



Article

Consumer Intentions to Switch On-Demand Food Delivery Platforms: A Perspective from Push-Pull-Mooring Theory

I-Chiu Chang ¹, Win-Ming Shiau ¹, Chih-Yu Lin ¹ and Dong-Her Shih ^{2,*} 

¹ Department of Information Management, National Chung Cheng University, No.168, Sec. 1, University Rd., Minhsiung, Chiayi 621301, Taiwan; misicc@mis.ccu.edu.tw (I.-C.C.); peter.shoau@gmail.com (W.-M.S.); l.chih.yu@gmail.com (C.-Y.L.)

² Department of Information Management, National Yunlin University of Science and Technology, Douliu 64002, Taiwan

* Correspondence: shihdh@yuntech.edu.tw

Abstract: With a burgeoning market and a multitude of on-demand food delivery (OFD) platforms offering diverse options, comprehending the reasons that drive consumers to switch between platforms is paramount. The push-pull-mooring (PPM) theory provides a comprehensive framework for assessing why and how consumers navigate, guiding strategic decisions for service providers seeking to optimize their offerings and retain their customer base. This research employs the PPM theory to rigorously analyze how these elements influence consumers' intentions to switch between OFD platforms in Taiwan. Findings from a comprehensive survey of 441 OFD users reveal that both pull and mooring factors exert a significant influence on consumers' inclination to switch platforms, collectively explaining about 42% of the switching intention. Recognizing these critical factors empowers managers to make judicious decisions aimed at enhancing platform offerings and refining marketing strategies, ultimately fortifying customer retention and bolstering satisfaction levels.

Keywords: push-pull-mooring theory; on-demand food delivery platform; food delivery service; switching intention



Citation: Chang, I.-C.; Shiau, W.-M.; Lin, C.-Y.; Shih, D.-H. Consumer Intentions to Switch On-Demand Food Delivery Platforms: A Perspective from Push-Pull-Mooring Theory. *J. Theor. Appl. Electron. Commer. Res.* **2023**, *18*, 2217–2232. <https://doi.org/10.3390/jtaer18040111>

Academic Editor: Francisco Jose Molina-Castillo

Received: 9 June 2023

Revised: 26 October 2023

Accepted: 29 November 2023

Published: 5 December 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Due to the COVID-19 epidemic, many industries have been affected, and their performance has declined. However, the on-demand food delivery (OFD) industry is an exception. Many countries around the world, including Taiwan, have seen rapid growth in the food delivery market. With the unexpected outbreak of the epidemic in 2020, the “delivery to home service” that can extend to reach consumers has become a must-have option for catering and retailers. The OFD can be roughly divided into two categories: (1) Restaurant-to-Consumer Delivery and (2) Platform-to-Consumer Delivery. Restaurant-to-Consumer Delivery refers to take-out meals from restaurants (e.g., Pizza Hut). Platform-to-Consumer Delivery focuses on delivery services of multiple restaurants. Consumers place orders on an OFD platform, and the platform is responsible for uploading menus from partner restaurants, processing orders, picking up prepared meals, and delivering them to consumers [1]. The global food platform-to-consumer delivery market is expected to register a compound annual growth rate of 11.6% during the period of 2022–2027 [2], and the competition is quite fierce. Retaining and attracting customers become an important issue for the practitioners of this industry. Most of the prior research of OFD focused on adopting various algorithms to enhance efficiency [3–5], devising pricing policies aimed at improving the profits and welfare of the platform [6], altering restaurant and menu option positions [7], or exploring the profiles of young customers [8]. Chan et al. conducted a systematic literature review and identified five future areas, including technologies, behaviors and decisions of the restaurants, risk management, TBL, and post-coronavirus pandemic [9]. However, there is limited relevant research concerning customer switching behavior and loyalty.

Researchers have applied the push-pull-mooring (PPM) theory to examine consumer behavioral transformations, such as the switching of virtual social networks [10], online games [11], and the choice of airlines [12]. Meanwhile, previous research has primarily concentrated on either online or offline settings separately, examining various research factors to achieve distinct objectives. These factors include delivery services [13], service quality, perceived value, and trust [14], as well as delivery services and behavioral intention [15]. Since the consumers in this study faced the integration of online and offline services, from the provision of online ordering services to the delivery service of deliverymen, appropriate factors should be carefully assessed.

The purpose of this study is to investigate consumers' intentions to switch OFD platforms using the PPM theory as a base and including online service quality (OSQ) and offline courier service quality (OCSQ) to strengthen the knowledge of the subject area. The research framework was validated using empirical data collected from Taiwan, where there are more than five diversified OFD platforms for customers to easily switch between. Taiwan's 5G peak download speed ranked top, and the extent of 5G services, considering the size of the market and the nature of its geography, ranked 5th worldwide [16]. Meanwhile, Taiwan's revenue in the OFD segment is expected to show an annual growth rate (compound annual growth rate 2022–2026) of 10.65% [1], which is close to the global rate [2]. The market is growing remarkably. In summary, the research gap lies in the limited exploration of consumer switching behavior and loyalty within the context of OFD. Therefore, this study applies the PPM theory, a comprehensive framework for assessing why and how consumers navigate, to investigate the factors influencing consumers' intentions to switch OFD platforms. The research question is answered by using a survey. The article is structured into the following sections: literature review, conceptual model and hypothesis development, research methodology, results, discussion, conclusion, and limitations.

2. Literature Review

2.1. O2O Online Food Delivery Service

There are two types of food retailers that provide food delivery services. One is the retailer itself. This category mainly includes fast-food chains such as McDonalds, KFC, Pizza Hut, and so on. The other includes multiple restaurant intermediaries that can provide delivery services for various restaurants, such as Foodpanda, UberEats, Deliveroo, and Foodomo using an OFD. In this study, we focus on the second category of delivery service.

Previous research in the realm of Online Food Delivery (OFD) has primarily emphasized the adoption of diverse algorithms to optimize operational efficiency [16–21], crafting pricing policies geared towards enhancing both the platform's profits and users' welfare [22], and strategically altering the positioning of restaurants and menu options [7]. Additionally, specific studies within the OFD domain have offered valuable insights into understanding consumer behavior and the intricate decision-making processes involved. Leung's research on how customers process information to make decisions about digital restaurant deliveries offers a deep understanding of this aspect [17]. Certain research emphasizes the critical role of consumers' mindsets in their engagement with online food delivery services, particularly heightened during the COVID-19 pandemic [18,20,23]. Additionally, studies have shed light on crucial factors influencing consumers' usage of online food delivery, encompassing convenience, affordability [19,20], system design [21], food quality, and variety of choices [23].

