ASSESSING CUSTOMER SATISFACTION OF FOODTECH FIRMS DURING SUPPLY CHAIN DISRUPTIONS

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ABSTRACT

This research paper aims to assess the effectiveness of supply chain management of food delivery aggregators during supply chain disruptions. The key objective of the research paper is to identify and analyze the factors that influence consumer satisfaction with food aggregators. For data collection, the questionnaire was developed and circulated among respondents of different age groups, gender, and income levels. Suitable statistical tools were used to analyze collected data and understand the interrelationships among the constructs. Based on the interpretation, recommendations and suggestions are provided pertinent to food tech or food delivery aggregators.

Keywords: Food Tech, Food Delivery Aggregators, Customer Satisfaction, Disruption, Supply Chain, Marketing.

INTRODUCTION

The diversity of mobile applications viz. Food Tech or food delivery apps are becoming significant for the restaurant and catering business in order to innovate and attract consumers. Internet and mobile technology are becoming more popular for food lovers and new-age consumers. From meeting the daily food delivery demands to using innovative interface display of preferred restaurants, the firms have come a long way Levin, Heath and LeVangie, 2015.

The online food industry in India is expected to reach up to $12.3 billion by 2023. The global online food delivery market growth rate is 9.01%, while it is growing at a rate of 15% in India. Swiggy and Zomato, the leading players in this space has sales of $1.5 billion and $800 million respectively. Even during the initial growth stage, jointly both the companies delivered 96 million orders from April 2017 to March 2018. Various other popular food tech startups are UberEats, Foodpanda, Faasos, Deliveroo, Dunzo and Grubhub Visakhapatnam News (2020).

Multiple factors which are contributing to the market growth are the eating pattern, increase in income of individual and family and the changing life style. The demand of food apps is growing coupled with affordable prices and this has led to the growth of the business Business Insider (2020).

During 2019, out of the major online food delivery service providers, Zomato held a share of around 38% in terms of user the base. Swiggy held a share of around 27% in the online food delivery user base of India. Zomato remains one of the leading online food delivery services after

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acquiring UberEATS for around $350 million. This resulted in capturing nearly 50-55% of the market share with respect to number of orders. It is quickly getting ahead of other closest competitor ETtech (2020).

Despite the headstart of Zomato, Swiggy which started their journey in 2014 making a late entry into the footech market, it has quickly transformed into unicorn start-ups. Along with the growing size the intense competition is triggering and luring Zomato into investment of hundreds of millions to counter the Swiggy effect Livemint (2020).

LITERATURE REVIEW

Online food aggregators provide a great platform to people which allow customers to order the food they want from their respective places. The change in lifestyle of the people living in urban areas has led to the growth and popularity of such service. The biggest advantage is that the customers can remain in their comfort zone can save time as they order via smartphones. This kind of service has also increased the level of satisfaction of the customers. The information system and customer interface gives them flexibility to a very higher extent, so that they can order food online without any constraint Kimes (2011).

Mobile apps of online food aggregators are easily downloaded via smart phones and used for placing food orders. Today, smartphone is being used as the main source communication and online purchase activities. For utilities, huge number of mobile apps are available for users to download them explore services. One can place the order on move and delivery person can navigate to current location through the pinned addresses Trivedi (2018). Ordering food online also gives customers a degree of control and freedom. This can be possible via the wide range of choice of food, customizable quantity and value of transactions. Thus mobile app based technology also reduces complexity of personal interaction to a larger extent Ghosh & Saha (2018).

The advantage of online food aggregators is to help customers get their food and also to simultaneously track it. Users who adopted smartphones remain the primary target market for this business model as all the transitional activities and process are done through a smartphone. In the process, Customer Relationship Management, Kitchen Order Ticket, Digital Hotel Management, and Billing System are also linked and employed Adithya et al. (2017).

Various demographic factors such as age, sex, income, education, occupation, religion, race, nationality, size of the family, life cycle etc. are also taken into consideration to segment market into multiple target segments as a part of marketing planning and execution accordingly. Online food tech firms assess their service quality to evaluate their effectiveness in terms of meeting customer expectations. The food delivery startups strive to fulfill the need, want and demands of consumers while aiming for 100% accuracy of delivery and delighting the consumers Kumar (2017).

