

# Why Customers Stay: A Push–Pull–Mooring Perspective on Online Food Delivery Loyalty

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## Abstract

**Purpose:** This study examines the effects of service quality as a push factor and price perception of alternatives as a pull factor on customer loyalty in Online Food Delivery (OFD) services, with switching costs acting as a mooring factor within the push–pull–mooring framework.

**Research Methodology:** This quantitative study involved 290 OFD users in Indonesia who had used at least two platforms and made at least three transactions in the last 30 days. Data were collected through an online survey and analyzed using partial least squares structural equation modeling.

**Results:** The results show that service quality has a positive and significant effect on customer loyalty, indicating that better service performance increases users' intention to continue using and recommending the platform. The price perception of alternatives does not significantly affect customer loyalty, suggesting that price alone does not determine loyalty in OFD services. Switching costs have a positive and significant influence on customer loyalty, meaning that perceived financial, procedural, and psychological costs of switching encourage users to remain with their current platform. The moderating role of switching costs does not strengthen the relationship between service quality and customer loyalty and does not significantly moderate the relationship between the price perception of alternatives and customer loyalty.

**Conclusions:** Customer loyalty to OFD services is primarily driven by service quality and switching barriers rather than price considerations.

**Limitations:** This study relied on self-reported survey data and focused on urban respondents in Indonesia.

**Contributions:** This study extends the push–pull–mooring framework to explain customer loyalty in the OFD industry.

**Keywords:** *Customer Loyalty, Online Food Delivery, Price Perception of Alternatives, Service Quality, Switching Cost*

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## 1. Introduction

The online food delivery industry has experienced rapid growth in recent years, significantly transforming the way consumers obtain and consume food. Consumers can now order meals from home or the workplace using digital applications with minimal effort. Online food delivery services provide practical solutions that are convenient, simple, and accessible (Saad, 2021). This shift reflects a broader transformation in global consumption patterns toward application-based digital services. Siddiqi et al. (2024) found that the primary reasons consumers use online food delivery services include affordable prices, service quality, food quality, ease of payment, and time efficiency. These findings indicate that both economic and service-related factors play crucial roles in shaping consumer decisions within this industry.

Within Southeast Asia, Indonesia has the largest market by gross merchandise value in the online food delivery sector. [MomentumWorks \(2024\)](#) reported that Indonesia's gross merchandise value reached USD 4.6 billion in 2023, suIDRassing Thailand, Singapore, the Philippines, Malaysia, and Vietnam. This dominance confirms Indonesia as the most strategic market for online food delivery companies in the ASEAN region and strengthens the relevance of conducting empirical research within the Indonesian context.

The Indonesian online food delivery market is dominated by three major platforms: GoFood, GrabFood, and ShopeeFood. GoFood, launched in 2015 as part of the Gojek ecosystem, remains the most frequently used application, with 38 percent of respondents, followed by ShopeeFood at 29 percent and GrabFood at 27 percent ([Jakpat, 2025](#)). Although GoFood is top-of-mind in terms of popularity, its financial performance shows a different trend. [MomentumWorks \(2025\)](#) reported that GoFood's gross merchandise value declined from USD 1.97 billion in 2021 to USD 1.89 billion in 2024, while GrabFood and ShopeeFood experienced consistent growth. This discrepancy between popularity and financial performance suggests potential challenges in maintaining customer loyalty in a highly competitive market.

Consumer behavior data further illustrate the intensity of competition. [TenggaraStrategics \(2022\)](#) found that 72% of consumers had more than one online food delivery app installed on their devices. This indicates that switching barriers in the industry are relatively low, as consumers can easily compare prices, promotions, and service experiences across different platforms. Low switching barriers may weaken the formation of strong customer loyalty, as consumers face minimal financial, procedural, or psychological constraints when switching platforms.

To address this issue, companies are increasingly implementing strategies to raise switching costs. Switching costs refer to the financial, time-related, and psychological sacrifices associated with changing service providers ([Pan, Gu, & He, 2025](#)). [Ha, Nguyen, and Doan \(2023\)](#) explain that service providers may reduce entry barriers for new customers while increasing retention mechanisms for existing users to discourage customer switching. In Indonesia, subscription programs such as Gojek Plus, Grab Unlimited, and Shopee VIP represent strategic efforts to enhance switching costs through recurring benefits and long-term incentives. These mechanisms may create economic and psychological attachments, thereby influencing customer loyalty.

From a theoretical perspective, this study adopts a push-pull-mooring framework. Originally developed in migration theory, the framework explains movement behavior through push, pull, and mooring factors ([Bansal, Taylor, & St. James, 2005](#); [Moon, 1995](#)). Push factors are internal conditions that drive individuals away from their current option, whereas pull factors are the attractive attributes of alternatives. Mooring factors function as constraints or facilitators that strengthen or weaken switching decisions, respectively. Although the framework has predominantly been applied to switching intention, its use in customer loyalty research is relatively limited. This study modifies the framework by positioning service quality as a push factor that strengthens internal attachment, the price perception of alternatives as a pull factor that potentially reduces loyalty, and switching costs as a mooring factor that moderates the relationships among these variables and customer loyalty.

Customer loyalty is defined as a customer's tendency to repurchase, maintain a long-term relationship with, and exhibit consistent preference toward a service provider ([Jones & Taylor, 2007](#)). Loyal behavior contributes to firm profitability by reducing customer acquisition costs ([Helgesen, 2006](#)). [Hallowell \(1996\)](#) conceptualized loyalty as both attitudinal and behavioral loyalty. [Suhartanto, Helmi Ali, Tan, Sjahroeddin, and Kusdiby \(2019\)](#) further introduced the concept of composite loyalty, which integrates actual purchasing behavior with repurchase intention and positive advocacy. This composite perspective is particularly relevant in the dynamic and competitive online food delivery environment.

Despite extensive studies on service quality, price perception of alternatives, and loyalty, two research gaps remain. First, a theoretical gap exists because the Push-Pull-Mooring framework has been predominantly applied to switching intention rather than customer loyalty as the primary dependent

variable ([Bansal et al., 2005](#); [Jung, Han, & Oh, 2017](#); [Zhou & Mi, 2024](#)). Second, an empirical gap arises from differences in market characteristics, as many prior studies were conducted in e-commerce, mobile telecommunications, or digital platforms outside Indonesia ([Hadi, Aslam, & Gulzar, 2019](#); [Kim, Kim, & Kim, 2026](#)). Studies in the Indonesian online food delivery context often focus on service quality, price, and satisfaction without incorporating switching costs as a moderating variable ([Saad, 2021](#); [Siddiqi et al., 2024](#)). Therefore, examining the moderating role of switching costs in the relationship between service quality, price perception of alternatives, and customer loyalty provides both theoretical advancement and contextual relevance.

Based on these considerations, this study aims to analyze the effects of service quality and price perception of alternatives on customer loyalty in online food delivery services while examining the moderating role of switching costs within the push–pull–mooring framework. This study seeks to provide a more comprehensive understanding of customer loyalty formation in Indonesia's highly competitive online food delivery market.

