



PRE AND POST PANDEMIC IMPACT ON FOOD DELIVERY BUSINESS

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Abstract

The pandemic situation prevailed in India has significantly affected the human life. The way working customers have been utilizing the time for optimum productivity have also been influenced. The food delivery system is one of the most important elements that can save time, stress and more importantly the concentration on preparation of food. Due to modern competitive scenario, the work customers especially, the working professionals have been depended on food delivery system. COVID-19 has changed the life not only mentally but also economically. In this research an attempt is made to study the Pre and Post COVID impact on food delivery businesses and the customers' perception towards online and offline food. This study uses statistical tools to know the customers behavior on online and offline platforms.

Key words: t-test, COVID-19, Swiggy, Zomato, ROC Curve

1. Introduction

Food has a greatest impact on every human's life. It is the main source of energy for humans who might be a rich or poor. Due to the increased globalization the customers perception towards food had changed. With the introduction of online food delivery services customers are more pleased to use online food delivery services with the help of apps, websites and minimally through phone calls. Customers have become lazy and very much dependent on online food delivery apps. This gave a boom to apps like Swiggy and Zomato who are rivals in this market. These are already facing loses due to heavy discounts and incentives, margins to employees and restaurants. The COVID 19 pandemic has hit the world countries and their economies Worsley. This had a great deal on food delivery apps. The Government ordered to stop the operations of food delivers services. The initial stage of COVID-19 Pandemic and the ensuring strict lockdown had an adverse impact on Indian Food Delivery businesses broadly dominated by Swiggy and Zomato. Consumers are scared of ordering online food due to safety issues, so they prefer homemade food instead of online food. Through this research we are going to study the;

1. Pre COVID-Impact on Food Businesses -Before 22 March 2020
2. Post COVID Impact on Food Business -After 22 March 2020

2. Objectives and Methodology

This research had done to assess the effect of COVID-19 on Online Food Delivery Businesses,

1. -To study how the pandemic has impacted the online food delivery services.
2. -To analyze the customers' perception on online food delivery apps.
3. -To study the amount spent by the customers on food pre and post pandemic.

The study is purely based on the primary data obtained through the social media channels. The primary data is obtained from 212 respondents.

We have used the statistical tools like T-test, Regression, and ANOVA to analyze the data obtained from survey.



3. Analysis and Discussion

Table-1: Gender category and perception on preferred mode of food

Sl.No.	Gender category	Preferred mode of food		Total
		Online	Offline	
1.	Male	49	70	119
		41.2	58.8	100%
2.	Female	38	55	93
		40.9	59.1	100.0
	Total	87	125	212
		41%	59%	100%

Source: Field Research

Interpretation: Upon testing the primary data with chi-square, the both genders male and female prefer to buy or eat the food offline rather than online food. The percentage of customers preferring offline food is 59% against the 41% who prefer online food. The conclusion to this chi Square test show's that the consumer preferences are changed towards food delivery apps as COVID-19 has great impact on economic as well as health of the customers as they became more health conscious

4. T-test for dependent Sample Results

The t-test for dependent samples is also referred as paired sample t-test. The t-statistic for paired sample t-test is used when the elements(values) in one sample are related to those in the other in any significant or meaningful manner.

Interpretation: There is a significance difference between the pre pandemic and post pandemic amount spent based on the income of the customers, viz.0.40 and 9.33.So we can say that there is a great amount of change in terms of amount spent pre and post pandemic.

Table-2: T-Test Analysis of Pre and Post Pandemic food delivery experiences

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Rate your food deliver experience before pandemic - Rate your food delivery experience after pandemic	.24528	1.07810	.07404	.09932	.39124	3.313	211	.001

Source: Field Survey, SPSS Data.

Interpretation: The food delivery experience rating has not very much impacted due to COVID-19 on online food delivery businesses, So we can say that the customers food delivery experience has not changed Pre and Post Covid-19.



Bar Chart Analysis: The below given bar chart shows how the COVID-19 impacted the food delivery businesses.



Figure-1: Perception on duration of food delivery before pandemic

The Figure -1 shows that there is a less no of customers willing to order food online before pandemic i.e., daily, but there is an increasing no of customers for online food as the time gap between their orders increases. The no of customers willing to buy online food had peaked with the customers who orders once a month.