Buying and availing ready to eat food appeals to young consumers living in urban areas. This assist them in managing their time effectively. Young consumers, especially students are able to save time by not cooking food at home or going to a food joint. On the other hand, it gives them an opportunity to consumer food based on preference, even from places which are physically distant from their residence. All these benefits are also applicable to young working professionals and nuclear families with working husband and wife Trivedi (2018).

The companies who are providing their services as food aggregators are coming up with innovative and automated food ordering system that tracks all the orders in an efficient manner. When food is ordered online, it contributes towards the efficiency for supply chain operations of

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foodtech firms and cloud kitchens. This acts leads to time-efficient to aggregate the demands of customers and optimize time by matching the supply online Bhargave et al. (2013).

RESEARCH METHODOLOGY

In this paper, the authors have adopted systematic market research methods to study the validity and reliability of the questionnaire by applying quantitative approach. The current research includes non-personal survey method to reach and covers various segments of respondents as compared to personal intervention research methods. This reduces the time and increases responses and accurate result to draw conclusions in lesser time.

Study Objectives

1. To identify the factors that influence consumer satisfaction towards food aggregators
2. To evaluate the level of satisfaction towards food aggregators during supply chain disruptions
3.To assess the effectiveness of food aggregators during COVID-19 Pandemic

This paper also deploys deductive approach for formulation of hypothesis from existing theories and drafting research plan to investigate the phenomenon. The usefulness of the deductive approach is in business research during the following stages:

4.Developing and formulating hypothesis while suggesting relationships between variables
5.Assessing the hypothesis with the help of quantitative methods like ANOVA
6.Studying the interrelationship and outcome, thus resulting in confirming or rejecting the theory

H_0: *There is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Age.*

H_1: *There is difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Age.*

H_2: *There is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Income.*

H_3: *There is difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Income.*

H_4: *There is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Gender.*

H_5: *There is difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Gender.*

DATA ANALYSIS AND INTERPRETATION

ANOVA Test Considering the Method of Post Hoc Analysis

Test 1 AVOVA on opinion of respondents towards the dimension of Consumer Satisfaction considering the factor of Age Table 1 and 2.

H_0: *There is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Age*

H_0: *μ 15 to 20 year's $= \mu$ 21 to 35 year's $= \mu$ 35 to 50 year's $= \mu$ 51 years and above*

H_1: *There is difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Age*

H_1: *μ 15 to 20 year's $\neq \mu$ 21 to 35 year's $\neq \mu$ 35 to 50 year's $\neq \mu$ 51 years and above*

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Table 1 TEST OF HOMOGENEITY OF VARIANCES			
Consumer Satisfaction			
Levene Statistic	df1	df2	Sig.
1.099	2	62	0.340

Table 2 ANOVA					
Consumer Satisfaction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	175.200	3	58.400	2.443	0.072
Within Groups	1481.967	62	23.903		
Total	1657.167	65			

Levene's Statistic is the test that has been incorporated to assess the variance in the spread of respondents. The P value is identified to be more than 0.05 level of significance denoting equality of variance in the data set. Further ANOVA test is results are considered to test the hypothesis and it is observed that the null hypothesis is failed to be rejected as the Probability value is identified to be 0.072 being more than 0.05 level of significance.

Test 2 AVOVA on opinion of respondents towards the dimension of Consumer Satisfaction considering the factor of Income Table 3 and 4.