## 2. Literature Review and Hypothesis/es Development

### 2.1 Push–Pull–Mooring Framework

The Push–Pull–Mooring (PPM) framework originates from classical migration theory, which explains individual movement from one location to another. The framework was initially introduced to explain human migration decisions, in which individuals are influenced by factors that push them away from their current location and pull them toward a new destination. [Bansal et al. \(2005\)](#) adapted this theory to consumer behavior research and conceptualized three major determinants of switching behavior: push factors, pull factors, and mooring factors. Push factors represent negative conditions that encourage consumers to leave their current service providers. Pull factors are attractive alternatives that motivate consumers to switch to other services. Mooring factors represent personal, social, or psychological elements that either facilitate or inhibit switching decisions ([Bansal et al., 2005](#); [Moon, 1995](#)).

In marketing and information system research, the PPM framework has increasingly been applied to explain switching behavior in digital platforms and the service industry. The model is particularly useful for analyzing consumer decisions in highly competitive digital environments, where switching barriers are relatively low. [Bansal et al. \(2005\)](#) emphasized that the PPM framework offers a comprehensive behavioral explanation because it integrates driving forces, attractive alternatives, and moderating constraints within a single theoretical model.

Recent studies have expanded the application of PPM to various digital service contexts, including e-commerce platforms, online learning systems, social media services and online food delivery applications. [Chang, Shiau, Lin, and Shih \(2023\)](#) demonstrated that switching behavior on online food delivery platforms is influenced by push factors such as poor service quality, pull factors such as attractive pricing or competitors' promotions, and mooring factors such as trust and habitual usage. Similarly, [Monoarfa, Sumarwan, Suroso, and Wulandari \(2023\)](#) found that mooring factors play a crucial role in moderating the relationship between dissatisfaction and switching intention on digital grocery platforms.

Although most previous studies applied PPM to analyze switching intention, the framework can also be adapted to explain customer retention and loyalty. The conceptual mechanism of push, pull, and mooring remains relevant when the analytical focus shifts from switching decisions to loyalty formation. In this context, push factors are positive experiences that encourage customers to remain with a service provider, whereas pull factors are external attractions that may erode loyalty. Mooring factors serve as constraints that either strengthen or weaken their influence on customer decision-making.

In the context of online food delivery services, this study adapts the PPM framework to analyze customer loyalty rather than switching behaviors. Service quality is conceptualized as a push factor that strengthens customer attachment to platforms. The price perception of alternatives is incorporated as a

pull factor that may reduce loyalty when competing platforms offer more attractive pricing. Switching costs function as a mooring factor that moderates the relationship between push and pull factors and customer loyalty. This conceptual modification enables the PPM framework to remain theoretically relevant in explaining customer loyalty formation in highly competitive digital-platform ecosystems.

## **2.2 Customer Loyalty**

Customer loyalty is widely recognized as a critical determinant of long-term business sustainability. [Jones and Taylor \(2007\)](#) define customer loyalty as the tendency of customers to continue using a service repeatedly while maintaining a stable preference toward a particular provider. Loyal customers contribute to organizational profitability by generating repeat purchases and reducing the cost of acquiring new customers. [Helgesen \(2006\)](#) emphasized that consistent loyal behavior significantly improves firm profitability by lowering the marketing and acquisition costs.

Marketing literature generally conceptualizes loyalty from two major perspectives. The first perspective views loyalty as an attitudinal construct that reflects emotional attachment, positive beliefs, and psychological commitment to a brand or service provider. The second conceptualizes loyalty as observable behavioral actions such as repeat purchasing, continued usage, and recommendations to others ([Hallowell, 1996](#)). These two perspectives have led scholars to propose integrated approaches that combine both behavioral and attitudinal dimensions of PBC. [Suhartanto et al. \(2019\)](#) introduced the concept of composite loyalty, which integrates actual behavioral patterns with future intentions. Composite loyalty captures both customers' present usage behavior and their intention to repurchase and recommend the service provider. This approach is considered more comprehensive because it reflects both current loyalty behavior and future loyalty tendencies.

In the context of online food delivery services, composite loyalty provides a suitable framework for understanding customer commitment to digital platforms. Common indicators of customer loyalty include the intention to continue purchasing, willingness to recommend the platform to others, intention to say positive things about the service, and willingness to continue purchasing even when prices increase ([Suhartanto et al., 2019](#)). These behavioral indicators reflect the degree to which customers maintain long-term relationships with a specific online food delivery platform.

## **2.3 Service Quality**

Service quality is a customer's overall evaluation of a service provider's performance during service interactions. [Zeithaml, Parasuraman, and Malhotra \(2002\)](#) define service quality as the consumer's judgment regarding the superiority or excellence of a service. In digital service environments, service quality encompasses human interaction and technological performance, including system reliability, response speed, transaction accuracy, and data security.

[Parasuraman, Zeithaml, and Malhotra \(2005\)](#) introduced the Electronic Service Quality (E-S-QUAL) model to measure service quality in online environments. The model includes four key dimensions: efficiency, fulfillment, system availability, and privacy issues. Efficiency reflects how easily customers can access and use a service platform. Fulfillment is the platform's ability to deliver services as promised. System availability indicates the reliability and technical stability of the platform. Privacy refers to the level of protection provided to customers' personal information and transaction data.

Several empirical studies have confirmed the importance of service quality in shaping customer loyalty on digital platforms. [Kaya, Behraves, Abubakar, Kaya, and Orús \(2019\)](#) found that e-service quality positively influences e-loyalty through customer satisfaction in online services. [Jung et al. \(2017\)](#) also reported that superior service quality reduces switching intention and strengthens customer retention in digital service platforms. Similarly, [Hadi et al. \(2019\)](#) demonstrated that sustainable service quality significantly enhances customer loyalty in the service industry.

In the online food delivery context, service quality plays a crucial role because the service experience involves multiple actors, including digital platforms, restaurants, and delivery personnel. [Saad \(2021\)](#) emphasized that delivery reliability, order accuracy, and application usability significantly influence

customer retention in Online Food Delivery (OFD) services. [Hanaysha, Shriedeh, and Gulseven \(2025\)](#) further demonstrated that perceived service quality positively affects online loyalty through perceived value mechanisms. Based on theoretical arguments and empirical evidence, service quality can be considered a key determinant of customer loyalty on digital platforms. Higher service quality is expected to strengthen customers' positive experiences and encourage continued use of the same platform. Accordingly, the following hypothesis is proposed:

*H<sub>1</sub>: Service Quality positively influences Customer Loyalty*

#### **2.4 Price perception of alternatives**

The price perception of alternatives is consumers' subjective evaluation of the monetary cost of acquiring a product or service relative to the perceived benefits. [Ahmed et al. \(2023\)](#) explained that consumers rarely evaluate price solely based on its nominal value. Instead, they assess whether the price reflects fair value compared to the quality and benefits.

In the online food delivery industry, the price perception of alternatives plays a crucial role in shaping consumer decisions, as platforms often compete through promotions, discounts, and dynamic pricing strategies. [Saad \(2021\)](#) highlighted that competitive pricing strategies significantly influence customer adoption and retention in OFD platforms. [Siddiqi et al. \(2024\)](#) conceptualized price perception using several dimensions including cost perception, perceived benefit, value for money, and perceived price fairness. These dimensions reflect how customers evaluate whether the financial sacrifice required to use a service is justified by the benefits.

