

Factors Influencing the use of Online Food Ordering Applications in India

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Abstract

Digital, online or web-based services are the services which are delivered to the customer through infrastructure based on sharing of information like the internet in many forms that is applications, social media, websites or web pages etc. Smart- phone technology has transformed services from cab booking to food ordering. The ever-developing features on the Internet have amplified the use of e-commerce in different industries in various countries including India. E-commerce development has resulted in development of various food delivery applications for customers who want doorstep delivery of food. Although consumers continue to dine out, they find it easier for them to order food online since it liberates them from visiting the restaurants for their day to day meals. People, particularly the millennial generation, favor the use of mobile applications for ordering food from their preferred restaurant. Many factors influence and impact the online food ordering like discounts, ratings and reviews, ease of use, etc. Food delivery applications or platforms like Food Panda, Fasso's, Swiggy, Zomato, UberEats, etc. are highly popular and customers can get their food delivered at the doorstep without compromising on the food quality and their tight schedules.

In the study, we laid emphasis on analyzing and empirically studying the different factors which persuade the customers to opt for digital food ordering applications and websites. For the purpose of understanding the factors that have the most effect for attracting the consumer, a thorough analysis was done to gain insights into the consumer perception of digital food delivery and ordering. The research aims to empirically find the major factors which affect the consumer to get their food delivered using online means and to find out the preferences of the customer regarding the food delivery service provider. To achieve the given objectives, an online questionnaire was floated to gather information and statistical inferences were gathered through the factor analysis which successfully helped us to understand the major factors responsible for the use of digital platforms for food ordering.

The study therefore has practical applications as it empirically provides the service providers the key factors which the consumers look at while ordering food online along with the scope of improvement for further business expansion, thereby helping in designing the business model or the marketing strategy.

Keywords: Online Food Ordering, Factor Analysis, Consumer Perception, Online Food delivery Applications

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I. INTRODUCTION

In recent years, a striking change has been noticed in the customer trends owing to the emergence of on demand services. The economy depending on these on demand services have rapidly overtaken the older, more traditional models of business by

giving the people the service they want at any place and time, without leaving their place. The use of on demand services is rapidly growing, taking advantage of the advancement in mobile technology. With the augmented technological usage, there has been a rapid increase in the number

of people getting involved in segment digital services.

To compliment the consumer's expectations, the mobile application companies are granting augmented services, facilities and features to the customers. Mobile applications today have become a pertinent medium that enable the customer to get their chosen services like transportation, internet shopping, delivery of perishable and non-perishable goods including groceries and even ordering and delivery of food in just a few clicks through online platforms. This scenario exists all around the globe and is not limited to only developed countries. Being up to date with the expectations of the customers certainly helps organizations retain customers to a greater extent.

The global digital market of food delivery is approximately 83 billion euros and this is nearly 4% of the total food vended through fast food chains and restaurant. Still the traditional delivery model is the most widely used where the customer places an order directly with a particular restaurant, and most of those orders about 75 percent are placed by phone. Similar to other industries, the trend is changing due to the explosion of digital technology and app-based companies providing on demand services. Consumers are getting rapidly accustomed to online shopping via applications and websites that provide high levels of comfort and ease. The business model of delivery of food by the restaurants is experiencing a swift change due to the arrival of new online service providers which provide food to their customers by making use of the internet.

The online food ordering and delivery market in India is driven by the increasing number of women in the workforce and double-income families who want quick and convenient meals at their doorstep. The online food ordering segment of India is flourishing because of the increasing population and the continuously increasing smartphone users. The availability of internet data at a cheap price has brought a revolution in the online food services. This virtual space allows customers to conveniently compare and evaluate prices, menus, and reviews of restaurants available on the internet. These online platforms also allow ease of payment with options like online payment through wallets, net

banking, debit/credit cards and even cash on delivery (COD)

The figure 1 below illustrates how revenues generated by the digital food ordering industry in India from 2017 and its growth till 2023.

Figure 2 shows growth in the number of users in the food ordering and delivery sector in India and the trends that we will witness till 2023 i.e. platform to consumer delivery shall almost match the restaurant to consumer delivery.

