



Research Article

**FACTORS INFLUENCING BUYERS TO PURCHASE THROUGH ONLINE IN
NILGIRIS DISTRICT – FACTOR ANALYSIS**

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ABSTRACT

Online shopping is a form of electronic commerce which allows consumers to directly purchase products or services from seller over the internet using web browser. Exploding smartphone usages in India have also favoured tremendously for the exorbitant growth of online shopping in India in the recent years. Several online retail shopping sites such as Flipkart, Amazon, Snapdeal, Jabong, Myntra, eBay, Paytm, Shopclues etc., have been in the online retail market in India attracting Indian buyers. This study has been undertaken to identify the factors influencing buyers to purchase through online is confined to Nilgiris district. The sample size selected for the study is 600 respondents. Results revealed that the most important variables influencing online shopping are 'More information' 'Easy to surf', 'Satisfying needs', 'Home Delivery', 'Delivery on assured/estimated time', 'Quick settlement of issues', 'Reasonable shipping charges', 'Order tracking and cancelling facility' and 'Low to high price products'.

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INTRODUCTION

India has been gaining importance as a high potential lucrative market for retailers especially global retailers. Since the economic reforms, Indian consumers have just begun to understand benefits of using internet for shopping. Exploding smartphone usages in India have also favoured tremendously for the exorbitant growth of online shopping in India in the recent years. However, the growing number of internet users has not been reflected to the online sales.

Online shopping is a form of electronic commerce which allows consumers to directly purchase products or services from seller over the internet using web browser. Online shopping provides all type of goods to be available in the virtual world. It is just like a shop in the neighborhood, selling all type of goods but with some prominent differences. One can access these shops any time without stepping out of their home/office. It can be accessed any time when you are on the move, relaxing in your home or having a time out at your office. All the products are displayed with the price and detailed mention of the features. Potential customers can have a look at them, analyse what other similar online shopping outlets are offering and can get the best deal out of it.

Several online retail shopping sites such as Flipkart, Amazon, Snapdeal, Jabong, Myntra, eBay, Paytm, Shopclues etc., have been in the online retail market in India attracting Indian buyers. Thus it is important to identify factors affecting Indian buyers' online shopping behavior in order to find the way to stimulate their online shopping behaviour. Hence this study has been undertaken to identify the factors influencing buyers to purchase through online is confined to Nilgiris district.

Review of Literature

Syed *et al.* (2008) analysed that there were four key factors which influenced the young consumers' perceptions towards online shopping. They found that those factors were website design, website reliability, customer service and privacy. They also discussed that there was no difference among the perceptions of various races towards online shopping in Malaysia. The most consistent factor that influenced buyer's behavior towards online shopping was found to be Trust. E-retailers need to add trust and reliability which is everything for the buyers.

Narges Delafrooz *et al.* (2010) analysed that there were four main factors which influenced consumers' attitude towards online shopping. Those factors were utilitarian orientation, convenience, price and wider selection. They discussed that there were three more things which affected the sales of e-retailers. Those were personalities of consumers, online shopping perceived benefits and material of shopping sites. Khare and Rakesh (2011), in their study conducted in India on "Antecedents of Online Shopping Behavior in India: An

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Examination,” found that Indian students’ intention to purchase online is influenced by utilitarian value, attitude toward online shopping, availability of information, and hedonic values.

Pratminingsih *et al.* (2013) found that satisfaction, trust and commitment were found to have significant impact on student loyalty toward online shopping in the study carried out in Indonesia.

Objective of the Study: The objective of the study is as follows:

To identify the factors influencing buyers to purchase through online

Area and period of the Study: The study on factors influencing buyers to purchase through online is confined to Nilgiris district only. The study has been conducted from February 2018 to May 2018.

Collection of Data: The study used both primary and secondary data. The required primary data are collected through well structured questionnaire. Secondary data are gathered through books, journals, magazines, websites and other research works.

Sampling Design: To achieve the objectives of the study, Nilgiris district has been purposively selected as the study area. The population of the research consists of all the people doing online shopping in Nilgiris district. There are six Taluks in Nilgiris district namely Udhagai, Kundah, Coonoor, Kotagiri, Gudalur and Pandalur. It was decided to select 100 respondents from each Taluk in order to constitute the total sample size of 600. As the list of online shoppers could not be obtained, the method of sampling used for selecting sample respondents for the study is non-probability judgement sampling based on convenience sampling method. The sample size selected for the study is 600 respondents.