Empirical findings on the relationship between price perception and loyalty have been mixed. [Agung and Pudjoprastyono \(2023\)](#) found that price perception positively influences customer loyalty on e-commerce platforms. [Akasreku, Amenuvor, and Mensah \(2025\)](#) also reported that perceived economic value significantly increases e-customer loyalty. Similarly, [Siddiqi et al. \(2024\)](#) demonstrated that favorable price perceptions positively affect customer loyalty, both directly and through customer satisfaction.

However, in highly competitive digital markets where switching barriers are low, the price perception of alternatives may also reduce loyalty when competitors offer more attractive prices. [Suryatenggara and Dahlan \(2022\)](#) found that customers are more likely to reconsider their platform choices when they perceive better pricing alternatives. In the OFD context, where consumers often use multiple applications simultaneously, competitive pricing may encourage customers to switch to different platforms. Based on these arguments, this study proposes that a higher perceived attractiveness of competitors' pricing may reduce loyalty toward the current OFD platform. Therefore, this study formulates the following hypothesis:

*H<sub>2</sub>: Price Perception of Alternatives negatively influences Customer Loyalty*

#### **2.5 Switching Cost**

Switching costs refer to the perceived costs that customers must incur when changing from one service provider to another. [Pan et al. \(2025\)](#) defined switching costs as a combination of financial expenses, time investment, and effort required during the switching process. These costs act as barriers that discourage customers from switching to alternative services. [Ginanjar, Ariyanti, and Hidayah \(2024\)](#) emphasized that switching costs serve as a retention mechanism because customers tend to remain with their current service providers when the cost of switching is perceived to be high. [Ha et al. \(2023\)](#) further explained that switching costs include procedural costs related to time and effort, financial costs associated with monetary loss, and relational costs related to emotional attachment and psychological discomfort.

Empirical studies consistently support the role of switching costs in maintaining consumer loyalty. [Kim et al. \(2026\)](#) demonstrated that procedural and financial switching costs significantly reduce switching intention in digital services. [Hadi et al. \(2019\)](#) also found that switching costs strengthen the relationship between satisfaction and loyalty in the telecommunications industry.

In digital platform ecosystems, such as online food delivery services, switching costs are typically lower because users can easily download multiple applications and switch between them. However, certain factors, such as familiarity with the platform, accumulated reward points, and habitual usage, may create perceived switching costs that influence loyalty behavior. Based on these theoretical arguments and empirical findings, switching costs are expected to positively influence customer loyalty.

*H<sub>3</sub>*: Switching costs positively influence Customer Loyalty

### 2.6 Moderating Role of Switching Cost

Within the Push–pull–mooring framework, mooring factors play a moderating role by strengthening or weakening the influence of push and pull factors on consumer behavior. Switching costs represent a critical mooring factor because they determine whether customers remain loyal to a service provider despite the availability of alternative options. Previous studies have demonstrated the moderating effect of switching costs in various digital service contexts. [Ha et al. \(2023\)](#) found that switching costs strengthen the relationship between service quality and customer loyalty. [Hadi et al. \(2019\)](#) also confirmed that switching costs moderate the relationship between satisfaction and loyalty in the service industry. [Jung et al. \(2017\)](#) emphasized that switching cost reduces consumers' sensitivity to competing alternatives.

When switching costs are high, customers are more likely to maintain their relationship with the current service provider, even if alternative platforms offer attractive benefits. Conversely, when switching costs are low, customers become more responsive to competing offers. Therefore, switching costs are expected to strengthen the positive relationship between service quality and customer loyalty.

*H<sub>4</sub>*: Switching Cost positively moderates the relationship between Service Quality and Customer Loyalty

Switching costs may also weaken the negative influence of the price perception of alternatives on loyalty. When customers perceive high switching costs, the attractiveness of lower prices offered by competitors becomes less influential because switching is perceived as being inconvenient or costly. Empirical studies have supported this moderating mechanism. [Adjie, Calista, Muhtadiin, Handayani, and Larasati \(2023\)](#), [Pan et al. \(2025\)](#), [Xu, Wang, Tai, and Lin \(2021\)](#), and [Zhou and Mi \(2024\)](#) found that switching cost significantly moderates the relationship between switching intention and switching behavior in digital platforms. Based on these arguments, the following hypothesis is proposed:

*H<sub>5</sub>*: Switching costs negatively moderate the relationship between the Price Perception of Alternatives and Customer Loyalty

According to the hypotheses presented above, the proposed research model is illustrated as follows Figure 1.

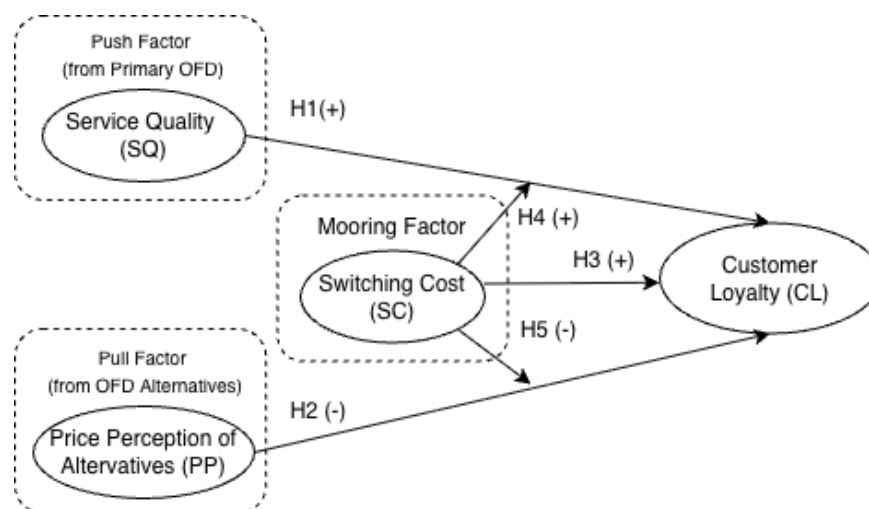


Figure 1. Research model

### 3. Methodology

This study adopts a quantitative explanatory approach to investigate the relationships among service quality, price perception of alternatives, switching costs, and customer loyalty within the online food delivery industry. Data were collected through a cross-sectional survey using a structured questionnaire. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire included closed-ended statements designed to capture the constructs in the proposed research model, along with several questions intended to obtain respondents' demographic profiles and usage patterns.

The population of this study comprised individuals who used online food delivery services in Indonesia. Because the exact number of users cannot be accurately determined and continuously changes over time, the population is categorized as an infinite population, as described by [Sekaran and Bougie \(2016\)](#). Respondents were selected using purposive sampling, a non-probability sampling method that allows participants to be chosen based on predefined criteria aligned with the study objectives ([Sekaran & Bougie, 2016](#)). To ensure that respondents had adequate experience with the service, participants were required to be at least 18 years old and to have used a minimum of two different online food delivery applications, with at least three transactions on one platform in the last 30 days.