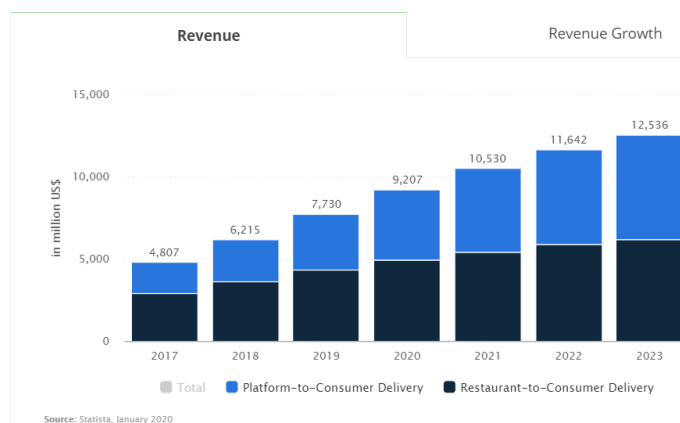


Fig. 1. Revenue generated in the digital food ordering and delivery sector in India

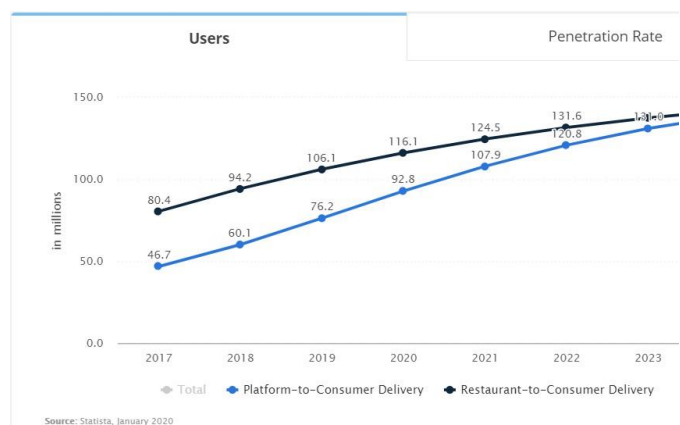


Fig. 2. Growth in the customer base of the food ordering and delivery sector in India

II. LITERATURE REVIEW

The research on factors influencing the use of online food ordering applications in Indian context is somewhat limited as the service has been recently introduced in the Indian markets. The literature review done recounts the research conducted in different countries in places where online food ordering applications has been prevalent for some time.

The research conducted by H.S. Sethu, Bhavya Saini, in Manipal (2016) suggested that there is a rapid increase in the usage of digital food ordering platforms in India. Millennials which mostly include students are primary users of the service as they are quite comfortable with the technological landscape and therefore are better adapted to using internet-based services.

A study (Dinesh Elango, Kitikorn Dowpiset and Jinrachaya Chantawaranurak 2018) conducted for Bangkok on factors impacting the intention of the consumer to use mobile applications to order food found the impact of perceived ease of use of online food ordering platforms from personal innovativeness and Perceived self-efficacy. The study concluded that factors that have most impact on intention to use the online food ordering platforms are social influence, perceived self-efficacy and perceived usefulness respectively.

A study (Dr. Neha Parashar and Sakina Ghadiyali 2017) on customer perception of the food ordering apps found that the facilities offered in the applications play an important role to encourage people to use the applications and that their marketing should be focused on social media platforms.

A study (Dr. Bagirathi Iyer 2019) on consumer behaviour to the food ordering using mobile apps found that urban professionals (both genders) are using the food delivery apps regularly due to their delivery ease, payment options and the discounts available on these websites and apps.

The research (Suryadev Singh Rathore, Mahik Choudhary 2018) on the food ordering application perception among the customers found some major factors affecting the use of food delivery applications in India. The study mentions that that Delivery time is the key factor which determines the use of a particular platform. The convenience of the service was also driving the use of these platforms as people get their ordered delivered at their doorstep. Ease of use has also led to a large-scale use of these platforms as people can easily access the apps and order food and at the same time track their order on the app. Flexibility in delivery timings was also a key reason as people can get the food delivered at odd timings without having to go out. Faster and convenient payment options are

required and these platforms provide their customers with a lot of different payment options which makes them use the apps regularly. Promotions in the form of discounts, cashbacks and coupons are considered to be one of the most important reason which has led to a widespread use of the digital food delivery and ordering applications. People get to order from their favourite restaurants at a reduced rate and therefore it catches the interest of the consumer.

