

# Online Food Ordering and Delivery Application During Covid 19 in Sri Lanka

Ahamed Lebbe Mohamed Ayoobkhan and Athambawa Haleem

Department of Accounting and Finance, Faculty of Management & Commerce,  
South Eastern University of Sri Lanka, Oluvil,  
ayoob@seu.ac.lk, ahaleem@seu.ac.lk

**Abstract.** Online food delivery (OFD) applications have become more popular in recent years, making it easier to shop with online channels due to the convenience they offer to consumers. During the recent COVID 19 epidemics, a lockdown was implemented in Sri Lanka with the aim of controlling the spread of infection. The economic growth is highly demand and the result will depend on the percentage of ordering and delivery factors. However, when it comes to delivery part customers take full responsibility and risk. It raised the level of hygiene among consumers and changed a pattern in the perception of OFD. Since previous research activities have become obsolete due to permanent changes in consumer behavior, the factors influencing consumer decision-making when it comes to OFD need to be re-examined and explored. The primary objective of the research is to identify the factors influencing OFD selection during lockdown to Sri Lanka through exploration factor analysis, which allows OFD service provider to make strategic decisions based on customer desired value. Analysis using a sample of 215 models using a set of twenty variables, the main component analysis is applied to collect the minimum portion that contributes to the maximum number of variables described. Three variables were removed during the analysis because they failed to meet the rule of thumps. It provides a set of unrelated hidden variables using a linear combination of real variables. The study was concluded by identifying seventeen variables in four categories: Efficiency information, Control & Security, Convenience, and Quality & Hygiene.

**Keywords:** Online Food Ordering and Delivery Application, Economic Growth, Customer View, Lockdown, Covid 19

## 1 Introduction

Due to the rapid development of technology, the number of mobile phone users has increased significantly, which has become a part of everyone's life, and its use allows users to interact not only with calls but also with the help of advanced applications. The world will be faster and easier [1]. The number of mobile apps available for download in April was approximately 2.56 million in the Google Play Store and 1.847 million in the Apple App Store by the end of April 2020 [2].

In parallel, a fast-paced lifestyle creates demand in the market for consumers to look for new alternatives and complete their daily work more efficiently. In particular, companies have brought more innovative solutions from home deliveries to take points until the last mile delivery [2]. Among the online delivery services, the food delivery service model is one of the fastest-growing, penetrating mobile phone usage [4]. In addition, the development of technology to connect different partners in the business and the development of interactive technologies that allow users to gather, collect and compare information has attracted more active customers on board [5]. The online food delivery (OFD) market is expected to grow at 30.55% CAGR over the next 4 years, with 7 key players in the market [6]. The physical interference of each service like area, menu, services, and response are major roles played in restaurants and hotels [1]. With the help of OFD applications, the customer can access their food from available restaurants and place orders, and make more effective decisions using information about food, restaurant, delivery, support post ordering, etc. Most importantly, the experience they provide is the main driver of rapid growth [7]. As a result, an accurate measurement is not available in Sri Lanka to measure factors affecting OFD selection during the COVID19 pandemic lockdown. Therefore, the present research aims to investigate the existence of interrelationships between identified species and to develop a new level to measure it in the Sri Lankan context by analyzing factors to reduce unrelated latent variables using a set of linear combinations. Therefore, the paper form is organized as follows: Section 2 Literary review of the previous study. Section 3 describes the procedures followed. Section 4 describes the analysis. Section 5 deals with the conclusion and discussion, after which the final section concludes.

## **2 Related Works**

This offer has been very popular among the youth for years due to its convenience and ability to give more options to the customer [6]. According to a study in Sri Lanka, OFD's reputation depends on the service capacity of the aggregator, delivery executive and support staff post purchaser who completes studies on human resource characteristics [8].

Online food delivery apps affect participants in a variety of ways depending on economic, social, and environmental factors. The OFD has had a positive impact on the COVID19 crisis [5], as a result of the lockdown [9] allowing consumers to order food without leaving home. OFD provides the customer with relevant information based on external triggers such as restaurants and other customers and stimulus based on internal triggers based on the customer's previous use and preferences [10].

Previous researchers have demonstrated a model of a unified theory of technology acceptance and use, as well as motivation to study customer expectations and its impact on customer satisfaction levels in Jordan [2]. UTAUT used an extension of theory to use customer acceptance and technology to identify behavioral factors along with customer value and habit [11]. They form a comprehensive model for establishing relationships and the results have a significant impact on it. Factors such as choice, technology and information convenience have significantly influenced consumer intent to use OFD in the study context [12]. Exploring quality features of consumer awareness for OFD selection have shown that single individual homes place greater emphasis on quality [5].

