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Design Of Framework Based on Factors Influencing Online Shopping Behaviour: Insights into Consumer Preferences, Trust, And Digital Adoption

A. Domnic Xavier[1*], Dr. L. Santhanaraj[2]
[1*]Research Scholar, St. Joseph's College of Arts and Science (Autonomous), Cuddalore-1. Affiliated to Annamalai University, Cuddalore, Tamilnadu-607001, India.
Email ID: adom.mca@gmail.com
[2]Associate Professor, PG and Research Department of Commerce. St. Joseph's College of Arts and Science (Autonomous), Cuddalore-1. Affiliated to Annamalai University, Cuddalore, Tamilnadu-607001, India.
Email ID: l.santhanaraj@gmail.com
***Corresponding Author:** A. Domnic Xavier
*Research Scholar, St. Joseph's College of Arts and Science (Autonomous), Cuddalore-1. Affiliated to Annamalai University, Cuddalore, Tamilnadu-607001, India.
Email ID: adom.mca@gmail.com

ABSTRACT
The rise of digital commerce has significantly influenced consumer shopping behaviour, with online platforms becoming a preferred mode of purchase. This study examines the factors shaping online shopping behaviour among consumers in Cuddalore District, Tamil Nadu. The research analyses key determinants such as demographics, pricing sensitivity, trust, convenience, product variety, and digital advertising influence. A structured questionnaire was used to collect data from 399 respondents, and statistical techniques, including descriptive analysis, factor analysis, and machine learning-based consumer segmentation, were employed for evaluation. The findings indicate that price sensitivity, convenience, and trust are the primary factors driving or hindering online shopping. The study further highlights the importance of secure payment gateways, transparent pricing, and personalized marketing to enhance consumer confidence. Based on the insights, recommendations are provided to improve digital accessibility, logistical efficiency, and e-commerce adoption in semi-urban areas.

Keywords: Online Shopping, Consumer Behaviour, Pricing Sensitivity, Trust, Digital Marketing, ECommerce Adoption.

I. Introduction

The rapid evolution of digital technology [1] has significantly transformed the way consumers engage in shopping activities. The increasing penetration of the internet, rising smartphone usage, and enhanced payment security have contributed to the widespread acceptance of online shopping [2]. Consumers today prefer the convenience of browsing and purchasing products from e-commerce platforms rather than visiting physical stores. In India, online shopping has gained substantial momentum due to the availability of affordable internet services and the growing adoption of digital payment systems [3][4]. The emergence of major e-commerce platforms such as Amazon, Flipkart, and Myntra has revolutionized the retail sector by offering consumers a wide variety of products at competitive prices [5]. This shift is not only seen in metropolitan cities but also in smaller towns and districts, where consumers are gradually embracing digital shopping.

Cuddalore District, located in Tamil Nadu, presents a unique scenario where traditional shopping practices coexist with online retail trends. The study focuses on understanding the factors influencing online shopping behaviour among consumers in this district. It aims to explore consumer preferences, the role of pricing, convenience, trust, and product quality in shaping purchasing decisions.

1.1.Need for the Study

With the changing landscape of consumer behaviour, it is essential to analyse the specific factors that encourage or discourage online shopping in a semi-urban district like Cuddalore. While urban consumers have adapted well to online shopping, there are concerns regarding the trustworthiness of e-commerce platforms, payment security, delivery reliability, and price transparency among many consumers [6].
Understanding these challenges will help e-commerce businesses, policymakers, and digital marketers

develop targeted strategies to enhance consumer confidence and engagement in online shopping [7]. Moreover, identifying the key motivators behind online shopping behaviour will enable companies to offer better experiences, improve customer satisfaction, and drive long-term growth in the e-commerce sector.

1.2.Objectives of the Study

This research is designed to achieve the following objectives:

- To examine the demographic factors influencing online shopping behaviour in Cuddalore District.
- To analyse consumer preferences related to convenience, pricing, product variety, and brand trust in online shopping.
- To evaluate the impact of promotional offers, discounts, and advertisement strategies on consumer purchase decisions.
- To assess the role of trust and security concerns in influencing consumer confidence in e-commerce platforms.
- To segment consumers based on their online shopping habits and identify different behavioural patterns.
- To provide strategic recommendations for improving the online shopping experience for consumers in semi-urban regions.

By fulfilling these objectives, the study aims to provide valuable insights for e-commerce businesses, retailers, and policymakers to enhance online shopping adoption and optimize digital marketing strategies.

1.3.Scope of the Study

The study focuses on analysing online shopping behaviour in Cuddalore District, considering key influencing factors such as demographics, pricing sensitivity, convenience, trust, and advertisement impact [8]. The research is conducted among consumers who have prior experience with online shopping, ensuring that insights are based on firsthand shopping experiences rather than assumptions.

- The study covers urban and rural areas within Cuddalore District, allowing for a comparative analysis of consumer behaviour in different locations.
- The research includes individuals of different age groups, income levels, and educational backgrounds, ensuring diverse representation.
- The focus is on consumers who actively engage in online shopping, providing relevant insights into their preferences and concerns.
- The study examines factors such as pricing influence, product satisfaction, ease of use, brand perception, trust issues, and advertisement impact.
- It also incorporates psychological and behavioural aspects, such as impulsive buying tendencies, social influence, and digital literacy levels.
- The research does not focus on specific e-commerce platforms but rather evaluates online shopping as a whole.
- The research employs descriptive and inferential statistical techniques to analyse consumer behaviour patterns.
- Machine learning-based segmentation techniques are used to classify consumer groups based on their online shopping habits.

The study also incorporates predictive modelling to understand potential future trends in online shopping behaviour.

1.4.Significance of the Study

The insights generated from this study are expected to be beneficial for multiple stakeholders, including:

- **E-commerce Businesses** – Understanding consumer preferences will help online retailers optimize their pricing, marketing, and customer engagement strategies.
- **Government and Policymakers** – The study will provide useful information on digital adoption trends, allowing for the development of better e-commerce policies and digital infrastructure in semi-urban areas.
- **Marketing Professionals** – Digital marketing strategies can be refined based on findings related to advertisement effectiveness, consumer trust, and purchasing motivations.
- **Consumers** – By highlighting the key advantages and challenges of online shopping, the study aims to improve awareness and confidence among consumers regarding ecommerce platforms.

The increasing shift towards digital retail platforms presents both opportunities and challenges for consumers and businesses. While online shopping offers unparalleled convenience, product variety, and cost benefits, it also raises concerns regarding trust, payment security, and product authenticity [9]. This research seeks to bridge the gap between consumer expectations and ecommerce service quality by identifying the driving forces behind online shopping behaviour. By addressing the key challenges and recommending strategic improvements, this study will contribute to the growth and sustainability of e-commerce adoption in Cuddalore District. The findings will serve as a foundation for future research on consumer behaviour in semi-urban and rural markets, providing actionable insights for businesses and policymakers to enhance the online shopping experience for all.

II. Proposed Methodology

The methodology outlines the systematic approach adopted for analysing the factors influencing online shopping behaviour among consumers in Cuddalore District. This study employs a quantitative research approach using primary data collected through a structured questionnaire. The analysis integrates statistical techniques and machine learning applications to derive meaningful insights. A novel model is proposed to categorize consumer behaviour and predict purchasing patterns based on key influencing factors.

2.1.Research Design

This research follows a descriptive and exploratory design. The descriptive aspect aims to present the current trends in online shopping behaviour, while the exploratory approach [10] investigates underlying factors shaping consumer preferences.