The minimum number of respondents was determined following the guideline that the required sample size should be between five and ten times the number of measurement indicators included in the model ([F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014](#)). Given that this study employed 20 measurement items, the recommended minimum sample size was 200 participants. A total of 290 respondents completed the survey. The questionnaire was distributed online using Google Forms through various social media platforms to reach respondents from different regions in Indonesia. The collected data were subsequently analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS software.

### 4. Results and Discussions

#### 4.1 Respondent Characteristics

This study involved 290 respondents who met the research criteria of being active users of Online Food Delivery (OFD) services in Indonesia. The demographic characteristics of the respondents provide an overview of the profile of OFD users and serve as an important foundation for interpreting the empirical findings of this study. The distribution of the respondents' characteristics is presented in Table 1.

Table 1. Respondent characteristics

| Demographic Variable | Category         | Frequency (n) | %     |
|----------------------|------------------|---------------|-------|
| Gender               | Male             | 128           | 44.10 |
|                      | Female           | 162           | 55.90 |
| Age                  | 18-29 years      | 154           | 53.10 |
|                      | 30-45 years      | 94            | 32.40 |
|                      | 46-61 years      | 33            | 11.40 |
|                      | >62 years        | 9             | 3.10  |
| Domicile             | DKI Jakarta      | 47            | 16.21 |
|                      | Jawa Barat       | 41            | 14.14 |
|                      | Jawa Timur       | 39            | 13.45 |
|                      | Jawa Tengah      | 28            | 9.66  |
|                      | Banten           | 22            | 7.59  |
|                      | Sumatera Utara   | 14            | 4.83  |
|                      | Sumatera Selatan | 10            | 3.45  |
|                      | Riau             | 9             | 3.10  |
| Lampung              | 8                | 2.76          |       |

|  |                                  |     |       |
|--|----------------------------------|-----|-------|
|  | Sumatera Barat                   | 7   | 2.41  |
|  | Kalimantan Timur                 | 10  | 3.45  |
|  | Kalimantan Selatan               | 7   | 2.41  |
|  | Kalimantan Barat                 | 6   | 2.07  |
|  | Kalimantan Tengah                | 4   | 1.38  |
|  | Sulawesi Selatan                 | 13  | 4.48  |
|  | Sulawesi Utara                   | 6   | 2.07  |
|  | Sulawesi Tengah                  | 3   | 1.03  |
|  | Sulawesi Tenggara                | 3   | 1.03  |
|  | Bali                             | 9   | 3.10  |
|  | Nusa Tenggara Barat              | 4   | 1.38  |
| Education Level                                    | Senior High School or Equivalent | 116 | 40.00 |
|  | Diploma (D1/D2/D3/D4)            | 46  | 15.90 |
|  | Bachelor's Degree (S1)           | 90  | 31.00 |
|  | Master's Degree (S2)             | 28  | 9.70  |
|  | Doctoral Degree (S3)             | 10  | 3.40  |
| Occupation   | Student                          | 96  | 33.10 |
|  | Government Employee              | 77  | 26.60 |
|  | Private Sector Employee          | 38  | 13.10 |
|  | Self-Employed                    | 30  | 10.30 |
|  | Freelancer                       | 25  | 8.60  |
|  | House Wife                       | 11  | 3.80  |
|  | Unemployed                       | 13  | 4.50  |
| Monthly Income                                     | < IDR1.500.000                   | 22  | 7.60  |
|  | IDR1.500.000 – IDR2.999.999      | 60  | 20.70 |
|  | IDR3.000.000 – IDR4.999.999      | 86  | 29.70 |
|  | IDR5.000.000 – IDR7.499.999      | 58  | 20.00 |
|  | IDR7.500.000 – IDR9.999.999      | 30  | 10.30 |
|  | IDR10.000.000 – IDR14.999.999    | 21  | 7.20  |
|  | ≥ IDR15.000.000                  | 13  | 4.50  |
| Monthly OFD Spending                               | < IDR100.000                     | 25  | 8.60  |
|  | IDR100.000 – IDR249.999          | 75  | 25.90 |
|  | IDR250.000 – IDR499.999          | 90  | 31.00 |
|  | IDR500.000 – IDR749.999          | 49  | 16.90 |
|  | IDR750.000 – IDR999.999          | 30  | 9.58  |
|  | > IDR1.000.000                   | 21  | 7.20  |
| Primary OFD Platform Used in the Last 30 Days      | GoFood                           | 112 | 42.10 |
|  | GrabFood                         | 96  | 33.10 |
|  | ShopeeFood                       | 72  | 24.80 |
| Alternative OFD Platforms Used in the Last 30 Days | GoFood                           | 127 | 43.80 |
|  | GrabFood                         | 135 | 46.60 |
|  | ShopeeFood                       | 172 | 59.30 |

The results indicate that the respondents were predominantly female, accounting for 55.90 percent of the total sample, while male respondents represented 44.10 percent. This distribution suggests that

female consumers participated more actively in this study. In terms of age distribution, the majority of respondents were between 18 and 29 years old, representing 53.10 percent of the total sample. Respondents aged between 30 and 45 years accounted for 32.40% of the sample, while those aged between 46 and 61 years represented 11.40 percent. Only 3.10 percent of respondents were above 62 years old. This pattern indicates that OFD services are predominantly used by younger consumers who are more familiar with digital technologies and mobile applications. Younger generations tend to adopt digital platforms more quickly because of their higher technological literacy and lifestyle preferences for convenience-oriented services ([APJII, 2025](#)).

From a geographical perspective, the respondents were distributed across various provinces in Indonesia. The largest proportion of respondents came from DKI Jakarta (16.21 percent), followed by West Java (14.14 percent) and East Java (13.45 percent). Other regions, such as Central Java (9.66 percent) and Banten (7.59 percent), also contributed a considerable number of respondents. Several provinces outside Java were represented, including North Sumatra, South Sumatra, Riau, Lampung, Bali, and several provinces in Kalimantan and Sulawesi. Despite this geographical diversity, the distribution remains dominated by respondents living in urban areas, particularly in Java, which is widely recognized as the center of economic activity and digital service adoption in Indonesia ([APJII, 2025](#)).

Regarding educational background, most respondents had completed senior high school or its equivalent, accounting for 40 percent of the total sample. Respondents holding a bachelor's degree represented 31 percent, followed by diploma holders (15.90 percent), master's degree holders (9.70 percent), and doctoral graduates (3.40 percent). This distribution indicates that most respondents possessed moderate to high levels of education, which is generally associated with stronger digital literacy and greater familiarity with online service platforms ([APJII, 2025](#)).

In terms of occupation, students accounted for the largest proportion of respondents (33.10%). Government employees represented 26.60% of the sample, followed by private employees (13.10 percent), entrepreneurs (10.30 percent), freelancers (8.60 percent), unemployed individuals (4.50 percent), and homemakers (3.80 percent). The dominance of students and working professionals reflects the lifestyle characteristics of OFD users, who often seek convenient solutions to fulfill their food consumption needs amid busy daily schedules.