Figure-2: Perception on duration of food delivery after pandemic

The Figure -2 shows that there is a more no of customers willing to order food online after pandemic and there is an increasing no of customers for online food as the time gap between their orders increases. The no of customers willing to buy online food had peaked with the customers who orders once a month following with once a week, twice a week and twice a month.



5. ROC Curve Analysis on Income

Table-3: Results of ROC Curve

Case Processing Summary	
Income^a	Valid N (list wise)
Positive^b	155
Negative	57

Larger values of the test result variable(s) indicate stronger evidence for a positive actual state.

a. The test result variable(s): rate your food deliver experience before pandemic has at least one tie between the positive actual state group and the negative actual state group.

b. The positive actual state is Less than 50000.

Source: FieldSurvey, SPSS Data

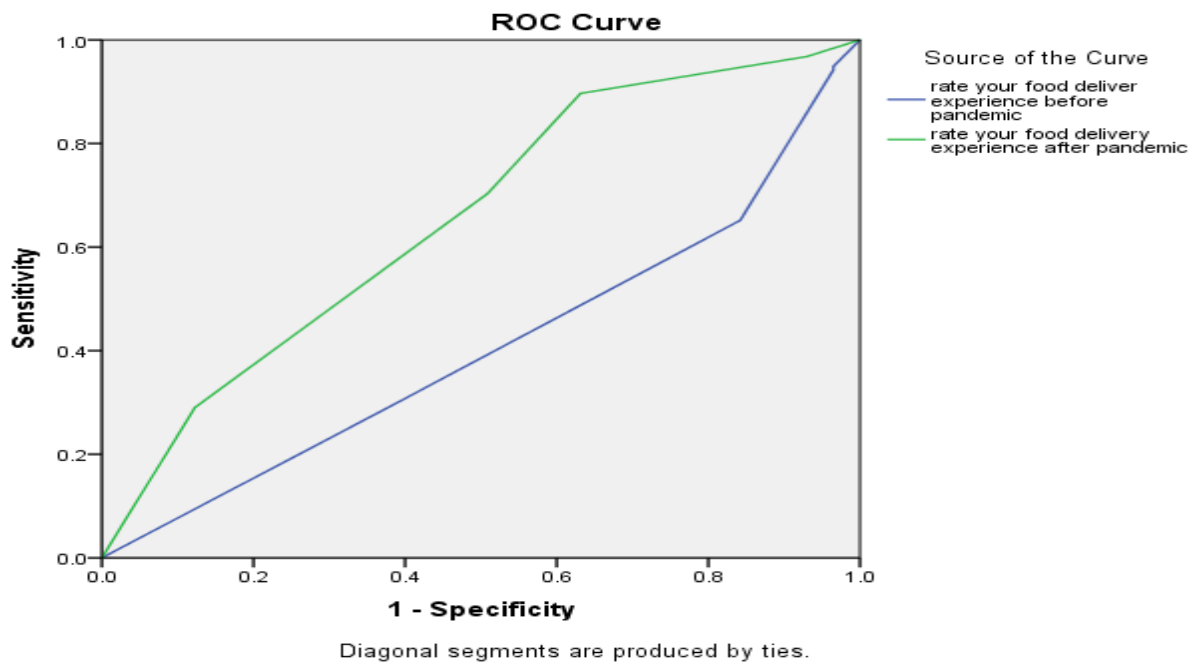


Figure-3: Results of ROC curve

From the above given **ROC curve** we can say that the income of the customers plays an important role in terms of Ordering food online. The more income earning customers are likely to order online food very frequently where as the less earning customers does less frequently.

6. Pie Chart analysis of Food Delivery Provider:

Table-4: Results on Online food delivery provider

Which online food delivery provider did you use?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Swiggy	90	42.5	42.5	42.5
	Zomato	117	55.2	55.2	97.6
	Other	5	2.4	2.4	100.0
	Total	212	100.0	100.0	

Source: Field Survey, SPSS Data



Figure-4: Type of Online food ordered by the customers

Figure-4 shows the number of customers using the Swiggy, Zomato and other apps to order food. 42.5% of customers are using Swiggy, 55.2% of customers are using Zomato and 2.4% are using other apps or platforms to order food. Zomato has highest no of users when compared to other apps.

7. Online Food Safety Analysis

The analysis reveals the following observations.