However, a notable research gap exists in these studies, specifically the lack of a vital component of the online food delivery system, which is the actual delivery of food to the consumers. The deficiency in focusing specifically on the aspects related to physical offline side delivery, is also pointed out as one of the future research directions as businesses interact and transform between online (virtual) and offline (virtual) food [22]. Therefore, addressing the identified research gap is crucial.

2.2. Consumer Switching Behavior of Online Services/Products

Similar to studies investigating customers' switching behavior in physical stores, various studies have tried to define online switching behavior. Liao et al. examined 371 university-level programming and information technology students who used Google Plus, exploring important factors like Social Interaction, Service Quality, Switching Costs, Attractiveness of new services, Social Effect, and Enjoyment, aiming to understand the students' Switching Intention [24]. Liang et al. analyzed 395 Airbnb consumers, studying Transaction-Based Satisfaction, Experience-Based Satisfaction, Trust in Company and Host, alongside Switching and Repurchase Intentions [25]. Similarly, other researchers investigated factors affecting consumers, such as Service Quality and Product Quality, Perceived Value and Habit, and Brand Loyalty and Switching Intentions. Liu focused on online traders in Taiwan, analyzing E-Service Quality, Satisfaction, and Switching Intentions [26]. Lastly, Zhang et al. investigated Hong Kong bloggers to understand factors like Satisfaction, Attractive Alternatives, Sunk Costs, and Intention to Switch [27].

The critical variables examined in prior studies on consumer switching behavior can be categorized into three main groups. The first group processes underlying customer switching decisions. This pertains to the steps and considerations consumers go through before deciding to switch from one product or service to another. The second group involves heterogeneous characteristics of switchers and continuers. This focuses on understanding the diverse traits and features that distinguish individuals who switch from those who remain with their current choices. The third group constitutes factors driving consumers to switch. This involves identifying the factors that compel consumers to switch. The existing research on consumer switching behavior often lacks a systematic exploration of a solid theoretical foundation. Since the push-pull-mooring (PPM) theory provide a comprehensive framework for assessing why and how consumers navigate and guiding strategic decisions for service providers seeking to optimize their offerings and retain their customer base, this study adopts the push-pull-mooring (PPM) theory to provide the theoretical base of the research framework.

2.3. PPM Theory

PPM theory describes that individuals' migration from one place to another at a specific time is affected by three factors, including pull, push, and mooring factors. Pull factors are positive effects attracting individuals toward a destination, while push factors are the negative influences that force individuals to leave their origin. Pull factors are the attractive aspects of an alternative or a new behavior that entice the consumer to consider making a change. In the context of prior research, a new social network with better features, an enhanced user interface, or improved customer service acts as a pull factor for users to switch from their current network. Push factors, on the other hand, refer to the internal or external stimuli that motivate a consumer to leave their current state or adopt a new behavior. In the context of prior research, push factors could be dissatisfaction with the current virtual social network, online game, or airline. This dissatisfaction may stem from various issues, such as poor user experience, lack of desired features, or unsatisfactory service quality. The mooring dimension in migration theory might hinder or facilitate a migratory decision. Mooring factors are elements that act as stabilizing forces, making it harder for consumers to switch or change their behavior. In this integrated online-offline scenario, mooring factors could be the familiarity and convenience of the current online platform. In addition, mooring factors can exert either positive or negative effects that moderate pull and push factors. Previous research has demonstrated the validity of PPM theory across a wide range of migration [10]. Since switching to other OFD platforms can also be regarded as migration, this study establishes a research framework based on the theory.

Understanding the dynamics through the lens of PPM theory aids in navigating and predicting consumer decisions. This study summarizes important variable of research applying PPM to online services/products in Table 1.

Table 1. Review of related constructs of PPM to online services/products.

Author	Research Context	Push Factor	Pull Factor	Mooring Factor
[28]	AR/VR Content Services	Low Usefulness, Functional Simplicity, Perceived Inefficiency	Interactivity, Experience ability, Amplified Enjoyment	Personal Innovativeness
[29]	Switching Behaviors in Mobile Payment Applications	Privacy Concern	Monetary Re-wards of Alternatives	Perceived Eco-nomic Value, Past Investments, Tech-nical Self-efficacy
[30]	Subscription-Based Online Music Service	Inconvenience, Low Utilitarian Value	Alternative At-tractiveness, Word of Mouth, Trust	Sunk Cost, In-ertia
[24]	Social Network-Based Learning Platforms	Social Interaction, Service Quality	Attractiveness of New Services, Social Effect	Switching Costs, Prior Switch-ing Experience

Among them, service quality and subjective norms are related in the content of OFD. In the service industry, service quality (SQ) is a critical issue for service providers. It reflects the company's positioning and performance in the marketplace [31]. Perceived value (PV) is the aggregate value perception of consumers who collectively judge the efficiency value, purchase value, quality value, and other intrinsic and extrinsic values of a service or product [32]. Both SQ and PV would affect customers' satisfaction, a vital element that can increase customer loyalty [32,33], studied and identified as a significant element in the service industry. In addition, the existence of comparable alternatives provides users with more choices, and thus, the attractiveness of alternatives may constitute a barrier to repeat purchases [34,35]. Subjective norms are a person's point of view that most people important to him/her believe that he/she should or should not act [36]. Subjective norms influence an individual's adoption of online shopping [37] or switching behavior [38], which play an important role when consumers face different services or technologies.

Meanwhile, previous research has primarily concentrated on either online or offline settings separately, examining various research factors to achieve distinct objectives. Since the consumers in this study faced the integration of online and offline services, from the provision of online ordering services to the delivery service of deliverymen, appropriate factors should be carefully assessed.

Due to market competition, we believe that the PPM can also explain consumers' intentions to switch from the original OFD service provider to competitors. Therefore, we have established a research model based on the PPM. Specifically, push factors are related to the satisfaction, PV, and SQ of the original OFD service providers, while pull factors are associated with the attractiveness of alternative choices. Mooring factors include social variables that may moderate consumers' switching decisions.