The distribution of monthly income indicates that most respondents fall within the middle-income category. The largest group reported monthly expenditures between IDR 3,000,000 and IDR 4,999,999 (29.70 percent), followed by those earning between IDR 1,500,000 and IDR 2,999,999 (20.70 percent) and between IDR 5,000,000 and IDR 7,499,999 (20 percent). These findings suggest that OFD services are widely used by consumers with moderate purchasing power who have sufficient disposable income to regularly purchase food through digital platforms.

Specifically, most respondents reported monthly expenditures on OFD services between IDR 250,000 and IDR 499,999 (31 percent), followed by IDR 100,000 to IDR 249,999 (25.90 percent). Smaller proportions reported higher spending levels, including IDR 500,000–IDR 749,999 (16.90 percent) and more than IDR 1,000,000 per month (7.20 percent). These figures indicate that OFD services are generally used as a supplementary option for food consumption rather than as the primary source of daily meals for consumers.

Regarding the most frequently used OFD platform within the last 30 days, GoFood was the most commonly used platform among respondents, accounting for 42.10 percent. GrabFood followed with 33.10% of the total, while ShopeeFood accounted for 24.80 percent. These findings suggest that GoFood continues to maintain a strong position among users despite increasing competition among OFD platforms in Indonesia. However, when respondents were asked about alternative OFD platforms used within the last 30 days, ShopeeFood emerged as the most commonly used alternative platform, with 59.30 percent of respondents indicating its usage. GrabFood and GoFood were also reported as alternative platforms by 46.60 percent and 43.80 percent of respondents, respectively. This pattern

reflects the phenomenon of multi-homing, in which consumers use multiple digital platforms simultaneously rather than relying exclusively on a single service.

Overall, the respondent profile in this study reflects typical OFD users who are relatively young, technologically literate, and live in urban areas. These characteristics align with previous studies that identified younger literate consumers as the primary adopters of digital food delivery services because of their preference for convenience, time efficiency, and mobile-based consumption patterns ([APJII, 2025](#)).

#### 4.2 Measurement Model Assessment (Outer Model)

The measurement model evaluation aims to assess the reliability and validity of the constructs used in the research model before testing the structural relationships among the variables. In the context of Partial Least Squares Structural Equation Modeling (PLS-SEM), the measurement model is evaluated using several criteria, including convergent validity, discriminant validity, and reliability of the constructs ([F. Hair Jr et al., 2014](#)). These procedures ensured that each indicator properly represented the theoretical construct it intended to measure and that the constructs were statistically reliable for further structural analysis.

##### 4.2.1 Convergent Validity

Convergent validity examines whether the indicators that measure a particular construct share a high proportion of variance. In PLS-SEM, convergent validity is evaluated through the values of outer loading and Average Variance Extracted (AVE). According to [Hair and Alamer \(2022\)](#), an indicator is considered valid when its loading factor exceeds 0.70, while AVE values should be greater than 0.50 to confirm that the construct explains more than half of the variance of its indicators.

Table 2. Outer loading results

|      | CL    | PP    | SC    | SQ    |
|------|-------|-------|-------|-------|
| CL.1 | 0.813 |       |       |       |
| CL.2 | 0.794 |       |       |       |
| CL.3 | 0.827 |       |       |       |
| CL.4 | 0.833 |       |       |       |
| PP.1 |       | 0.852 |       |       |
| PP.2 |       | 0.828 |       |       |
| PP.3 |       | 0.819 |       |       |
| PP.4 |       | 0.849 |       |       |
| SC.1 |       |       | 0.837 |       |
| SC.2 |       |       | 0.840 |       |
| SC.3 |       |       | 0.828 |       |
| SC.4 |       |       | 0.797 |       |
| SQ.1 |       |       |       | 0.827 |
| SQ.2 |       |       |       | 0.849 |
| SQ.3 |       |       |       | 0.832 |
| SQ.4 |       |       |       | 0.807 |
| SQ.5 |       |       |       | 0.801 |
| SQ.6 |       |       |       | 0.802 |
| SQ.7 |       |       |       | 0.807 |
| SQ.8 |       |       |       | 0.802 |

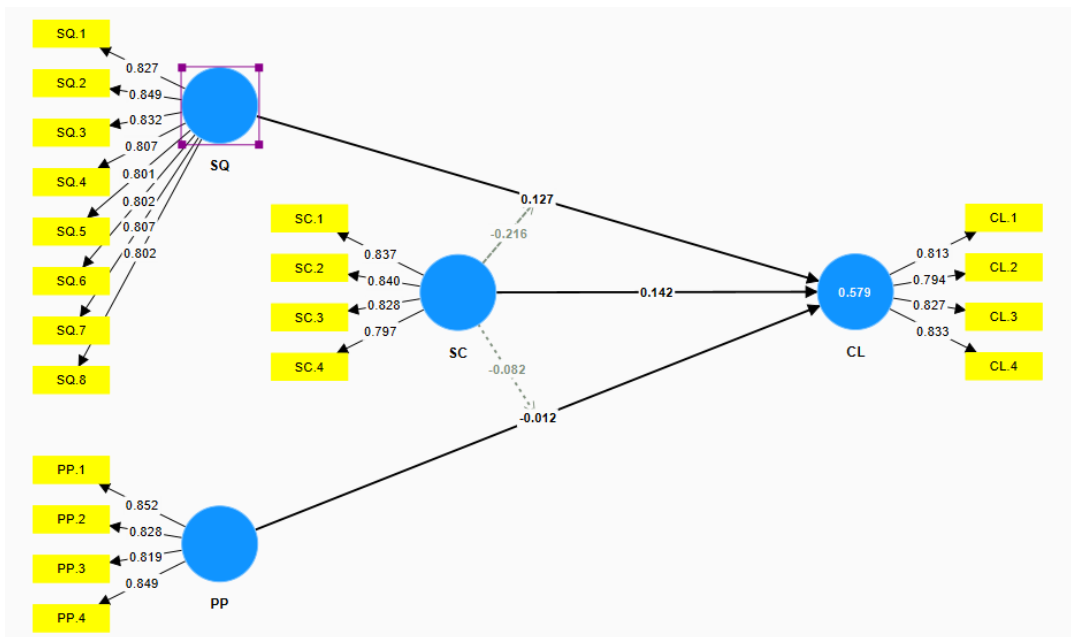


Figure 2. Outer Model

The results presented in Table 2 and Figure 2 show that all indicators have outer loading values greater than 0.70. The indicators for customer loyalty ranged from 0.794 to 0.833, while those for the price perception of alternatives ranged from 0.819 to 0.852. The indicators measuring switching cost showed loading values between 0.797 and 0.840, whereas the indicators of service quality ranged from 0.801 to 0.849. These results indicate that all indicators strongly correlated with their respective constructs. Therefore, each indicator was considered valid and capable of representing the latent variables used in this study. The fulfillment of convergent validity confirms that the measurement items effectively capture the theoretical dimensions of the constructs being investigated.

