platform choice significantly influenced cart conversion outcome ($\chi^2 = 28.41$, $p < 0.01$), suggesting brand-platform dynamics.

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Table 4: Chi-Square Test – Platform vs Cart Conversion

Test Statistic	Value	df	p-Value
Chi-Square (χ^2)	28.41	6	0.000

Data Analysis and Interpretation

Analysis shows that major e-commerce platforms exhibit broad discrepancies in relation to cart behaviors and this influences customer priority and volume of shopping. Descriptive statistics (Table 1) showed that Amazon and Flipkart are leaders in average cart value whereas ZEPTo has lowest cart abandonment meaning that ZEPTo is efficient in conversions.

As evidenced by ANOVA results, noted below (Table 2), such variations between the platforms are significant statistically, supporting competitive forces that dictate the cart-based consumer behavior. From the illustration given in Figure 1, Amazon and Zepto have the highest rates of conversion for the cart, and therefore, this confirms effective user engagement or trust of the platform.

Correlation analysis, (Figure 2), reveals associations with significance i.e. a strong correlation between average cart value and brand preference which indicates the fact that the consumers relate high cart values to preferred brands. It is, on the other hand, considered that the abandoning of carts has a reverse relationship with repeat behavior in shopping ($r = -0.65$), indicating that cart abandonment has a destructive consequence on customer loyalty.

Additional finds (Table 3) imply that cart value and conversion rates were good predictors of shopping volume; time on the cart was not a strong predictor of a purchase. It implies that the customers' need to finalise a purchase is dependent on the cart quality rather than browsing time.

Consumer segmentation through cluster analysis (Figure 3) helps in achieving tactical marketing strategies by subclassifying the consumers into different archetypes of behaviours. The PCA results (Figure 4) simplify the complexity of consumer behavior into two consumer behavioral components that are the cart engagement and frequency providing meaningful consumer behavioral components. Finally, the chi-square test (Table 4) confirms that outcomes of the platform choice have a significant impact on the cart conversions, which proved the need for platform-specific strategies.

These findings paint a holistic picture of how dynamics of carts determine the preferences and purchasing behaviour of consumers, useful to marketers and the designers of platforms.

CONCLUSION

This study confirms that the attributes of shopping carts are in a critical position of influencing consumer preferences in terms of volume of purchase through E-commerce platforms. In accordance with the hypotheses, increased average cart values were underlined by higher customer preferences and the rate of shopping activity; an increase in cart abandonment decreased the level of repeat purchases and loyalty. As against expectations, time spent on the cart had little effect on purchase completion and therefore, efficiency rather than elapsed time may be conversion enabler.

Some of its limitations are based on the use of data that cannot be representative of the complete dataset for International community. The study was also based on a group of platforms, so it is not possible to generalize the results to all domains of e-commerce. In addition, the cross-sectional design does not allow conclusion on causality.

The revelations have an actionable value for the marketers of e-commerce and designers of the platforms. Fine tuning of cart features, to minimise abandonment and promote more valuable transactions, may improve the retention of customers and increase sales. Customizing cart experience according to segments of consumers may take their engagement up a notch.

Future work should confirm these results based on transactional data and identify longitudinal effects of cart interactions on lifetime customer value. The exploration of other moderators like modes of payments and delivery speed would enhance the understanding of complex consumer decision processes in the digital commerce.

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