3. Conceptual Model and Hypotheses Development

As mentioned, previous research in OFD primarily emphasized customer retention factors rather than delving into their switching behavior and loyalty. The PPM theory proves effective in understanding consumer behavioral shifts. In this study, consumers navigated the integration of both online and offline services, encompassing online ordering and delivery services by drivers. It is crucial to carefully evaluate and integrate pertinent factors from both the online and offline domains. We construct a research framework in the context of OFD platforms. Customers' satisfaction, PV, and SQ are considered push factors,

pull factors are associated with the attractiveness of alternative choices, and subjective norms are employed as mooring factors. Figure 1 illustrates the framework.

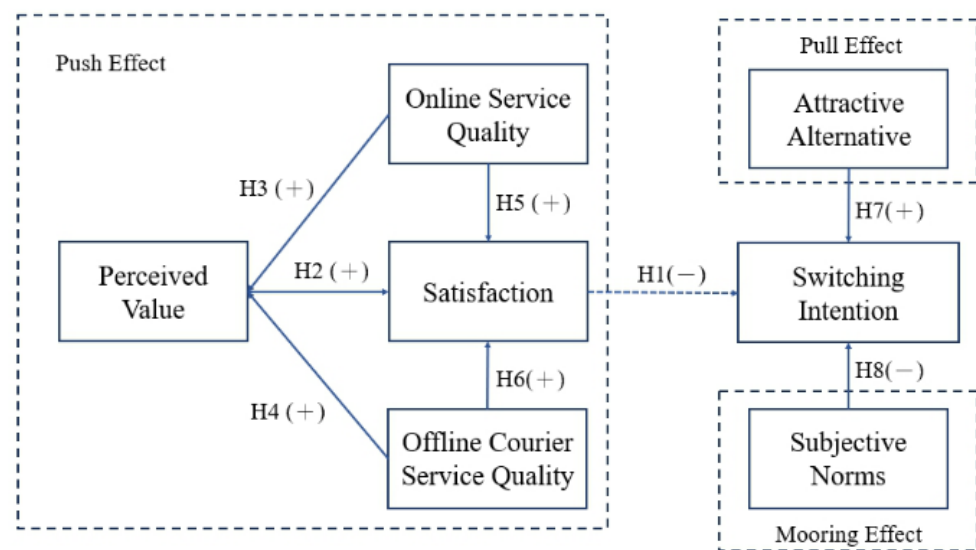


Figure 1. The research framework.

The framework asserts that switching intention is a function of satisfaction, attractive alternatives, and subjective norms. Switching intention is the extent to which a consumer would like to switch from the currently used OFD platform to available alternatives. Satisfaction is defined as the level of personal satisfaction with the currently used OFD platform. The variables of OSQ, PV, and OCSQ are hypothesized as being directly related to satisfaction. OSQ is described as the quality of online service a customer perceives while operating the currently used OFD platform. PV denotes the perceived value of consumers received from both OSQ and OCSQ. Additionally, OCSQ is defined as the quality of offline courier service a customer feels is received from the currently used OFD platform. We also propose that OSQ and OCSQ directly affect PV.

The associated hypotheses of the research framework are as follows.

Hypothesis 1 (H1). *Customer satisfaction with the currently used OFD platform is negatively associated with their switching intentions to other OFD platforms.*

Consumers who have unsatisfactory consumption have the propensity to switch away from the incumbent provider of services or products [39]. Migration researchers have also postulated that satisfaction/dissatisfaction has a push effect on individuals' migration decisions [39,40]. This hypothesis suggests that consumer dissatisfaction with their current consumption may act as a push factor, motivating them to switch to an alternative provider. Therefore, we propose a negative relationship between satisfaction and switching intention in the research model.

Hypothesis 2 (H2). *Customer PV with the currently used OFD platform positively influences their satisfaction with the platform.*

Customers will probably be more satisfied and have more intention to repurchase from the same provider if they believe that the benefits derived from a product or service are greater than its sacrifices/costs [41]. Kim et al. [28] found that PV positively influences customer satisfaction, which, in turn, leads to continuous intention. Yang et al. proved that Perceived Value has a positive impact on use intention [11]. Therefore, we propose that perceived value influences customer satisfaction and repurchase intentions.

Hypothesis 3 (H3). *Customers' perceived OSQ with the currently used OFD platform positively influences their PV with the platform.*

Hypothesis 4 (H4). *Customers' perceived OCSQ with the currently used OFD platform positively influences their PV with the platform.*

Hypothesis 5 (H5). *Customers' perceived OSQ with the currently used OFD platform positively influences their satisfaction with the platform.*

Hypothesis 6 (H6). *Customers' perceived OCSQ with the currently used OFD platform positively influences their satisfaction with the platform.*

Delivering high quality is not only considered a tool to attain satisfaction, but it also creates value for customers. Prior studies have demonstrated that Service Quality (SQ) positively influences Perceived Value (PV) and satisfaction [41]. Valaei et al. have demonstrated that courier service quality (CSQ) positively influences customer PV and satisfaction [42]. In this study, the perspective of CSQ as Offline courier quality (OCSQ) is adopted. Therefore, this study assumes that OSQ and OCSQ have significant impacts on both customer satisfaction and perceived value in the OFD context.

Hypothesis 7 (H7). *Customers' perceived attractive alternative is positively related to their switching intentions to other OFD platforms.*

Liao et al. found a strong positive relationship between the attractiveness of new services and user switching intention [24]. Consumers would turn to more reliable, attractive, or higher-quality services, which was empirically proved by prior studies [24]. Therefore, we propose that if a consumer discovers attractive alternative online food delivery services, then he/she will likely be pulled and shall try the new online food delivery services to better fulfill their needs.

Hypothesis 8 (H8). *Customers' perceived subjective norms are positively related to their switching intention to other OFD platforms.*

Various research regards subjective norms as the under pressure from society requesting or unwilling to carry out a certain activity [36]. Subjective norms affect people's behavioral intentions in many different contexts [37]. This hypothesis suggests that subjective norms, representing the influence of social opinions and norms, impact individuals' behavioral intentions. Therefore, we propose that subjective norms act as mooring factors in the research model.

These hypotheses collectively form a framework for understanding consumer behavior, encompassing factors like dissatisfaction, perceived value, service quality, and subjective norms that influence the propensity to switch services or products. The hypotheses are grounded in previous research, aiming to provide valuable insights into consumer decision-making processes.