- **Descriptive Analysis:** Statistical methods such as frequency distributions, mean analysis, standard deviation, and cross-tabulations [11] are employed to understand consumer demographics and their preferences.
- **Exploratory Analysis:** Factor analysis and correlation analysis [12] are used to identify relationships among variables and extract key influencing factors.

The study relies on a structured questionnaire covering demographic details, purchasing behaviour, pricing influence, convenience factors, trust concerns, and psychological aspects.

2.2.Data Collection and Sampling

The data was collected from consumers residing in Cuddalore District, Tamil Nadu, using a survey questionnaire. A total of 399 responses were gathered through online and offline modes, ensuring representation across different demographics [13]. The sampling technique used was stratified random sampling, considering key characteristics such as age, gender, education, income, and shopping frequency. Sampling Framework has the following statistics:

- **Population:** Consumers who engage in online shopping.
- **Sample Size:** 399 respondents.
- **Sampling Technique:** Stratified random sampling.
- **Data Collection Mode:** paper-based surveys (offline).
- **Geographical Scope:** Cuddalore District, Tamil Nadu.

The Period of Study was between September 2024 to December 2024. The respondents were from assorted locations in Cuddalore like schools, colleges and public places.

III. Proposed Model for Online Shopping Behaviour Analysis

A novel hybrid model is proposed for evaluating online shopping behaviour by integrating statistical, machine learning, and psychological analysis. The model consists of five stages as given in Fig.1.

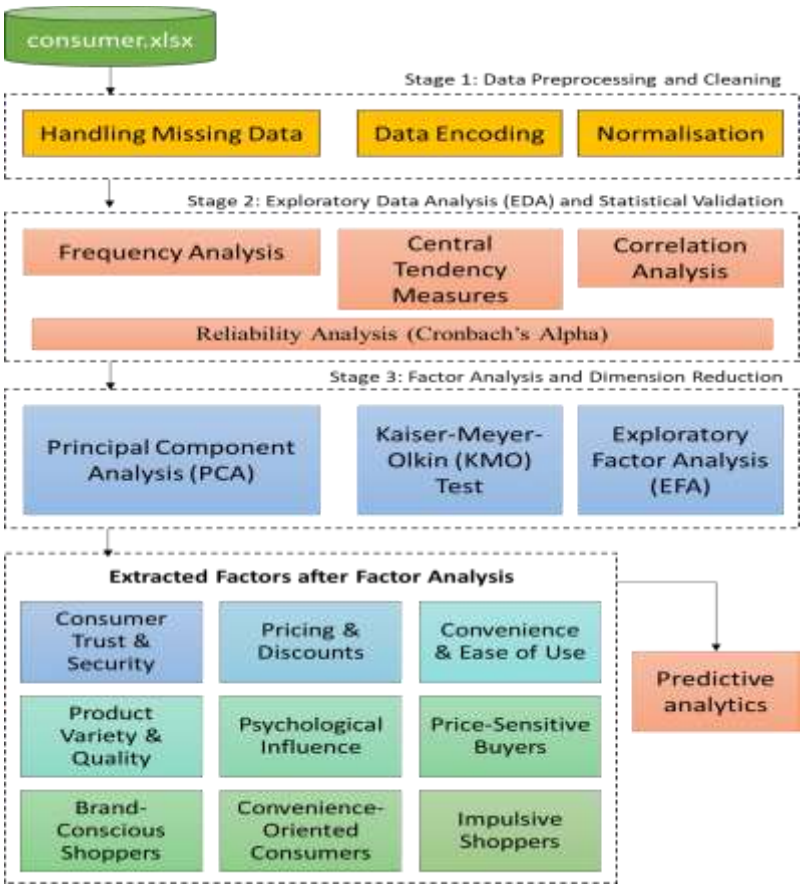

Fig.1. Architecture of the Proposed Model for Online Shopping Behaviour Analysis

The Architecture of the Fig.1. is explained in distinct heads. The research study focuses on understanding and analysing online shopping behaviour, specifically in Cuddalore District. The approach is divided into four stages, each designed to refine, explore, and predict consumer actions through a comprehensive analysis of survey data and statistical tools.

3.1.Stage 1: Data Preprocessing and Cleaning

The first stage of the research focuses on organizing and cleaning the raw dataset to ensure its accuracy and consistency. This stage is crucial because the integrity of the data directly influences the reliability of the analysis [14]. One of the primary tasks is addressing missing data. Missing values are handled by using imputation techniques, where continuous variables are filled using the mean value, and categorical variables are filled with the mode. This helps maintain the dataset's completeness and prevents bias in analysis [15]. This stage involves organizing and refining the raw dataset to ensure accuracy and consistency in analysis. The steps include:

- **Handling Missing Data**: Missing values [16] are treated using mean/mode imputation for continuous and categorical variables.
- **Data Encoding**: Categorical variables such as gender, education, and region are converted into numerical form using label encoding and one-hot encoding.
- **Normalization**: Continuous variables like income and purchase frequency [17] are normalized to ensure uniformity.

Another significant step in this stage is normalization. Continuous variables such as income and purchase frequency are normalized to ensure that all variables contribute equally to the analysis. This step prevents variables with larger scales from dominating the results, ensuring that all factors are treated with equal importance in the subsequent analysis.

3.2.Stage 2: Exploratory Data Analysis (EDA) and Statistical Validation

The second stage involves exploring the data to uncover insights into consumer behaviour. This stage focuses on understanding the underlying patterns in the data through descriptive statistics and data visualization techniques [18]. Frequency analysis is conducted to examine the distribution of demographic variables, such as age, gender, and education level. This analysis helps to understand the characteristics of the consumer base and reveals any skewness or imbalances in the dataset.

Central tendency measures, such as mean, median, and standard deviation, are used to analyse responses on Likert scales, which are commonly used in surveys to measure attitudes or opinions [19]. These measures provide a deeper understanding of consumer preferences and behaviours.

Additionally, correlation analysis is performed to identify relationships between key independent variables such as pricing, product quality, trust, and convenience. Understanding how these variables interrelate helps in recognizing the most significant factors influencing consumer decisions. Reliability analysis is also conducted using Cronbach's Alpha [20] to ensure that the survey instrument has internal consistency, which is essential for validating the reliability of the results.

To validate the statistical relationships between categorical variables, the Chi-Square Test is applied. This test assesses the independence of categorical variables and determines whether any observed relationships are statistically significant. Furthermore, Analysis of Variance (ANOVA) is used to compare different consumer segments based on attributes like income, age, and shopping preferences [21]. This helps to identify any significant differences between groups and understand how these factors influence shopping behaviour.

3.3.Stage 3: Factor Analysis and Dimension Reduction

In the third stage, factor analysis is employed to reduce the high-dimensional survey data into more manageable and meaningful dimensions. Factor analysis helps group related variables into latent factors, providing a clearer understanding of the underlying structures influencing online shopping behaviour.

Principal Component Analysis (PCA) is the first technique used to extract the most significant factors from the dataset [22]. PCA helps reduce the dimensionality of the data while retaining as much variance as possible. This step simplifies the data, making it easier to interpret without losing crucial information.

Before proceeding with factor analysis, the Kaiser-Meyer-Olkin (KMO) test is conducted to ensure that the sample size is adequate for performing the analysis [23]. A high KMO value indicates that the dataset is suitable for factor analysis, as it suggests that there are underlying relationships between the variables.

