A Study on Online Food Delivery Services during COVID-19 at New-Delhi, India

[1] Jaspreet Singh, [2]Kartik Guleria, [3]Ayush Rana

[1][2][3] Department of Computer Science and Engineering, Chandigarh University, Mohali, Punjab 140307, India
[1]jaspreet.e10279@cumail.in, [2]guleriakartik35@gmail.com, [3]19bcs2396@cuchd.in

Abstract— Starting of the year 2020, the world was not prepared for a pandemic like Covid-19. The first wave swept the world and second swept the economy. Every economy in the world experienced a financial crisis. This disease made us follow a lot of different things in our daily lives. We must adhere to certain hygiene standards and they will eventually protect us. Social distancing with travel restrictions was practiced. Restrictions were on all industries, from automobile to mobile. Every industry faced restrictions. Even in public places there were restrictions. When people were sick, they stayed self-isolated or were hospitalized. The disease was severe. Due to the pandemic, medical equipment was urgently needed also with the cure of this disease. But if we talk about the food industry, everything changed. New Models of online delivery of food and groceries were and are becoming the new normal. The purchases which were made offline or by visiting the respective store in person are now being done online. In this paper we will talk about the impact of Covid-19 on the food delivery industry. We will throw some light on how the economy suffered because of the pandemic. Purchases started online, Offline is good, but online is a better and preferred way of shopping. This paper uses primary as well as secondary data sources for full clarity on the challenges faced by online food delivery.

Index Terms— Food delivery, Online food delivery, Research on food delivery in Covid.

I. INTRODUCTION

E – Commerce industry is rapidly growing in the urban metro cities of India. Some of the cities where ecommerce is growing at a rapid pace are Bangalore, Mumbai, Chennai, Kolkata, and Chennai. It has grown from $ 2.9 billion in 2013 to $ 100 billion.

The ecommerce industry is growing in every aspect of retail for the customers, be it apparels, shoes, accessories. The Banks have introduced many number of online banking services for the customers, every banking service is now available sitting at home. FMCG business all over India has been contributing about 2% of the GDP. Ecommerce has already entered the hotel sector as the customers can order food at cheaper rates with other services too, like booking a room. The Complementary vouchers and offers which these apps provide motivates the customers to move from offline to online services.

Mc Donald's, Dominos, subway, Pizza hut, barbeque nation are one of the famous companies which have their own website which provide the facility to the customers to order food with good discount and many other services which these companies offer.

There are many mediator food delivery apps or companies which tie-up with hotels and restaurants which are both startup and well known restaurants, and are in demand by the modern customers.

The companies like Zomato, Uber Eats, Zomato, FoodPanda are in demand and the valuation which they have is backed up by enormous amounts of funding by different investors, that's the reason they provide huge amount of discount on the items.

The online food industry grew by 150% year over year to $300 billion in 2016.

Amazon, which is the global e commerce giant, is entering the food sector by the investment of $515 million in the coming years, as per the former minister of food and processing industries, Govt. of India (Ms. Harsimrat kaur badal).

II. SCENARIO OF ONLINE FOOD DELIVERY SERVICES PERFORMANCE IN INDIA

The current scene of food delivery in India is:

1. Business Insider Intelligence predicts that by 2021 ordering via smartphone will account for more than 10% of all fast food restaurant sales. Mobile food ordering is estimated to be worth approximately $38 billion industry. In one study conducted using L2 surveys, 95 brands or 75% of 126 restaurants offered a mobile app.
2. Nearly a quarter of smartphone owners (24%) regularly use food ordering apps such as Uber EATS and Postmate.
3. Revenue from online consumer delivery platforms grew to $974 million in 2019, and forecasts are rising as consumers embrace this revolutionary new approach to ordering food.

