Predictors of Online Grocery Shopping: Study in Delhi NCR region of India

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With the increasing use of smartphones and better reach of internet penetration, the world of ecommerce is slowly and steadily gaining momentum in India. A survey by Goldman Sachs in 2016 concludes that 52% of the consumers prefer online retail in comparison to offline. The buying habit of Indian consumers is moving towards a shift from offline to online mode owing to various factors. The online grocery market is still in its nascent stages and has many barriers to its growth. Though the majority of customers still prefer buying groceries from local kirana stores('mom and pop'stores) or offline stores but more consumers are going for trial and test method to checkout various online grocery stores also. As per the report by eMarketer in 2017, online grocery market is anticipated to be the biggest propeller and contributor of growth in the ecommerce sector over the next five years. The Indian online grocery market has witnessed the emergence of many players in past years but only few have been able to survive. The current study is an attempt to identify the factors which are responsible for the choice of consumers for selection of an online grocery store. The data analysis is a result of questionnaire responded by 194 respondents in Delhi NCR region in the year 2016.

Keywords: Online shopping, grocery, etailing, Online retail, e-grocery, Factor Analysis

Introduction:

Online retail is flourishing as consumers become comfortable while shopping online. The expansion of the industry can be credited to increase in internet and mobile penetration, acceptance of online modes of payments and favorable demographics. The e-commerce sector has provided unique ways through which companies can connect with the consumer. The majority of the consumer is young, net savvy Indian consumer in the age group of 15 – 35 who enjoys the online shopping experience on his smartphone or laptop. The internet has opened up an ocean of opportunities for the marketers. Every other day a new business idea is emerging in the entrepreneurial mind of the talented which is exploiting the inherent advantages of the internet. The main advantage of the internet is convenience and 24 * 7 availability which has lured the shoppers to shop/purchase online. In today's fast moving world where both husband and wife are working, taking time out for purchasing groceries is also a tedious one. This problem has been captured in form of a business opportunity and has led to the opening up of many online grocery shops. A huge part of the urban population is shopping online for supplies such as groceries apart from clothing and footwear. Apart from the local grocery stores coming up online, there are exclusive stores which have only online presence. Also major e-commerce giants like Amazon, flipkart have also ventured into the market. The competition is stiff and surely Darwin's theory of survival of the fittest is applicable on online grocery stores also. The current study is aimed at identifying the factors which drives consumers for online grocery shopping.

The initial firms were founded in 2011 and since then online grocery industry has been expanding and has also received funding from angel investors and venture capitalists. The market's rise can be attributed to consumer's mindset for convenience, as well as huge discounts that have been offered by the online stores. The growth in spending capacity of consumers and increasing digital awareness are also responsible for progress of e-grocery market in India.

The e-grocery market in India is currently undergoing major structural shifts owing to severe competition among players. The need of the hour is to understand the mindset and psychology of the consumer about his preferences and reasons for selecting a particular e-store.

Literature review:

The online spending of consumers is increasing day by day. The trend is reflected in numerous reports which show an increase in the overall ecommerce sector. But the path has not been easy for the ecommerce marketer. There have been numerous challenges which they had to encounter so that the consumer is attracted towards online shopping. One of the barriers was to provide an interactive and user friendly interface to the consumer so that he does not feel the absence of the face to face interaction. This has been an important criterion during the design of the website so that the consumer spends time on the merchant website.

Chiang & Dholakia (2003) have concluded that convenience and product type motivates a consumer to get involved in online shopping. Hanus (2016) concluded that most important advantages of online shopping are convenience and time saving. Sheth & Sisodia (1999) in their research emphasized upon time and location as the major reasons which distinguishes online shopping from traditional shopping. Park & Kim (2003) have studied the association amongst several features of online shopping and consumer purchase behavior. They concluded that information quality, user interface quality, and security perceptions impact information satisfaction and relational benefit which are significantly related to consumer's site commitment

and actual purchase behavior. Yulihasri et. al(2011) have concluded compatibility, usefulness, ease of use and security as important predictors towards buying behaviour in on-line shopping. Moshrefjavadi et. Al. (2012) have emphasized that e-retailers should make their website safer and assure customers for delivery of their products. Lee & Lin(2005) have concluded through their research that the features of web site design, reliability, responsiveness, and trust affect the service quality and customer satisfaction.