In addition to quality variables, offside such as the promised delivery time, the temperature of the food at the time of delivery and the security of the information shared by the customers are considered to be the key factors guiding the customer. Satisfaction with the process [13]. In addition to food quality, consumers use information quality and image in the form of online reviews and ratings to assess the overall quality of the product [1]. The design of the OFD platform and its ability to provide information without ambiguity to the customer can lead to a quick completion of the customer transaction affecting the level of satisfaction and subsequent positive transformation [14]. An empirical approach with a contingency framework was used to draw the relationship between price and time savings to consumer experience factors, which strongly supports the theories and confirms the same position that led to the expected goal of research in a similar study conducted in India.

Consumers' monthly expenses are convenient to use and online payment methods for 20–45-year-olds are considered important factors for overall satisfaction [15]. A research study has shown that OFD can focus on order to increase the percentage of online orders based on customer needs and understanding of OFD [16]. Understanding control and experience lead to better satisfaction, which is common to both consumers and non-consumers and has been shown to recommend non-consumers to adopt OFD. In parallel, intervention seems to be necessary to reduce technological concerns to support new customers and to trade between autonomy and communication based on the goal of reaching the right level [17].

One of the precautionary measures prescribed by experts, and consumers are more skeptical about OFD due to social distance such as fear of infection. However, aggregators have adopted several methods to ensure the safety and hygiene of the food provided, to have sanitary booths in restaurants to clean rider's hands before delivery, to provide body temperature monitoring guns to customers and to reduce mandatory use of safety gear. OFD service providers also take similar steps with the cash-on-delivery option and doorstep delivery to avoid direct contact. These steps are expected to improve consumer awareness and communication with service providers based on application images.

### **3 Methodology and Implications**

Based on previous studies, it has been found that no study has been conducted to measure the effect of COVID 19 lockdown on OFD's consumer awareness, and the significant impact of population on consumer awareness. It is therefore necessary to study the variables that affect user perceptions and implement an empirical method to verify the collective existence of identified species, thereby minimizing the set of hidden variables unrelated to the combination of undetected identities. Initially, the list of items was compiled from a detailed literature review, followed by an exploratory component analysis using the VARIMAX rotation to identify the associated components described below.

The first step in the new level development process is to describe the construction area and create the initial variables to measure the structures. An extensive literature review was conducted to study the previous level and the variables used in the previous research were collected. Journals have been reviewed due to the lack of research on COVID 19 lockdown and its impact on OFD.

Appropriate questions based on identified variables are generated and disseminated through 3 types of Google forms. The first section consists of eight questions to understand the population of the sample and one question to understand the theme of the research study sample so that the OFD decision ranges from one to five, and the OCD score ranges from one to five, based on the identifiable valuables finally affected to eliminate invalid 4 responses. The questionnaire contains a detailed description of the purpose and clearly states the answers

to the myths associated with the COVID 19 lockdown conditions, and then the OFD adds the filter question to identify unused offenders, thereby eliminating literati. A total of 240 responses were recorded, 25 of which were considered invalid and deleted because the OFD was not used. Finally, 215 valid responses were taken. Recorded responses are listed and analyzed using SPSS. Average, mean, maximum, minimum, and standard deviations were used to describe the data. Exploratory factor analysis is an ideal tool for determining the linear dependence of variables and obtaining a set of unrelated hidden variables using linear combinations of original variables.

## **4 Analysis**

### **4.1 A Sample Demographics**

Demographic characteristics of the sample studied after eliminating invalid responses ( $n = 215$ ). Most of the respondents in the study were 19-30 (97.20%). Of these, 23.25% were women and 76.74% lived with their families in the study samples, 53.48% have a postgraduate degree in education before the exploratory component can proceed for analysis. The Kaiser-Meyer-Olkin (KMO) test was performed to measure sample efficiency, and the Bartoulette Globality test was performed to confirm that the correlation matrix was not an identity matrix. Bartoulette's spherical experiment rejected the invalid theory that variables were unrelated and concluded that the correlation matrix was not an identity matrix. A KMO value greater than 0.6 is generally considered acceptable. The statistics showed  $KMO = 0.862$ , so the number of samples collected was considered adequate. The correlation matrix obtained for the twenty independent variables was found to be positively specific, which ensures that all variables are mutually independent.

### **4.2 Exploratory factor analysis**

The primary goal of the research was to identify the minimum variable that would cause the maximum variance of a given data set, so the main component method was used for component analysis. The ratio of variables to each variable is defined by societies rather than elements and must be able to explain at least half of the variance of each variable. Therefore, religions less than 0.5 were eliminated one after the other. Finally, the three variables are removed and the list of the last variables in the community is shown in Table 1. To collect the minimum number of components for group variables, the approach taken here is based on the eigenvalue and the percentage of total variance that can be explained by the collected component. Table 1 also shows the total variation described by the components of the seventeen variables considered.