III. HIGHLIGHTS OF ONLINE FOOD DELIVERY SERVICES

1. The online food delivery segment is growing at 15% Quarter on Quarter from January to September 2019 and will grow even faster at larger scales.
2. In the three months to September 2019, average daily order volume increased to 400,000.
3. According to In-house order delivery statistics, up to 56% of orders were booked in

4. Delivery time was reduced from 46 minutes in FY 2017 to 42 minutes in FY 2018.
5. Ola, India's largest taxi hailing company, acquired Foodpanda, an online food delivery company that is creating difficult market conditions. OLA is investing about $ 200 million, which will lead to a huge price war in the market, huge market penetration in the industry and greatly increase competition.

IV. LITERATURE REVIEW

4.1 H.S. Sethu & BhavyaSaini (2016):

The study's primary objective was to understand the attitudes, behaviors, and motivations of students who opt for online food delivery services as their primary choice for meals [1]. According to the findings, students prefer online food delivery services because they offer the convenience of ordering their desired food at a reasonable cost, which saves them time during busy periods such as exams. The internet also provides a quick and hassle-free option for students to order food via their mobile applications without any time-wasting activities.

4.2 Leong Wai Hong (2016):

The e-commerce industry's growth can be attributed to technology, which is a significant factor in the rise of online food delivery services. Efficiency is crucial for the

hotel industry to expand, as it enhances profitability and productivity [2]. The use of online food delivery services can propel any restaurant business to greater success and enable them to reach a wider audience, leading to increased credibility and fame. Additionally, having a presence on online platforms increases the trust factor and allows restaurants to provide more details about their offerings to potential customers.

4.3 Varsha Chavan, et, al, (2015)

The availability of mobile software interfaces has made it possible for customers to order food online with ease, thereby enhancing the profitability of the food industry [3]. The analysis reveals that the use of wireless communication technology has transformed the service sector by providing a cost-effective and accessible means of reaching a wider audience, along with the ability to deliver a vast amount of information to customers. This has led to significant improvements in the service delivery of the food industry.

4.4 Serhat Alagoz and Haluk Hekimoglu (2012):

The E-commerce industry is experiencing rapid growth, which has prompted research into the Technology Acceptance Model (TAM) to study customers' acceptance of online food ordering services [4]. According to the research, the ease of delivery and usefulness in meeting customers' preferences are critical factors that influence the acceptance of online food delivery services.

4.5 Sheryl E. Kimes (2011):

The research paper highlights the significance of convenience and perceived control as crucial factors for understanding consumers' perceptions and attitudes towards online food services. Although some customers still prefer offline food delivery, where they can engage in one-on-one conversation with the hotel staff to build relationships through interaction and conversation [5].

V. RESEARCH METHODOLOGY

5.1 Sources of collection of Data: Primary source of Data as well as Secondary Source of Data

5.2 Type of Research: Exploratory Research

5.3 Sample Size for the Research: 100 Respondents

5.4 Primary Source of Data:

The data for this study is gathered through a primary source, which involves conducting a questionnaire survey among Delhi residents to gather their opinions on online food delivery services. By collecting primary data from a sample of 100 respondents, this study aims to provide a comprehensive understanding of the advantages and disadvantages of such services [6]. In addition, secondary data was gathered from various sources such as articles, research papers, websites of companies, and magazines to provide additional insights.

This study collected data from a primary source, a questionnaire survey of Delhi residents about their opinions on online food delivery services [7]. The study aimed to provide a comprehensive understanding of the advantages and disadvantages of these services by collecting primary data from a sample of 100 respondents. By collecting both primary and secondary data, this study was able to provide a comprehensive understanding of online food delivery services. The primary data from the questionnaire survey provided first hand insights from residents,

5.5 Secondary Source of Data:

This study explored the impact of online food delivery services on the restaurant industry and the competition it creates. It also investigated whether consumers will shift their loyalty from traditional outlets to online services and how this may benefit them. The study collected secondary data from a variety of sources, including articles, research papers, company websites, and magazines. This data was used to provide context and background information on the topic of online food delivery services. The study found that online food delivery services have had a significant impact on the restaurant industry. They have created new competition for traditional restaurants, and they have also changed the way that people eat [8]. The study also found that consumers are increasingly likely to order food online, and that this trend is likely to continue in the future. The study concluded that online food delivery services have both positive and negative

impacts on the restaurant industry. On the one hand, they have created new competition and changed the way that people eat. On the other hand, they have also provided an opportunity for startup restaurants to gain exposure to a larger audience [9]. The study also found that consumers are increasingly likely to order food online, and that this trend is likely to continue in the future. They need to make sure that they are getting a good deal, and they also need to make sure that they are ordering from a reputable restaurant. Overall, this study provides valuable insights into the impact of online food delivery services on the restaurant industry and on consumers. The study's findings can be used by both

restaurants and consumers to make informed decisions about the use of online food delivery services.