Shergill & Chen(2005) also concluded the same in their research and identified four major feactures which affect the perception of consumer for online shopping. They are website design, website reliability/fulfilment, website customer service and website security. Grabner(2002) emphasized on the role of consumer trust as a necessary element for the diffusion and acceptance of electronic commerce. Boyer & Hult(2005) results indicate that eBusiness-, product-, and service-quality, all have a substantial direct impact on customer behavioral intentions towards repurchase. Ramus & Neilsen(2005) concluded in their research consumers view internet grocery shopping better compared to conventional grocery shopping because of convenience, product range and price.

Objective and Methodology

The research aims to identify the factors which motivate the consumers to engage in shopping of groceries online. The further analysis was done using Factor Analysis to segregate the variables into factors and Kruskal Wallis test to identify the most important variable which motivates consumers towards online grocery shopping. The authors have used primary survey as a tool for data collection for which a questionnaire was developed.

Research Design

A set of 13 variables was identified on the basis of past researches to study the consumers intentions towards online grocery shopping. These were then converted into a questionnaire. The data presented and analyzed in this paper was collected from an online (web-based) survey of consumers of Delhi NCR Region using self-administered questionnaires. The total respondents were 193 out of which 110 respondents (57%) have done online grocery shopping while 83(43%) have not done online grocery shopping.

The respondents were asked to rate these variables on a five point Likert scale. The variables used for the purpose of this study are time saving, convenience, return policy, home delivery, on-time delivery, multiple delivery slots, price, discounts & coupans, range of products, multiple payment options, quality products, no grocery store nearby and 24 * 7 availability.

Table 1. Definition of the variable

X1	Time saving	X6	Multiple delivery slots	X11	Quality Products
X2	Convenience	X7	Price	X12	No grocery store nearby
X3	Return Policy	X8	Discounts & Coupons	X13	24 * 7 availability
X4	Home delivery	X9	Range of products		
X5	On time delivery	X10	Multiple payment options		

Analysis & Findings:

With the help of Factor Analysis, we are trying to segregate the variables into set of manageable factors.

The Tables 1 and 2(Annexure 1) present the results of Factor analysis using SPSS software. The results of factor analysis were obtained after two iterations. The result of the first iteration has been summarized in Table 1 (Annexure 1). The result of Bartlett Test of Sphericity leads us to the rejection of null hypothesis that the variables are uncorrelated. The approximate chi-square is 671.652with 78 degrees of freedom. The value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy is .860 which is greater than .50 which makes the data fit to be analysed through factor analysis.

In order to determine the number of factors to be extracted we need to compute the eigenvalue. Higher the eigenvalue, higher is the variance explained by the factor. Therefore we select only those factors which have an eigenvalue greater than 1. It is clear from the above results that total of 3 factors have been extracted with 63% of Total Variance Explained (T.V.E). As per the communalities table we will consider only the variables with factor loading greater than .5. Accordingly the variable X13 (24 * 7 availability) is removed and we will run the factor analysis with reduced set of 12 variables.

After the second iteration the results are shown in Table 2(Annexure 1). The result of Bartlett Test of Sphericity leads us to the rejection of null hypothesis that the variables are uncorrelated. The approximate chi-square is 628.780 with 66 degrees of freedom. The value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy is .857 which is greater than .50 which makes the data fit to be analysed through factor analysis.

It is clear from the above results that 3 factors are extracted with 65.9% TVE; and the 12 variables converge on these three factors. From the rotated factor matrix following observations can be drawn : X1, X2, X4, X5, X6,X11 have high factor loading under Factor 1 i.e. .722,.771,.750,.804,.799 respectively. X7, X8, X9,X10 have high factor loading under Factor 2 i.e. .741, .838, .789, .632 respectively. X3, X12 have high factor loading under Factor 3 i.e. .531, .746, respectively.