**Table 1: Percentage of variance explained by extracted factors after Varimax rotation**

Item	Communality	Factor	Initial eigenvalue		
			Total	% of variance	Total %
X1	0.924	1	7.385	43.443	43.443
X2	0.649	2	2.141	12.594	56.037
X3	0.777	3	1.861	10.947	66.984
X4	0.915	4	1.482	8.719	75.702
X5	0.685	5	0.853	5.015	80.718
X6	0.645	6	0.595	3.500	84.218
X7	0.731	7	0.471	2.771	86.989
X8	0.787	8	0.422	2.480	89.469
X9	0.864	9	0.343	2.019	91.488
X10	0.541	10	0.323	1.899	93.387

The structure becomes more complex when loading the same variable between other components, especially with a load of 0.4 or more. Explains that variables loaded into a single component have a simple structure. With factor rotation, the factor matrix can be turned on and more easily understood. Orthogonal rotation is the process of rotating the axes 90 degrees to each other for lubrication. The Varimax type orthogonal rotation reduces the number of variables with a high load on one part, so the Varimax obtained factor exhibits orthogonal rotation on the matrix.

The rotating component matrix resulted in a structure with low cross-loading on the other components, which explained 75.70% of the total difference with the four components as shown in Table 2. However, in cases where the variables are cross-loading, the maximum loading factor is considered.

According to the results, seventeen variables in the study followed a four-factor model, naming categories according to the content and nature of the variables and describing them in a later section. Once the components have been assembled, the most commonly used method is to assess the stability and reliability of the Cronbach's alpha internal level. Any sub-level measuring a value greater than 0.7 is considered acceptable. The estimated Cronbach's alpha value for each sub-level ranged from 0.841 to 0.933, which was found to be satisfactory. Detailed statistics of the collected variable and associated loading, including the median, mean and standard deviation with the variables, as well as the alpha value of the Cronbach's alpha for each component listed in Table 2.

**Table 2: Statistics on extracted factors and related variables**

Factor	Variable	Mean	Median	Standard deviation	Factor loading
Information provided	Online review	3.40	4.00	1.032	0.923
	Product information	3.78	4.00	1.074	0.720
	Tracking system	3.27	3.00	1.072	0.783
	Customer rating	3.41	4.00	1.037	0.925
	Timesaving	3.57	4.00	1.047	0.708
Convenience	Interaction with app	3.58	4.00	1.046	0.771
	Promised service level	3.49	4.00	1.085	0.809
	Order and leaving home	3.48	4.00	1.071	0.820
Control & Security	Delivery in time frame	3.43	4.00	1.078	0.897
	Control on process	3.02	3.00	0.919	0.722
	Control on choices	3.38	3.00	0.953	0.607
	Control on app	3.31	3.00	1.019	0.773
	Secure user info	3.63	4.00	0.977	0.626
Quality & Hygiene	Secure payment	3.17	3.00	0.954	0.873
	Restaurant on hygiene	3.52	4.00	1.110	0.877
	OFD service on hygiene	3.36	4.00	1.080	0.820
	Traceability on people	3.47	4.00	1.101	0.879

Through exploratory component analysis, the research identified factors affecting consumer perceptions of online food delivery during the COVID19 lockdown in the Sri Lankan context and finally divided the variables into four parts: 75.70% cumulative diversity, efficiency, control & safety and hygiene.

**Table 3: Result and Discussions**

*Factor function component is loaded with variables such as time-saving, level of service provided, ability to order without leaving home, timely delivery, and interaction with the application. After reviewing the food trend of the last decade, research has shown that there is a significant trend towards changing consumer preference for online channels (Cho et al., 2020). E-self-measurement has been used to study the intentions of utilizing online food delivery, including service completion and service quality, which has a strong positive effect on the level of satisfaction with OFD usage and consumer behavior intentions [3].*

*The information component variables are loaded with an online review, product information, tracking system and customer rating. Research-based on the IS model by studying 10 food delivery applications to measure entry rate found that information provided by the OFD application significantly influenced customer learning success rates (Kapoor et al.) Suggest that customer satisfaction is higher if they understand [17]. In online shopping, the consumer cannot touch or feel the product and the quality of the*

---

product information provided by the provider in terms of images and features has a high correlation value, which again leads to better conversion [10].

The control and security component are loaded with variables such as process, options, application, security of user information and payment system on control. This is supported by research on self-service technology, which has recently gained wide interest among individuals and has been recognized in the online context due to the level of autonomy and control that the user provides for self-determination and decision making. Because the customer is only involved in the decision-making process, the customer feels more secure and secure when using self-service technology [11]. Loads measurements variables, quality and hygiene factors using the identification information of the restaurant, service provider and responsible persons. The KAP model explains that this will increase consumer awareness on food safety, improve their attitude towards shopping priorities and make consumers more inclined to adopt food safety practices.