Tools Used for Data Analysis: The statistical tools used for analysis are KMO and Bartlett’s test, Percentage Analysis, Mean and Factor Analysis.

RESULTS AND DISCUSSIONS

Factors Influencing Buyers to Prefer Online Shopping - Factor Analysis

The factors influencing to prefer online shopping are described here with the help of factor analysis. The technique of factor analysis provides a fascinating way of reducing the nature of variables in a research problem to a smaller and manageable number by combining related ones into factors. This relieves the confusion arising through overlapping measures of the variables. The cost of further research may be reduced by focusing efforts on fewer variables for study. Factor analysis has many alternative algorithms that can be used. The method used here is the principal component analysis. The primary decision in each stage of factor analysis is to decide how many factors are to be extracted from the data. The sample rule of them normally used says that all factors with an Eigen value of 1 or more should be extracted.

In order to explore the possibility of applying factor analysis to the data in hand, the inter-correlation matrix was first calculated by using Bartlett’s test of Sphericity and Kaiser-Meyer-Olkin measure of sampling adequacy (KMO). The anti-

image matrix was also calculated and the findings suggest that there is no need to drop any item and all items should be included in the final factor analysis procedure. Principal component method, the most commonly used method, was used to find the initial solution. The initial solution suggests that the factors have an Eigen value greater than 1 and the factor pattern is consistent across the sample, which is easy to interpret since the items loaded heavily on a single factor.

Before applying factor analysis, it has been decided to use Kaiser-Meyer-Olkin (KMO) Measure and Bartlett’s test. The KMO measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values (between 0.5 and 1.0) indicate factor analysis is appropriate. Values below 0.5 imply that factor analysis may not be appropriate.

Bartlett’s test of sphericity is a test statistic used to examine the hypothesis that the variables are uncorrelated in the population. In other words, the population correlation matrix is an identity matrix whereby each variable correlates perfectly with itself ($r = 1$) but has no correlation with the other variables ($r = 0$). To be appropriate, this test should have a significance value less than 0.05.

Factor Analysis technique has been applied to find the underlying dimensions (factors) that exists in the original variables. Table 1 shows the findings of KMO and Bartlett’s test.

Table 1 Factors Influencing to Prefer Online Shopping - KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.811
Bartlett's Test of Sphericity	Approx. Chi-square	3609.846
	Df	325
	Sig.	.000

Table 1 reveals that the calculated value of Kaiser-Meyer-Olkin measure of sampling adequacy is 0.811. It suggests that the factors extracted account for a substantial amount of variance. As this value is greater than 0.5, it has been decided to apply the factor analysis. KMO test yields a result of 0.811 which states that factor analysis can be carried out appropriately for these 26 variables which are taken for the study. The result of the test shows that with the significant value of .000 there is a significant relationship regarding the variables chosen. Furthermore, Bartlett’s test of sphericity also suggests that the inter-correlation matrix is factorable and factor analysis can be applied to the current data as the correlation between different items is also statistically significant ($p < 0.01$).

Factor Extraction

Using the Principal Component Analysis eight factors have been extracted based on the variance (Eigen value greater than 1). Table 2 shows the percentage of variance, cumulative percentage and the total variance of the variable identified for the study.

Principal Component Analysis

Principal component analysis was a factor model in which the factors are based on the total variance. Another concept in factor analysis is the rotation of factors. Varimax rotations are one of the most popular methods used in the study to simplify the factor structure by maximizing the variance of a column of

pattern matrix. Another technique called latent root criteria is used. An Eigen value is the column sum of squares for a factor. It represents the amount of variance in data. After determination of the common factors, factor scores are estimated for each other. The common factors themselves were expressed as linear combinations of the observed variables.

There are various factors influencing a buyer to prefer online shopping. These ranges of factors begin with 1 to 8. Based on the review of previous studies and a detailed discussion with the buyers all the relevant variables are included in the study. Twenty six variables are generated for measuring the factors influencing to prefer online shopping on a Likert’s 5 point scale.

