A Study on Consumer Online Shopping Habits Using Cluster Analysis

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Abstract: *The purpose of the present study was to classify the customers on the basis of online shopping habits. A sample of 200 customers whose age ranging from 20 and above years were taken . The data was collected by framing the questionnaire and was given to customers who have done online shopping ..The objective of this paper is to study about the consumer behavior on online shopping habits and to classify the cases according to the online shopping habits. The study also deals with the association between variables of interest and cluster number of cases. It is found that using cluster analysis there are three types of customers namely, customers who prefer traditional shopping than online shopping. Customers who enjoy online shopping since it saves time, broad selection of products etc. and customers who prefer cash than credit/debit cards for payment . It is also found that the customers are aware about online shopping and also they are satisfied about the products.*

Keywords: *Chi-square test, Cluster Analysis, Online Shopping, Percentage Analysis, Questionnaire method, Satisfaction level*

1. INTRODUCTION

Online shopping (sometimes known as e-tail from "electronic retail" or e-shopping) is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser.Online shopping or e-shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the internet using a web browser. Alternative names are: e-wed store, e-shop, e-store, internetShop ,web-shop, web-store, online store, online storefront and virtual store . An online shop evokes the physical analogy of buying products or services at a bricks-and-mortarretailer or shopping center; the process is called business-to-consumer (B2C) online shopping. In the case where a business buys from another business, the process is called business-to-business (B2B) online shopping. The largest of these online retailing corporations are Alibaba, Amazon.com, and eBay.

Customers

Online customers must have access to the Internet and a valid method of payment in order to complete a transaction.Generally, higher levels of education and personal income correspond to more favorable perceptions of shopping online. Increased exposure to technology also increases the probability of developing favorable attitudes towards new shopping channels.

Product selection

Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine.

Once a particular product has been found on the website of the seller, most online retailers use shopping cart software to allow the consumer to accumulate multiple items and to adjust quantities, like filling a physical shopping cart or basket in a conventional store. A "checkout" process follows (continuing the physical-store analogy) in which payment and delivery information is collected, if necessary. Some stores allow consumers to sign up for a permanent online account so that some or all of this information only needs to be entered once. The consumer often receives an e-mail confirmation once the transaction is complete.

Less sophisticated stores may rely on consumers to phone or e-mail their orders (although full credit card numbers, expiry date, and Card Security Code,[12] or bank account and routing number should not be accepted by e-mail, for reasons of security).

Payment

Online shoppers commonly use a credit card or a PayPal account in order to make payments. However, some systems enable users to create accounts and pay by alternative means, such as:

- Billing to mobile phones and landlines
- Cash on delivery (C.O.D.)
- Cheque
- Debit card
- Direct debit
- Electronic money
- Gift cards
- Postal money order

Product delivery

Once a payment has been accepted, the goods or services can be delivered in the following ways. For physical items:

- Shipping: The product is shipped to a customer-designated address. Retail package delivery is typically done by the public postal system or a retail courier
- Drop shipping: The order is passed to the manufacturer or third-party distributor, who then ships the item directly to the consumer, bypassing the retailer's physical location to save time, money, and space.

Advantages

Convenience

Online stores are usually available 24 hours a day, and many consumers have Internet access both at work and at home. Other establishments such as internet cafes and schools provide internet access as well. In contrast, visiting a conventional retail store requires travel and must take place during business hours.

Information and reviews

Online stores must describe products for sale with text, photos, and multimedia files, whereas in a physical retail store, the actual product and the manufacturer's packaging will be available for direct inspection (which might involve a test drive, fitting, or other experimentation).

Price and selection

One advantage of shopping online is being able to quickly seek out deals for items or services provided by many different vendors (though some local search engines do exist to help consumers locate products for sale in nearby stores). Search engines, online price comparison services and discovery shopping engines can be used to look up sellers of a particular product or service.

Top 10 Online Shopping Wedsites:

- Flipkart.com
- Amazon.in
- eBay.in
- Yepme.com
- Shopclues.com
- Snapdeal.com
- Myntra.com
- Sulekha.com
- Indiaplazza.in
- Big basket

2. *OBJECTIVES OF THE STUDY*

- To study about the consumer behavior on online shopping habits.
- To classify the cases according to the online shopping habits
- To study association between gender and cluster number of cases
- To study association between age and cluster number of cases
- To study association between occupation and cluster number of cases
- To study association between monthly income and cluster number of cases

3. *SAMPLING TECHNIQUE*

The primary data used in this study has been collected by way of preparing a questionnaire. A sample of the questionnaire is given in the Annexure.