Table-5: Perception on feel safe with online food delivery services

Do you feel safe with online food delivery services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	118	55.7	55.7	55.7
	No	37	17.5	17.5	73.1
	may be	57	26.9	26.9	100.0
	Total	212	100.0	100.0	

Source: FieldSurvey, SPSS Data

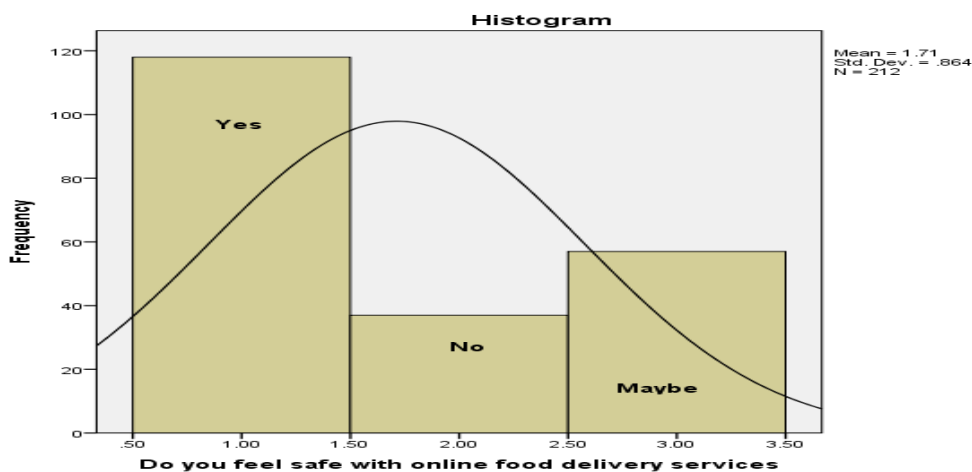


Figure-5: Perception on feel safe with online food delivery services



Figure-5 show the results of perception on feel safe with online food delivery services. From the above Histogram we can say that the high no of customers i.e. Yes are feeling the online food delivery as safe but there is the more no of customers cumulatively who have some safety concerns of online food and who don't feel safe i.e. No and Maybe .

8. Amount Spent Analysis Pre and Post COVID-19:

Results on analysis on amount spent for the order of food both before and after COVID-19 pandemic prevailed in India.

Table-6: Perception on Amount spend pre pandemic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 500	39	18.4	18.4	18.4
	More than or equal to 500	117	55.2	55.2	73.6
	Less than 1000	48	22.6	22.6	96.2
	More than 1000?	8	3.8	3.8	100.0
	Total	212	100.0	100.0	

Source: FieldSurvey, SPSS Data

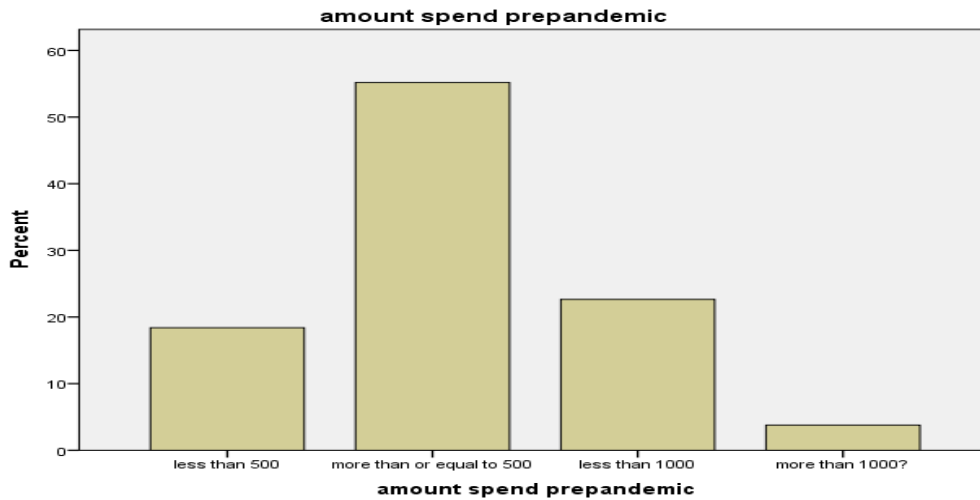


Figure-6: Amount spent during pre pandemic

The above figure-6 shows how customers spent money on online food delivery before pandemic.