Partial least square (PLS) is a powerful analytical method due to the minimum requirements for sample size, measurement scales, and residual distributions. PLS can be used for theoretical confirmation. This study employed PLS to test the validity of the research framework and proposed hypotheses.

4. Research Methodology

4.1. Measurement

The questionnaire instrument was adopted from related literature with slight modifications to fit the OFD scenario. Table 2 lists the sources of scale items. An expert panel, consisting of three scholars in the field of management information systems and three managers with years of experience in the OFD industry, validated the research framework,

instrument, and wording of each item. Finally, forty-six items were included in the questionnaire. Each item was measured on a five-point Likert scale, ranging from 1 to 5 (degree of agreement; the higher the score, the higher the level of agreement). The list of the items is displayed in Appendix A. An online survey was conducted.

Table 2. Sources of scale items.

Factors	Number of Items	Sources
Satisfaction	5	Liang et al. [25]
PV	7	Lee & Overby [43]
OSQ	12	Lee & Lin [30]
OCSQ	11	Valaei et al. [42]
Attractive alternative	5	Cheng et al. [27]
Subjective norms, switching Intention	6	Alotaibi [44]

4.2. Data Collection

Empirical data were collected through a field survey of OFD platform customers. Invitations describing the purpose of the study and incentives for participating in the survey were placed on large social media such as Facebook and Line apps. Subjects were self-selected by placing messages on a website. The research questionnaire was sent to people using OFD platforms via Facebook or Line. The survey yielded 441 usable responses. About 57.14% of the respondents were male, and 42.86% were female; 34.92% were below 30 years old and 36.51% were between 31–39 years old. The sample distribution of this study is consistent with the profiles of delivery service application users in Taiwan [45]. Table 3 summarizes the profiles of the respondents.

Table 3. Profile of respondents.

Items	Categories	All (N = 441)	
		Frequency	Percentage
Gender	Male	252	57.14
	Female	189	42.86
Age	20–29 years old	154	34.92
	30–39 years old	161	36.51
	40–49 years old	107	24.26
	50–59 years old	12	2.72
	60 and above Years Old	7	1.59

Table 3. *Cont.*

Items	Categories	All (N = 441)	
		Frequency	Percentage
Living Area	Taipei, New Taipei, Keelung, Yilan	138	31.29
	Taoyuan, Hsinchu, Miaoli	78	17.69
	Taichung, Changhua, Nantou	88	19.95
	Yunlin, Chiayi, Tainan	85	19.27
	Kaohsiung, Pingtung	40	9.07
	Hualien, Taitung	12	2.72
Average monthly income	No income	38	8.62
	Under NTD 20,000	50	11.34
	NTD 20,001–40,000	159	36.05
	NTD 40,001–70,000	143	32.43
	NTD 70,001–100,000	38	8.62
	1,000,001 and above	13	2.95
Education	High school or below	34	7.71
	College or university	309	70.07
	Graduate school or above	98	22.22
Occupation	Student	68	15.42
	Medical	54	12.24
	Information and communication technology service	100	22.68
	Finance, insurance, real estate and industrial and commercial service	65	14.74
	Education, public administration, social service and individual service	39	8.84
	Manufacturing	36	8.16
	Unemployed and Housekeeper	28	6.35

Based on the collected 441 responses, the most popular OFD platform is Foodpanda (57.37%), followed by UberEats (36.73%). Most of the respondents are frequent users (52.15%) and own more than two delivery platforms (63.04%). The experiences of the respondents are summarized in Table 4.

Table 4. Experiences of the respondents.

Items	All (N = 441)	
	Frequency	Percentage
Have you ever used OFD platforms?		
Frequent use (on average 3–5 times a week, or more)	230	52.15
Occasional use (on average 1–2 times a week)	129	29.25
Used rarely (on average 1–3 times a month, or longer)	82	18.59
Which one is your most frequently used OFD platform?		

Table 4. *Cont.*

Items	All (N = 441)	
	Frequency	Percentage
FoodPanda	253	57.37
UberEats	162	36.73
LINE SPOT	9	2.04
Deliveroo	4	0.91
Foodomo	10	2.27
Yowoo	3	0.68
Have you ever used more than two OFD platforms?		
More than 2 delivery platforms	278	63.04
Just only one	163	36.96
Reasons for using OFD platforms (Multiple choice).		
Time saving	319	72.01
Convenience	413	93.23
Inexpensive price	26	5.87
More food choices	151	34.09
More discounts (ex: free shipping)	260	58.96
COVID-19	63	14.22
Average monthly meal expenses spent on OFD platforms.		
1000 and below	142	32.20
NTD 1001–2000	148	33.56
NTD 2001–3000	96	21.77
NTD 3001–4000	33	7.48
4001 and above	22	4.99

5. Results

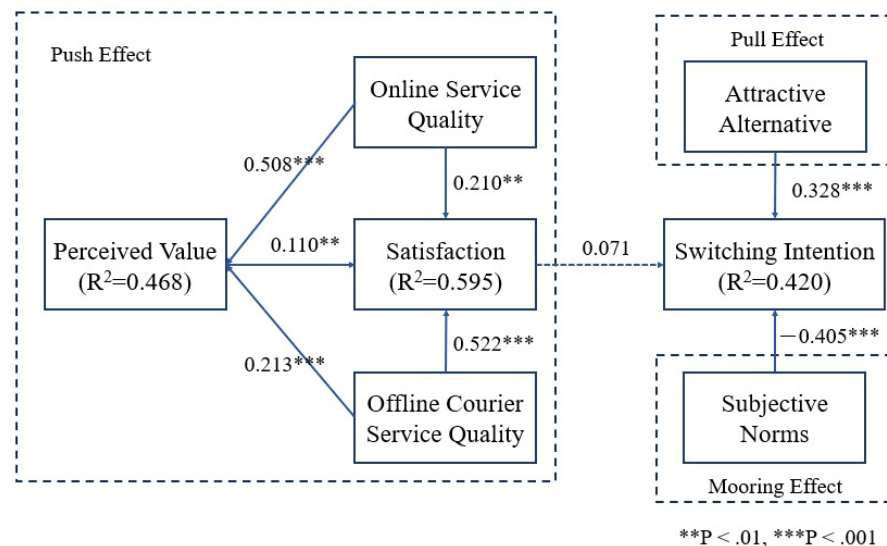
The construct reliability of the developed scale in this study was evaluated using composite reliability (CR) and Cronbach's alpha. In this study, CR values for the latent factors ranged from 0.790 to 0.944. Consistent with the suggestions of Hair et al. [46], all values of CR exceeded the threshold value of 0.7. Additionally, the values of Cronbach's α for factors are greater than 0.7, except for subjective norms (0.619) and switching intention (0.674). Although the values are less than 0.7, they are acceptable. Convergent validity was assessed by factor loadings and average variance extracted (AVE). The factor loadings ranged from 0.557 to 0.922, and most of them exceed 0.7. The AVE for each construct exceeds 0.5, indicating adequate convergent validity. Discriminant validity meets the requirements of Fornell and Larcker [47], in that the shared variance among variables was less than the variances extracted by the constructs and the values on the diagonals. This shows that constructs are distinct. Thus, the measurement model is satisfactory. The details of validation are shown in Table 5.

