

Research on the Phased Mechanism of Users' Multi-homing: Taking Price Wars on Food Delivery Platforms as an Example

Jinghao Zhang*

School of Statistics, Tianjin University of Finance and Economics, Tianjin, 300222, China

*Corresponding author: zjh01@stu.tjufe.edu.cn

Abstract. This study examines the multi-homing behavior of users on food delivery platforms within the context of industry price wars. It focuses on the phased mechanisms and influencing factors behind this behavior. Using survey data from 151 food delivery users across the country, along with Likert scales and statistical analysis methods, a phased analysis of multi-homing behavior is constructed. The results show that user multi-homing behavior evolves through several stages: initial selection, price-induced switching, experience adjustment, and loyalty or rotation usage. Although price incentives can attract users to other platforms in the short term, long-term loyalty depends on multiple factors. These include service quality, social recommendations, and interface experience. Platforms differ significantly in terms of interface design, complaint handling, and delivery efficiency. These differences directly affect user retention and the tendency to multi-home. The study recommends that platforms avoid relying only on price competition. Instead, they should develop differentiated user strategies, improve service weaknesses, and enhance user lifetime value through data-driven operations. This research offers a theoretical basis and practical insights for food delivery platforms. It supports the shift from broad subsidies to precise user retention strategies.

Keywords: Multi-homing, phased, food delivery platform, price wars.

1. Introduction

In recent years, the digital platform economy has developed rapidly. The food delivery industry has gradually become integral to the daily lives of urban residents. Mainstream platforms like Meituan and Eleme engage in intense market competition. They frequently launch price wars through subsidies, discounts, and other promotions. These activities aim to attract user traffic and capture market share [1,2]. In this context, users increasingly switch between different platforms. This behavior — simultaneously using multiple platforms with similar functions—is known as multi-homing [3]. Multi-homing has become an important window for studying platform user loyalty and market strategies.

Traditional research mainly focuses on one-time user decision-making [4]. It often emphasizes initial platform choice or switching intentions at a specific time. However, such studies tend to overlook the dynamic nature of user behavior in the platform economy. Users constantly adjust their choices in response to price wars, service quality, and social influences [5,6]. Recent emerging studies have begun to highlight the stage-based characteristics of multi-homing [7,8]. Still, systematic analysis remains limited. This gap is what the present paper seeks to address.

This study uses "price wars" as its research context [1,2]. The term is defined in a 2024 Shanghai University conference paper as "the act of lowering prices through aggressive pricing strategies to compete for market share" [1]. The research focuses on users' multi-homing across multiple platforms. A phased mechanism analysis structure is constructed to address key questions: What factors influence users' initial platform selection? Do price wars prompt multi-homing behavior? After multi-homing occurs, do users continue with the new platform or exhibit inconsistent behavior? Which platform characteristics improve user retention and loyalty? Which user types are more likely to multi-home during price wars? Through questionnaire surveys and quantitative modeling, this study identifies key factors influencing multi-homing. It clarifies the phased logic of how this behavior occurs and develops. Ultimately, it formulates targeted user retention and competition strategies for food delivery platforms [9].

2. Research Methods

This study conducted an anonymous questionnaire survey to investigate the phased characteristics and influencing factors of users' multi-platform usage behavior in the context of price wars on food delivery platforms. The questionnaire was distributed online and administered through random sampling of users across the country to ensure sample diversity. By including users from different regions, age groups, occupations, and consumption habits, the study enhances the generalization and reliability of its findings [10, 11].

2.1. Questionnaire Design

The questionnaire consists of three core sections. The first section collects basic user information and usage habits. It includes gender, age, occupation, frequency of food delivery use, current primary platform, and initial platform used. This data helps characterize the sample and establish control variables.