VI. RESEARCH OBJECTIVES:

1. Identify the companies that are driving the online food delivery industry. The online food delivery industry is growing rapidly, and there are a number of companies that are driving this growth.
2. Research the key factors that influence consumers' preference for online food delivery services from restaurants. By understanding the key factors that influence consumers' preference for online food delivery services, restaurants can improve their chances of success in this competitive market.
3. Examine the top food delivery service provider in Delhi.

VII. QUESTIONNAIRE:

7.1 What is your age and No. of Respondents?

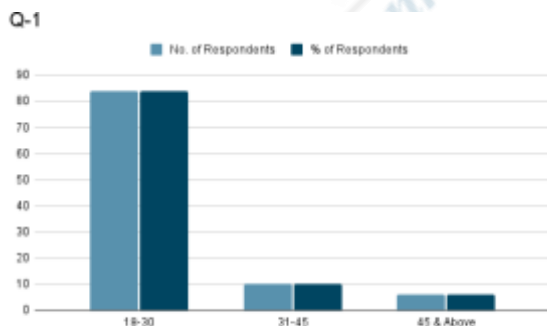| Age	No. of Respondents	%of Respondents
18-30	84	84%
31-45	10	10%
45 & Above	6	6%
Total	100	100%

Table -1 Age and no. respondents

Fig - 1 Graph b/w age and no. respondents

7.1.1 Discussions:

➢ The majority of respondents in this survey were between the ages of 18 and 30, while only 2% were between the ages of 31 and 45.
➢ Younger people are more likely to order food online than older people. This may be because they are more attracted to the convenience and variety of online food delivery services, and less likely to cook at home.

7.2 Which do you prefer, online food delivery or offline food delivery?

Response	Percentage of Respondents	No. of Respondents
Yes	62%	62
No	14%	14
Maybe	24%	24

Table -2 Preference of respondents

Fig - 2 Graph based on the preference of respondents

7.2.1 Interpretation:

➢ A majority of respondents (62%) prefer to order food online rather than dining out. They are motivated by the convenience and affordability of online food delivery services, as well as the promotional codes and cash back offers that are often available.
➢ Online food delivery services offer a convenient way to get food without having to leave home. Users can simply browse menus, place orders, and track their deliveries from the comfort of their own couch.
➢ Online food delivery services can be more affordable than dining out. Many services offer discounts and promotions, and users can often find coupons and codes online to save even more money
➢ Online food delivery services often offer promotional codes and cash back offers to attract new customers and encourage repeat orders. These offers can save users a significant amount of money, making online food delivery even more affordable.

7.3 Are you familiar with the major food delivery apps?

No. of Online Food Services Providers	No. of Respondents	Percentage of Respondents
Zomato	47	21.96%
Swiggy	47	21.96%
Dominos	32	14.95%
UberEats	22	10.28%
Pizza Hut	22	10.28%
Foodpanda	15	7.01%
Box 8	11	5.14%
Faasos	10	4.67%
Behrouz	8	3.74%

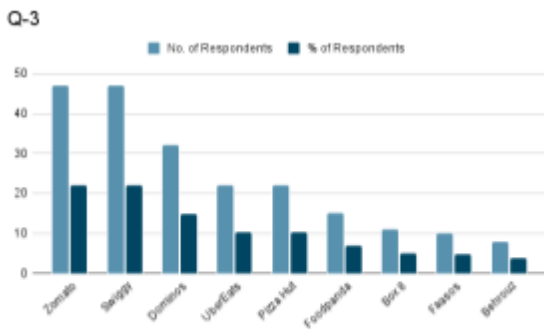**Table -3** Familiarity of food delivery app

Fig - 3 Graph based on familiarity of food delivery apps

7.3.1 Interpretation:

➢ Zomato and Swiggy are the leading online food delivery services in India. They are followed by Uber Eats and other smaller players. This is because respondents are not only aware of these services, but they also use them to order food.