Table 5. Assessing the measurement model.

Constructs	CR (>0.7)	AVE (>0.5)	Constructs						
			PV	OSQ	OCSQ	SAT	AA	SN	SI
PV	0.897	0.559	0.748						
OSQ	0.944	0.587	0.668	0.766					
OCSQ	0.940	0.588	0.597	0.760	0.767				
SAT	0.895	0.630	0.561	0.677	0.747	0.794			
AA	0.937	0.748	0.348	0.366	0.262	0.279	0.865		
SN	0.790	0.563	0.557	0.675	0.700	0.699	0.339	0.750	
SI	0.822	0.612	0.584	0.712	0.482	0.453	0.454	0.574	0.782
Cronbach's Alpha			0.863	0.935	0.929	0.856	0.915	0.619	0.674

Off-diagonal elements represent the correlation between constructs. Diagonal elements (in bold) represent the square root of the AVE. PV = Perceived Value; OSQ = Online Service Quality; OCSQ = Offline Courier Service Quality; SAT = Satisfaction; AA = Attractive Alternative; SN = Subjective Norms; SI= Switching Intention.

The results of structural modeling analysis show that the hypothesized paths from attractive alternative and subjective norms are significant in predicting switching intention. Hypotheses 7 and 8 are supported. However, satisfaction has no effect on switching intention. Thus, Hypothesis 1 is not supported. PV, OSQ, and OCSQ were significant and have positive effects on satisfaction, which support Hypotheses 2, 5, and 6. The path from OSQ and OCSQ explains 46.8% of the observed variance in PV. Therefore, Hypotheses 3 and 4 were supported. Finally, the overall explanatory power of this evaluation model is 42.0%. The results of the structural model with the standardized path coefficients between constructs are shown in Figure 2. In addition, the dotted line represents a non-significant path.

**Figure 2.** Results of structural modeling analysis.

A table that presents a summary of all hypotheses testing is shown in Table 6.

Table 6. Results of hypotheses testing.

No.	Path Coefficients	SD	T-Value	Significant
H1	0.071	0.053	1.332	Rejected
H2	0.110	0.042	2.600	Accepted
H3	0.508	0.053	9.584	Accepted
H4	0.213	0.056	3.837	Accepted
H5	0.210	0.071	2.984	Accepted
H6	0.522	0.067	7.906	Accepted
H7	0.328	0.048	7.069	Accepted
H8	-0.405	0.051	8.100	Accepted

6. Discussion

The results revealed that attractive alternative and subjective norms significantly and directly affected the intention to switch from the currently used OFD platform to another. Sozer [48] found that intensive advertising through different social media will increase customers' willingness to switch to different brands. Therefore, the continuous broadcast of advertisements of rival OFD platforms by the media will impress consumers. The finding that subjective norms significantly and negatively affected the intention to switch from the currently used OFD platform was contradictory to prior studies. The impact of subjective norms on intention may vary depending on situational conditions. Therefore, subjective norms were found to be insignificant. In this study, more than half of the subjects are well-educated with decent jobs, are frequent users of OFD platforms, and own at least two OFD platforms for time-saving and convenience purposes. For them, downloading an application (app) is just a matter of a finger. Therefore, these consumers can easily receive promotional advertisements sent directly by the OFD platform through an app or e-mail; in addition, consumers can also obtain information through keyword searches. Their information literacy makes them less likely to rely on subjective normative opinions than users in prior studies.

Notably, the results of this study indicate that satisfaction has no effects on consumer retention or switching to other OFD platforms, which is contradictory to prior studies. In other words, consumers are satisfied with the platform they are using with an average score of 3.89, but they are neutral about switching to other platforms. The possible reasons are that the push effects of the OFD platform, including SQ and PV, are deemed as basic quality. Satisfaction with the basic qualities is important but has no significant influence on customers' switching intentions. In other words, if consumers are satisfied with the expected quality of the currently used OFD platform, they may still want to switch if the surprising qualities of other OFD platforms attract them. The results show that OSQ, PV, and OCSQ are important for satisfaction, confirming the results of prior studies. Among them, OCSQ has a more significant effect on consumer satisfaction than that of OSQ and PV. The quality of service provided by couriers has an impact on consumer satisfaction, especially whether the delivery is on time or not, because there is a link between hunger and anger.

7. Conclusions and Limitations

The PPM theory offers a robust framework for understanding why and how consumers make choices. Specifically, the study investigates how the PPM theory factors affect consumers' intentions to switch between OFD platforms and aids service providers in making strategic decisions to improve their offerings and retain customers. The study involved a survey of 441 OFD users and found that both "pull" factors and "mooring" factors significantly impact consumers' inclination to switch platforms. Collectively, these

factors explained approximately 42% of the intention to switch. The contribution of this study can be categorized into two main aspects: theoretical and practical.

7.1. Theoretical Contribution

The widespread PPM was used to identify the three constructs that influence customers' switching behavior intentions. Since the services provided by OFD platforms are different from those of non-OFD E-commerce websites or platforms, both online and offline factors were considered to fit the circumstances. The results proved that PPM can explain customers' intentions to switch to other OFD platforms, extending the known knowledge of PPM to the O2O area.