The present study tries to empirically find the factors affecting the use of online food delivery applications by performing exploratory factor analysis. For this, an extensive review of literature was done to identify the correct tests that need to be performed and their interpretation. The research paper (Cerny, C.A., & Kaiser, H.F. 1977) to measure the adequacy in sampling for performing factor analysis was reviewed to get insights of factor analysis and the data requirement. A research paper (Vrinda Panase, Chetan Panase 2019) on Transportation Oriented Development in Pune and its effect on livability was also reviewed to understand the entire process of factor analysis and the tests involved. To understand and implement various tests like Kaiser-Meyer-Olkin (KMO) Test, principal component analysis was done by extraction method and Varimax rotation method with Kaiser Normalization research papers (F. B. Bryant, & P. R. Yarnold, 1995) and Stephens,

D. (1996) were also referred.

III. RESEARCH METHODOLOGY

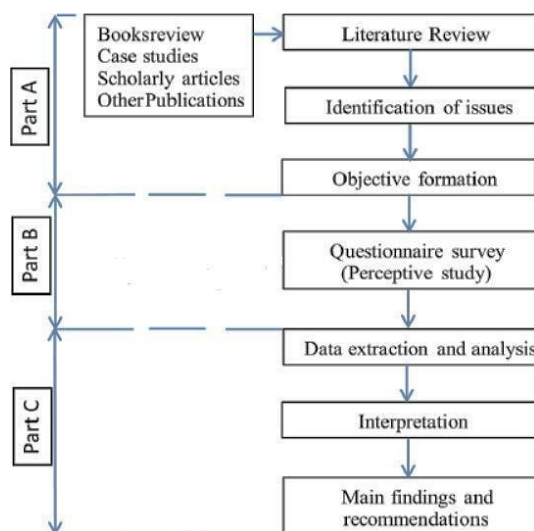


Fig. 3. Research Methodology Phases

The study is done in 3 major stages. Part A covered going through various case studies, research papers, books and other valid publications for classifying the key factors for the conducting the study. Creating an in-depth questionnaire for survey to gather the data around the usage of food delivery applications was done in Part B. Part C included analysis of the data collected and its interpretation along with the main findings from the study. Exploratory factor analysis was done using SPSS software on the data collected through the survey. Key findings as well as recommendations are made depending upon the result of performed analysis.

Social information was collected of the participants like their gender, age bracket along with their preferred mode of payment on food delivery applications. The questionnaire consisted of 15 questions all of which had compulsory response regarding the different factors which influence the use of online food ordering applications. The responses were taken on the Likert scale for the different factors which were marked as 1-5 and the respondents were asked to rate each factor on the degree of influence the particular factor has on them for making them use online food ordering applications. Another question which was included in the questionnaire aimed at finding out the preferred mode of payment while ordering online. The options given were mobile wallets/UPI, Cash on Delivery, Debit/Credit cards and net banking.

The questions included were:

The following factors influence me to use Online food ordering applications:

1. Discounts Give
2. Ease of Use
3. Delivery Delay
4. Variety of Options Available
5. Real Time Order Tracking
6. Ratings and Reviews of the restaurants
7. Exploring new/nearby options
8. Customer Support
9. Delivery Charges
10. Payment Options
11. Personalized Suggestions
12. Minimum order Value

IV. DATA ANALYSIS AND INTERPRETATION

Data was collected by floating an online questionnaire to study the various factors affecting the usage of digital food ordering applications in India. Out of the total respondents, 67.8% were males while 32.3% were females.