➢ These are the people who were surveyed for this study. They were asked about their awareness and use of online food delivery services.

7.4 What are the most important reasons why you prefer online food delivery services over offline food delivery services?

Key Factors	No. of Respondents	Percentage of Respondests
Convenience	38	23.03%
Order online 24/7	28	16.97%
Cashback or Discount	20	12.12%
Affordability	19	11.52%
Free delivery to	19	11.52%

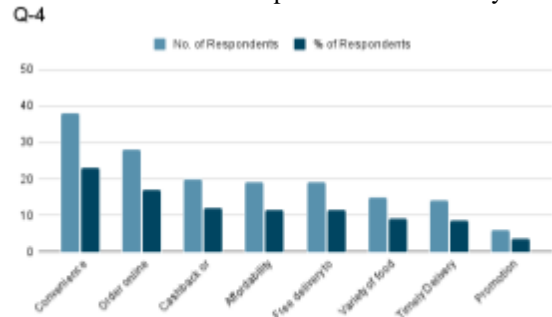|		
doorstep		
Variety of food options	15	9.09%
Timely Delivery	14	8.48%
Promotion Codes	6	3.64%

Table -4 Reason to prefer online delivery

Fig - 4 Graph based on the reason to prefer online delivery

Interpretation:

➢ Consumers are drawn to online food delivery services for a variety of reasons, but convenience and the potential for savings are two of the most important. Online food delivery services allow people to order food from the comfort of their own homes, without having to cook or go out to eat. In addition, many online food delivery services offer cashback or discounts, which can save consumers money. These discounts can be a major incentive for consumers to use online food delivery services, especially if they are looking for a way to save money on their food budget. Overall, convenience and the potential for savings are two of the most important reasons why consumers choose to use online food delivery services.

➢ Ordering food from home or the office is a convenient way to get a delicious meal without having to leave the comfort of your own space. Hefty discounts offered by food delivery services make it even more affordable to enjoy great food without breaking the bank.

7.5 What are the main reasons that motivates you not to prefer online food delivery services over offline?

Factors	No. of Respondents	Percentage of Respondents
Trustworthiness of item displayed on the website	22	23.16
Quality of Products	21	22.11
Prefer to go with	18	18.95

family/friends		
Grievance issue if discrepancies found	14	14.74
Security related concerns	11	11.58
Cooking at home to save money	1	1.05

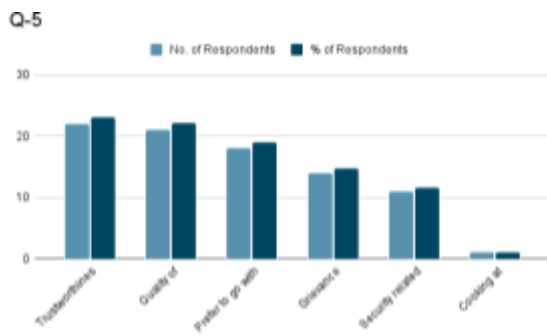**Table - 5** Reason why not to prefer online delivery

Fig - 5 Graph based on the reason why not to prefer online delivery

7.5.1 Interpretation:

➢ Consumers are reluctant to use online food delivery services because they are unsure of the quality of the food and the trustworthiness of the website. There are a number of reasons why consumers may be hesitant to use online food delivery services. First, they may not be sure if the food they order will be fresh and of good quality. Second, they may be concerned about the safety of the food, as it may have been handled by multiple people before it reaches them.

➢ Dining out with family and friends creates a more enjoyable and bonding experience. When we eat out with loved ones, we are able to relax and socialize without having to worry about cooking or cleaning up. We can also try new foods and cuisines that we might not otherwise have the opportunity to experience. Additionally, dining out can provide a much-needed break from the everyday grind and allow us to focus on spending quality time with the people we care about.

