

Determinants of Online-to-Offline (O2O) Grocery Shopping Adoption among Consumers in Tier-2 and Tier-3 Cities of Odisha: An Empirical Analysis of Jio Mart Usage

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Abstract: The O2O business model is increasingly being adopted by companies, but the main focus of research on O2O adoption is still individual consumers. There is not much done on organizational adoption and the effect of adoption on customer satisfaction. The current study analyzes the factors influencing the adoption of O2O grocery shopping for Jio Mart in the Tier-2 and Tier-3 cities of Odisha and goes beyond the current knowledge of O2O adoption which is mostly individual-based. It analyses key factors influencing adoption and evaluates the impact of O2O service attributes on customer satisfaction. Primary data were collected through a structured questionnaire from Jio Mart users, and statistical techniques were used for analysis. The results indicate that perceived convenience, trust, price advantage, and information and service quality positively influence O2O adoption, while perceived risk acts as a barrier. Additionally, service attributes such as convenience, delivery reliability, product quality consistency, pricing, and customer support significantly affect customer satisfaction. The study offers practical insights for enhancing O2O grocery adoption and service effectiveness in semi-urban markets of India.

Keywords: Online-to-offline, adoption, consumers, Jio-Mart, customer satisfaction, perceived risk.

1. INTRODUCTION

The technological advancements in e-commerce starting in the early 2000s has given rise to different kinds of e-business models, delivery systems, and even platforms. The O2O model, in particular, has been receiving a lot of focus because it connects online information services and transaction capabilities with offline resources and physical stores, thus providing greater transactional benefits to both businesses and customers (Pan & Desheng, 2018).

O2O is being referred to as “a new business model that merges the advantages of online shopping with the click-and-order features, thus creating a distinct shopping and business experience” (Shang & Yang, 2015). By leveraging this hybrid approach, O2O expands market potential and opens new opportunities across industries (Pan & Desheng, 2018). Additionally, it tackles significant drawbacks of standard e-commerce, which include online fraud, security issues, and consumers not being able to check the products physically before purchasing.

Various authors have considered different aspects of O2O adoption from an organizational perspective, such as its implementation at Dianping (Zhang & Wan, 2015), managerial role in online-offline hybridization (Huang et al., 2017), and integration and segmentation strategies in manufacturing companies (Du et al., 2018). All these studies deepen our understanding of the organizational aspects of O2O, but the research on the factors that lead or obstruct consumer adoption is still at its infancy, thus, a huge gap in the literature is still there (Phang et al., 2014).

The literature on O2O commerce is increasing but still lacks empirical evidence about consumer-level determinants of O2O grocery adoption in semi-urban Indian contexts. Particularly, the existing studies do not shed adequate light on the influence of key factors such as perceived convenience, trust, price advantage, perceived risk, and service quality on the adoption and usage of O2O grocery platforms like Jio Mart in Tier-2 and Tier-3 cities of Odisha.

The O2O retail model, which Jio Mart is an excellent example of, tries to break down old-fashioned problems with online grocery shopping by linking digital ordering systems to delivery from the physical store. But still, the hybrid model's effect on consumer grocery shopping in semi-urban and suburban areas like Bhubaneswar and Berhampur is not well known. This research study fills that lack of research by empirically investigating the drivers determining the customers' acceptance of O2O grocery shopping and furthermore, the state of consumer's acceptance, and interaction with Jio Mart in the Tier-2 and Tier-3 cities of Odisha through in-depth analysis of various factors.

The following objectives will be carried in study:

1. To gauge the key aspects influencing consumers' adoption of O2O grocery shopping through Jio Mart in Tier-2 and Tier-3 cities of Odisha.
2. To gauge the bearing of O2O service attributes on customer satisfaction among Jio-Mart grocery users in Odisha.

2. REVIEW OF LITERATURE

O2O and its characteristics

The online business models have transformed the consumers' interaction with the products and the services in a more diversified and rapid way. On the one hand, e-commerce models such as B2C and C2C and C2C, which are considered as the most traditional ones, are mainly concentrating on online transactions and home delivery. On the other hand, the hybrid models like O2O commerce have reduced the gap between the digital world and the real world by allowing consumers to order online and pick up the product from the physical store or consume the product in the store which is seen as a seamless integration of the two worlds (HKTDC Research, 2015, 2016).