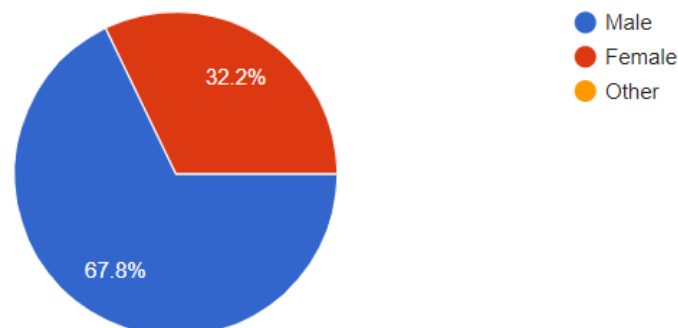


Fig. 4. Gender Distribution

The age brackets created were of people less than 20 yrs, 20-24, 25-29, 30-34, 35 and above. The distribution of the respondents according to their age is given below.

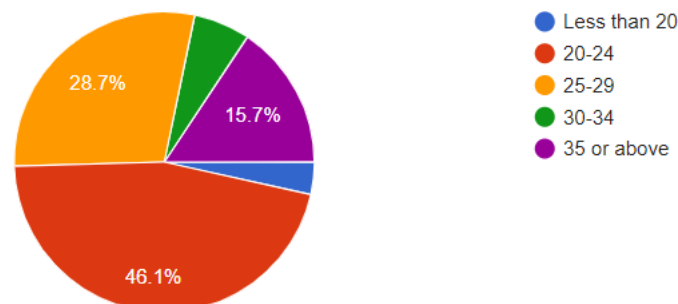


Fig. 5. Population Demography

For the variable “Discounts given” on various food delivery applications, 54.8% of the respondents strongly agreed that discounts were a major factor that led them to use the mobile application to order food. The average rating for this variable came out to be 4.27/5.

“Ease of use” of the applications for ordering food had 45.2% of the respondents which strongly agreed that the factor influences them to opt for food delivery applications while ordering food. The average rating for this variable again came out to be 4.27/5.

“Delivery delay” is one variable which we experience when we order food online than when we collect the food ourselves from the restaurant.

31.3% of the respondents had a neutral point of view of this variable when they were asked whether this factor adversely affects their experience on online food delivery applications. The average rating for this variable came out to be 2.87/5.

For the variable “Variety of Options Available” on various food delivery applications, 50.4% of the respondents strongly agreed that this was a major factor that leads them to use the applications. The average rating for the variable was 2.29/5.

“Real Time Order Tracking” in the applications had 34.8% of the respondents which agreed that the variable influences them to order food online through various applications. The average rating for this variable came out to be 3.97/5.

“Ratings and Reviews of the restaurants” available on the online platforms was another variable in the analysis. The variable had 35.7% of the respondents that agreed and strongly agreed that this variable was an important factor for the use of online applications to order food. The average rating of this variable was 3.99/5.

“Exploring New/Nearby Options” listed on these online food ordering platforms had 37.4 % of the people which agreed that this was one of the factors that makes them use the applications. The average score of this variable was 3.59/5.

“Customer Support” available on these online platforms had 32.2 % of the people which strongly agreed that it was an important factor that leads them to digital platforms. The average rating for this variable came out to be 3.84/5.

“Delivery Charges” is one variable which we experience when we order food online than when we collect the food ourselves from the restaurant. 23.5% of the respondents had a neutral point of view for this factor when they were asked whether this factor adversely affects their experience on online food delivery applications. The average rating for this variable came out to be 3.19/5.

There are “Different Payment Options” available on these online food delivery platforms which make it easier for the customers to pay for the ordered food. The variable had 43.5% of the respondents who strongly agreed that it encouraged them to order food online. The average rating for the variable was 3.89/5.

We often get “Personalized suggestions” on the applications when we order food online. For this variable, 33% of the respondents had a neutral point of view. The average rating for this came out to be 3.29/5.

While ordering food online, we have to adhere to “Minimum Order Value” for the order to be delivered to us. Therefore, this becomes an important factor which affects the experience of the customers using the application. The response on this factor was uniformly distributed with 23.5% of the people strongly agreeing that minimum order value did not affect their experience on the food ordering applications. Yet, the average rating for the variable came out to be 3.09/5.

The respondents were also provided their preferences in the mode of payment while using online food delivery applications. The options given were cash on delivery, Wallets/ UPI, Debit/ Credit Cards and net banking. In this, around 40% of the respondents chose wallets and UPIs as their preferred mode of payment. The rest of the distribution is shown in the figure.