7.6 Do you find that food that is expensive when you buy it offline is more affordable when you buy it online?

Response	No. of Respondents	Percentage of Respondents
Yes	20	20%
No	28	28%

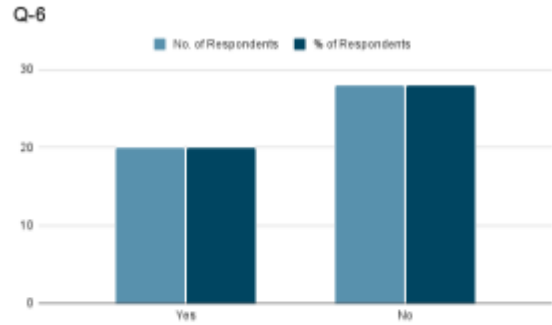**Table - 6** Affordability of online delivery

Fig - 6 Graph based on affordability of online delivery

7.6.1 Interpretation:

➢ 20% of the people who were asked about their opinions on online food delivery services believe that they can get food at a lower price by ordering online rather than going to a restaurant. This is likely due to the fact that online food delivery services often offer discounts and promotions, and they may also have lower overhead costs than restaurants.

➢ There are many ways to save money when ordering food online, such as using cash back offers and promotional codes. ➢ Online food ordering apps often offer discounts and promotions that are not available when dining at a restaurant in person. This means that, in many cases, it can be cheaper to order food online and have it delivered than it is to go to a restaurant and eat there [10].

7.7 What is the main reason you order food online

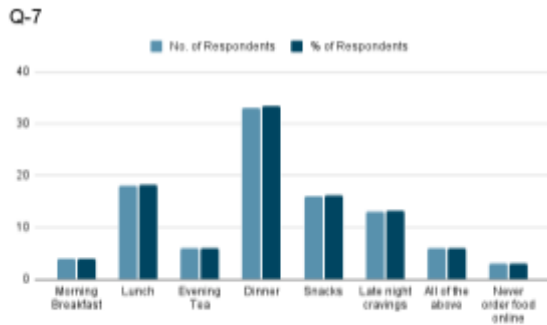| Purpose	No. of Respondents	Percentage of Respondents
Morning Breakfast	4	4.04%
Lunch	18	18.18%
Evening Tea	6	6.06%
Dinner	33	33.33%
Snacks	16	16.16%
Latenight cravings	13	13.13%

Table -7 Main reason to order food online

Fig - 7 Graph based on the main reasons to order food online

7.7.1 Interpretation:

➤ Working professionals often order food online for lunch during the workday, especially if they have forgotten their lunch boxes. They also order food online for dinner on weekends.

7.8 What are some occasions when you prefer to order food online?

Occasions	No. of Respondents	Percentage of Respondents
Weekend Events	43	40.20
Latenight from Office	59	55.10
Family Gatherings	36	33.60
Birthday Party	50	46.70
Alone at home	1	0.90
No cooking at home	1	0.90
Anytime	1	0.90

Table - 8 Occasion when you prefer to order food online
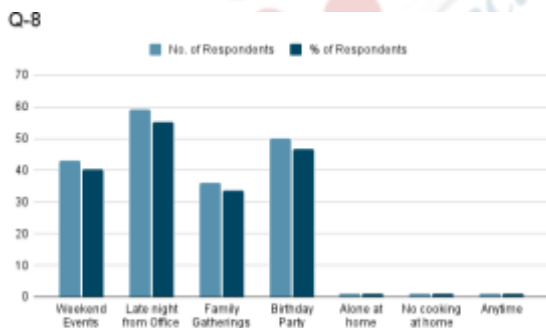

Fig -8 Graph based on the occasions to order food online

7.8.1 Interpretation:

➤ Working late and not having the energy to cook is a common reason for ordering food online. With just a few clicks, you can have a hot meal delivered to your door, no matter how late it is. This is especially convenient for people who live alone or who don't have a lot of time to cook.