O2O commerce is distinguished by its "e-marketing plus consumer flow" approach, where customers search for product information, place orders, and make payments online, but experience, collect, or consume the products offline. This mixed model highlights the practical benefits of offline interactions and experiences over solely online or offline retail channels (HKTDC Research, 2016). International platforms like Uber, Deliveroo, Airbnb, and Postmates showcase the universal adoption and triumph of the O2O models across different industries.

O2O concept was first introduced in China, where platforms like Ctrip.com and Dianping.com were the first to offer such services in travel and consumer goods. It has since quickly moved into new areas such as food, grocery, transportation, and entertainment (Du & Tang, 2014; iResearch, 2016). In China, only O2O in the catering sector garnered a gross merchandise value of nearly RMB 290 billion in 2018 (Statista, 2019), which is testimony to the model's strong growth and consumer appeal potential.

Factors influencing Adoption of O2O

The existing IT and e-commerce literature provide evidence for the fact that technology adoption is subject both to enabling and to inhibiting factors at the organizational and individual levels (Sun et al., 2018; van de Weerd et al., 2016). E-commerce adoption, studies conducted using this approach, point out the important roles of factors like availability of infrastructure, compatibility, skills, and perceived advantages that all together shape the users' acceptance of the digital platforms.

On the one hand, consumer adoption, the research on O2O models finds out that perceived convenience, time and cost savings, and easy comparison of prices as well as offline experience are the main drivers of adoption (Huang et al., 2017; Yang et al., 2016). When online ordering is integrated with offline fulfillment, uncertainty is diminished and trust is enhanced; this is especially true in cases where online fraud might be a concern, as such concerns are alleviated through customers' interacting with stores physically (Peng & Wu, 2014). These factors are very important for buying groceries because customers pay much attention to the quality of the products and reliability of the delivery.

On the other hand, O2O adoption barriers are mentioned in the research, such as risk perception, privacy issues, lack of clear information, and social influence working against (Chi et al., 2015). These drawbacks are especially prevalent in rural and semi-rural areas and in emerging markets, where digital literacy and confidence in online platforms are not uniformly distributed.

Mobile internet penetration, digital payments, QR-based ordering, and support by third-party logistics are some of the technological enablers that have greatly boosted O2O adoption worldwide (Wang, 2012; Huang et al., 2017). These innovations are what make platforms like Jio Mart possible, which take advantage of combining localized offline stores with digital interfaces to make non-metro customers accessible.

The O2O models adopted by traditional offline retailers and online-only firms are becoming common in retail strategy perspective as they provide the benefit of reaching a larger market, spending less on marketing, and engaging customers more (Chen, 2014; Peng & Wu, 2014). But, the majority of the studies made until now have focused on metropolitan or international scenarios and have largely ignored Tier-2 and Tier-3 Indian cities, especially in the grocery segment, which has not been the case for other areas of research.

3. RESEARCH METHODOLOGY

The research utilizes a descriptive and analytical quantitative approach to study the factors that influence the acceptance of O2O grocery shopping by consumers living in Tier-2 and Tier-3 cities of Odisha which includes Jio Mart as an example. The descriptive method shows the characteristics of the consumers and their viewpoints, whereas the analytical method looks into the interconnections of the main factors that lead to adoption.

Structured questionnaires using a five-point Likert scale are the means of collecting primary data that are given to 100 purposively selected consumers who know about Jio Mart's O2O services. The theoretical framework is supported by secondary data that are obtained from peer-reviewed journals and industry reports.

The data analysis consists of using descriptive statistics, Cronbach's alpha for reliability checking, factor analysis for validation of the constructs, correlation analysis to see the relationships and multiple regression analysis to assess the effects of the determinants, namely convenience, trust, price advantage, perceived risk, and offline experience on the acceptance of O2O grocery shopping.

4. DATA ANALYSIS AND RESULTS

Factors influencing consumers' adoption of Online-to-Offline

Table 1 provided an insight into descriptors of key factors influencing consumers' adoption of O2O grocery shopping.

Table 1. Descriptive statistics: influence of adoption of O2O.

