



# MODERN ASPECTS OF ECONOMIC AND SOCIAL SUSTAINABLE DEVELOPMENT

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## IMPACT OF O2O COMMERCLE ON ADVANCE RESERVATION PRICING

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**Annotation:** *This study examines the pricing and sales decisions of two supply chains to maximize the chains' profits by considering a pre-booking strategy where chains offer complementary products and customers can purchase products from both online and offline stores. The proposed model is designed without/with online-to-offline (O2O) retailing, marketing according to the first and second scenarios, respectively. In addition, there is a possibility of demand leakage between online and offline channels, so customers can use the channel they like best. The behavior of the partners is studied using various game-theoretic approaches in two scenarios to determine the optimal solution and the optimal values of the variables and profit chains. Closed-form solutions are then derived, examined through a numerical example, and a sensitivity analysis is performed to analyze the effectiveness of key parameters. It has been established that the use of O2O marketing mechanism brings more profit to networks due to increased market demand. In addition, a pre-booking strategy allows you to control the market and attract customers who are looking for products at lower prices, so that longer pre-booking periods, more orders and higher profits.*

**Keywords:** *pricing, online and offline channels, e-commerce, online stores, virtual space, marketing mechanism two-channel sales, online transaction.*

Nowadays, e-commerce is highly valued by companies and organizations in business chains because, in addition, sales price, availability and delivery time are the most important factors influencing customer decisions. Therefore, business partners are trying their best to join the extensive information and communication technologies and expand their virtual sales networks in competitive markets along with their real online stores to expand the circle of customers and increase market share so that their profits are increased. Hence, the concept of online to offline/offline to online (O2O) commerce emerged. In such commerce, business can take place both in real (offline) and virtual (online) space. This sales strategy has wide application in various industries such as tourism, food, music (concerts), crafts, jewelry, etc. The development of O2O commerce does not limit the benefits of non-electronic commerce. Because companies that have physical stores can retain customers who prefer to visit a physical store, closely examine and touch products and order online. In addition, companies that have both physical stores and online stores complement the sales channels; use O2O marketing strategy to create awareness online, allowing potential customers to explore various offers and then advise to place orders at shopping malls. While most companies today launch their products or services on their online and offline stores, a kind of O2O marketing mechanism in which online awareness such as online advertising on social media or electronic advertising platforms is done to



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direct potential customers to their stores.(online/offline) In this type of trading, sellers use different strategies to satisfy customers, especially in online channels.

The most important of these strategies can be called discount strategy, return strategy, return strategy, but when product capacity is limited, suppliers use different booking strategies to manage their capacity. Advance booking (ADB) strategy, booking strategy and cancellation strategy are the most common booking strategies in the airline and hotel industry for providing services and managing the sales volume of services and products. Indeed, when capacity is limited, sellers use these strategies to manage market demand and subsequently decide on the selling price of products, which is one of the main purchasing criteria of customers in a competitive environment, as the most important characteristics of a commercial space. Hence, pricing decisions in online/offline trading will have significant efficiency and effectiveness.

Here, we study supply chain decisions on pricing and sales taking into account advance booking policies in two different scenarios, where in the first scenario, both chains display their products through both virtual (online) and physical store (offline), while the online store advertises its products through an electronic advertising platform to present its products; they are then sold through real store channels in the second scenario. In addition, there is a possibility of demand leakage between online and offline channels due to different prices. Thus, clients allow the channel to be used, this would be the majority of utilities for them. There are various game theoretic approaches to supply chain management and solutions. Our study, using Nash and Stackelberg game theory approaches , analyzed the decisions of supply chain participants in accordance with their decision-making authority (market power) and their penetration of economic and commercial markets. It is clear that demand depends on price and level of service.

The strategy is used by sellers who sell products through both sales channels. The main goal of this model is to answer the following questions: What are the optimal decisions of the partners in both scenarios?

What is the best case scenario causing higher profits for networks with pre-booking and O2O policies?

How can jointly pure and package sales strategies be modeled according to the mentioned scenarios?

How does ADB's sales mechanism affect networks' profits?

How can O2O trade be modeled within ADB's strategy?

Is O2O commerce profitable? for network partners?

How does this affect partners' profits and market demand?

Some researchers Batarfi , Jaber and Zaroni and Hwang and Kim have studied the impact of dual-channel sales strategy on supply chain performance; The chains' profits were then compared when products were sold through one channel and both direct and indirect channels to find the best-selling strategy. For supply chain, pricing analysis and sales channel priority Xiao and Shi developed various game models and studied the impact of channel coordination on supply chain profits. Chen et al . discussed how the direct sales channel is used by a manufacturer and examined the impact of this sales method on sales decisions and seller profits. Li et al. presented a model considering online and offline sales methods to estimate prices and lead times in a two-echelon supply chain and found that according to the chain participant's market power, the participants' profits are changed. Zhao et



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al ., Saha , Sarmah , and Modak , Yan et al . and Jamali and Rusty- Barzocki expanded mathematical models to analyze the reactions of supply chain participants in a centralized and decentralized approach to decision making, in which a Stackelberg game is established between partners in a decentralized approach using a broad optimal method for finding optimal solutions for chain participants in a centralized approach.

In our representation, the model considers two complementary two-channel supply chains to determine optimal prices and sales decisions with/without O 2 O commercial activity . After reviewing the study of literature related to O 2 O trading , it was found that the use of sales channels both online and offline is called O 2 O commerce, while there is a different concept behind it. In fact, O 2 O commerce refers to advertising. a strategy where sellers try to advertise their products in the online/offline space to attract customers and direct them to their offline/online stores. This is the best knowledge that has not been addressed in the existing literature. In this study, the concept of O 2 O -commerce is included in the presented model, so that online marketing. The strategy is applied to both supply chains, in which certain products are advertised in the online space using an advertising electronic platform to direct potential buyers to a physical store.

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