**Emperor Journal of Commerce**

**ISSN: 2582-9815** **Mayas Publication®** **www.mayas.info**

**Volume-IV** **Issue-IV** **April 2024**

# Customer Behaviour Towards Reverse Logistics

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## I. INTRODUCTION

Reverse logistics is a comprehensive procedure that encompasses the efficient handling of product returns from customers back to the manufacturer or retailer. The process encompasses the strategic organization, execution, and supervision of the efficient movement of essential resources, intermediate goods, final products, and relevant data, all while maintaining costeffectiveness. The main objective of reverse logistics is to recapture value from returned products or ensure their proper disposal.

As stated by **Rogers and Tibben-Lembke in 1998**, reverse logistics encompasses all post- sale activities related to a product or service. The primary objective is to optimize and improve the efficiency of aftermarket processes, resulting in cost savings and the preservation of environmental resources.

Reverse logistics has become an important aspect of supply chain management, as it involves the management of various processes such as product returns, repairs, refurbishment, and recycling. It has gained significant attention due to its potential to reduce costs, elevate customer contentment, amplify environmental sustainability, and enhance the overall experience by delivering superior value and ecological responsibility.

Reverse logistics refers to the meticulous handling of the movement of merchandise, resources, and data from the consumption point to the original source or suitable disposal, ensuring efficient and effective management of the entire process.

The growing emphasis on environmental sustainability and the escalating expenses associated with waste disposal have made reverse logistics a crucial field of study and implementation for businesses.

Customer behavior towards reverse logistics is an essential aspect that affects the effectiveness of the reverse logistics process. According to a study by **Daugherty et al. (2011),** customer behavior towards reverse logistics can be categorized into three main areas: disposal behavior, recycling behavior, and remanufacturing behavior. Disposal behavior refers to the way in which customers dispose of products at the end of their life cycle, recycling behavior refers to the extent to which customers participate in recycling programs, and remanufacturing behavior refers to the extent to which customers purchase remanufactured products. The study also found that customer behavior towards reverse logistics is influenced by various factors, including perceived value, convenience, and environmental concerns. For example, customers are more likely to participate in recycling programs if they perceive that the benefits outweigh the costs, and if the process is convenient for them.

In conclusion, customer behavior towards reverse logistics is an important area of research and practice for firms that want to improve their sustainability and reduce their waste disposal costs. Understanding the factors that influence customer behavior can help firms design effective reverse logistics programs that meet the needs and preferences of their customers

## RESEARCH PROBLEM

Reverse logistics involves the systematic movement of goods from their ultimate destination to a designated location where they can be effectively reused, recycled, or disposed of in a manner that aligns with environmental considerations. The efficient management of reverse logistics has become increasingly important for businesses, not only to meet environmental regulations but also to reduce costs and improve customer satisfaction. However, customer behavior towards reverse logistics is still a relatively unexplored area in India, and there is a need to understand the factors that influence customer behavior in this regard.

1. What motivates customers to engage in reverse logistics activities such as product returns, exchanges, and recycling?
2. What are the key factors that influence customer behavior in the reverse logistics process, such as ease of returns, perceived value of the returned item, and environmental concerns?
3. How do different types of customers (e.g., loyal, infrequent, high- value, etc. behave in the reverse logistics process, and what factors differentiate their behavior?

4. What are the barriers and challenges that customers face when engaging in reverse logistics activities, such as lack of information or awareness, inconvenient return policies, or difficulty in finding recycling facilities?
5. What are the implications of customer behavior on reverse logistics for businesses, such as the impact on costs, customer satisfaction, and environmental sustainability?
6. What are the factors that influence customer behavior towards returning products?
7. How do customers perceive the reverse logistics process, and what are their expectations regarding it?
8. What are the effects of a positive or negative reverse logistics experience on customer loyalty and repeat purchase behavior?
9. How can companies improve the reverse logistics process to enhance customer satisfaction and loyalty?
10. What role does sustainability play in customer behavior towards reverse logistics, and how can companies leverage this to improve their image and reputation?
11. Overall, a research problem related to customer behavior towards reverse logistics could explore the motivations, attitudes, and preferences of customers in relation to returning products, as well as the impact of the reverse logistics process on customer satisfaction and loyalty.

**Research Objective**

1. Identify the factors that influence customer behavior towards returning products to the retailer.
2. Determine the impact of these factors on customer satisfaction and loyalty.

**Scope of Study**

The scope of study on researching customer behavior towards reverse logistics involves analyzing the factors that affect customers' decision-making processes when it comes to returning products or materials to the supply chain. This includes understanding the reasons why customers initiate returns, their expectations and attitudes towards the reverse logistics process, and the impact of the process on their future purchase behavior.

