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A Model of Online Food Delivery System Services and Restaurant Performance: A Case Study of China

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A B S T R A C T

Purpose: Through the lens of business performance theory, this study examines the effect of online food delivery system services on restaurant performance by analyzing the performance of restaurants engaged in takeaway services. The moderating effects of restaurant attributes on restaurant performance are also investigated.
Design/methodology/approach: This research applies a positivist paradigm where a quantitative approach was selected to gather the information from the respondents based on the established sample size through G-POWER software. By applying the judgement sampling technique, the study seeks answers from the respondents through non-probability sampling. Using the software SmartPLS 3.3.3, this study analyzed 220 completed responses using the PLS-SEM approach to reach the research objectives.
Findings: The findings suggested that the basic services and click-through promotion service directly and positively affected restaurant performance. The discount service has no significant influence on the restaurant performance. The study confirms that size shown a positive interaction with click-through promotion service in relation to restaurant performance, whereas the variable of price of main dishes demonstrated a negative interaction with click-through promotion service in relation to restaurant performance. There is no substantial moderating influence of age.
Research limitations/implications: The current study is limited to the geographical area, of Baise, Guangxi China. Therefore, generalizability and gain a better knowledge of the overall context is limited. Additionally, due to the single time period of data collection, it may not represent the long-term takeout business operation of catering businesses.
Originality/value: The research model is valid in explaining the impact of online food delivery system services on restaurant performance. In this light, understanding these influencing relationships in this study will provide valuable insights into the operation of a takeout catering enterprise. These would also benefit the related government agencies, restaurant owners or managers, and the researchers.

Keywords: ChatGPT, ChatGPT ban, ChatGPT in education, Academic integrity

I. Introduction

Since 2020, the worldwide catering business has faced an unprecedented crisis due to the pandemic (Jang, 2021). Restaurants, taverns, and other catering businesses are banned in public locations. These crises have made eateries rely increasingly on takeout (Oh & Yi, 2023). Due to business obstacles, many restaurants struggle with takeout (Ahuja et al., 2021).

The literature on restaurant operations has seen significant growth in recent years Nevertheless, the

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predominant area of scholarly investigation has been directed towards the examination of service quality (Kukanja et al., 2023), customer behavior (Jang, 2022), determinants of online food delivery (OFD) sales (Oh & Yi, 2023), authentic leadership (Lee et al., 2016), and customer satisfaction (Gupta et al.,, 2007). There is a significant lack of scholarly material regarding the influence of services provided by OFD platform on restaurant performance. Analyzing the impact of various services provided by the OFD platform on restaurant performance in the context of online-offline competition is a topic of significant importance.

This study aims to explore the existing literature on the operational aspects of catering enterprises, focusing on their operations in an online-offline environment. In this study, we analyzed the impact of services provided by the OFD platform on RP using a sample of 220 catering enterprises operating in the takeaway sector in Baise, Guangxi, China. The results of our study contribute to the current body of literature on the effect of services provided by the OFD platform on restaurant performance (such as operational efficiency and financial performance of restaurants) and expand the research on the takeout industry, including elements such as basic services (including online food searching, ordering, and delivery services) and value-added services such as discount service and click-through promotion service. Moreover, this study presents new empirical findings concerning the moderating effects of prices of main dishes, age, and size on the relationship between different services provided by the OFD platform and restaurant performance. This study aims to offer significant insights and practical recommendations for professionals and stakeholders in this sector.