The second section measures multi-platform usage behavior through a staged mechanism scale. It uses a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale assesses users' motivations and behavioral states across different phases. It is adapted from prior studies on multi-homing in the service industry [4] and research on the impact of price promotions on online multi-platform behavior [7,9]. The scale covers multiple dimensions, including social recommendations, perceived price differences, service satisfaction, interface experience, and promotion design. It aims to capture user dynamics throughout the entire process—from initial platform exposure, to switching triggered by price wars, and finally to retention or return after using a new platform [6].

The third section adapts the Customer Loyalty Scale, also using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) [12]. It primarily measures users' loyalty levels and trends in multi-platform usage contexts [5]. All scales are drawn from existing literature and were refined through a pre-survey. This process ensures their applicability, reliability, and validity within the specific context of food delivery platforms.

2.2. Reliability and Validity Testing

Table 1. Reliability Test: Based on Cronbach α

Items	Quantity	Cronbach α
26	151	0.822

Table 2. Validity Test

KMO		0.716
Bartlett	χ^2	1041.434
	df	595
	p	0.000

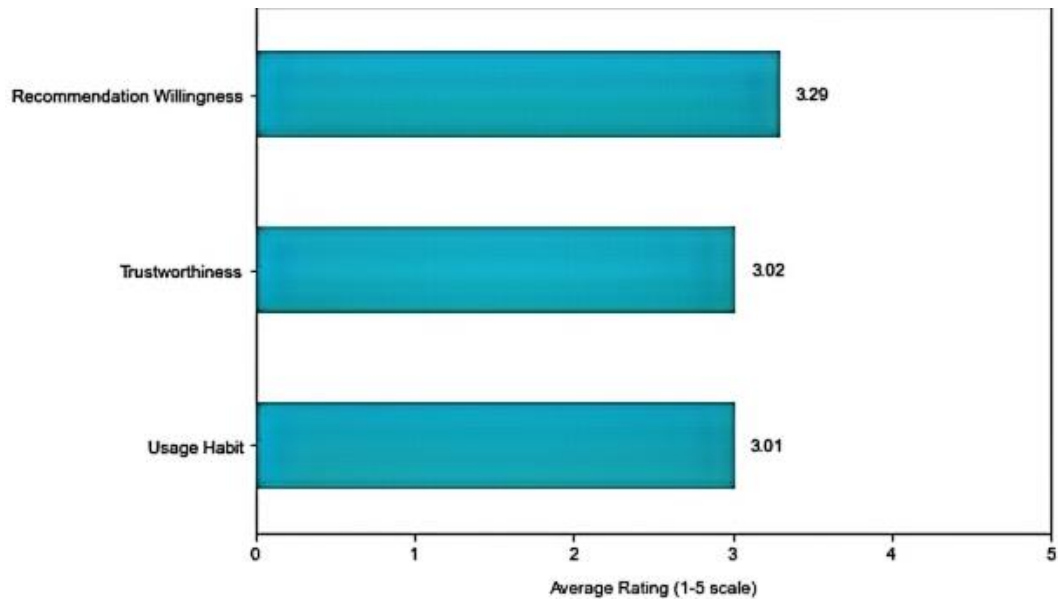
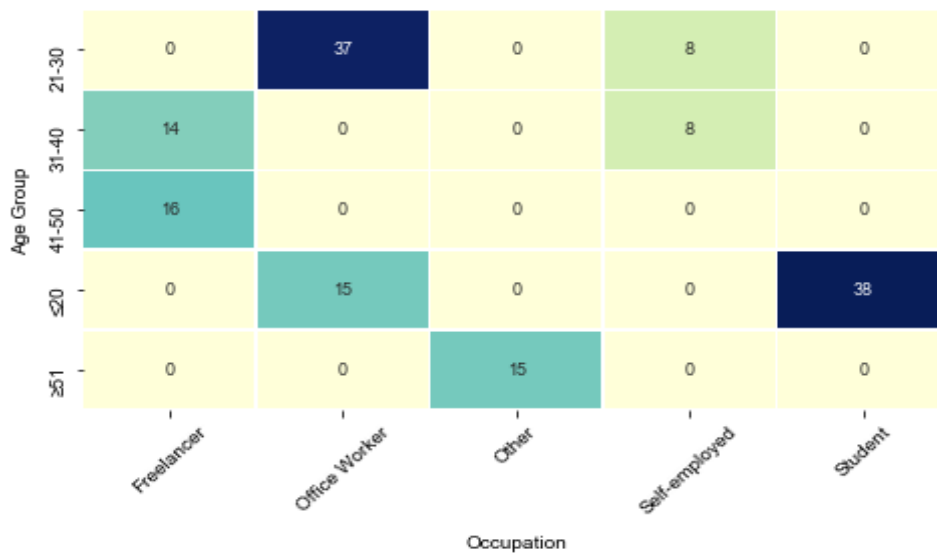
To ensure the applicability and accuracy of the measurement scales, reliability and validity tests were conducted [10,11]. As shown in Table 1, the Cronbach α for the 26 items was 0.822, demonstrating high internal consistency. Table 2 presents the KMO and Bartlett's Test results, with a KMO value of 0.716 and a Bartlett's χ^2 of 1041.434 (df = 595, $p < 0.001$), indicating a strong correlation among variables. These results confirm that the measurement scales are both reliable and valid for the context of food delivery platform multi-homing behavior.