1. The study may also examine the role of technology, such as online return portals and mobile apps, in facilitating the reverse logistics process and its influence on customers' experience.
2. Additionally, the study may explore the impact of environmental concerns on customer behavior towards reverse logistics, such as their willingness to return products for recycling or reuse.

3. Environmental and sustainability issues related to reverse logistics, such as reducing waste, increasing recycling, and minimizing the carbon footprint of reverse logistics operations.
4. Economic considerations, such as cost-benefit analysis, profitability, and return on investment, of implementing reverse logistics practices.
5. Operational issues, such as logistics and transportation management, inventory control, and product disposition and recovery.
6. Technological and digital solutions for improving reverse logistics, such as tracking and tracing technologies, automated sorting and handling systems, and e-commerce platforms.
7. Legal and regulatory issues related to reverse logistics, such as product safety, liability, and compliance with environmental and waste management laws.
8. Factors affecting customer behavior towards reverse logistics:

**Perception of environmental sustainability:**

The perception of environmental sustainability has become an important factor in customer behavior towards reverse logistics. Several studies have investigated the role of environmental sustainability in shaping customer behavior towards reverse logistics. For example, a study by Pradhan et al. (2018) examined the impact of environmental awareness on customer behavior towards reverse logistics in the Indian e-commerce industry.

**Impact of technology:**

The impact of technology on customer behavior towards reverse logistics is another area of study. For example, a study by Azeem and Pal (2019) explored the impact of technology on customer behavior towards reverse logistics in the Indian automotive industry.

**Literature Review**

Customer behavior encompasses a multitude of actions and elements that wield substantial influence over customer decision-making. Acquiring a comprehensive understanding of customer behavior is imperative for businesses to formulate impactful marketing strategies and augment the overall level of customer contentment. By grasping the intricacies of customer behavior, businesses can tailor their approaches to better meet customer needs and preferences, fostering stronger customer relationships and driving business success.

Reverse logistics encompasses the efficient handling and control of the flow of products, materials, and information in a reverse direction, starting from the consumption point and leading back to the origin point, with the ultimate goal of reclaiming value or guaranteeing appropriate disposal. This comprehensive process encompasses a diverse range of tasks, including but not limited to product returns,

recycling, reassembly, and appropriate final disposition (Rogers and Tibben-Lembke, 1998).

The RBV theory suggests that a firm's competitive advantage in reverse logistics stems from its unique resources and capabilities, enabling effective management of the reverse flow of goods. This emphasizes the significance of specialized and valuable resources and capabilities that allow firms to excel in optimizing the reverse logistics process; this means that firms can leverage their unique capabilities in areas such as remanufacturing and recycling to gain a competitive advantage (Sarkis et al., 2010).

**Research Methodology**

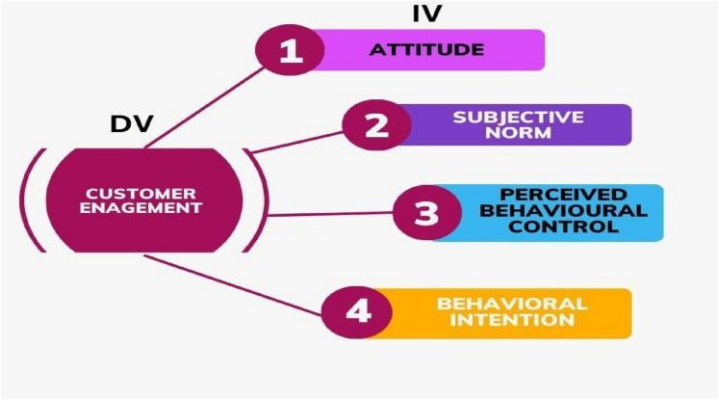
Given the inquiry objectives a survey study would be a suitable research design for comprehending customer behavior in relation to reverse logistics. Surveys enable the collection of data from a broad and diverse population in a standardized manner, facilitating easier analysis and drawing of conclusions. To ensure the inclusiveness of the sample and enhance the applicability of findings to the wider population, it is recommended to employ a statistical sampling method, such as random sampling or stratified sampling, for the sampling strategy. These methods help to ensure that every individual in the target population has an equitable opportunity of being chosen, thus enhancing the accuracy and validity of the research outcomes.

**Research Framework**

The aim of the study's framework is to investigate the customer behavior towards reverse logistics. Comes with one Dependent Variable Customer Engagement define the concept of customer involvement in the context of reverse logistics and its importance in driving sustainable supply chain practices.