Exploratory Factor Analysis

Factor analysis is a technique that reduces many variables in the research model into a reduced number of factors. The method uses maximum common variance from all variables of the model and brings them into a common score. Factor analysis is a component of general linear model (GLM) and this technique also follows many conventions: Absence of multicollinearity in the model, there is a linear relationship in the model, Variables used are relevant to the analysis, and a true correlation exists between factors and variables.

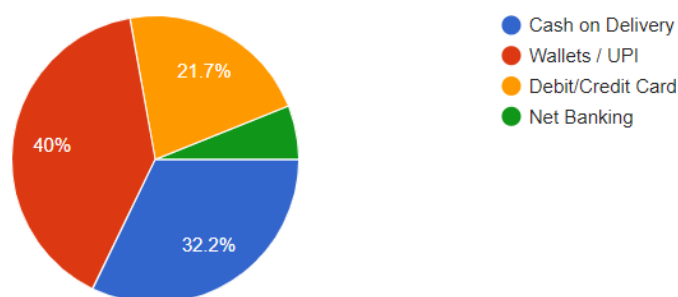


Fig. 6. Payment Method Usage

Most widely used method for factor analysis is the Principal component analysis. PCA begins with

finding out the highest variance and making them into the very first factor. This is followed by the elimination of the variance explained by the first factors is done and then again begins the calculation of the highest variance for the second factor. The process continues till last factor.

Factor loading is essentially the coefficient of correlation for the factor and the variable. It gives the variance explained by the variable on a particular given factor.

Explained variance of a particular factor out of the total variance is obtained using Eigenvalues. This can be done using the commonality column, thereby helping in the determination of variance is explained by factor to the total variance.

According to the Kaiser Criterion, Eigenvalues help in efficiently determining the factors. If it is more than one then the factor should be considered else should be rejected. For understanding the output, the rotation method is used as Eigenvalues do not impact in the rotation method, nonetheless the affecting the percentage of extracted variance. Varimax rotation maximizes the result obtained by the addition of the variance of squared loadings, here the meaning of loadings is the correlation between factors and variables. Hence, we get higher factor loadings for a small number of variables and low factor loadings for the rest. The rest of the components have eigenvalues of greater than one (Stevens, 1996).

Exploratory factor analysis has been done to find the key factors for the study and grouping them. The principal component analysis was done by extraction method and Varimax rotation method with Kaiser Normalization.

Kaiser-Meyer-Olkin test also known as the KMO test is a test that measures appropriateness of the data for performing Factor Analysis. It calculates adequacy in sampling for every variable used in the statistical model. The proportion of variance in the variables present in the model is the statistic that might be common variance. For a better-suited data, the proportion of the statistic should be low.

KMO returns values between 0 and 1. Following are the interpretations of the KMO values:

- 0.6 < KMO values < 1 show adequate sampling.

- KMO values < 0.5 signify inadequate sampling and therefore a corrective action is required.

KMO Values nearing to zero signify large partial correlations exists as opposed to the correlations sum i.e. there exists extensive correlation which are a hinderance in performing factor analysis.

The Kaiser Meyer Olkin index for the measure of adequacy of the sample comes out to be 0.718 which is greater than 5 and therefore proves adequacy in the sample size to perform the analysis.

Bartlett's test of sphericity is used to test the hypothesis of the correlation matrix being an identity matrix, that specifies that variables in the model are not related and therefore unfitting for structure detection. A significance level lower than 0.05 indicates that a factor analysis can be performed with the data given.

Bartlett's test of sphericity is statistically significant with $p=.000$ and degree of freedom =66 which shows a high correlation between the components of the data collected for research. 3 factors are extracted from a total of 12 components with a total explained variance of 55.377%.

The rotated component matrix gives 3 factors with Eigen value greater than 1 with the individual component loadings of factors more than 0.431. Smaller cross loading values of the factors was curbed to get the 3 factors with their loadings.