The above discussion suggests that Factor 1 is a combination of 6 variables Time saving, Convenience, Home delivery, on time delivery, Multiple delivery slots and Quality Products. They together represent the ease of using online stores and therefore the factor can be named as *Value for time or Time Value.* Factor 2 is formed from Price, Discounts & Coupons, Range of products and multiple payment options. They are pointing towards the attraction of customers for lower price, array of products and various payment options given . Hence we rename Factor 2 as *Economic Value.* Return Policy and No grocery store nearby are falling under Factor 3. These variables represent the reason to select online grocery or we can say they are the reasons which make online grocery stores hassle free. Hence the factor is renamed as *Shopping Ease.*

The Table 2 summarizes the results of factor analysis.

S.no	Variables	Name of the Factor
1	Time saving, Convenience, Home delivery, on time delivery, Multiple delivery slots and Quality Products.	*Value for time or Time Value*
2	Price, Discounts & Coupons, Range of products and multiple payment options	*Economic Value*
3	Return Policy and No grocery store nearby	*Shopping Ease*

Next question arises that out of the 13 variables taken which one is responsible for attracting the customers towards online grocery shopping. In order to find out the same a Kruskal Wallis test is performed on the data. The test also verifies the null hypothesis that

H_0: There is no difference between the influencing variables.

H_1: There is difference between the influencing variables.

Table 3(Annexure 1) shows the results of Kruskal Wallis Test variables influencing the adoption of online grocery shopping. The results clearly show that Home Delivery is the most important reason for choosing online grocery shopping. It has a mean rank of 949.49. It is followed by Time Saving at a mean rank of 863.62. The lowest mean rank has been secured by No Grocery Store Nearby which means that the location of grocery store is not much of a luring variable for the consumers. The other listed variables have more impact for shaping the consumer's mindset for online grocery shopping. If we check the Monte Carlo significance at 95% confidence level we find that it is less than .05. This means that the null hypothesis is rejected and we conclude that there is difference between the influencing variables.

Conclusion:

The business opportunity for online grocery stores is still largely untapped. The marketer needs to understand the consumer psychology and accordingly customize his services and offerings. The e-grocery stores have visibility and clientele only in metro cities, they can look for business prospects in tier 1 and tier 2 cities also. The consumers preferring online groceries or online shopping are searching for convenience as well as value for money. This is clearly indicated from the findings which suggest that the consumers are looking for hassle free shopping in terms of home deliveries and saving on time. The research has also formulated three basic components for the success of e-grocery stores: *Time Value, Shopping Ease and Economic Value*. The e-grocery stores which are already successful need to keep the following factors always at the topmost priority to keep the consumers with them while the new players in the market have to design their services around these three factors.

The way ahead is full of challenges for the existing players as well as new entrants. As the e-grocery stores are also dealing with perishable items hence they need to maintain the steady supply of the product which is fresh and of high quality. Not only they need to focus on the suppliers of the products but they also have to provide on-time delivery to the consumers, This requires a real time tracking with the logistics partner so that the goods are delivered as per the quality and packaging standards. Another point to consider is the assortment or the variety in product which they offer to the customer so that he stays with you and does not switch to the competitor. This also raises the concerns of maintaining inventory and incurring the inventory costs. The marketer has to constantly make efforts to keep the trust of consumer intact. This would require proper return policies and secure money transactions. Key to success is customer service and after sales support that is unparalleled.

The research has tried to uncover the factors which motivate the consumers towards online shopping and listed certain challenges for the e-groceery stores in India. Though the path is challenging but yet achievable.

Annexure 1:

Table 1: Results of Principal Component Analysis (Iteration 1)

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.860	
Bartlett's Test of Sphericity	Approx. Chi-Square	671.653	
	df	78	
	Sig.	.000	

Communalities			Initial Eigenvalues		
	Initial	Extraction	Total	% of Variance	Cumulative %
time_saving	1.000	.529	5.66	43.51	43.51
Convenience	1.000	.622	1.41	10.86	54.37
return_policy	1.000	.536	1.15	8.88	63.25
home_delivery	1.000	.718	0.95	7.28	70.53
on_time_delivery	1.000	.693	0.80	6.15	76.68
multiple_delivery_slots	1.000	.670	0.64	4.94	81.62
Price	1.000	.708	0.60	4.62	86.24
discounts_coupons	1.000	.780	0.44	3.42	89.66
range_rpoducts	1.000	.669	0.34	2.59	92.24
multiple_payment_options	1.000	.699	0.31	2.35	94.60
quality_products	1.000	.557	0.26	2.00	96.59
no_grocery_nearby	1.000	.635	0.24	1.9	0.24
availability_24_7	1.000	.407	0.20	1.54	0.20