Exploratory Factor Analysis (EFA) is then applied to identify the latent constructs that influence consumer decision-making. This technique groups related variables together into broader dimensions. Based on the PCA and factor loading scores, five key dimensions of consumer behaviour are identified. These dimensions include:

1. **Consumer Trust & Security**: This dimension reflects the importance of platform reliability and security in consumers' online shopping decisions.
2. **Pricing & Discounts**: This factor highlights the influence of price offers and discounts on purchasing decisions, suggesting that consumers are highly motivated by price incentives.
3. **Convenience & Ease of Use**: This factor represents the importance of time-saving features and easy navigation in online shopping platforms.
4. **Product Variety & Quality**: Consumers value a wide selection of high-quality products, which is a critical factor influencing their purchasing behaviour.
5. **Psychological Influence**: This dimension captures the emotional and motivational aspects of shopping, such as impulse buying driven by advertising or promotional strategies.

These extracted factors provide a deeper understanding of the primary drivers behind online shopping behaviour.

3.3.1. Identified Consumer Segments

Using the identified factors, consumer segments are classified into distinct categories. Four key consumer segments are found based on their preferences and behaviours:

1. **Price-Sensitive Buyers**: These consumers are primarily motivated by discounts and often compare prices before making a purchase.
2. **Brand-Conscious Shoppers**: These individuals prefer established, reputed brands and exhibit brand loyalty.
3. **Convenience-Oriented Consumers**: This group values ease of use and the speed of delivery, prioritizing a hassle-free shopping experience.
4. **Impulsive Shoppers**: These consumers are influenced by advertisements and emotional triggers, often making purchases on a whim.

Understanding these segments enables businesses to tailor marketing strategies to better address the specific needs and preferences of each group.

3.4.Stage 4: Predictive Modelling for Online Purchase Behaviour

The final stage of the research focuses on predicting consumer shopping behaviour using predictive modelling techniques [24]. The goal is to classify consumers based on their likelihood to make a high-frequency, occasional, or rare purchase. Supervised learning techniques are employed to build the predictive model, which can classify consumers into these categories based on the factors and consumer segments identified earlier. The predictive model provides actionable insights for businesses, allowing them to target the right customers with personalized marketing strategies. By understanding the likelihood of a consumer's purchasing behaviour, e-commerce platforms can optimize product recommendations, discount offers, and other personalized features to increase customer satisfaction and business profitability [25].

Throughout the research, ethical considerations are taken into account to ensure that consumer data is handled responsibly. The confidentiality of consumer information is maintained, and informed consent is obtained from participants before data collection. Additionally, robust data security measures are implemented to protect against unauthorized access and potential breaches, ensuring that consumer privacy is upheld.

IV. Results and discussion

The proposed hybrid statistical and machine learning model provides a comprehensive analysis of online shopping behaviour in Cuddalore District. The research follows a structured approach by integrating descriptive statistics, factor analysis, clustering, and predictive modelling. The results enable businesses to tailor marketing strategies, optimize product recommendations, and improve online shopping experiences for consumers. By segmenting consumers and predicting purchase behaviour, e-commerce platforms can implement personalized marketing strategies to enhance customer satisfaction and business profitability. Future research can extend this model to other regions and incorporate additional psychological and social factors for deeper insights. Various results were analysed at the completion of the experiment based on the framework implemented in SPSS and Python based Google Colabs. The result analysis initiated with the Descriptive statistics of Mean, Median and Mode with the factors tested in the initial stage after pre-processing the initial loaded consumer.xlsx dataset.

The Descriptive analysis started with independent factors of the dataset with different parameter analysis in a visualised manner. The Table.1. presents the Gender based distribution of the dataset for consumer behaviour analysis.

Table 1: Gender Distribution

Gender	Count	Percentage (%)
Male	245	61.4
Female	154	38.6

Inference: The majority of respondents are male (61.4%), while females constitute 38.6%. This suggests a higher online shopping engagement among male consumers in Cuddalore District. It is graphically presented in Fig.2.

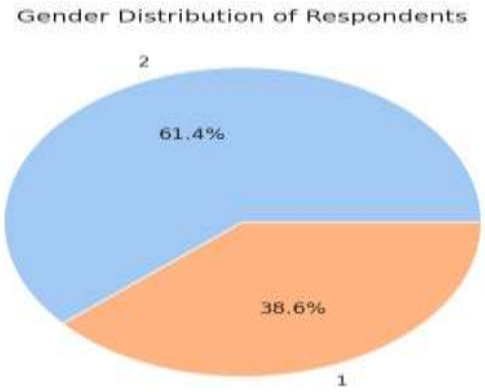

Fig.2. Gender Distribution Analysis

The Table.2. presents the Educational Qualification of Respondents of the dataset for consumer behaviour analysis.

Table 2: Educational Qualification of Respondents

Education Level	Count	Percentage (%)
Less than High School	72	18.14
High School Degree	49	12.34
Some College, No Degree	74	18.64
Bachelor's Degree	130	32.75
Master's Degree	72	18.14

Inference: A significant portion of respondents (32.75%) have a bachelor's degree, indicating that educated consumers are more engaged in online shopping. Fig.3. represents the Educational Qualification of Respondents in graphical form.

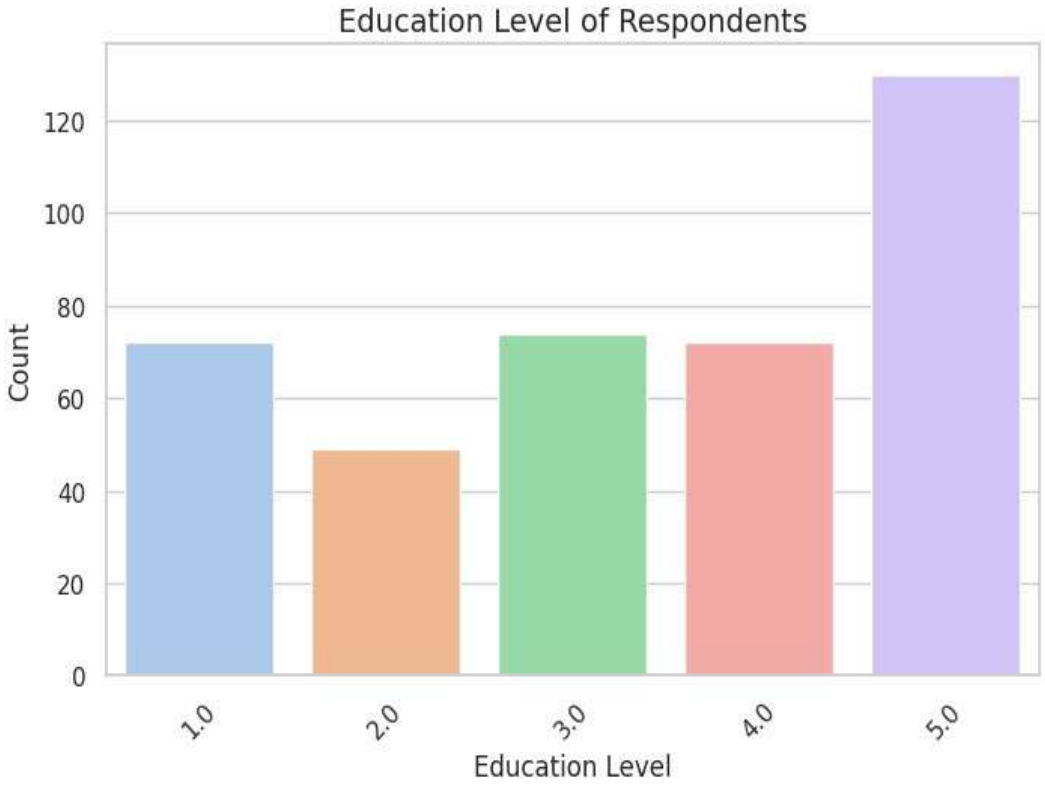

Fig.3. Educational Qualification of Respondents

The Marital Status distribution is presented in Table.3. based on the online consumer behaviour.