Table 1: Factor Analysis Results

Factor	Variable	Component
Technology and Analytics Features	Real-time Order Tracking	0.572
	Ratings and Reviews of Restaurants	0.538
	Exploring New / Nearby Options	0.608
	Customer Support	0.574
	Different Payment Options	0.602
	Personalised Suggestions	0.523
Order and Delivery	Delivery Delay	0.651
	Delivery Charges	0.648

Constraints	Minimum Order Value	0.761
Marketing Factors	Discounts Given	0.431
	Ease of Use	0.594
	Variety of Options	
	Available	0.520

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

A total of 3 factors were extracted from the performed factor analysis.

1. Technology and Analytical Features:

This factor comprises of 6 variables which include Real Time Order Tracing, Rating and Reviews of Restaurant, Exploring New/ Nearby Options, Customer Support, Different Payment Options and Personalized suggestions. The factor majorly includes variables that depend on the use of technology and analytics in the food delivery applications. We are able to track our order online on the platforms through the use of real time GPS tracking. Ratings and reviews of the restaurant are taken from the customers who have used the service in the past and a database of feedback in the form ratings and reviews is maintained for every dish made by a restaurant and also an overall rating of the restaurant. These apps also take reviews on packaging and food handling by their delivery employees. The apps also suggest their customers to explore newly registered outlets in their vicinity and try out different food joints based on their past orders through analytics. A 24x7 customer support availability adds to the features provided by these applications as any issues with the order process can be easily communicated to the company and a quick resolution can be obtained. Online platforms also have a variety of payment options which make it easier for the customers to pay for their order through online means or even cash on delivery.

2. Order and Delivery Constraints

This factor comprises of 3 variables which include Delivery delay, Delivery charges and Minimum order value. The factor takes into account the constraints associated with the online food ordering applications. Most of these apps have delivery charge associated with them and customers are usually unwilling to pay these charges. Also,

many of the platforms have a minimum order value associated with them, which needs to be fulfilled in order to get the food delivered. This also affects the experience of the customers using the platforms. Delay in delivery is also witnessed sometimes while ordering food and this becomes a negative for the food delivery applications.

3. Marketing Factors

This factor comprises of 3 variables which include Ease of use, Discounts given and Variety of options available on the platforms. It mostly consists of the marketing factors which encourage users to use the online platforms to order food. Discounts given on these platforms are sometimes very high and therefore attract a lot of customers. A large number of restaurants get registered on these platforms and therefore this gives these applications an advantage of providing their customers with a variety of options and therefore market their service. People also use the apps as they are user friendly and order can be placed and delivered on the doorstep in just a few clicks.

V. CONCLUSION AND RECOMMENDATIONS

With the constant influx of professionals in tier 1 and tier 2 towns and cities and also the rapid urbanization in India, the online food ordering and delivery segment is flourishing. Cascading effect on this is the rising smartphone users and digital food ordering applications which have now become very popular among the people across India. There is a high availability of digital food ordering apps in India that people can install on their smartphones and order meals on the go and from the comfort of their homes, offices etc. The study found some major factors which influence the use of online delivery apps. It also concludes that the features and additional services offered play a vital role in large scale usage of apps. The study grouped the variables into 3 major factors and empirically examined all the variables associated in the study. The factors created were Technology and Analytics features, Order and delivery constraints and Marketing factors. The study also revealed that the online wallets/ UPIs like googlepay, Paytm etc are the preferred mode of payments on these food delivery applications and therefore companies aiming to increase their market share can

collaborate with these wallets and provide lucrative deals to the customers ordering online.

The study results can benefit the entrepreneurs trying to get into the competitive field of online food ordering a delivery segment by providing the key factors that encourage the Indian population to use the applications. The marketing strategies can be therefore strategically made according to the findings so the study thereby helping in capturing the ever-increasing food market of India. The study advises service providers to keep focus on Technology and Analytical features in their applications as they are major factors driving the use of the platforms. Strategies and ways can be formed where Delivery and order constraints can be eliminated from the applications to give a hassle-free environment to the user. In addition to this, the service providers can make their applications easy to use so that the order can be placed in fewer clicks and at a faster rate while at the same time making use of the customer lifestyle data to provide valuable suggestions that will lead to customers embracing on demand food delivery applications services even more widely.

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