Extraction Sums of Squared Loadings				Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Factor 1	5.66	43.51	43.51	4.15	31.91	31.91
Factor 2	1.41	10.86	54.37	2.87	22.04	53.95
Factor 3	1.15	8.88	63.25	1.21	9.30	63.25

Rotated Component Matrix[a]			
	Component		
	1	2	3
time_saving	.698	.204	.014
Convenience	.722	.298	.110
return_policy	.474	.261	.493
home_delivery	.747	.367	-.159
on_time_delivery	.822	.120	-.050
multiple_delivery_slots	.805	.122	-.084
Price	.217	.764	.278
discounts_coupons	.165	.850	.172
range_rpoducts	.217	.773	-.154

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multiple_payment_options	.453	.596	-.373
quality_products	.568	.473	-.105
no_grocery_nearby	-.098	-.007	.791
availability_24_7	.612	.140	.113

Table 2: Results of Principal Component Analysis (Iteration 2)

KMO and Bartlett's Test					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857			
Bartlett's Test of Sphericity	Approx. Chi-Square	628.780			
	Df	66			
	Sig.	.000			
Communalities					
	Initial	Extraction	Total	% of Variance	Cumulative %
time_saving	1.000	.558	5.37	44.73	44.73
convenience	1.000	.689	1.40	11.66	56.39
return_policy	1.000	.584	1.14	9.47	65.85
home_delivery	1.000	.718	0.86	7.14	72.99
on_time_delivery	1.000	.673	0.80	6.65	79.64
multiple_delivery_slots	1.000	.666	0.61	5.12	84.76
price	1.000	.704	0.45	3.78	88.54
discounts_coupons	1.000	.775	0.34	2.83	91.37
range_rpoducts	1.000	.682	0.31	2.55	93.93
multiple_payment_options	1.000	.721	0.27	2.27	96.20
quality_products	1.000	.556	0.24	2.03	98.23
no_grocery_nearby	1.000	.576	0.21	1.77	100.00

Extraction Sums of Squared Loadings				**Rotation Sums of Squared Loadings**		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.37	44.73	44.73	3.84	31.99	31.99
2	1.40	11.66	56.39	2.85	23.75	55.74
3	1.14	9.47	65.85	1.21	10.11	65.85

Rotated Component Matrix[a]			
	Component		
	1	2	3
time_saving	.722	.184	.050
convenience	.771	.260	.164
return_policy	.504	.219	.531
home_delivery	.750	.370	-.133
on_time_delivery	.804	.146	-.066
multiple_delivery_slots	.799	.141	-.091

price	.223	.741	.323
discounts_coupons	.164	.838	.213
range_rpoducts	.205	.789	-.133
multiple_payment_options	.432	.632	-.369
quality_products	.544	.499	-.106
no_grocery_nearby	-.139	-.002	.746

Table 3 : Result of Kruskal Wallis Test on the different variables influencing the adoption of online grocery shopping

Var	N	Mean Rank
Time Saving	110	863.62
Convenience	110	846.55
Hassle free return policy	110	616.45
Home delivery	110	949.07
On - time delivery	110	744.99
Multiple Delivery Slots	110	712.09
Price	110	621.47
Discounts & Coupons	110	667.05
Wide Array of products	110	717.91
Multiple Payment Options	110	747.25
Good Quality Products	110	679.15
No Grocery shop nearby	110	356.71
24 * 7 Availability	110	779.18
Total	1430	

Test Statistics[a,b]

			Factor
Chi-Square			171.305
df			12
Asymp. Sig.			.000
Monte Carlo Sig.	Sig.		.000[c]
	99% Confidence Interval	Lower Bound	0.000
		Upper Bound	.000

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