#### 4.2.2 Discriminant Validity

Discriminant validity assesses whether a construct is empirically distinct from other constructs in the model. This evaluation ensures that each latent variable captures phenomena not represented by other variables in the model. One commonly used method for assessing discriminant validity in PLS-SEM is the Fornell–Larcker criterion, which compares the square root of the AVE values with the correlations among the constructs (Hair & Alamer, 2022).

Table 3. Fornell–Larcker criterion results

|    | CL           | PP           | SC           | SQ           |
|----|--------------|--------------|--------------|--------------|
| CL | <b>0.817</b> |              |              |              |
| PP | 0.552        | <b>0.837</b> |              |              |
| SC | 0.565        | 0.570        | <b>0.825</b> |              |
| SQ | 0.554        | 0.542        | 0.526        | <b>0.816</b> |

Table 3 show that the square root of the AVE for each construct is greater than the correlations between the constructs. The square root of the AVE values is 0.817 for customer loyalty, 0.837 for price perception of alternatives, 0.825 for switching cost, and 0.816 for service quality. Each of these values exceeded the corresponding inter-construct correlations.

For example, the square root of the AVE for customer loyalty (0.817) is greater than its correlations with the price perception of alternatives (0.552), switching cost (0.565), and service quality (0.554). This result indicates that each construct shares more variance with its indicators than with other constructs in the model. Therefore, the discriminant validity requirement was satisfied, confirming that the constructs were empirically distinct from one another.

#### 4.2.3 Reliability Assessment

Reliability analysis evaluates the internal consistency of the measurement items representing each construct. In PLS-SEM, reliability is typically assessed using Cronbach's alpha and composite reliabilities. A construct is considered reliable when these values exceed a threshold of 0.70 (Hair & Alamer, 2022).

Table 4. Reliability analysis

|    | <b>Cronbach's alpha</b> | <b>Composite reliability (rho_a)</b> | <b>Composite reliability (rho_c)</b> | <b>Average Variance Extracted (AVE)</b> |
|----|-------------------------|--------------------------------------|--------------------------------------|---|
| CL | 0.834                   | 0.836                                | 0.889                                | 0.667                                   |
| PP | 0.858                   | 0.859                                | 0.904                                | 0.701                                   |
| SC | 0.844                   | 0.845                                | 0.895                                | 0.681                                   |
| SQ | 0.928                   | 0.929                                | 0.941                                | 0.666                                   |

Table 4 showed that Cronbach's alpha values for all constructs exceeded the recommended threshold. The values for customer loyalty, price perception of alternatives is 0.858, switching cost is 0.844, and service quality were 0.834, 0.858, 0.844, and 0.928, respectively. These results indicate a high level of internal consistency among the indicators within each of the constructs. The composite reliability values also confirmed the robustness of the measurement model. The composite reliability values were 0.889 for customer loyalty, 0.904 for price perception of alternatives, 0.895 for switching cost, and 0.941 for service quality. These values exceed the recommended minimum threshold of 0.70, indicating that the constructs were measured consistently across their indicators.

From the perspective of convergent validity, the AVE values met the recommended threshold of 0.50. The AVE values are 0.667 for customer loyalty, 0.701 for price perception of alternatives, 0.681 for switching costs, and 0.666 for service quality. These results indicate that more than 50 percent of the variance in the indicators is explained by the respective constructs. Therefore, the measurement model demonstrated adequate reliability and validity, allowing the analysis to proceed to the structural model evaluation.

#### 4.3 Structural Model Assessment (Inner Model)

After confirming the validity and reliability of the measurement model, the next step involved evaluating the structural model. The structural model assessment aims to examine the relationships between latent constructs and determine the predictive power of the research model. Several indicators are commonly used to assess the structural model in PLS-SEM, including the coefficient of determination (R-squared), effect size (f-squared), collinearity statistics (VIF), and predictive relevance (Q-squared) (Hair & Alamer, 2022).

##### 4.3.1 Coefficient of Determination (R-square)

The coefficient of determination indicates the extent to which exogenous variables explain the variance in the endogenous variable. According to Hair and Alamer (2022), R-squared values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and 0.25 weak.

Table 5. R-square results

|    | <b>R-square</b> | <b>R-square adjusted</b> |
|----|-----------------|--------------------------|
| CL | 0.579           | 0.571                    |

Table 5 show that the R-squared value for customer loyalty is 0.579, while the adjusted R-squared value is 0.571. This finding indicates that the independent variables in the model explain approximately 57.1 percent of the variance in customer loyalty. The remaining 42.9 percent is influenced by other variables not included in the model. Based on the criteria proposed by Hair and Alamer (2022), this value can be categorized as having moderate explanatory power.

#### 4.3.2 Effect Size (f-square)

The effect size (f-square) measures the contribution of each exogenous variable to the endogenous variables. According to [Hair and Alamer \(2022\)](#), f-square values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

Table 6. Effect size results

|               | <b>f-square</b> |
|---------------|-----------------|
| SQ -> CL      | 0.011           |
| PP -> CL      | 0.000           |
| SC -> CL      | 0.027           |
| SC x SQ -> CL | 0.025           |
| SC x PP -> CL | 0.004           |

Table 6 show indicate that the effect of service quality on customer loyalty has an f-square value of 0.011, which falls below the threshold of 0.02, indicating a weak effect. Similarly, the relationship between the price perception of alternatives and customer loyalty shows an f-square value of 0.000, suggesting a very weak influence. In contrast, the relationship between switching costs and customer loyalty has an f-square value of 0.027, indicating a medium effect. The moderating effect of switching cost on the relationship between service quality and customer loyalty was 0.025, indicating a medium effect size. Meanwhile, the moderating effect of switching cost on the relationship between price perception of alternatives and customer loyalty shows a value of 0.004, which indicates a negligible effect.

#### 4.3.3 Collinearity Assessment (VIF)

A collinearity analysis was conducted to ensure that the independent variables in the model were not highly correlated with each other. This evaluation was performed using the Variance Inflation Factor (VIF). According to [Hair and Alamer \(2022\)](#), VIF values should be below 3 to indicate that multicollinearity is not a concern.

Table 7. Collinearity statistics (VIF)

|      | <b>VIF</b> |
|------|------------|
| CL.1 | 1.755      |
| CL.2 | 1.729      |
| CL.3 | 1.877      |
| CL.4 | 1.865      |
| PP.1 | 2.172      |
| PP.2 | 1.967      |
| PP.3 | 1.863      |
| PP.4 | 2.050      |
| SC.1 | 1.976      |
| SC.2 | 2.035      |
| SC.3 | 1.903      |
| SC.4 | 1.715      |
| SQ.1 | 2.671      |
| SQ.2 | 2.883      |
| SQ.3 | 2.711      |
| SQ.4 | 2.345      |

|      |       |
|------|-------|
| SQ.5 | 2.288 |
| SQ.6 | 2.317 |
| SQ.7 | 2.228 |
| SQ.8 | 2.361 |

Table 7 show that all VIF values are below the threshold of 3, with values ranging between 1.715 and 2.883. These results indicate that there is no significant multicollinearity in the model. Therefore, the structural relationships among the constructs can be intelDRreted with confidence.