---

## 5 Conclusion

The current study identified a changing perception of consumers choosing OFD during the COVID19 lockdown in Sri Lanka. Analysis of exploratory factors has been revealed that some variables such as temperature and available food choices were exterior of the study context and also the results is consistent with previous research. This confirms the change in user behavior post-COVID 19. Finally, variables are divided into four parts: Functionality information, Convenience, Control & Security, and Quality & Hygiene, and the ODF provider can be used to make strategic decisions to give customers the value they worth. The nature of the work is cross-sectional and does not include an explanation of visual changes over a specific period of time. Therefore, a longitudinal study is required to study this in the future. Literary Reviews, these factors may vary significantly geographically and the results may not be generalized and taking into account socio-cultural factors may improve the current understanding of key factors identified in subsequent studies.

## References

- [1] Belanche, D., Flavian, M., & Perez-Rueda, A, (2020). Mobile Apps Use and Women the Food Delivery Sector: The Role of Planned Behavior, Perceived Security and Customer Lifestyle Compatibility, *Sustainability*, 12(10), 4275.
- [2] Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer satisfaction and continued intention to reuse. *International Journal of Information Management*, 50, 28-44.
- [3] Annaraud, K., & Berezina, K. (2020). Predicting satisfaction and intentions to use online food delivery: What really make difference, *Journal of Food service Business Research*,1-19.
- [4] Drahokoupil, J., & Piasna, A. (2019). Work in the Platform Economy: Delivered Riders in Belgium and the Smart Arrangement. *European trade union institute*, D/2019/10.574/01 ISSN: 1994-4446, ISSN: 1994-4454 (electronic version).
- [5] Cho, M., Bonn, M. A., & Li, J. J. (2019). Differences in perceptions about food delivery apps between single-person and multi-person households. *International Journal of Hospitality Management*, 77, 108-116.
- [6] Global Online Food Delivery Services Market Report 2021: COVID-19 Growth, Impacts and Change to 2030 - ResearchAndMarkets.com.

<https://www.businesswire.com/news/home/20210429005768/en/Global-Online-Food-Delivery-Services-Market-Report-2021-COVID-19-Growth-Impacts-and-Change-to-2030---ResearchAndMarkets.com>

- [7] Boyer, K. K., & Hult, G. T. M. (2005). Customer behavior in an online ordering application: A decision scoring model. *Decision Sciences*, 36(4), 569-598.
- [8] Chandra, Y. U., & Cassandra, C. (2019). Stimulus Factors of Order Online Food Delivery. In 2019 International Conference on Information Management and Technology (ICIMTech), 1(1), 330-333, *IEEE*.
- [9] Charlene Li & Miranda Miroso & Phil Bremer, 2020. "[Review of Online Food Delivery Platforms and their Impacts on Sustainability](#)," *Sustainability*, MDPI, Open Access Journal, vol. 12(14), pages 1-17, July.
- [10] Dospinescu, N., Dospinescu, O., & Tatarusanu, M. (2020). Analysis of the Influence Factors on the Reputation of Food-Delivery Companies: Evidence from Romania. *Sustainability*, 12(10), 4142.
- [11] Fernandes, T., & Pedroso, R. (2017). The effect of self-check out quality on customer satisfaction and re-patronage in a retail context. *Service Business*, 11(1), 69-92.
- [12] Chai, L. T., & Yat, D. N. C. Online Food Delivery Services: Making Food Delivery the New Normal. *Journal of marketing Advances and Practices*, 1(1), 62-77.
- [13] Raju. K, Lavanya. R, Manikandan. S, Srilekha. K, (2020). Application of GIS in COVID 19 Monitoring and Surveillance, *International Journal for Research in Applied Science & Engineering Technology*, 8(5).
- [14] Kapoor, A. P., & Vij, M. (2018). Technology at the dinner table: Ordering food online through mobile apps. *Journal of Retailing and Consumer Services*, 43, 342-351.
- [15] Girija, T., Asokumar, B., & Meena, S. (2019). Influences of Website Quality and Service Quality on Consumer Satisfaction among Online food ordering Consumer. *International Journal of Recent Technology and Engineering*, 8(3), 3159–3163.
- [16] Golechha, M. (2020). COVID-19, Lockdown and psychosocial challenges: What next? *International Journal of Social Psychiatry*, 66(8).
- [17] Iyer, P., Davari, A., & Mukherjee, A. (2018). Investigating the effectiveness of retailers' mobile applications in determining customer satisfaction and re-patronage intentions? A congruency perspective. *Journal of Retailing and Consumer Services*, 44, 235- 243.