7.2. Practical Contribution

Both pull and mooring constructs had significant effects on switching intention, while the push effects were insignificant. A notable finding is that push effects have become a must under the fierce competition of the OFD industry. Therefore, OFD platform owners need to carefully assure the expected qualities, both online quality (easy to complete, error-free, secure, trustworthy) and offline quality (on-time delivery and good handling without damage or loss). In other words, high push effects are inevitable, while low push effects would lead to a loss of market shares. Significant pull effects are a survival tool in the fierce OFD market. Hence, OFD platform owners need to pay close attention to the rivalries' strategies to keep up with the attractiveness of competitors and maintain existing customers. Finally, due to the characteristics of our participants, subjective norms have significant but negative effects on their intention to switch to other OFD platforms. Therefore, OFD platform owners need to segment their customers and provide appropriate promotions; for example, direct promotion instead of going rival may be suitable for the sample of this study.

7.3. Limitations and Future Study

Applying the findings of this study should be done with caution. For example, there is a lack of respondents under the age of 20. Using the study results to interpret consumers' switching intentions under 20 may be biased. Secondly, this study is conducted in Taiwan, and the findings may apply to countries similar to Taiwan. Finally, all the factors were adopted from related references. This study suggests that future researchers may explore other important factors to further understand the switching behavior intentions of OFD platform consumers.

Since the study results show that only "pull" and "mooring" factors significantly impact consumers' inclination to switch platforms, this suggests that the variables in the "push" factors may serve as the expected quality that would improve customer satisfaction. However, the impact of customer satisfaction on switching behavior might not be as significant as previously assumed. Therefore, in the future, it could be worthwhile to explore and invest in surprising or unexpected qualities or features to enhance the "push" factors. These unexpected qualities could be key in preventing platform switching and promoting customer loyalty, even in the face of strong "pull" and "mooring" factors.

Author Contributions: Conceptualization, I.-C.C. and C.-Y.L.; data curation, W.-M.S.; formal analysis, W.-M.S.; funding acquisition, D.-H.S.; investigation, C.-Y.L.; methodology, I.-C.C. and W.-M.S.; resources, C.-Y.L. and D.-H.S.; software, W.-M.S.; supervision, I.-C.C.; validation, I.-C.C. and D.-H.S.; writing—original draft, C.-Y.L.; writing—review and editing, D.-H.S. All authors have read and agreed to the published version of the manuscript.

Funding: This work was partially supported by the National Science and Technology Council (grants MOST 111-2410-H-224-006). The funder had no role in study design, data collection, analysis, decision to publish, or preparation of the manuscript.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data is unavailable due to privacy or ethical restrictions.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Please circle a score from a scale of 1 to 5 (degree of agreement; the higher the score, the higher the level of agreement) below, which most closely corresponds with how you perceive switching to an on-demand food delivery (OFD) platform.

(a) Perceived value:

- (P1) Overall, I'm happy with the price of meals provided by [name of the currently used OFD platform].
- (P2) The meals and services I purchased from [name of the currently used OFD platform] have a high cost-performance ratio.
- (P3) Purchasing meals through [name of the currently used OFD platform] makes it easier to eat.
- (P4) It saves my time when I buy meals from [name of the currently used OFD platform].
- (P5) I can get excellent service from [name of the currently used OFD platform].
- (P6) [Name of the currently used OFD platform] offers a wide variety of meals and services to meet my needs.
- (P7) Purchasing meals from [name of the currently used OFD platform] helps me forget about the bad day.

(b) Online service quality (OSQ)

- (O1) [Name of the currently used OFD platform] provides good meals for me to choose from.
- (O2) The user interface of [name of the currently used OFD platform] is very attractive to me.
- (O3) The user interface of [name of the currently used OFD platform] is clear to me at a glance.
- (O4) For me, ordering at [name of the currently used OFD platform], the process of completing the transaction is fast and easy.
- (O5) [Name of the currently used OFD platform] demonstrates sincerity in solving customers' problems.
- (O6) In my trading experience with [name of the currently used OFD platform], no errors have occurred.
- (O7) Using [name of the currently used OFD platform], my personal-related information has sufficient security.
- (O8) I think [name of the currently used OFD platform] provides prompt service.
- (O9) I believe [name of the currently used OFD platform] is always willing to assist customers.
- (O10) I believe that [name of the currently used OFD platform] is trustworthy.
- (O11) [Name of the currently used OFD platform] will recommend meals to me according to my preferences.
- (O12) My overall rating for the online service provided by [name of the currently used OFD platform] is good.

(c) Offline courier service quality (OCSQ)

- (C1) The deliverymen of [name of the currently used OFD platform] can always deliver meals to me very quickly.
- (C2) The deliverymen of [name of the currently used OFD platform] can quickly respond to customer requests through the Internet or by phone.
- (C3) The deliverymen of [name of the currently used OFD platform] can deliver meals to me on time.

- (C4) The deliverymen of [name of the currently used OFD platform] will handle it well according to the characteristics of the meal to ensure the safety of my order.
- (C5) The deliverymen of [name of the currently used OFD platform] provide good meal protection measures so that I can get a good meal.
- (C6) The food delivered to me by the deliverymen of [name of the currently used OFD platform] was not damaged.
- (C7) When I need to know the location of the deliverymen of [name of the currently used OFD platform] who delivered my meal, it is very easy to track them through the Internet or by phone.
- (C8) I think the deliverymen of [name of the currently used OFD platform] have good equipment to provide service.
- (C9) I think the deliverymen of [name of the currently used OFD platform] have a good image.
- (C10) I rate the deliverymen of [name of the currently used OFD platform] higher than I expected.
- (C11) The overall service quality of the deliverymen of [name of the currently used OFD platform] is good.
- (d) Satisfaction
 - (S1) I am satisfied with the recent transaction process of [name of the currently used OFD platform].
 - (S2) I am satisfied with the information provided by [name of the currently used OFD platform].
 - (S3) I am satisfied with the operation of [name of the currently used OFD platform].
 - (S4) I am satisfied with the experience of using [name of the currently used OFD platform].
 - (S5) My experience with purchasing meals using [name of the currently used OFD platform] has been pleasant.
- (e) Attractive alternative
 - (A1) I have found that other OFD platforms can better meet my dietary needs than [name of the currently used OFD platform].
 - (A2) I have found other OFD platforms operate more attractively than [name of the currently used OFD platform].
 - (A3) I have found the delivery services of other OFD platforms more attractive than [name of the currently used OFD platform].
 - (A4) I have found the deals and promotions on other OFD platforms more attractive than [name of the currently used OFD platform].
 - (A5) Overall, I have found other OFD platforms more attractive than [name of the currently used OFD platform].
- (f) Subjective norms
 - (N1) People who influence my behavior (friends, colleagues, etc.) think that I should use other OFD platforms.
 - (N2) People who influence my behavior (friends, colleagues, etc.) think I should switch from [name of the currently used OFD platform] to other OFD platforms.
 - (N3) People who influence my behavior (friends, colleagues, etc.) expect me to switch from [name of the currently used OFD platform] to other OFD platforms.
- (g) Switching intention
 - (I1) I am going to use another OFD platform frequently shortly.
 - (I2) I plan to devote my time and energy to another OFD platform.
 - (I3) I intend to reduce the use of [name of the currently used OFD platform].