#### 4.3.4 Predictive Relevance (Q-square)

Predictive relevance was evaluated using the Q-square statistic obtained through a blindfolding procedure. A model is considered to have predictive relevance when the Q-square value is greater than zero ([Hair & Alamer, 2022](#)).

Table 8. Predictive relevance results

|    | SSO       | SSE     | Q <sup>2</sup> (=1-SSE/SSO) |
|----|-----------|---------|-----------------------------|
| CL | 1.160.000 | 735.640 | 0.366                       |

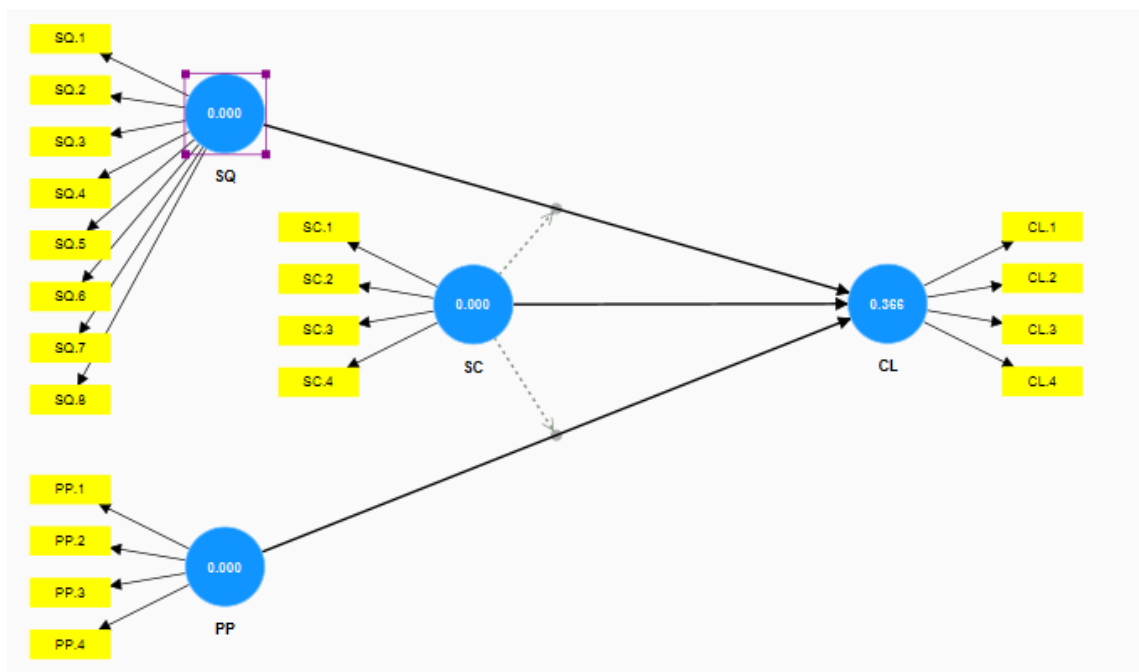


Figure 3. Inner model

Table 8 and Figure 3 show Q-squares value for customer loyalty was 0.366. This result indicates that the model has a satisfactory predictive relevance. In practical terms, the model can explain approximately 36.6 percent of the predictive information contained in the observed data. The remaining variance was explained by other factors outside the model.

#### 4.4 Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure within the Partial Least Squares Structural Equation Modeling (PLS-SEM) framework. The significance of the structural relationships was evaluated using t-statistics and p-values. A significance level of 5 percent was applied in this study. According to [Hair and Alamer \(2022\)](#), a path coefficient is considered statistically significant when the t-statistic exceeds 1.96, and the p-value is less than 0.05. The results of the hypothesis testing are presented in Table 9.

Table 9. Hypothesis testing results

|              | Original sample (O) | Sample mean (M) | Standard deviation (STDEV) | T statistics ( O/STDEV ) | P-values | Status   |
|--------------|---------------------|-----------------|----------------------------|--------------------------|----------|----------|
| SQ → CL      | 0.127               | 0.136           | 0.064                      | 1.983                    | 0.047    | accepted |
| PP → CL      | -0.012              | -0.011          | 0.060                      | 0.205                    | 0.838    | rejected |
| SC → CL      | 0.142               | 0.146           | 0.048                      | 2.960                    | 0.003    | accepted |
| SC x SQ → CL | -0.216              | -0.218          | 0.060                      | 3.614                    | 0.000    | rejected |
| SC x PP → CL | -0.082              | -0.073          | 0.062                      | 1.324                    | 0.186    | rejected |

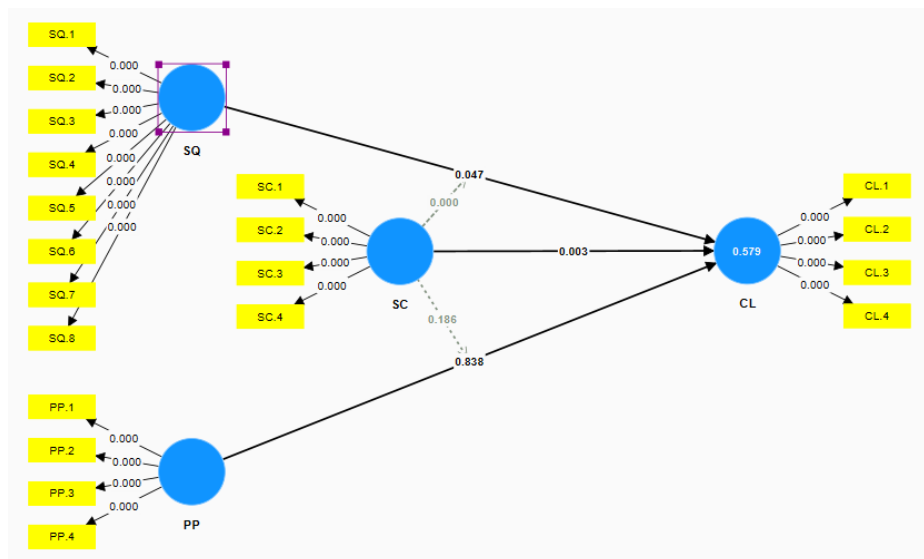


Figure 4. Hypothesis testing results

Figure 4 show of the structural model analysis provide empirical evidence regarding the relationships among service quality, price perception of alternatives, switching costs, and customer loyalty. The interpretations of each hypothesis are presented as follows. The first hypothesis proposes that service quality positively influences customer loyalty. The results indicate that the path coefficient between service quality and customer loyalty is positive, with a coefficient value of 0.127. The t-statistic value is 1.983, which exceeds the threshold of 1.96, whereas the p-value is 0.047, which is below the significance level of 0.05. These results indicate that the relationships are statistically significant. Therefore, the first hypothesis is supported, suggesting that a higher perceived service quality leads to stronger customer loyalty toward OFD platforms.