II. Literature Review and Hypotheses Development

A. Restaurant Performance (RP)

The RP is the operation benefit of restaurant and achievement of operators in a certain time. The profitability, asset operation level, solvency and subsequent development ability of the enterprise belongs to the operation benefit. The contribution of operators to the operation, growth and development of the enterprise belongs to the achievement of operators (Tian, 2021). Extensive scholarly investigation has been conducted to analyze the various aspects that impact the operational outcomes of restaurants in physical, non-digital environments. Park(2016) investigated the effects of corporate real estate (CRE) ownership for the performance of franchise restaurant companies. Chen (2018) categorizes the determinants into two primary classifications: characteristics related to restaurant operations and factors associated with the operating environment. Multiple factors contribute to the operational dynamics of a restaurant. DiPietro et al. (2011) assert that the consideration of QSC (Quality, Service, and Cleanliness) is a crucial element within the realm of corporate operations. It is important to acknowledge that distribution channels have a significant impact in the operational context (Kimes and McGuire, 2001). Based on the aforementioned findings, scholars have established various theoretical frameworks to evaluate the online RP. Numerous models have been utilized by researchers to examine the dynamic relationship between restaurants and the elements that influence them. The study has derived three significant discoveries from their investigation, which have subsequently influenced the next sections of this research.

①When analyzing the correlation between RP and goal parameters, it is crucial to consider restaurant attributes.

②The impact of alterations in the operational context on performance levels exhibits variability among several categories of restaurants. Consequently, it is imperative to integrate

several categories of restaurants into the survey. ③The selection of data type should be congruent with the limitations imposed by the respondents, and the choice of model should be contingent upon the level of expertise in handling the data.

B. The Online Food Delivery System (OFDS) Services

Online food delivery system (OFDS) services are a series of supporting services developed by the OFD platform to integrate geographically dispersed customers and restaurants into a unified online marketplace(Furunes et al., 2019). Semi-structured interviews were conducted with eight practitioners in the takeaway industry from Baise, Guangxi, China in order to gain a full understanding of OFDS services and develop specific items for investigating their impact on RP. The items used in this interview are presented in Table 1. Prior to the commencement of the formal interview, the interviewees were provided with comprehensive explanations on the themes under discussion (Sim et al., 2021). Each interview session had a duration of roughly 90 minutes for each participant.

The interviews yielded a comprehensive and methodical comprehension of OFDS services, which can be summarized as follows:

First, the OFDS services include online store display and search, ordering and settlement, food delivery, consumer evaluation and feedback, discount promotions, click-through promotion, etc. According to the function of these services, they can be divided into basic services and value-added services.

Second, basic services refer to the services that enable restaurants to conduct online catering transactions. These basic services include online presentation, order processing, delivery, and evaluation.

Third, value-added services refer to services that have the ability to increase the RP. The value-added services encompass discount promotion (DP) and click-through promotion (CTP). The discount promotion helps merchants increase sales by discounting meals or providing coupons. Most discount promotion services are initiated by the OFD platform. The click-through promotion service helps merchants increase sales by increasing their exposure and improving their ranking in the search list. The click-through promotion service is charged based on the number of customer views.

C. Research Model and Hypotheses

Figure 1 displays the conceptual model employed

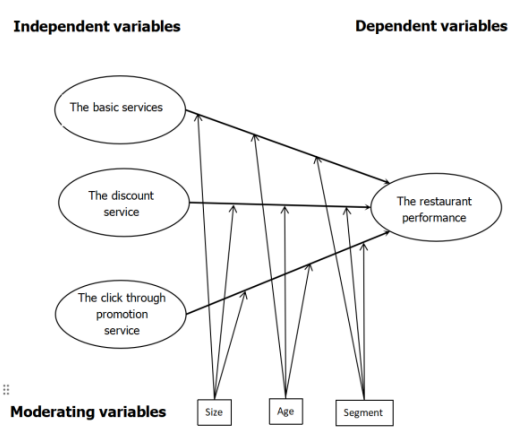

Figure 1. Conceptual model

Table 1. The questions of semi-structure interviews conducted with takeaway platform managers

NO.	Questions
1	How many value-added services does the OFD company provide?
2	Please introduce each kind of value-added services briefly.
3	What types of restaurants are applicable to each value-added service
4	Please add important information omitted by the author.