Table 3: Marital Status Distribution

Marital Status	Count	Percentage (%)
Married	279	69.92
Never Married	108	27.07
Widowed/Divorced/Separated	12	3.01

Inference: Married individuals form the majority of online shoppers (69.92%), which may indicate higher household purchasing responsibilities. It is graphically presented in Fig.4.

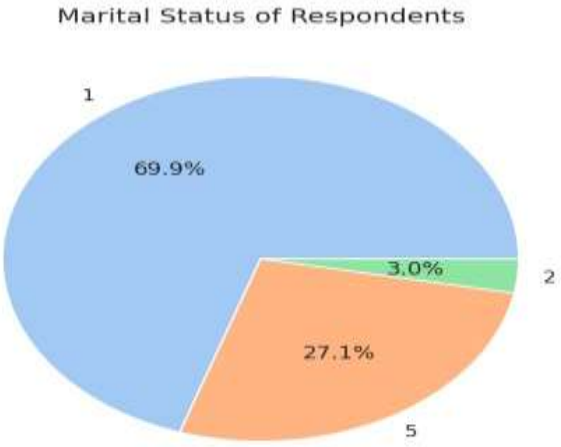

Fig.4. Marital Status Distribution

The Table.4. presents the Regional Classification of Respondents based on the online consumer behaviour

Table 4: Regional Classification of Respondents

Region	Count	Percentage (%)
Urban	214	53.63
Rural	185	46.37

Inference: Urban respondents slightly outnumber rural shoppers, suggesting that better digital infrastructure and internet penetration in urban areas drive online shopping behaviour. Its graphically presented in Fig.5.

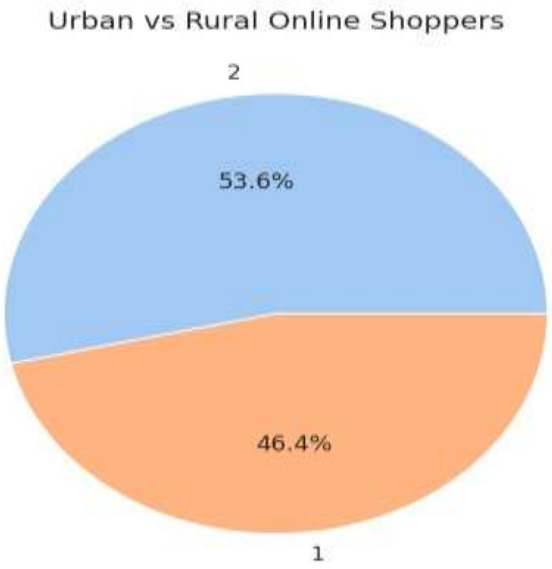

Fig.4. Regional Classification of Respondents (Rural Vs Urban)

Table.5. represents the Frequency of Online Purchases of consumers.

Table 5: Frequency of Online Purchases

Purchase Frequency	Count	Percentage (%)
Frequent	121	30.33
Occasional	205	51.38
Rare	73	18.30

Inference: The majority of respondents shop online occasionally (51.38%), indicating that online shopping is more of a supplementary shopping mode than a primary one. It is graphically represented in Fig.6

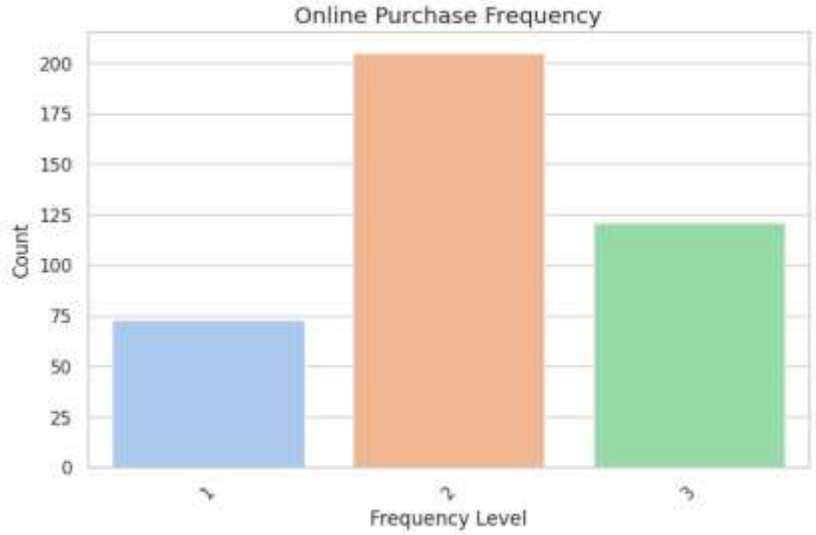

Fig.6. Frequency of Online Purchases

The analysis of Family dependents is presented in Table.6. and Fig.7.

Table 6: Family Dependents

Family Members	Count	Percentage (%)
Less than 2	62	15.54
Between 2 to 5	316	79.20
More than 5	21	5.26

Inference: Households with 2-5 dependents dominate (79.2%), implying that family size could influence online purchase decisions.

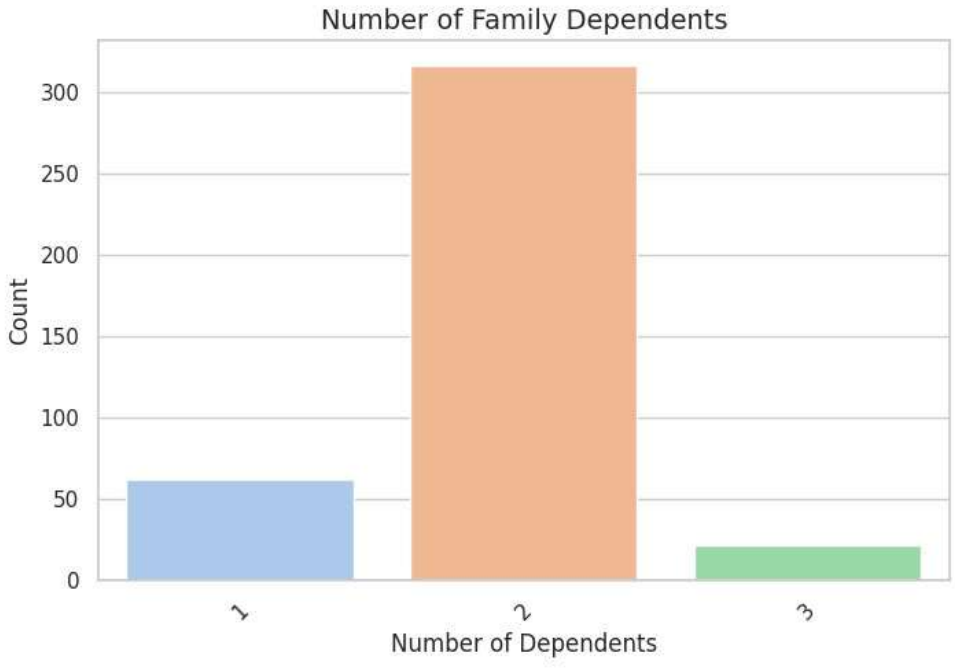

Fig.7. Family Dependents analysis

The analysis of Family Income Distribution (Per Year) is presented in Table.7. and Fig.8.

Table 7: Family Income Distribution (Per Year)

Income Range (INR)	Count	Percentage (%)
Less than 2 Lakhs	221	55.39
2 to 7 Lakhs	122	30.58
More than 7 Lakhs	56	14.04

Inference: Most respondents (55.39%) belong to lower-income families, which might influence price sensitivity and shopping frequency.