H_0: *There is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Income.*

H_0: *μ no income $= \mu$ Below Rs. 25,000 per month $= \mu$ Between Rs. 25,000 to Rs. 50,000 per month $= \mu$ Rs. 50,000 and above.*

H_1: *There is difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Income.*

H_1: *μ no income $\neq \mu$ Below Rs. 25,000 per month $\neq \mu$ Between Rs. 25,000 to Rs. 50,000 per month $\neq \mu$ Rs. 50,000 and above.*

Table 3 TEST OF HOMOGENEITY OF VARIANCES			
Consumer Satisfaction			
Levene Statistic	df1	df2	Sig.
2.570	3	62	0.062

Table 4 ANOVA					
Consumer Satisfaction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	94.552	3	31.517	1.251	0.299
Within Groups	1562.614	62	25.203		
Total	1657.167	65			

Considering the demographic profile of Income, it is identified that there is equality of variance assumed from computing Levene's test as the Probability value is 0.062 being more than 0.05 level of significance. Further the ANOVA test also represent Probability value more than 0.05 level of significance as 0.299 which assist in failing to reject the null hypothesis. Hence, there is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Income.

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T Test considering the method of Post Hoc Analysis

Test 3 T Test on opinion of respondents towards the dimension of Consumer Satisfaction considering the factor of Gender Table 5.

H_0: *There is no difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Gender.*

H_0: μ *Male* $= \mu$ *Female*

H_1: *There is difference in the mean scores pertaining to the aspect of Consumer satisfaction towards the food aggregators considering the factor of respondent's Gender.*

H_1: μ *Male* $\neq \mu$ *Female*

Table 5
INDEPENDENT SAMPLES TEST

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Consumer Satisfaction	Equal variances assumed	0.688	0.410	0.762	64	0.449	0.950	1.248	-1.542	3.443
	Equal variances not assumed			0.764	63.83	0.447	0.950	1.243	-1.534	3.434

The Independent Sample T Test computed considering the factor of respondents Gender and their uniformity of responses towards the aspect of Consumer Satisfaction. However, it is identified that the Probability value for T Test is 0.449 being more 0.05 level of significance. Therefore, it is assessed that in-spite of the respondents being categorized in gender, their opinion is uniform Doub et al. (2015).

Factor Analysis

The dimension of consumer satisfaction is compiled through nine antecedents and it is imperative to identify if they can further be collapsed into underlying latent variables. After this, factor analysis is used to identify the groupings in the elements. Principal component analysis as a subset in the analysis has been considered and the rotation technique considered is Varimax. Initially the probable grouping options are ascertained through Eigen Values and it is identified that there is possibility to collapse the parameters in two or three distinct variables. Further the analysis is carried out in understanding the proximity of beta values considering three dimensions Figure 1 and Table 6.

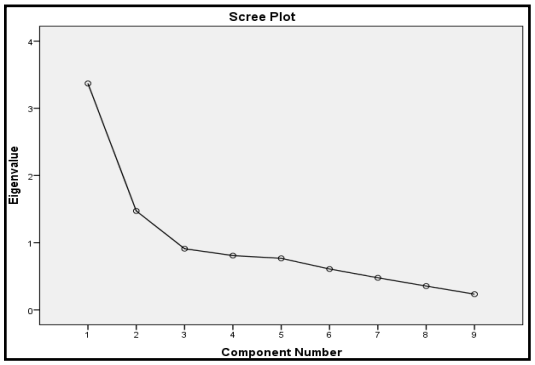

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FIGURE 1
COMPONENT NUMBER

Table 6
ROTATED COMPONENT MATRIX[A]**

	Component		
	1	2	3
Service quality provided during COVID-19 Pandemic influenced my perception	0.844		
I got influenced by offers which were available on food delivery apps during COVID-19 Pandemic	0.796		
The food delivery staff followed all the COVID-19 norms during COVID-19 Pandemic	0.716		
Social media posts influenced me to use food delivery apps during COVID-19 Pandemic	0.622		
I find the food on food delivery apps as per my taste		0.758	
I find the food on the food delivery apps affordable		0.714	
I find food apps very user friendly		0.661	
I get the food delivered within the stipulated time during COVID-19 Pandemic?		0.53	
Friends and family influenced me to use food delivery apps during COVID-19 Pandemic			0.964
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
*a. Rotation converged in 4 iterations.***			

The cutoff for factor loadings in the analysis is considered to be 0.5. As a result, it is observed that the 9 parameters can be grouped in two distinct constructs. The first dimension consists of 4 variables which is names as 'service quality'. The second dimension consists of 4 variables which is named as 'ease of use'. The attribute of "*influence from friends and family*" is identified to establish proximity with any of the groups.