The eight factors extracted together account for 58.09 per cent of the total variance (information contained in the original twenty six variables). This is pretty good, because it is easy to economize on the number of variables (from 26 it has been reduced to 8 underlying factors), while there is a loss only about 41.91 per cent of the information content (61.63 per cent is retained by the 8 factors extracted out of the 26 original variables).

Table 2 Factors Influencing to Prefer Online Shopping -Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Component 1	5.832	22.432	22.432	5.832	22.432	22.432
Component 2	1.749	6.729	29.161	1.749	6.729	29.161
Component 3	1.532	5.892	35.053	1.532	5.892	35.053
Component 4	1.384	5.325	40.378	1.384	5.325	40.378
Component 5	1.277	4.912	45.290	1.277	4.912	45.290
Component 6	1.188	4.568	49.858	1.188	4.568	49.858
Component 7	1.118	4.300	54.159	1.118	4.300	54.159
Component 8	1.023	3.935	58.094	1.023	3.935	58.094
Component 9	.950	3.654	61.748			
Component 10	.903	3.472	65.219			
Component 11	.860	3.309	68.529			
Component 12	.780	3.000	71.529			
Component 13	.742	2.855	74.384			
Component 14	.705	2.713	77.097			
Component 15	.698	2.685	79.782			
Component 16	.656	2.523	82.306			
Component 17	.619	2.380	84.685			
Component 18	.588	2.261	86.946			
Component 19	.540	2.077	89.023			
Component 20	.507	1.950	90.973			
Component 21	.471	1.811	92.784			
Component 22	.440	1.692	94.476			
Component 23	.416	1.602	96.078			
Component 24	.370	1.425	97.503			
Component 25	.351	1.348	98.851			
Component 26	.299	1.149	100.000			

Extraction Method: Principal Component Analysis.

The following figure gives the screen plot for the 26 variables taken for the study.

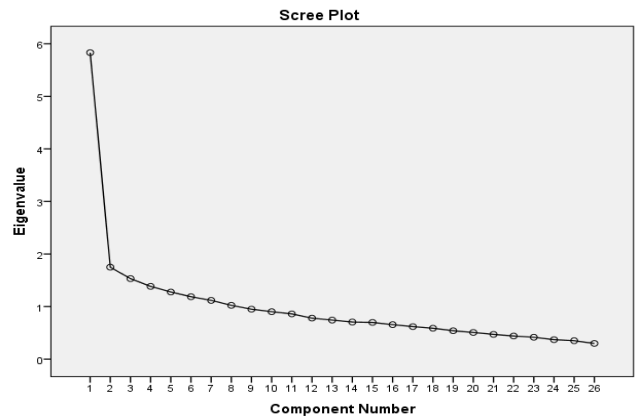


Chart 1 Screen Plot Showing Factors Influencing Buyers to Prefer Online Shopping

Rotated Component Matrix

Since the idea of factor analysis is to identify the factors that meaningfully summarize the sets of closely related variables, the rotation phase of the factor analysis attempts to transfer initial matrix into one that is easier to interpret. The rotated component matrix is used to assign variables to factors and to interpret factors. This matrix should be viewed column wise for each column (factor) the variables which have high (close to 1) loading should be identified and a combined meaning for the factor found. This leads to a phrase which is the name given to the factor. The scores of the variable leading to prefer online share trading have been included for the factor analysis. Varimax rotation method is used to extract meaningful factors. The rotated component matrixes for the influencing variables are given in Table 3.

Table 3 Factors Influencing to Prefer Online Shopping - Rotated Component Matrix

Factors	Component							
	1	2	3	4	5	6	7	8
Home Delivery	.568	.049	-.183	-.218	-.148	-.265	-.047	.036
Quick settlement of issues	.557	-.024	-.155	.169	-.066	-.054	-.424	.034
Reasonable shipping charges	.549	-.283	-.182	.007	.055	-.002	.192	.209
Order tracking and cancelling facility	.544	-.089	-.357	-.084	-.073	-.297	.063	-.173
Low to high price products	.530	-.036	.225	-.297	-.253	.121	.185	-.051
Availability of latest products	.478	-.238	-.448	.105	.243	.074	.111	-.293
Delivery of exact products	.471	.331	-.280	-.045	-.029	.185	.175	.398
Satisfying needs	.384	.613	.000	.030	.099	-.028	-.038	-.214
Delivery on assured/estimated time	.399	.565	.069	.016	-.180	.081	.270	.057
Different payment options	.466	.505	-.300	-.084	.064	-.010	.222	.008
Access from anywhere	.004	-.304	.524	.014	-.174	.275	-.182	-.096
Quick and easy 24x7 order facility	.276	.113	.524	-.033	.065	-.328	.138	.026
Convenience to order	.287	-.090	.499	.192	-.214	-.439	-.095	-.095
Easy to surf	.237	-.219	.467	-.287	-.025	-.208	.128	.423
Prompt response to consumer inquiries	.336	.018	.089	.631	.044	-.097	-.038	.124
More discounts	.467	.178	-.078	.506	-.089	-.008	-.102	.171
	-.157	-.193	-.011	-.097	.512	.064	-.303	-.086