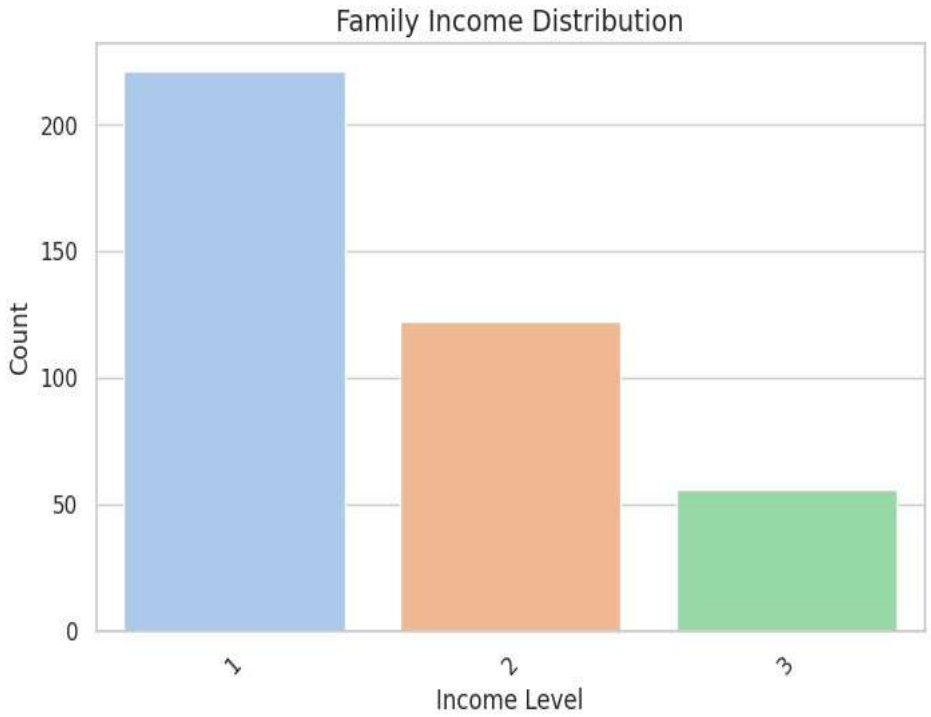

Fig.8. Family Income Distribution (Per Year)

The analysis of Personal Income Distribution (Per Year) is presented in Table.8. and Fig.9.

Table 8: Personal Income Distribution (Per Year)

Income Range (INR)	Count	Percentage (%)
Less than 2 Lakhs	254	63.66
2 to 5 Lakhs	108	27.07
More than 5 Lakhs	37	9.27

Inference: The majority of respondents have a personal income of less than 2 lakhs per year, suggesting that affordability and discounts play a key role in their shopping behaviour.

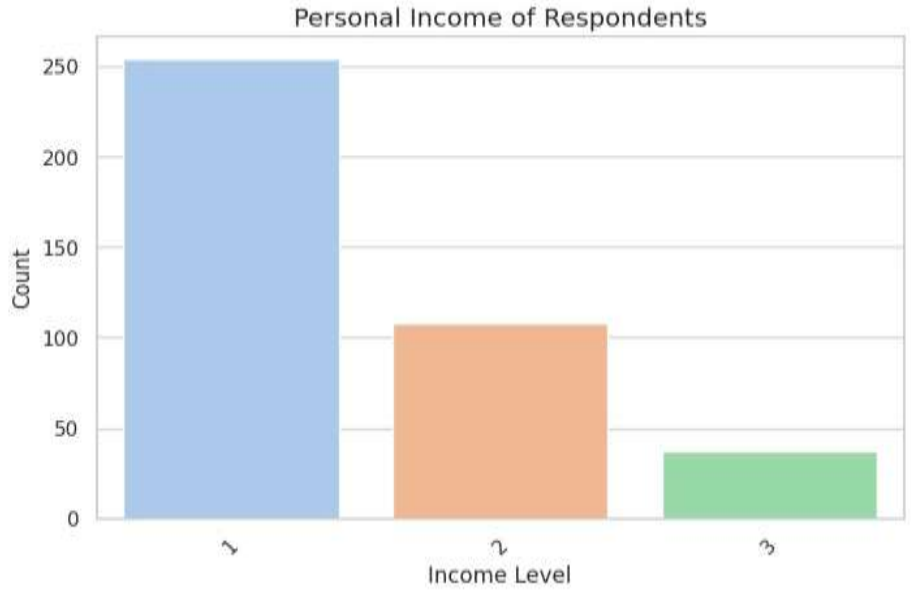

Fig.9. Personal Income Distribution (Per Year)

The analysis of Consumer behaviour Ratings is presented in Table.9. and Fig.10.

Table 9: Consumer behaviour Ratings

Factor	Mean	Standard Deviation
Convenience	3.30	1.21
Preference Over Physical Stores	3.09	1.26
Buying More Online	3.06	1.26
Reliance on Reviews	3.98	1.02
Increase in Online Shopping Over Time	3.10	1.30

Inference: Consumers heavily rely on online reviews (mean = 3.98) while making purchase decisions, showing the significance of digital word-of-mouth marketing.

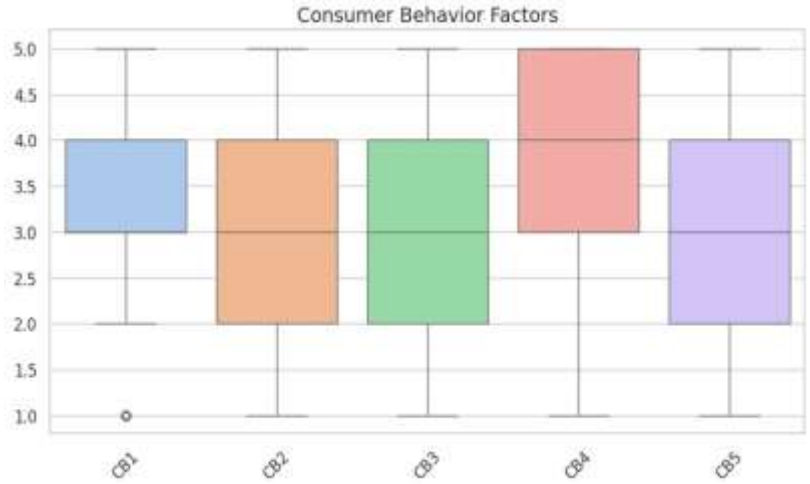

Fig.10. Consumer behaviour Ratings

Similarly, the analysis of various product satisfaction ratings has been assessed and presented in Table.10. and Fig.11.

Table 10: Product Satisfaction Ratings

Factor	Mean	Standard Deviation
Product Quality	3.34	1.14
Product Variety	3.64	0.98
Product Description Accuracy	3.46	1.01

Influence of Product Images	3.59	1.10
Brand Trust	3.40	1.22

Inference: Customers find online product variety satisfactory (mean = 3.64), but brand trust remains moderate (mean = 3.40), indicating concerns over authenticity.

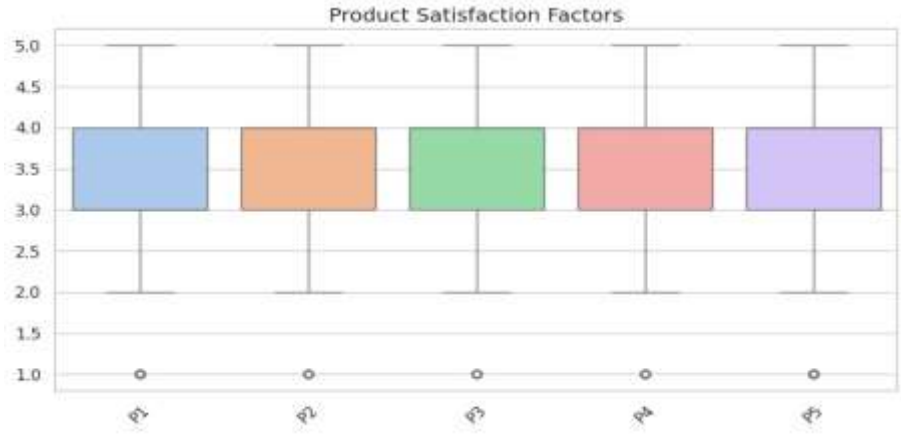

Table 11: Product Satisfaction Ratings

The Pricing Factor Ratings that is another influential factor is presented in Table.11. and Fig.12.