S. No.	Statement	Mean	Standard Deviation
1	Perceived Convenience	3.72	1.16
2	Perceived Price Advantage	3.54	1.21
3	Trust	3.72	1.09
4	Perceived Risk	3.26	1.23
5	Information & Service Quality	3.58	1.16

The study outcomes reflect a somewhat positive attitude towards Jio Mart's O2O grocery services. The two factors, Trust and Perceived Convenience, both scored the highest mean (3.72), thus confirming their position as the most significant factors in the acceptance of the service. Information & Service Quality (3.58) and Perceived Price Advantage (3.54) also contribute positively to consumers' decisions, but the degree of acceptance varies across consumers. Perceived Risk has the least mean (3.26), thereby pointing to the consumers' continuing concerns about the service aspects such as security, delivery, or product quality. In general, the risk and service problems reduction measures can lead to consumer adoption and satisfaction improvements.

Cronbach's alpha was employed to evaluate the internal consistency of the measurement scale that was utilized to measure the factors that led to consumers' adoption of O2O groceries shopping via Jio Mart. The construct consists of five items denoting Perceived Convenience, Perceived Price Advantage, Trust, Perceived Risk, and Information & Service Quality.

Table 2. Reliability analysis for O2O adoption.

Construct	Number of Items	Cronbach's Alpha
O2O Grocery Adoption Factors	5	0.83

With a Cronbach’s alpha value of 0.83, strong internal consistency is among the items as indicated by exceeding the threshold of 0.70 which is recommended. The scale thus measures the factors affecting the adoption of Jio Mart’s O2O grocery services by consumers very reliably. This leads to a confirmation of the appropriateness of the measurement instrument for subsequent statistical analyses such as correlation and regression to test the relationship between factors of adoption and consumer behavior.

The findings mentioned above are in line with the vast literature on O2O commerce, which has always pointed out that the combination of online ordering with offline experience not only attracts consumers but also provides them with comfort, time saving and trust (HKTDC Research, 2015, 2016; Huang et al., 2017). Customers are mostly drawn to the facilities of price comparison online, getting unbiased product information and lessening the risk through picking up offline (Yang et al., 2016; Peng & Wu, 2014). In addition, the offline fulfillment that builds trust, eliminates the perceived risks associated with online fraud and hence strengthens the platform consumer confidence (Peng & Wu, 2014). On the other hand, consumers in semi-urban and emerging markets such as Tier-2 and Tier-3 cities of Odisha still face the problems of risk perception, privacy concerns and lack of digital literacy barriers which are affecting their adoption (Chi et al., 2015). To sum up, the literature supports the argument that a mix of convenience, trust, price perception and service-related information have an effect on the adoption decisions in O2O grocery shopping whilst it remains very important to deal with the perceived risks.

Impact of O2O service attributes on customer satisfaction

Table 3 presents the mean scores and standard deviations for key O2O service attributes influencing customer satisfaction.

Table 3. Descriptive statistics: Impact of O2O customer satisfaction.

S. No.	Statement	Mean	Standard Deviation
1	Convenience and time-saving	3.79	1.1
2	Delivery reliability	3.6	1.16
3	Pricing and promotions	3.46	1.19
4	Product quality consistency	3.67	1.13
5	Customer support quality	3.45	1.22

The results reveal a generally good customer satisfaction with Jio Mart’s O2O service characteristics. The most important factor making the customers happy is the convenience and time-saving aspects which got the highest mean (3.79). Next in line are the product quality consistency (3.67) and the delivery reliability (3.60) which also indicate positive impressions and therefore imply good operational performance. On the other hand, pricing and promotions (3.46) and customer support quality (3.45) have been a bit lower and hence developed as the areas where improvements are sought. The rather moderate standard deviations observed across the items point to some differences in user experiences; therefore, they recommend the need for more consistent service delivery and customer support.

Table 4. Reliability analysis for O2O service and customer satisfaction.

Construct / Scale	No. of Items	Cronbach’s Alpha (α)
O2O Service Attributes & Customer Satisfaction	5	0.82

The O2O Service Attributes & Customer Satisfaction scale has confirmed its strong internal consistency with a Cronbach's Alpha of 0.82, which is above the threshold of 0.70 that is universally accepted. Therefore, it can be said that the five items have measured the construct very reliably.

Table 5. Correlation: O2O services and customer satisfaction.

Statement	Corrected Item–Total Correlation
Convenience and time-saving	0.63
Delivery reliability	0.59
Pricing and promotions	0.56
Product quality consistency	0.61
Customer support quality	0.58

The Corrected Item-Total Correlations are from 0.56 to 0.63, which indicates that the different items are together representing the scale very well. The item with the highest correlation is Convenience and time-saving (0.63), meaning that it is the most closely linked to customer satisfaction in general, whereas Pricing and promotions (0.56) and Customer support quality (0.58) have a lower correlation but still not too far away.