FINDING AND CONCLUSION

The majority of people use food apps for convenience and time-saving. Furthermore, ordering via food apps leads to efficient supply chain operation. Among the respondents, the most preferred food app is Swiggy, and cash on delivery is the safest and most secured form of payment. The findings of this study lead to the conclusion that there is no significant difference impact of age, income, and gender on consumer satisfaction. Consumers, irrespective of their age, income, and gender, order food through food aggregators' apps.

The first critical factor is 'Service Quality'. The service quality provided during disruption during COVID-19 Pandemic influenced consumer's perception. The consumers are influenced by offers which were available on food delivery apps during supply chain disruption. The consumers reported that they are satisfied with the food delivery staff following the various mandatory protocols during disruptions.

The second factor is 'Ease of Use'. Consumers find food on food delivery apps as per their taste. Consumers find the food on the food delivery apps affordable. Consumers find food apps very user-friendly. The consumers were able to get the food delivered to their respective places within the stipulated time during the pandemic.

Swiggy is the most preferred app because of the innovative features like discounts, service quality and variety of food available on them. Due to the Pandemic situation, many people who

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were not ordering food online also have ordered food online Quick delivery is also an important reason as to why consumers also prefer to use the food delivery apps. Social media posts have influenced consumers to use food delivery apps during supply chain disruption in pandemic time.

With the evolution of mobile technology, food tech apps are playing an important role in shaping the restaurant industry as well as customer perception. Daily usage of food apps is trending irrespective of age group, income group, location, or customer segments. Ease of tracking orders and prompt response to complaints encourage consumers to adopt food delivery apps. Most importantly, it is the easiest, most comfortable, and efficient way of ordering food and customers have a lot of options and choices available for them to try.

The overall reflection on this research states that, all groups of customers use food apps in this digital age reinforcing rapid adoption. It enhances the understanding of customer satisfaction, preferences. Also, the efficacy in supply chain management and door-to-door service without compromising on quality remain at the top of mind of mobile users during disruption Figure 2.

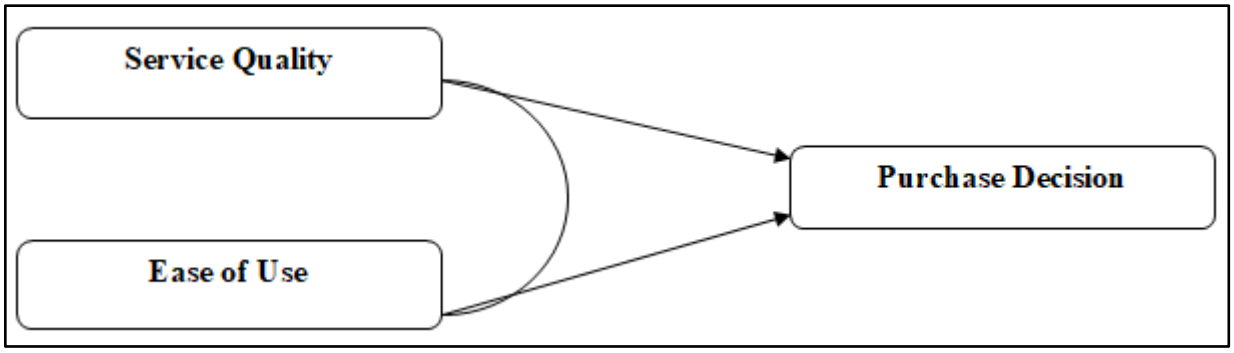

FIGURE 2
USE OF DOOT-TO-DOOR DERVICE

Scope for the Future Study

In the future, researchers can explore new dependent variables to understand the effectiveness of food tech apps. For instance, the dependent variable can be the "*purchase decision*". Multivariate regression analysis can be computed wherein the influence of Service Quality and Ease of use can be ascertained on the purchase decision.

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