2.3. Descriptive statistical analysis

Descriptive statistical analysis of the sample's gender, age, occupation, etc.

Table 3. Three schemes comparing

Distribution Statistics		Frequency	Percentage
Gender	Male	61	40.4%
	Female	90	59.6%
Age	≤20	53	35.1%
	21-30	45	29.8%
	31-40	22	14.57%
	41-50	16	10.6%
	≥51	15	9.93%
	Student	38	25.17%
Occupation	Office Worker	52	34.44%
	Self-employed	16	10.6%
	Freelancer	30	19.87%
	Other	15	9.93%

**Fig. 1** Key Loyalty Factors (Photo credit: Original)**Fig. 2** Age-Occupation Distribution (Photo credit: Original)

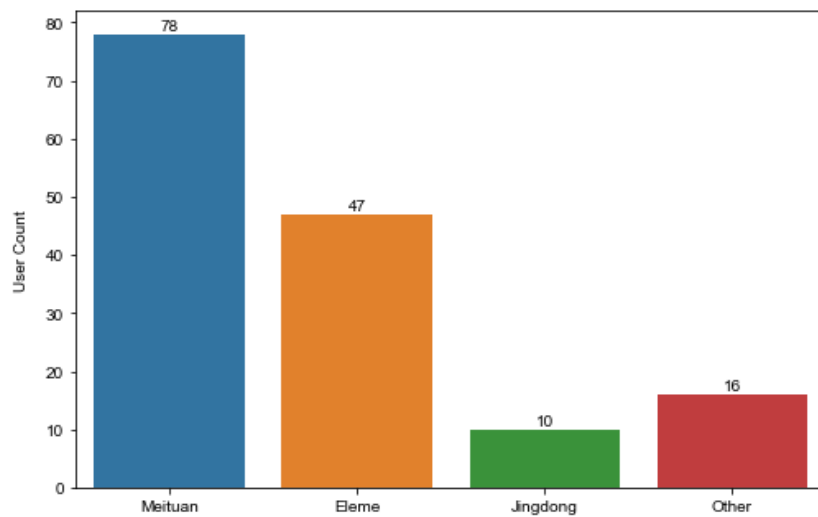


Fig. 3 Initial Platform Selection (Photo credit: Original)