The mode of the data collection used in the present survey is through direct interaction with the customer by using questionnaire. The elements in the process of sampling are

- Selection of the sample
- Collection of information
- Drawing of inference

POPULATION AND SAMPLING UNIT : The sample involved in the study represents all the **ONLINE SHOPPING CUSTOMERS**

SAMPLE SIZE: The size of the sample is 200

SAMPLING PROCEDURE**:** In the present study, CONVENIENCE method of sampling has been adopted for choosing the samples.

4. MATERIALS AND METHODS

- Frequency analysis produces a table of frequency counts and percentages for the value of an individual variable. It was used in this research to provide descriptive information of the data such as frequency, and distribution of the responses, and to summaries the responses to each question.

Chi-squared Test of Independence

- Assume f_{ij} is the observed frequency count of events belonging to both i^{th} category of x and j^{th} category of y. Also assume e_{ij} to be the corresponding expected count if x and y are independent. The null hypothesis of the independence assumption is to be rejected if the p-value of the following Chi-squared test statistic is less than a given significance level α (5% or 1%).

$$\chi^2 = \sum_{i,j} \frac{(f_{ij} - e_{ij})^2}{e_{ij}}$$

- **Cluster analysis** or **clustering** is the task of grouping a set of objects in such a way that objects in the same group (called a **cluster**) are more similar (in some sense or another) to each other than to those in other groups (clusters). K-Means Clustering Hierarchical clustering requires a distance or similarity matrix between all pairs of cases is used in this study

5. RESULTS AND DISCUSSION PERCENTAGE ANALYSIS

Buying habits

➢ 64.5% of the respondents are males and 35.5% of the respondents are females
➢ 64% of the respondents are in the age group 25-35
➢ 43% of the respondents are Under Graduate and 33% are the respondents Post Graduate
➢ 38% of the respondents have monthly income 15000 – 25000.
➢ 76% are respondents done online shopping in Flipkart , 65% are respondents have done online shopping in Amazon and 50.5% are respondents have done online shopping in Snapdeal
➢ 80.5% of the respondents buy computer products,62.5% of the respondents buy electronic gadgets 60% of the respondents buy clothes/shoes and 11% of the respondents buy Furniture through online shopping

Views on online shopping

➢ 46% agree that shopping on internet saves time
➢ 39% agree that they are able to shop at any time of the day
➢ 23.5% of the respondents agree to prefer traditional/conventional shopping to online shopping
➢ 33.5% of the respondents agree that online shopping is risky

Satisfaction and awareness about online shopping

➢ 34% agree that products online shopping more expensive than sold in retail store is an important factor to refrain from online shopping
➢ 49% are satisfied on online purchase
➢ 42% are aware of online shopping through in online advertisement and 29.5% are aware of online shopping through in media advertisement

By using **Cluster analysis** the number of cases have been classified in to 3 cluster namely

Cluster 1 shows that the respondents **prefer traditional shopping** than online shopping. On the other hand **Cluster 2** respondents **enjoy online shopping** since it saves time, broad selection of products etc. In **Cluster 3** respondents **prefer cash** than credit/debit cards for payment.

The following table gives the number of cases in each cluster.

Number of Cases in each Cluster		
Cluster	1	82.000
	2	67.000
	3	51.000
Valid		200.000
Missing		.000

The different chi square tests are conducted between the clusters and variables of interest. It is found that the results are found to significant at 5% level of significance and are given below

➢ There is association between gender and cluster number of cases. Most of the respondents of cluster 1, 3 are males and 43% respondents of cluster 2 are females.
➢ There is association between age and cluster number of cases. Most of the respondents of cluster 1 ,2 are in the age group 20-35 and most respondents of cluster 3 are in age group more than 35

➢ There is association between education and cluster number of cases. Most of the respondents of cluster 1 and 3 are under graduate and respondents of cluster 2 are post graduate.

➢ There is association between occupation and cluster number of cases. Most of the respondents of cluster 1 are working in public sector , cluster 2 working in private sector and cluster 3 working in business respondents of cluster .

➢ There is association between monthly income and cluster number of cases. Most of the respondents of cluster 1and2 have annual income about 5000-15000 and most of the respondents of cluster 3 have annual income about 25000-35000.

6. CONCLUSION

In this paper the consumer behavior on online shopping habits is studied. The respondent are classified as the cases according to the online shopping habits by cluster analysis. The study also deals with the association between variables of interest and cluster number of cases. It is found that using cluster analysis there are three types of customers namely, customers who prefer traditional shopping than online shopping. Customers who enjoy online shopping since it saves time, broad selection of products etc. and customers who prefer cash than credit/debit cards for payment . It is also found that the customers are aware about online shopping and also they are satisfied about the products.

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