Table-7: Perception on Amount spend Post pandemic

Amount spend postpandemic					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 500	68	32.1	32.1	32.1
	More than or equal to 500	93	43.9	43.9	75.9
	Less than 1000	37	17.5	17.5	93.4
	More than 1000?	14	6.6	6.6	100.0
	Total	212	100.0	100.0	

Source: FieldSurvey, SPSS Data

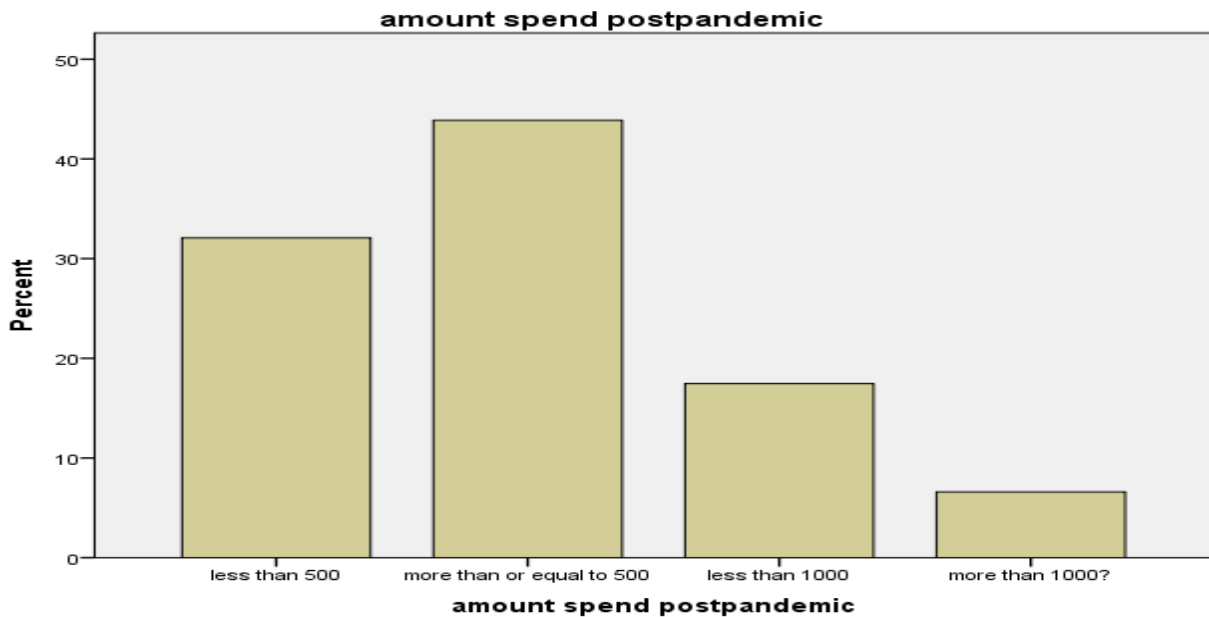


Figure-7: Amount spent during post pandemic

The above given Fig.F shows how customers spent money after the pandemic on online food delivery. From the above two figures we can conclude that due to the pandemic the customers are more likely to spend their money on online food rather than the offline/restaurant.

9. Correspondence Analysis results

Correspondence analysis is a geometric approach for visualizing the rows and columns of a two-way contingency table as points in a low-dimensional space, such that the positions of the row and column points are consistent with their associations in the table.

By summing up all the observations, analysis, and results we can conclude that there is a considerable amount of impact on Online Food Delivery Businesses which has shown some negative impact on food delivery businesses but this is not going to be seen in longevity. As the businesses are strictly following the COVID-19 Precautions as per the Government norms the customers are willing to buy food through the online platforms. The Pandemic is not going to be vanished in short amount of time, the food delivery businesses have to be very cautious, vigilant and patience in order to reinstate their market dominance and earn profits in the long run.