Table 11: Pricing Factor Ratings

Factor	Mean	Standard Deviation
Better Prices than Offline	3.65	1.21
Discounts Influence Purchase	3.73	1.05
Price Comparisons Before Purchase	3.83	1.06
Transparency in Pricing	3.37	1.00
Willingness to Pay for Convenience	3.23	1.23

Inference: Price comparisons are an essential part of online shopping (mean = 3.83), highlighting price sensitivity among consumers.

Fig.12. Pricing Factor Ratings

The third factor based on the Convenience Factor Ratings is analysed and presented in Table.12. and Fig.13.

Table 12: Convenience Factor Ratings

Factor	Mean	Standard Deviation
Saves Time	3.95	1.16
Easy to Navigate	3.81	0.99
Shopping from Anywhere	3.79	1.10
Avoiding Crowds	3.92	1.03

Inference: The ability to shop from anywhere (mean = 3.79) is a strong motivator for online purchases.

Fig.13. Convenience Factor Ratings

The Trust & Security Ratings factor based on the online consumer behaviour is analysed and presented in Table.13. and Fig.14.

Table 13: Trust & Security Ratings

Factor	Mean	Standard Deviation
Trust in Online Platforms	3.43	1.16
Confidence in Personal Data Security	3.03	1.14
Trust in Product Descriptions	3.28	0.98
First Choice is Trusted Stores	3.53	1.08

Inference: Consumers have moderate trust in online platforms (mean = 3.43), but concerns about data security persist (mean = 3.03).

Fig.14. Trust & Security Ratings

The Advertisement Influence Ratings factor based on the online consumer behaviour is analysed and presented in Table.14. and Fig.15.

Table 14: Advertisement Influence Ratings

Factor	Mean	Standard Deviation
Ads Influence Purchases	3.52	1.17
Clicking on Ads	3.20	1.21
Targeted Ads Are Useful	3.50	1.17

Inference: Digital advertising plays a significant role in purchase decisions, but not all consumers actively engage with ads.

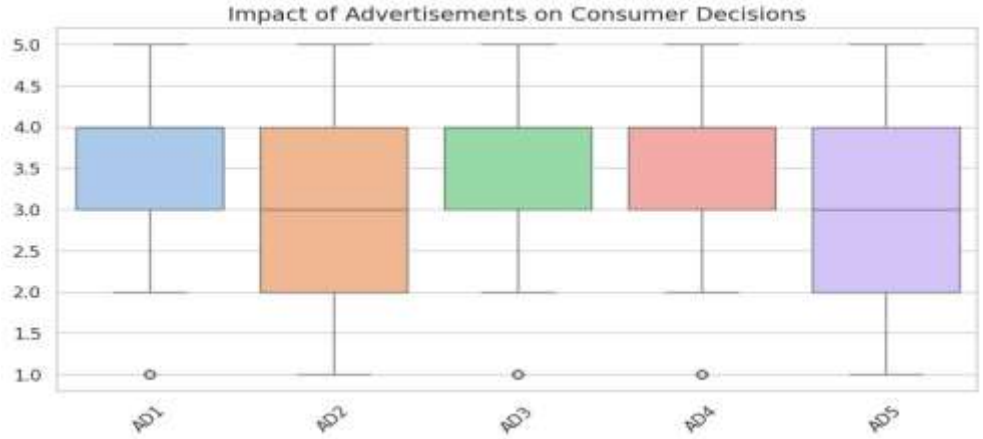

Fig.15. Advertisement Influence Ratings

The Final factor analysis for reliability check using Cronbach's Alpha for online consumer behaviour is analysed and presented in Table.15. and Fig.16.

Table 15: Cronbach's Alpha for Reliability Analysis

Factor Group	Cronbach's Alpha
Consumer Behaviour	0.631
Product Satisfaction	0.664
Pricing Factor	0.727
Convenience Factor	0.705
Trust & Security	0.667

Inference: Most factor groups have good reliability (>0.7), confirming internal consistency of the survey instrument.

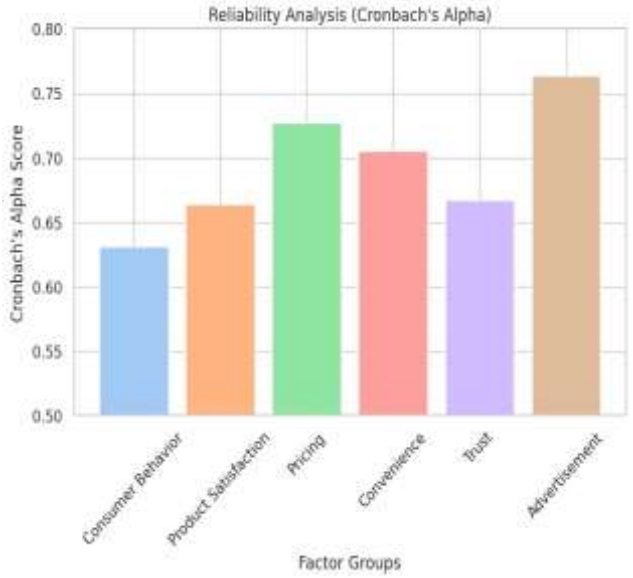

Fig.16. Cronbach's Alpha for Reliability Analysis

As an Overall Insight, the following inferences are observed at the end of the analysis.

- Urban consumers, males, and educated individuals are dominant in online shopping.
- Price sensitivity is high, with frequent comparisons before purchase.
- Trust and security concerns persist, requiring improvements in data protection measures.
- Convenience and time-saving factors drive online shopping adoption.

Apart from these results various finds are also summarised on the research work.

V. Findings and Suggestions

The study on factors influencing online shopping behaviour among consumers in Cuddalore District has yielded several key insights. Based on the analysis of demographic patterns, purchasing preferences, pricing sensitivity, trust factors, and psychological influences, the following findings have been identified:

1. Demographic Influence on Online Shopping

- A **higher percentage of male consumers (61.4%)** are engaged in online shopping compared to female consumers (38.6%).
- **Educated individuals**, particularly those with a **bachelor's degree (32.75%)**, form the majority of online shoppers, indicating a direct link between education level and digital adoption.
- Most respondents **belong to middle-income groups**, with **55.39% of families earning below 2 lakhs per year**. This shows that affordability and pricing strategies play a crucial role in purchasing decisions.
- **Urban consumers (53.63%)** engage more in online shopping compared to rural consumers (46.37%), highlighting the digital divide and the need for better e-commerce penetration in rural areas.

2. Online Shopping Frequency and Preferences

- **51.38% of consumers shop online occasionally**, while **30.33% shop frequently**. This suggests that online shopping serves as a complementary mode rather than a primary shopping channel.
- The study found that **younger individuals (aged 20-35)** are more inclined toward online shopping due to their familiarity with digital platforms and ease of access to the internet.
- **Families with 2 to 5 dependents (79.2%)** are the most active in online shopping, implying that family size influences purchasing habits.