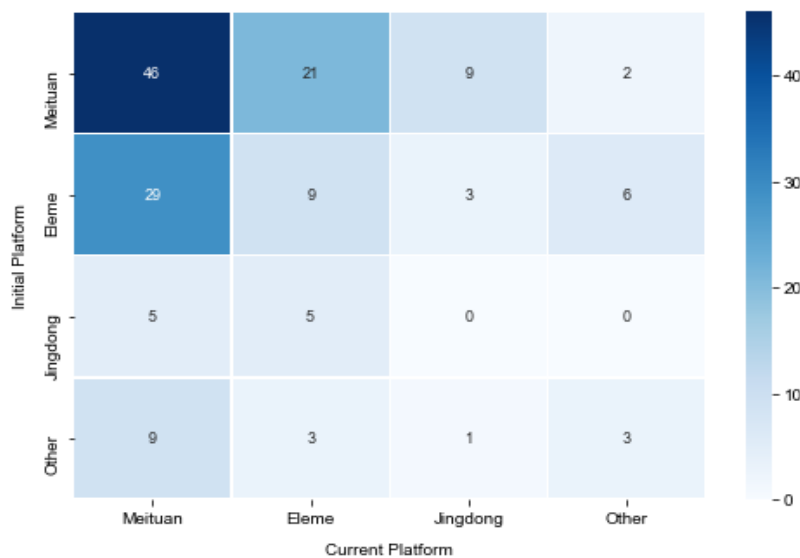


Fig. 4 Platform Migration Patterns (Photo credit: Original)

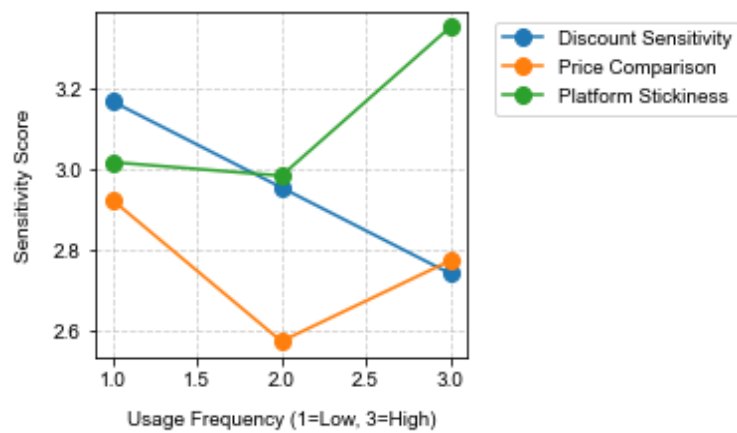


Fig. 5 Price Sensitivity by Usage Frequency (Photo credit: Original)

In this survey, as shown in Table 3, 59.6% of participants were female, and 40.4% were male. Respondents aged 20 and under accounted for the highest proportion, at 35.1%. Office workers constituted the largest occupational group among all respondents, at 34.44%.

As shown in Fig.1 (Key Loyalty Factors), users rated recommendation willingness the highest (3.29), followed by trustworthiness (3.02) and usage habit (3.01), indicating a moderate level of engagement with food delivery platforms.

In terms of demographic distribution, Fig.2 (Age-Occupation Distribution) shows that office workers aged 21–30 and students aged 20 and under make up the largest user groups, highlighting that young professionals and students are the dominant force in food delivery consumption.

Regarding platform preference, Fig.3 (Initial Platform Selection) demonstrates that 51.66% of respondents choose Meituan as their primary food delivery platform, far exceeding other platforms and highlighting its dominant market position. Fig.4 (Platform Migration Patterns) further reveals that a large proportion of users have switched platforms, mainly from Eleme to Meituan, suggesting that subsidy-driven competition significantly influences user loyalty.

As shown in Fig.5 (Price Sensitivity by Usage Frequency), users with higher usage frequency exhibit stronger platform stickiness but lower discount sensitivity, while low-frequency users display the opposite trend. This indicates that frequent users are more loyal to their chosen platform, whereas infrequent users are more responsive to promotional offers.