and offers									
Accurate information	.486	.181	.260	-.206	.512	-.177	.028	.040	
More information	.359	.155	-.243	-.024	.696	-.112	-.181	-.019	
Assured safety and security	.377	.117	-.290	-.041	-.149	.504	-.098	.206	
Attractive virtual display	.356	-.116	.342	.340	.224	.396	.032	-.066	
Less consumption	.354	-.067	.335	-.267	.286	.370	-.184	.207	
More number of sellers at one place	.133	.268	-.018	-.020	-.280	.041	.458	-.022	
Availability of variety	.388	-.308	.346	.334	.024	.056	.446	-.080	
Price Comparability	-.222	-.073	.319	-.215	-.044	.029	-.407	.462	
Reviews and Ratings	.466	.221	.010	-.134	-.037	.213	.319	.504	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Table 3 clearly discloses that the most important variables influencing online shopping are 'More information' 'Easy to surf', 'Satisfying needs', 'Home Delivery', 'Delivery on assured/estimated time', 'Quick settlement of issues', 'Reasonable shipping charges', 'Order tracking and cancelling facility' and 'Low to high price products' as the correlation coefficients are very high for these variables.

It is also noted from Table 3 that variables 'Home Delivery', 'Quick settlement of issues', 'Reasonable shipping charges', 'Order tracking and cancelling facility', 'Low to high price products', 'Availability of latest products' and 'Delivery of exact products' are with the loadings of 0.568, 0.557, 0.549, 0.544, 0.530, 0.478 and 0.471 respectively on factor 1 and this suggests that factor 1 is a combination of these variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 1 could be named as 'BASIC SERVICE FEATURES'.

In case of the factor 2 columns, the variables 'Satisfying needs', 'Delivery on assured/estimated time' and 'Different payment options' are with the loadings of 0.613, 0.565 and 0.505 respectively on factor 2 and this suggests that factor 2 is a combination of these variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 2 could be named as 'TIMELY DELIVERY AND PAYMENT OPTIONS'.

In case of the factor 3 columns, the variables 'Access from anywhere', 'Quick and easy', '24x7 order facility' and 'Convenience to order', are with the loadings of 0.524, 0.524, 0.499 and 0.467 respectively on factor 3 and this suggests that factor 3 is a combination of these variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 3 could be named as 'QUICK AND CONVENIENCE'.

In case of the factor 4 columns, 'Easy to surf' and 'Prompt response to consumer inquiries' are with the loadings of 0.631 and 0.506 respectively on factor 4 and this suggests that factor 4 is a combination of these variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 4 could be named as 'EASY SURFING AND PROMPT RESPONSE'.

In case of the factor 5 columns, 'More discounts and offers', 'Accurate information' and 'More information' are with the

loadings of 0.512, 0.512 and 0.696 respectively on factor 5 and this suggests that factor 5 is a combination of these variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 5 could be named as 'INFORMATION AND OFFERS'.

In case of the factor 6 columns, 'Assured safety and security', 'Attractive virtual display' and 'Less consumption' are with the loadings of 0.504, 0.396 and 0.370 on factor 6 and this suggests that factor 6 is a combination of the variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 6 could be named as 'SAFETY, DISPLAY AND CONSUMPTION'.

In case of the factor 7 columns, 'More number of sellers at one place' and 'Availability of variety' are with the loadings of 0.458 and 0.446 on factor 7 and this suggests that factor 7 is a combination of the variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 7 could be named as 'MORE SELLERS AND VARIETY'.