➤ Office goers are a major source of revenue for online companies because they are often busy and don't have time to cook. They are also more likely to have disposable income, which they can use to order food or other products online.

➤ Nuclear families are also a major source of revenue for online companies. They are often looking for convenience and value, and online companies can provide them with both. Nuclear families are also more likely to have children, which means they need to buy more products and services.

➤ App-based services make it easy to order food from restaurants on birthdays and other special occasions. With just a few taps on a smartphone, you can browse menus, place orders, and have food delivered to your door. This is a convenient and hassle-free way to enjoy a delicious meal without having to leave your home or office.

➤ Celebrating birthdays with food is becoming a trend. Online food delivery services make it easy and affordable for people to treat their friends to a delicious meal.

VIII. SUGGESTIONS

Some respondents still prefer dining at a restaurant instead of ordering food online. They believe that dining in-person provides added value as they can ask the waitstaff about the food's type, quantity, and ingredients.

Face-to-face interaction with the seller can improve customer relationships and provide satisfaction by giving them proper information. However, there are security concerns as evidenced by the 2017 leak of personal information stored in the Zomato App, leading to many customers uninstalling the application. To improve business, platforms such as Zomato and Swiggy should ensure that they provide clear information about the ingredients and exact quantity of food served in each dish, which will eliminate doubts and improve customer satisfaction.

IX. CONCLUSION

Certainly! The emergence of food trucks as a new application of food delivery is likely to challenge existing food delivery services such as Zomato, Food Panda, and Swiggy. This is particularly relevant during the COVID-19 pandemic, when home food delivery has become a common practice. Consumers are increasingly looking for cash backs and incentives, as well as loyalty rewards, when choosing food delivery services. The convenience and comfort of online food delivery services have made them a popular choice during the pandemic. However, it remains to be seen how the online ordering experience will continue to evolve

and impact purchasing habits in the future. As experts continue to investigate and monitor these trends, it will be interesting to see how the food industry adapts to meet changing consumer demands.

REFERENCES

[1] Yang, Z., & Jun, M. (2002). Consumer perception of e-service quality: From internet purchaser and non-purchaser perspectives. Journal of Business Strategies, 19(1), 19.

[2] Yang Zhilin, M. J. (2002). Consumer Perception of E-service Quality: From Internet Purchaser anal Non-purchaser Perspectives. Journal of Strategy, 19(1), 19–41.

[3] Covello, V. T. (1983). The perception of technological risks: A literature review. Technological Forecasting and Social Change, 23(4), 285–297.

[4] Chang, H. H., & Chen, S. W. (2009). Consumer perception of interface quality, security, and loyalty in electronic commerce. Information & Management, 46(7), 411–417.

[5] Hobbs, Jill E. "Food supply chains during the COVID-19 pandemic." Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie (2020).

[6] Nicola, Maria, et al. "The socio-economic implications of the corona virus and COVID-19 pandemic: a review." International Journal of Surgery (2020).

[7] Zambrano-Monserrate, Manuel A., María Alejandra Ruano, and Luis Sanchez-Alcalde. "Indirect effects of COVID-19 on the environment." Science of the Total Environment (2020): 138813.

[8] Gagandeep Kaur, Dr. Meenu Gupta, Dr. Rakesh Kumar. "IoT Based Smart Healthcare Monitoring System: A Systematic Review". Annals of the Romanian Society for Cell Biology, Feb. 2021, pp. 3721-8, https://www.annalsofrscb.ro/index.php/journal/article/view/484.

[9] S. Kour, R. Kumar and M. Gupta, "Analysis of student performance using Machine learning Algorithms," 2021 Third International Conference on Inventive Research in Computing Applications (ICIRCA), Coimbatore, India, 2021, pp. 1395-1403, doi: 10.1109/ICIRCA51532.2021.9544935.

[10] R. Kumar, M. Gupta, S. Shukla and R. K. Yadav, "E-Challan Automation for RTO using OCR," 2021 Third International Conference on Inventive Research in Computing Applications (ICIRCA), Coimbatore, India, 2021, pp. 1-8, doi: 10.1109/ICIRCA51532.2021.9545082.