The survey also shows that 39.74% of users order takeout 1 to 5 times per month, while 30.46% order 6 to 10 times per month. Together, these two groups represent over 70% of users, indicating that takeout has become an integral part of daily life. Additionally, 69.54% of users reported that they had switched to other platforms due to subsidies or promotional activities. Among all respondents, 45.03% selected "occasionally switch," suggesting that most users do not remain stable in their platform choice and exhibit frequent switching behavior.

3. Results Analysis

3.1. Phased Mechanism

The findings indicate that users' multi-homing behavior exhibits a distinct phased evolutionary pattern. In the initial selection stage, users are mainly influenced by brand recognition, interface friendliness, and promotional information. Meituan and Eleme are the most frequently chosen platforms, with initial usage rates of 51.66% and 31.79%, respectively. In the price-induced switching stage, about 69.54% of users reported switching platforms due to subsidies or promotional activities. However, such behavior is largely temporary. Over 60% of users switched only "occasionally" or "once," indicating that price incentives generate short-term rather than long-term effects. In the experience and retention stage, comparative satisfaction with both old and new platforms becomes the key determinant. Evaluations of service quality, delivery efficiency, complaint handling, and interface design are generally above neutral, with mean scores around 3 points. This phased evolutionary mechanism shows that multi-homing is essentially a dynamic decision-making process. It follows the path of "initial selection, price-induced switching, experience adjustment and loyalty/rotation usage." The mechanism proposed in this study offers a new analytical perspective for understanding user behavior on food delivery platforms.

3.2. Platform Performance Differences

Differences in performance across key service dimensions significantly influence user behavior. In terms of interface design, Eleme and JD scored below the benchmark value of 3, reflecting shortcomings in user experience. For complaint handling, both Meituan and Eleme underperformed, with scores below 3, which could lead to user attrition. Average satisfaction with core service indicators—such as delivery speed, courier service, and ordering process—was close to 3. This underscores the importance of service quality in user decision-making. A further comparison shows that Meituan performs slightly better in delivery speed, while Eleme exhibits notable weaknesses in complaint handling. These findings suggest that variations in platform service capabilities directly shape users' multi-homing tendencies and loyalty formation.

4. Suggestions

4.1. Differentiated User Operations

The findings indicate that users' multi-homing behavior exhibits a distinct phased evolutionary pattern. In the initial selection stage, users are mainly influenced by brand recognition, interface friendliness, and promotional information. Meituan and Eleme are the most frequently chosen platforms, with initial usage rates of 51.66% and 31.79%, respectively. In the price-induced switching stage, about 69.54% of users reported switching platforms due to subsidies or promotional activities. However, such behavior is largely temporary. Over 60% of users switched only "occasionally" or "once," indicating that price incentives generate short-term rather than long-term effects. In the experience and retention stage, comparative satisfaction with both old and new platforms becomes the key determinant. Evaluations of service quality, delivery efficiency, complaint handling, and interface design are generally above neutral, with mean scores around 3 points. This phased evolutionary mechanism shows that multi-homing is essentially a dynamic decision-making process. It follows the path of "initial selection, price-induced switching, experience adjustment and loyalty/rotation usage." The mechanism proposed in this study offers a new analytical perspective for understanding user behavior on food delivery platforms.

4.2. Optimization of Platform Weaknesses

Eleme and JD should urgently enhance interface usability and visual design. Meituan and Eleme need to improve their complaint-handling mechanisms to build user trust [12]. All platforms should systematically strengthen delivery speed, service quality, and ordering convenience [6]. The goal is to achieve a balance between price advantages and service quality.

4.3. Pricing and Data-Driven Strategies

Platforms should avoid relying solely on price wars [1,2]. Instead, they can implement tiered discount systems, such as exclusive coupons for loyal users and long-term activity rewards [9]. This links short-term promotions with long-term retention and creates a more sustainable competitive advantage. Platforms are also advised to leverage user behavior data to identify multi-homing patterns [3]. Dynamically allocating resources based on data can enhance user lifetime value. Such a data-driven approach mitigates the short-term risks of price wars and helps establish a stable, enduring user base.