In case of the factor 8 columns, 'Price Comparability' and 'Reviews and Ratings' are with the loadings of 0.462 and 0.504 on factor 8 and this suggests that factor 8 is a combination of the variables. At this point, a suitable phrase which captures the essence of the original variables to form the underlying concept, factor 8 could be named as 'PRICE COMPARABILITY AND REVIEWS'.

The factor analysis explained the twenty six variables into eight factors namely Basic Service Features, Timely Delivery and Payment Options, Quick and Convenience, Easy Surfing and Prompt Response, Information and Offers, Safety, Display and Consumption, More Sellers and Variety and Price Comparability and Reviews. The number of variables in each factor, Mean score and Rank, Eigen value and the per cent of variation explained by each factor are presented in Table 4. Mean value computed on the basis of each variable loaded in the components divided by the number of respondents. Rank has been computed on the basis of grand mean of each construct. Eigen value is the eligibility to be considered as factor. Minimum of 1 Eigen value required. Variance is the influence of factor for explaining the perception and attitude of buyers.

Table 4 Factors Influencing to Prefer Online Shopping - Principal Component Analysis

S.No	Name of the Factors	No. of Variables	Mean	Rank	Eigen Value	Per cent of Variation Explained	Cumulative Per cent of Variation Explained
1	Basic Service Features	7	3.75	8	5.832	22.432	22.432
2	Timely Delivery and Payment Options	3	3.81	6	1.749	6.729	29.161
3	Quick and Convenience	4	3.94	2	1.532	5.892	35.053
4	Easy Surfing and Prompt Response	2	3.84	5	1.384	5.325	40.378
5	Information and Offers	3	4.00	1	1.277	4.912	45.290
6	Safety, Display and Consumption	3	3.87	3	1.188	4.568	49.858
7	More Sellers and Variety	2	3.78	7	1.118	4.300	54.159
8	Price Comparability and Reviews	2	3.85	4	1.023	3.935	58.094

The most important factors influencing online shopping are Basic Service Features and Timely Delivery & Payment Options as their Eigen values are 5.832 and 1.749 respectively. The Basic Service Features factor consists of 7 variables with

the variation explained of 22.432 per cent. The Timely Delivery & Payment Options also consists of 3 variables and explains the factors influencing online shopping to the extent of 6.729 per cent. The third and fourth factors are Quick & Convenience and Easy Surfing & Prompt Response as their respective Eigen values are 1.532 and 1.384. The per cent of variation explained by these two factors are 5.892 and 5.325 respectively.

The highly correlated variable of the Basic Service Features factor is Home Delivery. It has the factor loading of 0.568. The variable Satisfying needs is the highly correlated variable of the Timely Delivery & Payment Options factor as it has the highest factor loading of 0.613. Access from anywhere and Quick and easy variables of the Quick & Convenience factor has the highest factor loading of 0.524 each. Regarding the Easy Surfing & Prompt Response factor, the variable Easy to surf has the highest factor loading of 0.631.

The highly correlated variable of the Information & Offers factor is more information which has the factor loading of 0.696. In case of Safety, Display & Consumption factor, highest correlation is found in the variable Assured safety and security as it has the highest factor loading of 0.504. The highly correlated variable of the More Sellers and Variety factor is more number of sellers at one place. It has the factor loading of 0.458. The variable Reviews and Ratings is the highly correlated variable of the Price Comparability & Reviews factor as it has the highest factor loading of 0.504.

According to Mean Rank analysis, Information and Offers factor is identified as the most influencing factor to prefer online shopping with the highest mean score of 4.00 and Quick and Convenience is identified as the second most influencing factor with the second highest mean score of 3.94.

CONCLUSION

The study revealed that the most important variables influencing online shopping are 'More information', 'Easy to surf', 'Satisfying needs', 'Home Delivery', 'Delivery on assured/estimated time', 'Quick settlement of issues', 'Reasonable shipping charges', 'Order tracking and cancelling facility' and 'Low to high price products' as the correlation coefficients are very high for these variables. The study also revealed that the most important factors influencing online shopping are Basic Service Features and Timely Delivery & Payment Options with highest Eigen values. The Basic Service Features factor consists of 7 variables with the variation explained of 22.432 per cent. The Timely Delivery & Payment Options also consists of 3 variables and explains the factors influencing online shopping to the extent of 6.729 per cent.

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