The literature that has been cited above confirms that the offline part of O2O commerce—allowing customers to inspect, collect, or consume products physically—is very important in the satisfaction increase (HKTDC Research, 2016; Peng & Wu, 2014). The factors of delivery reliability and good quality of the product consistency create a positive consumer experience and even increase satisfaction (Huang et al., 2017). Convenience that comes with the perfect combination of online ordering and offline fulfilling, is still the main factor of satisfaction but it reflects the hybrid character of O2O models (Yang et al., 2016). Furthermore, good customer service and the provision of precise information do also help, though the differences in service delivery can sometimes lead to different perceptions (Chi et al., 2015). The technological factors such as mobile internet access, digital payments, QR-based ordering, and third-party logistics not only speed up service but also play an important part in overall customer satisfaction in O2O grocery platforms (Wang, 2012; Huang et al., 2017).

5. CONCLUSION

From this, it can be deduced that consumers from second and third-tier cities are not averse to making O2O grocery shopping with Jio Mart using moderately positive consumption habits. Perceived convenience and trust are identified among the adoption determinants as the key factors, which reflects that O2O shopping has to be easy, saves time and customers have to be confident to get through the process before acceptance is made. Besides, information and service quality plus perceived price advantage are also regarded as significant contributors while perceived risk still exists, implying that there is a need for stronger assurance mechanisms relating to security, delivery reliability, and product quality. The reliability analysis concludes that the measurement scales applied for both O2O adoption factors and customer satisfaction are statistically reliable as the Cronbach's alpha values for those were higher than the acceptable limit. This certifies the precision and power of the constructs tested.

Moreover, it is found that O2O service characteristics are a major determinant of customer satisfaction. The greatest satisfaction is mainly gained from convenience and time-saving features, then from product quality consistency and delivery reliability. However, less satisfaction from pricing, promotions, and customer support which are indicative of management's need in those areas to pay more attention. The item-total correlation results strengthen that every service attribute has its share in overall customer satisfaction.

In summary, the research points out that the factors of making the service easier to use, trust being developed, service quality being matched, and risks being perceived and addressed are vital to the acceptance and satisfaction of the O2O grocery services. The results are a source of valuable information for retailers such as Jio Mart to improve their O2O approaches and to consolidate their position in the so-called semi-urban markets, as well as through the empirical literature on O2O commerce in the Indian context which is still developing, contributing to it.

6. RECOMMENDATIONS AND IMPLICATIONS

Recommendations

1. **Prioritize convenience-driven design** by simplifying the ordering process and improving app usability to strengthen adoption.
2. **Build stronger trust** through secure payments, transparent return policies, and reliable order tracking.
3. **Ensure consistent service delivery** by improving delivery reliability and maintaining uniform product quality across locations.
4. **Enhance pricing and promotions** with competitive, localized, and personalized offers to attract price-sensitive consumers.

Implications of study

1. **Trust significantly influences adoption**, indicating the need for transparent transactions, reliable delivery, and secure payment systems.

2. **Perceived risk remains a barrier**, suggesting that platforms must strengthen assurance mechanisms related to product quality, refunds, and data security.
3. **Service consistency matters**, as variations in delivery reliability and customer support affect overall satisfaction and repeat usage.
4. **Pricing and promotions require refinement**, as moderate satisfaction levels indicate scope for more attractive and localized offers.

Limitations and Future Scope

Limitations of The Study

1. Only Jio Mart users from Tier-2 and Tier-3 cities located in Odisha are included in the study, thus the findings could not be extended to metropolitan cities, rural areas, or other O2O grocery platforms' users.
2. The primary data from the structured questionnaire, which depends on self-reported responses, forms the basis of the analysis and entails response bias and personal perceptions of respondents.
3. The sample size and geographical area are appropriate for exploratory research; however, they may still restrict the results' statistical robustness and external validity..

Future Scope of the Study

1. The research imprints can be widened to cover more than one O2O grocery platform, which would allow for a comparison among different brands and service models.
2. Over time, especially with better digital architecture and more accustomed consumers, longitudinal studies could be conducted to observe the shifting of consumer acceptance behavior and satisfaction levels.
3. More variables can be added in the future studies like digital literacy, mobile payment adoption, loyalty programs, and social influence to give a more comprehensive view of O2O adoption dynamics.

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