References

1. Statista, Online Food Delivery—Taiwan. 2022. Available online: <https://www.statista.com/outlook/dmo/eservices/online-food-delivery/taiwan> (accessed on 1 March 2022).
2. Mordor Intelligence, Global Food Platform-to-Consumer Delivery Market—Growth, Trends, COVID-19 Impact, and Forecasts (2022–2027). 2022. Available online: <https://www.mordorintelligence.com/industry-reports/global-food-platform-to-consumer-delivery-market> (accessed on 15 July 2022).
3. Chen, J.-F.; Wang, L.; Wang, S.; Wang, X.; Ren, H. An effective matching algorithm with adaptive tie-breaking strategy for online food delivery problem. *Complex Intell. Syst.* **2022**, *8*, 107–128. [\[CrossRef\]](#)
4. Jazaeri, S.S.; Asghari, P.; Jabbehdari, S.; Javadi, H.H.S. Composition of caching and classification in edge computing based on quality optimization for SDN-based IoT healthcare solutions. *J. Supercomput.* **2023**, *79*, 17619–17669. [\[CrossRef\]](#) [\[PubMed\]](#)
5. Zheng, J.; Wang, L.; Wang, S.; Chen, J.-F.; Wang, X.; Duan, H.; Liang, Y.; Ding, X. Modeling stochastic service time for complex on-demand food delivery. *Complex Intell. Syst.* **2022**, *8*, 4939–4953. [\[CrossRef\]](#)
6. Chen, D.; Zhou, Y.; Guan, X.; Lin, X. Transaction or Membership? Impact on On-Demand Delivery Service Platforms' Profits, Consumer Surplus, and Labor Welfare. *J. Syst. Sci. Syst. Eng.* **2022**, *31*, 563–593. [\[CrossRef\]](#)
7. Bianchi, F.; Luick, M.; Bandy, L.; Bone, J.; Kelly, S.; Farrington, J.; Leung, J.; Mottershow, A.; Murar, F.; Jebb, S.A.; et al. The impact of altering restaurant and menu option position on food selected from an experimental food delivery platform: A randomised controlled trial. *Int. J. Behav. Nutr. Phys. Act.* **2023**, *20*, 60. [\[CrossRef\]](#) [\[PubMed\]](#)
8. Buettner, S.A.; Pasch, K.E.; Poulos, N.S. Factors Associated with Food Delivery App use among Young Adults Poulos. *J. Community Health* **2023**, *48*, 840–846. [\[CrossRef\]](#) [\[PubMed\]](#)
9. Chan, H.-L.; Cheung, T.-T.; Choi, T.-M.; Sheu, J.-B. Sustainable successes in third-party food delivery operations in the digital platform era. *Ann. Oper. Res.* **2023**, 1–37. [\[CrossRef\]](#)
10. Chang, I.C.; Liu, C.C.; Chen, K. The push, pull and mooring effects in virtual migration for social networking sites. *Inform. Syst. J.* **2014**, *24*, 323–346. [\[CrossRef\]](#)
11. Yang, Y.; Gong, Y.; Land, L.P.W.; Chesney, T. Understanding the effects of physical experience and information integration on consumer use of online to offline commerce. *Int. J. Inf. Manag.* **2019**, *51*, 102046. [\[CrossRef\]](#)
12. Lara-Rubio, J.; Villarejo-Ramos, A.F.; Liébana-Cabanillas, F. Explanatory and predictive model of the adoption of P2P payment systems. *Behav. Inf. Technol.* **2021**, *40*, 528–541. [\[CrossRef\]](#)
13. Su, D.N.; Nguyen-Phuoc, D.Q.; Duong, T.H.; Dinh, M.T.T.; Luu, T.T.; Johnson, L. How does quality of mobile food delivery services influence customer loyalty? Gronroos's service quality perspective. *Int. J. Contemp. Hosp. Manag.* **2022**, *34*, 4178–4205. [\[CrossRef\]](#)
14. Uzir MU, H.; Al Halbusi, H.; Thurasamy, R.; Hock RL, T.; Aljaberi, M.A.; Hasan, N.; Hamid, M. The effects of service quality, perceived value and trust in home delivery service personnel on customer satisfaction: Evidence from a developing country. *J. Retail. Consum. Serv.* **2021**, *63*, 10271. [\[CrossRef\]](#)
15. Troise, C.; O'Driscoll, A.; Tani, M.; Prisco, A. Online food delivery services and behavioural intention—A test of an integrated TAM and TPB framework. *Br. Food J.* **2021**, *123*, 664–683. [\[CrossRef\]](#)
16. Fogg, I. Benchmarking the Global 5G Experience—June 2022. 2022. Available online: <https://www.opensignal.com/2022/06/22/benchmarking-the-global-5g-experience-june-2022> (accessed on 1 July 2022).
17. Leung, X.Y.; Cai, R. How pandemic severity moderates digital food ordering risks during COVID-19: An application of prospect theory and risk perception framework. *J. Hosp. Tour. Manag.* **2021**, *47*, 497–505. [\[CrossRef\]](#)
18. Cai, R.; Leung, X. Mindset matters in purchasing online food deliveries during the pandemic: The application of construal level and regulatory focus theories. *Int. J. Hosp. Manag.* **2020**, *91*, 102677. [\[CrossRef\]](#)
19. Sharma, S. A study on the online food delivery services market in Chandigarh from a customer perspective. *Int. J. Prof. Bus. Rev.* **2023**, *8*, 35.
20. Jun, K.; Yoon, B.; Lee, S.; Lee, D. Factors Influencing Customer Decisions to Use Online Food Delivery Service during the COVID-19 Pandemic. *Foods* **2022**, *11*, 64. [\[CrossRef\]](#)
21. Tambe, A.; Chauhan, D.; Hardik, J. Examining Services Gaps and Competitive Analysis of Online Food Ordering Apps. *IJRASET* **2022**, *10*, 447–451. [\[CrossRef\]](#)
22. Liu, C.; Lin, C. Online Food Shopping: A Conceptual Analysis for Research Propositions. *Front. Psychol.* **2020**, *11*, 583768. [\[CrossRef\]](#)
23. Huang, S.-L.; Siao, H.-R. Factors Affecting the Implementation of Online Food Delivery and Its Impact on Restaurant Performance during the COVID-19 Pandemic. *Sustainability* **2023**, *15*, 12147. [\[CrossRef\]](#)
24. Liao, W.; Huang, Y.M.; Huang, S.H.; Chen, H.C.; Wei, C.W. Exploring the switching intention of learners on social network-based learning platforms: A perspective of the push–pull–mooring model, EURASIA Journal of Mathematics. *Sci. Technol. Educ.* **2019**, *15*, em1747.
25. Liang, L.J.; Choi, H.C.; Joppe, M. Exploring the relationship between satisfaction, trust and switching intention, repurchase intention in the context of Airbnb. *Int. J. Hosp. Manag.* **2018**, *69*, 41–48. [\[CrossRef\]](#)
26. Liu, C.C. Analysis of the relationship between e-service quality, esatisfaction, etrust, perceived value, and switching intention. *Int. J. Eng. Bus. Manag.* **2015**, *7*, 13.