**Figure 1:**

**Research Framework (Source: Own)**



**Hypothesis Development**

**To examine the notable correlation between attitude and customer involvement**

Null Hypothesis (H0): There is no substantial association between attitude towards reverse logistics and customer involvement. Alternative Hypothesis
(H1): There is a substantial correlation between attitude towards reverse logistics and customer involvement.

To test this hypothesis, data can be collected on customers' attitudes towards reverse logistics (measured on a Likert scale or semantic differential scale) and their customer engagement related to reverse logistics. Statistical analysis, such as correlation analysis or regression analysis, can then be performed to examine the relationship between attitude and customer engagement.

**To explore the significant correlation between Subjective Norm and customer involvement**

- Null Hypothesis (H0): There is no substantial correlation between subjective norm and customer engagement. Alternative Hypothesis
- (H1): There is substantial correlation between subjective norm and customer engagement.

To test this hypothesis, data can be collected on customers' perceived subjective norm related to reverse logistics (measured using items that assess social expectations or opinions) and their customer engagement. Statistical analysis, such as correlation analysis or regression analysis, can then be conducted to examine the relationship between subjective norm and customer engagement.

**Sources of Data**

The method of data collecting is regarded as the core of any research strategy. There are many other levels or sorts of sources for gathering data, but we will just examine primary and secondary sources here (Concept & sources of primary & secondary data - Thakur)

**Primary Data**

Data that are fresh and first-time collections are considered original and are referred to as primary data. It is utilized in both quantitative and qualitative research methodologies, directly gathered data improve the validity of data and can be used to gather hidden information. The sources of primary data include: interview, survey, observation etc.

**Secondary Data**

Secondary data are those that have already undergone statistical analysis or have been acquired by someone else, gone through the statistical process, and then been handed on to someone else. This data can be handled fast. Time and money are balanced, and the specialists have previously studied the information that is readily available. Government publications, websites, books, journal articles, internal

notes etc. are the sources of secondary data. The study used primary data which was gathered through surveys and interviews.

**Sampling Methods**

Sampling methods refer to techniques employed to choose a subset of individuals or observations from a larger population with the aim of estimating or drawing conclusions about the entire population's characteristics. These methods can be broadly categorized into two types: probability sampling and non-probability sampling.

**Probability Sampling**

Probability sampling is a sampling method where each individual or observation in the population has a predetermined and equal likelihood of being chosen for the sample. This approach ensures that the sample is representative of the population and enables drawing 3.6.1 Primary Data statistical inferences about the population. Simple random sampling, stratified random sampling, and cluster sampling are examples of probability sampling techniques.

**Non-Probability Sampling:**

Non-probability sampling is a sampling technique where the likelihood of selecting individuals or observations for the sample is uncertain or uneven. Non-probability sampling methods are commonly employed when it is difficult or impossible to obtain a representative sample of the population. Convenience sampling, purposeful sampling, and snowball sampling are examples of non-probability sampling techniques.

**Data analysis & Results**

**Reliability Test**

**Table: 1**
**Reliability Test Analysis**

| Variables | No of Items | Cronbach's Alpha Coefficient |
|---|---|---|
| Attitude | 5 | 0.550 |
| Subjective Norm | 5 | 0.613 |
| Perceived Behavioural Control | 5 | 0.605 |
| Behavioral Intention | 5 | 0.546 |
| Customer Engagement | 5 | 0.346 |

Cronbach's alpha coefficients indicate the dependability of a scale. In general, higher values of Cronbach's alpha (closer to 1) indicate greater internal dependability, while lower values (closer to 0) suggest lower internal dependability. Attitude: The Cronbach's alpha coefficient of 0.550 suggests that the items measuring attitude have relatively low internal consistency.

Subjective Norm: The Cronbach's alpha coefficient of 0.613 indicates moderate internal reliability for the subjective norm items. While the internal consistency is better than attitude, it may still benefit from further examination or improvement.