in this study. The construction of this model is conducted with the supervision of business performance theory, as outlined by Hao, Qu and Wu (2008). According to Llach Perramon, del Mar Alonso-Almeida and Bagur-Femenías (2013), the evaluation of RP can be categorized into three key dimensions: efficiency, outcomes, and competition. Efficiency is a metric that quantifies the ratio of input to output inside organizations. The outcome is a metric that signifies the level of consumer awareness and acknowledgement towards the products or services offered by the firm. Competitiveness refers to the capacity of firms to effectively adjust to the prevailing market conditions and attain advantageous positions in the market. Drawing upon scholarly discourse surrounding business performance, the notion of restaurant performance (RP) can be defined as the attainment and manifestation of a restaurant's efficacy, outcomes, and competitive edge within a specific time frame. According to Van Veldhoven et al. (2021), several key parameters that significantly influence RP include size, age, prices of main dishes.

1. Basic Service and RP

The advent of a new online market platform has resulted in a decrease in profitability for numerous traditional eateries (Chen et al., 2022). The level of competition within the delivery market is very fierce.

The restaurant's earnings may be negatively impacted by the platform's high commissions and frequent discounts (Li et al., 2020). Small restaurants frequently face higher commission rates as a result of the limited bargaining leverage they possess in relation to large OFD platforms (Li et al., 2020). The implementation of the OFD platform has resulted in the emergence of two distinct modes of profit distribution within the catering business. One key aspect pertains to the allocation of benefits between the OFD platform and the participating eateries. Another aspect to be considered is the allocation of advantages among various eateries (Feng and Chen, 2016). According to Li, Mirosa, and Bremer (2020), it is possible for restaurants to end their partnership with an OFD platform. So does the basic services offered by an OFD platform has a positive impact on the financial gains of catering enterprises? The subsequent hypothesis is posited:

Hypothesis 1: The basic services of the OFD platform has a significant positive influence on RP.

2. Discount and RP

The OFD platform launched a variety of marketing strategies, such as discounts and coupons, that required catering enterprise to cooperate in implementing their marketing (Chen et al., 2020). These messages were designed to promote lower prices and combos, which can help consumers save both cost and time (Yeo VCS, et al., 2017). For example, a personalised food combination makes the consumer feel like it was made just for him/her (Horta et al., 2022). Messages and photos are also effective strategies for improving sensation, imagination and impressing customers with discounts and promotions (Horta et al., 2022).

Innovative marketing strategies, such as promotions, enhance the adoption and utilization of OFD platforms (Gold et al., 2020). Nevertheless, it is important to note that the influence of promotions on sales over an extended period of time may not always provide favorable outcomes. The brand may experience erosion. (Guadagni and Little, 1983). An abundance of promotions tends to result in decreased internal reference prices, which are customers' evaluations of products based on their experiences and intuition. Consequently, this decrease in internal reference prices leads to poorer customer ratings of the product (Lattin and Bucklin, 1989). Promotions have the capacity to alter the purchasing patterns of customers gradually and discreetly. There was an observed increase in individual purchases, whereas a reduction in individual buy intentions was noted (Mela et al., 1998).

When launching promotions, e-retailers should improve their estimation of reservation prices and consider practical situations to estimate the probability of customers' purchases (Jedidi et al., 2003).

Scientifically designed promotional programs can maximize e-retailer profits (Herington and Weaven, 2009). So, does the discount service provided by an OFD platform increase merchants' profits? The following hypothesis is proposed:

Hypothesis 2: The discount service of the OFD platform has a significant positive influence on RP.

3. Click-through Promotion Service and RP

Sponsored or paid searches are increasingly being recognized as a novel avenue for consumer acquisition and brand competitiveness within the realm of business practices (Chan et al., 2011). The OFD platform offers consumers the service of restaurant retrieval and functions as a search engine. A search engine is an online tool utilized by businesses and customers to effectively locate and acquire desired products or services by inputting relevant search keywords into a designated search platform (Cheng et al., 2018). The search engine operation consists of the following stages.

First, relevant terms are extracted from the data provided by enterprises that have engaged in retrieval services.

Second, the search queries of customers are matched with the terms utilized by corporations.

Third, the outcome of the matching process is displayed to the client as a search result (Cheng et al., 2018).