3. Consumer behaviour Towards Pricing and Discounts

- Consumers prefer **comparing prices before making a purchase (Mean = 3.83)**, showing high price sensitivity.

Discounts and promotional offers strongly influence purchase decisions (Mean = 3.73), indicating that e-commerce platforms must focus on strategic pricing models.

- Consumers **believe that online prices are generally better than physical stores (Mean = 3.65)**, but pricing transparency remains a concern for some.

4. Trust and Security Concerns in Online Shopping

- **Trust in online platforms remains moderate (Mean = 3.43)**, with many consumers expressing concerns over fraudulent practices, payment security, and product authenticity.
- Consumers **do not fully trust online payment systems (Mean = 3.03)**, indicating the need for better financial security mechanisms and buyer protection policies.
- **Reliance on online reviews (Mean = 3.98)** is significant, demonstrating that consumer decisions are largely influenced by feedback and ratings from other buyers.

5. Product and Brand Preferences

- **Variety and availability of products (Mean = 3.64)** have been identified as one of the key factors influencing online shopping behaviour.
- Consumers trust **well-established brands more than lesser-known ones**, reinforcing the importance of brand reputation in online sales.
- **Product images and descriptions significantly impact purchase decisions (Mean = 3.59)**, indicating that detailed product information and high-quality visuals are crucial for conversion rates.

6. Convenience as a Driving Factor for Online Shopping

- **Saving time (Mean = 3.95)** and **avoiding crowded shopping areas (Mean = 3.92)** are primary reasons consumers prefer online shopping over traditional retail.
- **Ease of navigation and ordering process (Mean = 3.81)** also plays a significant role in shaping consumer preferences.

7. Impact of Advertisements on Consumer Decisions

 Advertisements influence purchasing decisions (Mean = 3.52), but not all consumers actively engage with them.

Consumers prefer **targeted advertisements that match their interests (Mean = 3.50)** rather than random marketing messages.

5.1.Suggestions for Improvement and Future Growth

Based on the findings, several strategic recommendations can enhance consumer experience and encourage online shopping adoption in Cuddalore District.

1. Enhancing Trust and Security in Online Shopping

- Strengthening fraud detection measures: E-commerce platforms must implement advanced fraud detection systems to prevent counterfeit products and ensure secure transactions.
- Providing detailed product descriptions and verified reviews: Ensuring that all products have genuine customer reviews, high-resolution images, and accurate specifications will boost consumer trust.

- Implementing robust data privacy policies: Online platforms should ensure stringent data protection laws and encryption techniques to enhance customer confidence in online transactions.

2. Targeting Price-Sensitive Consumers

- Offering personalized discounts: Since price sensitivity is high, e-commerce platforms should adopt dynamic pricing strategies based on customer preferences and purchase history.
- Introducing budget-friendly product ranges: Platforms should cater to lower and middle-income groups by promoting affordable yet quality products.
- Providing transparent pricing: Clearly stating product costs, hidden charges, and discount mechanisms can improve consumer satisfaction.

3. Expanding Digital Reach in Rural Areas

- Strengthening internet accessibility: Government initiatives and private sector investments should focus on improving digital infrastructure in rural areas.
- Localized marketing strategies: Platforms should promote vernacular advertisements and customer support in regional languages to connect better with rural consumers.

Encouraging digital literacy: Conducting awareness programs on safe online transactions and e-commerce benefits can boost rural consumer participation.

4. Improving User Experience and Convenience

- Optimizing website and app performance: Faster loading times, seamless navigation, and a simplified checkout process can enhance the user experience.
- Enhancing mobile shopping experiences: Given the increasing number of mobile users, e-commerce platforms should prioritize mobile-friendly interfaces with optimized search features.
- Providing efficient customer support: Ensuring quick issue resolution, live chat assistance, and easy return policies can improve consumer satisfaction.

5. Strengthening Consumer Engagement through Advertisement Strategies

- Focusing on personalized marketing: AI-driven recommendation systems should be used to display ads relevant to consumers' past purchase behaviour.
- Influencer marketing and social proofing: Collaborating with social media influencers and utilizing video testimonials can make advertisements more impactful.
- Incentivizing advertisement engagement: Providing cashback offers or discount codes for ad interactions can encourage consumer engagement with marketing content.

6. Encouraging Sustainable Online Shopping Practices

- Promoting eco-friendly product options: E-commerce platforms can introduce a 'Sustainable Products' section to attract environmentally conscious consumers.
- Encouraging recyclable packaging: Companies should adopt eco-friendly packaging solutions and educate consumers on waste reduction practices.
- Offering incentives for sustainable choices: Providing discounts for customers opting for green delivery options can encourage responsible shopping habits.

7. Strengthening Logistics and Delivery Services

- Expanding delivery networks in remote areas: Partnering with local courier services can ensure faster and cost-effective deliveries in rural regions.

Introducing flexible delivery options: Providing choices like scheduled delivery, express shipping, and pickup points can improve customer convenience.

- Enhancing return and refund policies: Simplifying the return process and offering quicker refunds can enhance consumer trust in online platforms.

The findings of this study indicate that trust, pricing, convenience, and product diversity are the key determinants of online shopping behaviour in Cuddalore District. While urban consumers dominate the online shopping space, rural areas exhibit growth potential if digital accessibility and consumer awareness are improved. Security concerns, affordability, and ease of access remain critical challenges that e-commerce platforms need to address. By implementing personalized pricing strategies, enhanced security protocols, optimized digital infrastructure, and customer-centric marketing techniques, online platforms can drive higher adoption rates and strengthen customer loyalty. Further research can explore the role of emerging technologies such as AI-driven shopping assistants, blockchain-based payment systems, and augmented reality product trials in improving online shopping experiences. These findings and recommendations provide valuable insights for e-commerce businesses, policymakers, and digital marketers to enhance the overall efficiency of online shopping ecosystems in developing regions like Cuddalore District.

VI. Conclusion

The study on factors influencing online shopping behaviour among consumers in Cuddalore District provides valuable insights into consumer preferences, challenges, and opportunities in the e-commerce sector. With the increasing adoption of digital shopping platforms, understanding the driving forces behind consumer behaviour has become essential for businesses, policymakers, and marketers. This research identifies key determinants such as demographics, pricing sensitivity, convenience, trust, product variety, and digital advertising influence, offering a comprehensive analysis of how these elements shape online shopping decisions. One of the major findings of this study is that demographics play a crucial role in influencing online shopping behaviour. Educated individuals, particularly those with a bachelor's degree, are more likely to engage in online shopping due to greater digital literacy and familiarity with e-commerce platforms. Similarly, urban consumers have a higher rate of online shopping adoption compared to rural

consumers, primarily due to better internet accessibility and exposure to digital payment systems. However, the study also highlights that a significant portion of consumers in semi-urban areas is gradually shifting towards online shopping, provided they receive adequate support in terms of logistics, product transparency, and customer service.

Another key observation from this research is the importance of pricing and discounts in shaping consumer decisions. Consumers actively compare prices across multiple online platforms before making a purchase, emphasizing the role of competitive pricing in ecommerce. Discounts, seasonal sales, and promotional offers significantly influence purchase decisions, making it imperative for online retailers to develop dynamic pricing strategies. Price transparency is also a major concern, as many consumers feel that hidden charges and delivery costs often reduce the perceived value of a product. Ensuring clear and upfront pricing details can help build long-term consumer trust. The study also highlights trust and security concerns as one of the main barriers to widespread online shopping adoption. Many consumers remain sceptical about online payment security, product authenticity, and return policies. The fear of receiving defective or counterfeit products discourages some shoppers from making frequent online purchases. To address these concerns, e-commerce platforms need to implement stricter quality control measures, provide detailed product descriptions with verified customer reviews, and enhance data security to protect consumer information. Transparent refund and exchange policies can further improve consumer confidence in online transactions.