**Normality Test**

**Table: 2**
**Normality test Analysis**

| **Variables** | **Statistic** | | **Std.Error** | |
|---|---|---|---|---|
| | **Skewness** | **Kurtosis** | **Skewness** | **Kurtosis** |
| Attitude | 0.631 | -0.806 | 0.172 | 0.342 |
| Subjective Norm | 0.609 | -0.034 | 0.172 | 0.342 |
| Perceived Behavioural Control | 0.471 | -0.365 | 0.172 | 0.342 |
| Behavioral Intention | 0.498 | -0.098 | 0.172 | 0.342 |
| Customer Engagement | 0.316 | -0.281 | 0.289 | 0.572 |

Skewness is a statistical metric that evaluates the degree of asymmetry in the distribution of a variable. A skewness coefficient of 0 represents a distribution that is perfectly balanced and symmetrical. Positive skewness lies on the right side of the distribution, while negative skewness lies on the left side.A positive **kurtosis** value suggests that a distribution has more outliers or extreme values, resulting in heavier tails and a sharper peak compared to a normal distribution. On the other hand, a negative kurtosis value suggests a distribution with fewer outliers or extreme values, leading to lighter tails and a flatter peak compared to a normal distribution

A positive kurtosis value suggests that a distribution has more outliers or extreme values, resulting in heavier tails and a sharper peak compared to a normal distribution. On the other hand, a negative kurtosis value suggests a distribution with fewer outliers or extreme values, leading to lighter tails and a flatter peak compared to a normal distribution.

**Profile of the Respondents**

This study concentrated on examining customer behavior related to reverse logistics within various countries, including India, Malaysia, China, and others. Specifically, the research investigated customer behavior towards E-Platform companies in the context of reverse logistics. A total of 217 surveys were disseminated to participants electronically. Out of these, 200 questionnaires were successfully collected, resulting in a satisfactory response rate. The sample size of 200 falls within the recommended range proposed by Roscoe (1975), suggesting that it is indicative for research of this kind. Hence, the gathered data from the 200 participants is considered representative for this study.

**Frequency of respondent based on gender group**

**Table 3:**

**Gender**

| **Demographic Variables** | | **Sample Composition** | |
|---|---|---|---|
| | | **Percentage** | **Frequency** |
| **Gender** | **Male** | **57%** | **114** |
| | **Female** | **43%** | **86** |
| | **Total** | **100%** | **200** |

**Interpret:**

Male: The sample includes 114 male respondents, accounting for 57% of the total sample. Female: The sample includes 86 female respondents, accounting for 43% of the total sample. The gender distribution within the sample indicates a slightly higher representation of males compared to females.

**Frequency of respondent based on age group**

**Table 4:**

**Age Group**

| **Demographic Variables** | | **Sample Composition** | |
|---|---|---|---|
| | | **Percentage** | **Frequency** |
| **AGE** | 18-21 years old | 47.5% | 95 |
| | 22-30 years old | 46% | 92 |
| | 30 years old and above | 6.5% | 13 |
| | **TOTAL** | **100%** | **200** |

**Interpret**

18-21 years old: The sample includes 95 respondents within the age range of 18-21, accounting for 47.5% of the total sample. 22-30 years old: The sample includes 92 respondents within the age range of 22-30, accounting for 46% of the

total sample. 30 years old and above: The sample includes 13 respondents who are 30 years old and above, accounting for 6.5% of the total sample.

**Descriptive Analysis for All Dependent (DV) And Independent Variables (IV)**

**Table 5:**

**Summary of Mean Analysis**

| Variables | N | Mean | Std. Deviation |
|---|---|---|---|
| Attitude | 200 | 1.868 | 0.784 |
| Subjective Norm | 200 | 2.064 | 0.922 |
| Perceived Behavioral Control | 200 | 2.07 | 0.888 |
| Behavioral Intention | 200 | 2.09 | 0.896 |
| Customer Engagement | 200 | 1.76 | 0.709 |

**Interpret:**

**Attitude:** Mean: The average score for attitude is 1.86, indicating a moderate level of attitude towards the concept being measured. Standard Deviation: The standard deviation of 0.784 indicates that the responses exhibit a relatively High degree of dispersion or variability around the mean score

**Subjective Norm:** Mean: The mean score for subjective norm is 2.06, indicating a moderate level of perceived social pressure or influence on engaging in the behavior. Standard Deviation: The standard deviation of 0.922 indicates that the responses have a relatively broad spread around the mean score.

**Perceived Behavioral Control:** Mean: The average score for perceived behavioral control is 2.07, suggesting a moderate degree of perceived facilitation or challenge in engaging in the behavior. Standard Deviation: The standard deviation of 0.888 suggests that the responses exhibit some fluctuation or variation around the mean score.

**Behavioral Intention:** Mean: The mean score for behavioral intention is 2.09, indicating a moderate level of conscious plan or decision to engage in the behavior. Standard Deviation: The standard deviation of 0.896 indicates that there is a degree of dispersion or diversity in the responses around the mean score.