The second hypothesis proposes that the price perception of alternatives negatively influences customer loyalty. The results show that the path coefficient between the price perception of alternatives and customer loyalty is  $-0.012$ , indicating a negative direction. However, the t-statistic value is 0.205, which is far below the required threshold of 1.96, and the p-value is 0.838, which exceeds the significance level of 0.05. These results indicate that the relationship was not statistically significant. Consequently, the second hypothesis is not supported by the data. The third hypothesis predicted that switching costs have a positive effect on customer loyalty. The analysis results show that the path coefficient between switching cost and customer loyalty was 0.142. The t-statistic value is 2.960, which is greater than 1.96, and the p-value is 0.003, which is below the significance threshold. These findings confirm that switching costs significantly influence customer loyalty. Therefore, the third hypothesis is supported by the data.

The fourth hypothesis proposes that switching costs positively moderate the relationship between service quality and customer loyalty. The results indicate that the interaction effect between switching cost and service quality has a path coefficient of  $-0.216$ . Although the t-statistic value is 3.614 and the p-value is 0.000, which indicates statistical significance, the direction of the relationship is negative and therefore does not support the proposed hypothesis. Consequently, the fourth hypothesis is rejected in this study. The fifth hypothesis proposed that switching costs negatively moderate the relationship between the price perception of alternatives and customer loyalty. The results show that the interaction effect has a path coefficient of  $-0.082$ . However, the t-statistic value is 1.324 and the p-value is 0.186, indicating that the moderating effect is not significant. Therefore, the fifth hypothesis was not supported.

#### **4.5 Discussion of Findings**

The findings of this study provide empirical insights into the determinants of customer loyalty in the context of online food delivery services in Indonesia. The discussion of each relationship is presented by linking the empirical results to existing theories and previous studies. The results indicate that service quality has a positive and significant effect on customer loyalty. This finding supports the theoretical assumption that high-quality service experiences play a crucial role in maintaining long-term relationships between customers and digital-service providers. In the context of OFD platforms, service quality reflects the efficiency of the application interface, reliability of the delivery process, system stability, and protection of users' personal data. [Parasuraman et al. \(2005\)](#) emphasize that electronic service quality is a critical determinant of customer satisfaction and loyalty in digital platforms. The findings of this study are also consistent with [Siddiqi et al. \(2024\)](#), who found that service quality significantly influences continued usage behavior in OFD services in emerging markets.

The positive relationship observed in this study can also be explained through the push–pull–mooring framework, where service quality functions as a push factor that strengthens the customer's motivation to remain with a particular service provider ([Bansal et al., 2005](#)). When users perceive that a platform provides efficient navigation, reliable delivery services, and secure payment systems, they are more likely to continue using the service and recommend it to others. In contrast, the results show that the price perception of alternatives does not significantly influence customer loyalty. This finding suggests that pricing strategies alone may not be sufficient to sustain long-term customer commitment in the OFD industry. Although price incentives, such as discounts and promotional offers, can attract new users, they may not necessarily translate into sustained loyalty. Similar findings were reported by [Siddiqi et al. \(2024\)](#), who observed that the price perception of alternatives often affects loyalty indirectly through customer satisfaction rather than through a direct relationship.

One explanation for this phenomenon lies in the competitive nature of the OFD markets. Many platforms offer similar promotional campaigns, which reduces the relative importance of price differences in shaping consumer loyalty. Under such conditions, customers tend to evaluate the overall value of the service rather than focusing solely on price considerations. [Zhong and Moon \(2020\)](#) argue that in service industries, price can sometimes serve as a signal of service quality, particularly when consumers associate extremely low prices with potential risks related to reliability and service standards.

The analysis further reveals that switching costs have a positive and significant effect on customer loyalty. This finding indicates that the perceived costs associated with switching to another platform, including time, effort, and financial considerations, play an important role in customer retention. The concept of switching costs has long been recognized as a critical determinant of customer retention in service industries ([Ha et al., 2023](#)). Customers who perceive high switching costs are more likely to maintain their relationship with their current service provider because switching requires additional effort and adjustment. Within the context of the push–pull–mooring framework, switching costs represent a mooring factor that stabilizes consumer behavior and prevents customers from switching services, even when alternative options are available ([Bansal et al., 2005](#)). The results of this study support this theoretical perspective by demonstrating that switching costs positively contribute to customer loyalty among OFD users.

The moderating role of switching costs in the relationship between service quality and customer loyalty produced unexpected results. Although the interaction effect is statistically significant, the direction of the relationship is negative, indicating that switching costs weaken the influence of service quality on customer loyalty. This finding suggests that when customers perceive strong barriers to switching platforms, their loyalty may be driven more by situational constraints than by genuine satisfaction with service quality.

This phenomenon can be explained by the concept of psychological reactance, which suggests that individuals may develop negative attitudes when they feel restricted in their freedom of choice ([Al-Ghraibah, 2020](#)). When customers perceive that switching barriers are intentionally created to retain them, their evaluation of the service may become less favorable despite good service quality. Finally, the results show that switching costs do not significantly moderate the relationship between the price perception of alternatives and customer loyalty. This finding indicates that switching barriers do not significantly alter consumers' responses to price evaluations in the OFD market.

One possible explanation is the widespread practice of multi-homing, where consumers simultaneously use multiple digital platforms rather than relying on a single service provider ([TenggaraStrategics, 2022](#)). In such cases, switching between platforms does not necessarily involve abandoning a platform entirely. Instead, users may simply alternate between platforms depending on the available promotions or convenience at a given time. Overall, these findings highlight that customer loyalty in the OFD industry is influenced by a combination of service quality and perceived switching barriers, rather than price considerations alone. These results reinforce the importance of delivering consistent service performance and building strong relational value to sustain long-term customer loyalty in digital service environments.

## **5. Conclusions**

### **5.1 Conclusion**

This study examined how service quality and price perception affect customer loyalty in online food delivery services in Indonesia, considering the moderating role of switching costs. Service quality positively influences customer loyalty, indicating that better service performance encourages continued use and recommendations. Price perception of alternatives does not significantly affect loyalty, suggesting users evaluate overall service value rather than only price. Switching costs increase loyalty by creating barriers to platform change, but they do not strengthen the impact of service quality or price perception. Overall, service quality and switching barriers are more crucial than price perception in shaping customer loyalty.

### **5.2 Research Limitations**

This study has several limitations. First, self-reported online survey data may be biased, as responses reflect perceptions rather than actual behavior. Second, the sample mostly represents urban areas, limiting generalization to rural regions with less digital access. Third, the cross-sectional design captures consumer behavior at a single point in time and may not reflect long-term trends.

### **5.3 Suggestions and Future Research**

Future research should include additional variables such as customer satisfaction, perceived value, and trust to better understand loyalty mechanisms. Larger and more diverse samples, including rural regions, would improve generalizability. Longitudinal studies are recommended to track loyalty over time. Practically, online food delivery platforms should prioritize service quality, including reliability, delivery accuracy, security, and responsive support. Developing loyalty programs, personalized services, and integrated payment systems can enhance long-term customer engagement and retention.

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### Author Contributions

BSW contributed to conceptualization, methodology, data collection, and writing the original draft. RDVH was responsible for data analysis, validation, visualization, and reviewing and editing the manuscript. RPH provided supervision, project administration, funding acquisition, and contributed to reviewing and approving the final manuscript.

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