5. Conclusion

This study investigates the phased mechanism of users' multi-homing behavior in the context of price wars on food delivery platforms. The findings reveal that users' multi-homing behavior follows an evolutionary path: "initial selection, price-induced switching, experience adjustment, and loyalty/rotation usage." Price subsidies can stimulate short-term platform switching, but long-term retention depends on multiple factors. These include service quality, delivery efficiency, complaint handling, and interface experience. Significant performance differences among platforms also affect user stability and loyalty. These are especially evident in interface design and service responsiveness. The demographic profile of users (such as the age-occupation distribution shown in Fig.2) suggests that the dominant user groups may exhibit specific consumption patterns, and future research could further investigate the direct impact of user heterogeneity. This study enriches the theoretical analysis of phased multi-homing behavior. It also offers practical guidance for food delivery platforms to transition from indiscriminate price wars to refined user operation strategies. However, the sample size is relatively limited, and respondents are concentrated in certain regions and groups. Future research should expand the sample scope and use longitudinal data or experimental designs. This will help test the robustness of the findings and deepen the understanding of multi-homing behavior in food delivery platforms.

References

- [1] Cheng X R. An overview of the analysis of e-commerce price wars based on game theory. SHS Web of Conferences, 2024, 208. 10.1051/shsconf/202420802010.
- [2] Oliver P Heil, Kristiaan Helsen. Toward an understanding of price wars: Their nature and how they erupt, International Journal of Research in Marketing, 2001, 18(1–2): 83-98.
- [3] European Commission: Directorate-General for Communications Networks, Content and Technology, German Economic Institute, Open Evidence, PPMI, RAND Europe, Barcevičius E, Caturianas D, Leming A, & Skardžiūtė G. Multi-homing: obstacles, opportunities, facilitating factors, analytical paper 7, Publications Office, 2021.
- [4] Keaveney Susan M. Customer Switching Behavior in Service Industries: An Exploratory Study. Journal of Marketing, 1995, 59(2): 71–82.
- [5] Triyuni Ni, Leo Gundur, Suhartanto Dwi. Online Food Delivery Service: The Link Between Food Quality, E-Service Quality, Trust, and Loyalty, Advances in Engineering Research, volume 207, Proceedings of the 2nd International Seminar of Science and Applied Technology, ISSAT 2021, 10.2991/aer.k.211106.108.
- [6] Food delivery service: The effects of perceived quality, ease of use, and perceived value on customer satisfaction. International Journal of Business and Management, 2023, 20(3): 55–68.
- [7] Kwarteng M A, Jibril A B, Botha E, Osakwe C N. The Influence of Price Comparison Websites on Online Switching Behavior: A Consumer Empowerment Perspective. In: Hattingh M, Matthee M, Smuts H, Pappas I, Dwivedi Y, Mäntymäki M. (eds) Responsible Design, Implementation and Use of Information and Communication Technology, 2020, Lecture Notes in Computer Science, vol 12066. Springer, Cham.
- [8] Bravo E R, Farro-Mejía C. Exploring multi-homing behavior: User perceptions of subscribing to multiple streaming platforms. Issues in Information Systems, 2023, 24(3): 232-244.
- [9] Price Promotion Effect on Purchase Behavior Under Time Constraints, SAGE Open, 2025.
- [10] Cronbach L J. Coefficient alpha and the internal structure of tests. Psychometrika, 1951, 16(3): 297–334.
- [11] Field A. Discovering statistics using IBM SPSS Statistics (5th ed.), Sage Publications, 2018.
- [12] Oliver R L. Whence consumer loyalty? Journal of Marketing, 63 (Special Issue), 33–44, 1999.