27. Zhang, K.Z.; Cheung, C.M.; Lee, M.K. Online service switching behavior: The case of blog service providers. *J. Electron. Commer. Res.* **2012**, *13*, 184.
28. Kim, S.H.; Bae, J.H.; Jeon, H.M. Continuous intention on accommodation apps: Integrated value-based adoption and expectation–confirmation model analysis. *Sustainability* **2019**, *11*, 1578. [\[CrossRef\]](#)
29. Wang, Y.; Wang, S.; Wang, J.; Su, C.; Zhao, X. Examining customer switching behavior in the Chinese mobile payment market: A push-pull-mooring framework. *Comput. Hum. Behav.* **2019**, *93*, 262–272.
30. Lee, C.W.; Lin, T.C. Purchase intention in subscription-based online music service from the perspective of push-pull-mooring model. *J. Adv. Eng.* **2019**, *14*, 45–53.
31. Xu, L.; Blankson, C.; Prybutok, V. Relative contributions of product quality and service quality in the automobile industry. *Qual. Manag. J.* **2017**, *24*, 21–36. [\[CrossRef\]](#)
32. Ayuni, R.F. The online shopping habits and e-loyalty of gen Z as natives in the digital era. *J. Indones. Econ. Bus.* **2019**, *34*, 168–184. [\[CrossRef\]](#)
33. Amoroso, D.L.; Chen, Y. Constructs affecting continuance intention in consumers with mobile financial apps: A dual factor approach. *J. Inf. Technol. Manag.* **2017**, *28*, 1–24.
34. Bhattacharjee, A.; Park, S.C. Why end-users move to the cloud: A migration-theoretic analysis. *Eur. J. Inform. Syst.* **2014**, *23*, 357–372. [\[CrossRef\]](#)
35. Ghazali, E.; Nguyen, B.; Mutum, D.S.; Mohd-Any, A.A. Constructing online switching barriers: Examining the effects of switching costs and alternative attractiveness on e-store loyalty in online pure-play retailers. *Electron. Mark.* **2016**, *26*, 157–171. [\[CrossRef\]](#)
36. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Dec.* **1991**, *50*, 179–211. [\[CrossRef\]](#)
37. Alsagoff, M.A.; Althonayan, A. An empirical investigation of customer intentions influenced by service quality using the mediation of emotional and cognitive responses. *J. Enterp. Inf. Manag.* **2018**, *31*, 194–223. [\[CrossRef\]](#)
38. Chou, S.Y.; Shen, G.C.; Chiu, H.C.; Chou, Y.T. Multichannel service providers' strategy: Understanding customers' switching and free-riding behavior. *J. Bus. Res.* **2016**, *69*, 2226–2232. [\[CrossRef\]](#)
39. De Jong, G.F.; Fawcett, J.T. Motivations for migration: An assessment and a value-expectancy research model. In *Decision Making*; De Jong, G.F., Gardner, R., Migration, W., Eds.; Pergamon Press: New York, NY, USA, 1981.
40. El-Adly, M.I.; Eid, R. An empirical study of the relationship between shopping environment, customer perceived value, satisfaction, and loyalty in the UAE malls context. *J. Retail. Consum. Serv.* **2016**, *31*, 217–227. [\[CrossRef\]](#)
41. Zehir, C.; Narçıkara, E. E-service quality and e-recovery service quality: Effects on value perceptions and loyalty intentions. *Procedia-Soc. Behav. Sci.* **2016**, *229*, 427–443. [\[CrossRef\]](#)
42. Valaei, N.; Rezaei, S.; Shahijan, M.K. CouQual: Assessing overall service quality in courier service industry and the moderating impact of age, gender and ethnicity. *Int. J. Manag. Concepts Philos.* **2016**, *9*, 144–169. [\[CrossRef\]](#)
43. Lee, E.J.; Overby, J.W. Creating value for online shoppers: Implications for satisfaction and loyalty. *J. Consum. Satisf. Dissatisfaction Complains. Behav.* **2004**, *17*, 54–67.
44. Alotaibi, M.B. Predicting switching behaviour of e-service users toward m-services: An empirical investigation. *J. Comput.* **2018**, *13*, 100–115. [\[CrossRef\]](#)
45. Taiwan Network Information Center. Network Service Applications Overview. 2022. Available online: https://report.twnic.tw/2022/en/TrendAnalysis_globalCompetitiveness.html (accessed on 1 March 2022).
46. Hair, J.F., Jr.; Black, W.C.; Babin, B.J.; Anderson, R.E.; Tatham, R.L. *Multivariate Data Analysis*, 7th ed.; Pearson: New York, NY, USA, 2010.
47. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* **1981**, *18*, 39–50. [\[CrossRef\]](#)
48. Sozer, E. The effect of social media mix on brand switching intention: The mediating role of risk perception. *J. Yasar Univ.* **2019**, *14*, 74–86.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.