Convenience is another crucial factor that encourages online shopping. Consumers prefer digital platforms because they offer time-saving options, home delivery services, and ease of access. The ability to browse products from anywhere, avoid crowded marketplaces, and receive doorstep delivery makes online shopping highly appealing. However, to sustain consumer interest, e-commerce platforms must continue improving their user interfaces, mobile shopping experiences, and order tracking mechanisms. The role of digital advertisements in influencing purchase behaviour has also been examined in this research. While advertisements play a key role in attracting consumers, not all advertisements lead to conversions. Personalized and targeted marketing strategies are more effective in engaging potential buyers. Consumers respond better to advertisements that align with their interests and previous shopping behaviour. E-commerce platforms should therefore focus on data-driven marketing approaches that deliver relevant promotions to the right audience.

This study also segments consumers based on their online shopping behaviour, categorizing them into groups such as price-sensitive buyers, brand-conscious shoppers, conveniencedriven consumers, and impulsive buyers. This segmentation allows businesses to develop customized marketing strategies that cater to different consumer needs. Understanding these behavioural patterns enables online retailers to optimize their product offerings, promotional campaigns, and customer service strategies accordingly. The findings of this study provide valuable insights into consumer behaviour patterns and the challenges that need to be addressed for better e-commerce adoption in Cuddalore District. By implementing strategic improvements in pricing, trust-building, convenience, and targeted marketing, businesses can effectively cater to the needs of online shoppers and enhance customer satisfaction. As digital transformation continues to reshape the retail landscape, the success of e-commerce platforms will largely depend on their ability to adapt to changing consumer expectations and provide a secure, user-friendly, and personalized shopping experience.

References

1. Suprayitno, D. (2024). Analysis of customer purchase interest in digital marketing content. *Journal of Management*, *3*(1), 171-175.
2. Gooljar, V., Issa, T., Hardin-Ramanan, S., & Abu-Salih, B. (2024). Sentiment-based predictive models for online purchases in the era of marketing 5.0: a systematic review. *Journal of Big Data*, *11*(1), 107.
3. Munandar, D. (2024). The role of digital marketing, influencer marketing and electronic word of mouth (eWOM), on online purchase decisions for consumers of private university students in Bandung West Java. *International Journal of Artificial Intelligence Research*, *6*(1.2).
4. Otopah, A. A., Dogbe, C. S. K., Amofah, O., & Ahlijah, B. (2024). Digital marketing and purchase intention of bank services: the role of trust and engagement. *International Journal of Bank Marketing*, *42*(7), 1920-1945.
5. Theodorakopoulos, L., & Theodoropoulou, A. (2024). Leveraging big data analytics for understanding consumer behavior in digital marketing: A systematic review. *Human Behavior and Emerging Technologies*, *2024*(1), 3641502.
6. Duffett, R. G., & Maraule, M. (2024). Customer engagement and intention to purchase attitudes of generation Z consumers toward emojis in digital marketing communications. *Young Consumers*, (ahead-of-print).
7. Pratama, D. P. A. (2024). BRANDING BASED ON DIGITAL MARKETING FOR SURABAYA STUDENTS: HIGH PURCHASE DECISION?. *International Journal of Economics, Science, and Education*, *1*(1), 16-24.
8. Teangsompong, T., & Sawangproh, W. (2024). Understanding online purchase intention of plant-based foods: Exploring causal factors and moderating role of self-efficacy within the SOR theory. *Heliyon*, *10*(10).
9. Teangsompong, T., & Sawangproh, W. (2024). Understanding online purchase intention of plant-based foods: Exploring causal factors and moderating role of self-efficacy within the SOR theory. *Heliyon*, *10*(10).

10. Al Kurdi, B., Nuseir, M. T., Alshurideh, M. T., Alzoubi, H. M., AlHamad, A., & Hamadneh, S. (2024). The impact of social media marketing on online buying behavior via the mediating role of customer perception: evidence from the Abu Dhabi retail industry. In *Cyber security impact on digitalization and business intelligence: big cyber security for information management: opportunities and challenges* (pp. 431-449).
11. Cham: Springer International Publishing.
12. Safeer, A. A. (2024). Harnessing the power of brand social media marketing on consumer online impulse buying intentions: a stimulus-organism-response framework. *Journal of Product & Brand Management*, *33*(5), 533-544.
13. Braun, M., De Langhe, B., Puntoni, S., & Schwartz, E. M. (2024). Leveraging digital advertising platforms for consumer research. *Journal of Consumer Research*, *51*(1), 119-128.
14. Jin, K., Zhong, Z. Z., & Zhao, E. Y. (2024). Sustainable digital marketing under big data: an AI random forest model approach. *IEEE Transactions on Engineering Management*, *71*, 3566-3579.
15. Ying, L. J., Te Chuan, L., Rashid, U. K., & Seman, N. A. A. (2025). Social Media Marketing in Industry 4.0: The Role of TikTok in Shaping Generation Z's Purchase Intentions. *Procedia Computer Science*, *253*, 2176-2185.
16. Saputra, M. Y. H. Analysis of Research Methods in Digital Marketing Posters: Insights from the 2025 Poster Exhibition and Scientific Article Thesis Session.
17. Al-Gasawneh, J., Alsoud, M., Alhawamdeh, Z. M., Bani-Ata, T. J., Alghizzawi, M., & Daoud, M. K. (2024, February). Exploring the influence of digital marketing strategies on enhancing customer satisfaction in contemporary business environments. In *2024 2nd international conference on cyber resilience (ICCR)* (pp. 1-7). IEEE.
18. Malik, V., Mittal, R., Chaudhry, R., & Yadav, S. A. (2024, March). Predicting purchases and personalizing the customer journey with artificial intelligence. In *2024 11th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)(ICRITO)* (pp. 1-5). IEEE.
19. Vankhede, P., & Kumar, S. (2024, February). Predictive Analytics for Website User Behavior Analysis. In *2024 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)* (pp. 1-6). IEEE.
20. Sangsawang, T. (2024). Predicting ad click-through rates in digital marketing with support vector machines. *Journal of Digital Market and Digital Currency*, *1*(3), 225246.
21. Mukti, F. O. D., & Isa, M. (2024). The effect of digital marketing, word of mouth, brand trust and image on the purchase decision.
22. McDermott, O., Tansha, J. S., Trubetskaya, A., Rosa, A., & Moran, R. (2025). Digital marketing process enhancement in an online store utilising a combination of design of experiments and lean six sigma. *International Journal of Lean Six Sigma*.
23. Anurag, U., & Kaur, S. (2024). An inventive coupled approach of Pearson correlation and principal component while analysing the sustainability of digital marketing for the Indian handicraft artisans. *International Journal of Innovation and Sustainable Development*, *18*(5-6), 761-777.
24. Traymbak, S., Shukla, A., & Dutta, M. (2024). A Study of Reliability and Validity of Constructs of Neuromarketing Among Indian Consumers. *Annals of neurosciences*, *31*(2), 86-94.
25. Sunarya, P. A., Rahardja, U., Chen, S. C., Lic, Y. M., & Hardini, M. (2024). Deciphering digital social dynamics: A comparative study of logistic regression and random forest
26. in predicting e-commerce customer behavior. *Journal of Applied Data Sciences*, *5*(1), 100-113.
27. Zaghloul, M., Barakat, S., & Rezk, A. (2024). Predicting E-commerce customer satisfaction: Traditional machine learning vs. deep learning approaches. *Journal of Retailing and Consumer Services*, *79*, 103865.