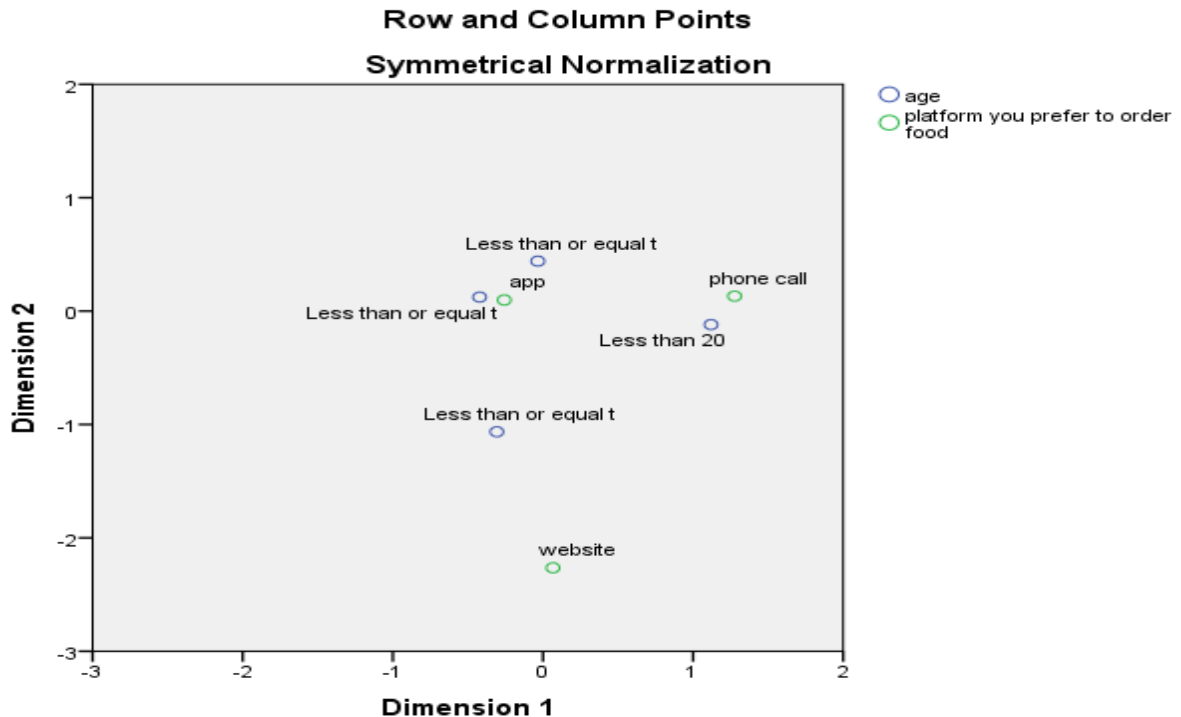
Table-8: Results of Correspondence Analysis

age	platform you prefer to order food			
	phone call	website	app	Active Margin
Less than 20	13	2	19	34
Less than or equal to 25	5	2	59	66
Less than or equal to 30	9	0	47	56
Less than or equal to 35	2	4	21	27
Active Margin	29	8	146	183
Row Profiles				



age	platform you prefer to order food			
	phone call	website	app	Active Margin
Less than 20	.382	.059	.559	1.000
Less than or equal to 25	.076	.030	.894	1.000
Less than or equal to 30	.161	.000	.839	1.000
Less than or equal to 35	.074	.148	.778	1.000
Mass	.158	.044	.798	
Column Profiles				
age	platform you prefer to order food			
	phone call	website	app	Mass
Less than 20	.448	.250	.130	.186
Less than or equal to 25	.172	.250	.404	.361
Less than or equal to 30	.310	.000	.322	.306
Less than or equal to 35	.069	.500	.144	.148
Active Margin	1.000	1.000	1.000	
Summary				
Dimension	Singular Value	Inertia	Chi Square	
1	.311	.097		
2	.235	.055		
Total		.152	27.785	.000 ^a

Source: Field Survey, SPSS Data





10. Conclusion

The effect of pandemic on human life is inevitable. The current scenario of COVID-19 has significantly affected the world in their life styles. The busy nature of working people has been terribly affected by COVID-19. Especially the customers who are opting for food delivery before COVID-19 have been affected by the fears of spending time for food. In this scenario, the current paper has focalized on is there a significant impact of COVID-19 on food business both before and after the COVID-19. The results statistically proved that there is a significant impact of COVID-19 on food business. The study also reveals that the order for food delivery has significantly affected both before and after pandemic. The order using different platforms were been analyzed through correspondence analysis. the results reveal that, majority of the customers aging less than 20 years prefer to opt through phone call.

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