**Customer Engagement:** Mean: The mean score for customer engagement is 1.76, indicating a relatively lower level of customer engagement in the behavior being measured. Standard Deviation: The standard deviation of 0.709 indicates that the responses display a moderate level of dispersion or variance around the mean score.

**Limitations, Suggestions and Conclusion**

**Limitations of the Study**

**Sample Bias:** The research might rely on a specific sample of customers, which may not represent the entire customer population accurately. This can limit the generalizability of the findings to a broader customer base.

**Self-Report Bias:** The data collected on customer behavior and attitudes are often self- reported, which can be subject to biases and inaccuracies. Customers may provide socially desirable responses or have difficulty accurately recalling their behavior.

**Contextual Factors:** Customer behavior towards reverse logistics can be influenced by various contextual factors such as cultural differences, regional regulations, and industry- specific characteristics. These factors may limit the generalizability of the findings across different contexts.

**Limited Control over Variables:** Researchers may have limited control over external variables that can influence customer behavior, such as economic conditions, market trends, or competitive factors. These variables can impact customer behavior in ways that are beyond the scope ofthe study.

**Short-Term Perspective:** Most studies on customer behavior towards reverse logistics are conducted over a limited time frame, focusing on immediate behaviors and attitudes. Long- term effects and changes in behavior over time may not be fully captured.

**Lack of Causality:** Establishing causality between customer behavior and its drivers can be challenging. While correlations may be found between variables, it is difficult to determine if one variable directly causes changes in customer behavior.

**Limited Insight into Motivations:** Understanding the underlying motivations behind customer behavior can be complex. While studies can identify relationships and associations, they may not provide comprehensive insights into why customers engage or disengage in reverse logistics activities.

**Over-reliance on Self-reported Data:** Studies often rely on customer self-reports to gather information about attitudes, perceptions, and behaviors. This reliance on subjective data may introduce biases or inaccuracies, impacting the reliability of the findings.

**External Factors:** Customer behavior towards reverse logistics can also be influenced by external factors such as marketing campaigns, customer service experiences, or word-of- mouth recommendations. These factors may not be fully accounted for in the research.

**Limited Focus on Different Customer Segments:** Research may not adequately address the variations in customer behavior based on different segments (e.g., demographics, purchase frequency, loyalty). The findings may not fully capture the nuances and differences in customer behavior within various customer groups.

**Suggestions**

There are several suggestions to encourage and promote positive customer behavior towards reverse logistics.

**Clear and Transparent Return Policies:** E-platform companies should establish clear and transparent return policies that are easily accessible to customers. Clearly communicate the terms and conditions, including return deadlines, acceptable reasons for returns, and any associated costs. This helps customers understand the process and feel confident in engaging in reverse logistics activities.

**Streamlined and User-Friendly Return Processes:** Simplify and streamline the return processes to make it easy and convenient for customers to return products. Provide clear instructions, pre-paid shipping labels, and hassle-free return options, such as drop-off points or scheduled pickups. Minimize the effort required from customers to encourage their participation.

**Personalized Communication and Assistance:** Implement personalized communication strategies to engage customers in reverse logistics activities. Send targeted messages and notifications about return options, recycling programs, and incentives. Offer customer support and assistance throughout the return process to address any concerns or questions.

## II.CONCLUSION

The authors examine the key factors that influence customer behavior, including product characteristics, customer attitudes, social norms, and situational factors. They also discuss the role of customer behavior in shaping the effectiveness of reverse logistics strategies. [2] This review article explores the various dimensions of customer behavior in the context of reverse logistics. The authors examine the factors that affect customer behavior, such as product quality, return policies, environmental concerns, and economic incentives. They also discuss the role of customer behavior in shaping the company's reverse logistics strategies. Factors Affecting Customer Behavior in Reverse Logistics (Al-Dhaafri and Al-Harthy, 2020)This study investigates the factors that influence customer behavior towards reverse logistics in the context of online shopping. The authors identify several key factors, including product quality, price, trust, and perceived risk. They also examine the impact of these factors on customer behavior, such as the likelihood of returning goods and the intention to repurchase from the same company. [3] This empirical study examines customer behavior towards reverse logistics in the context of e commerce. The authors analyze the factors that affect customer behavior, including product quality, trust, and perceived risk. They also investigate the impact of customer behavior on the company's reverse logistics strategies, such as the efficiency of return processes and the effectiveness of communication with customers.

In conclusion, the literature on reverse logistics emphasizes the importance of developing efficient and effective reverse logistics systems, collaboration and partnerships, and the use of technology to enhance reverse logistics processes. By addressing these key themes, organizations can improve their environmental performance, reduce costs, and enhance customer satisfaction.

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