In order to maintain customer appeal, platforms will exclusively impose charges on companies rather than customers (Eisenmann et al., 2006). Therefore, the acquisition of click-through promotion service and the subsequent augmentation of impressions on the OFD app can serve as a viable strategy for restaurants to enhance their financial gains.

The customers exhibit a preference for directing their attention towards smaller results as a means of minimizing the time and effort expended in evaluating various possibilities (Montgomery et al., 2004). There is a positive correlation between the position of a link in a searching result list and its likelihood of being clicked (Ansari et al., 2003). According to previous studies (Hoque et al., 1999; Feng et al., 2007), it has been observed that the click-through rate (CTR) tends to exhibit an exponential decrease as the ad position decreases. Furthermore, the majority of clicks are received by the first few spots. The financial implications of advertisements and the economic worth of clicks are additional significant variables that impact the revenue of merchants. The profitability of higher ranks can often surpass that of lower classes, despite their elevated costs (Jerath et al., 2011).

A click-through promotion service has the potential to enhance RP. Nevertheless, the impact of click-through promotional business on merchant revenue can fluctuate among various eateries. The subsequent hypothesis is formulated:

Hypothesis 3: Purchasing the click-through promotion service has a significant positive influence on RP.

4. Factors Moderating the Influence of OFDS Services on RP

Van V. et al. (2021) set collaboration, size, age, prices of main dishes as independent variables for their analysis of the financial performance of restaurants. Zhao et al. (2018) found that the location, scale, and grade of merchants can affect the profit changes of merchants after joining the platform. After analyzing the data of sales and online reviews of six restaurants for two years and eight months, Fernandes (2021) built a model to forecast sales performance by both live social media customer feedback and historical sales data. Their research showed that the restaurant type is an important factor influencing RP. DiPietro, R. et al. (2011) found a 'V' curve relationship between different types of restaurants. The moderating influence of scale, age, and prices of main dishes on the relationships between OFDS services and online RP is still unclear. The following hypothesis is developed:

Hypothesis 4a: The size will positively moderate the influence of basic services on RP.

Hypothesis 4b: The size will positively moderate

the influence of discount service on RP.

Hypothesis 4c: The size will positively moderate the influence of click-through promotion service on RP.

Hypothesis 4d: The age will positively moderate the influence of basic services on RP.

Hypothesis 4e: The age will positively moderate the influence of discount service on RP.

Hypothesis 4f: The age will positively moderate the influence of click-through promotion service on RP.

Hypothesis 4g: The prices of main dishes will positively moderate the influence of basic services on RP.

Hypothesis 4h: The prices of main dishes will positively moderate the influence of discount service on RP.

Hypothesis 4i: The prices of main dishes will positively moderate the influence of click-through promotion service on RP.

III. Method

Researchers face difficulties in obtaining reliable financial data for online restaurants due to the absence of cross-verification for the correctness of financial information (Haber and Reichel, 2005; Runyan et al., 2008). This poses a challenge for research focused on online food restaurants. Nevertheless, it is considered appropriate to depend on self-reported subjective interpretations of performance, as these subjective measures are well aligned with objective performance indicators (Jaworski & Kohli, 1993; Slater & Narver, 1994).

According to suggestions provided by managers of OFD platforms, a six-month period is deemed adequate for comprehensively assessing the impact of OFDS services on RP. The target respondents for this study are specifically restaurant managers that are actively involved in take-out business and possess a strong understanding of value-added services (VAS). A compilation of prominent restaurants from the two dominant OFD platforms in Baise, Guangxi, China has been created with the assistance of managers from these platforms. The present study utilizes purposive sampling, supplemented by a simple random selection method from the provided list.

A. Population and Sample

Applying G* Power 3.1 (Faul et al., 2009) software to estimate the minimum required sample size with the setting as follows; f^2= 0.3 (medium), a=0.05. The number of latent variables were selected via power analysis and the power was set at 95% (Gefen et al., 2011). The minimum sampling size with the 4 latent variables is 134. However, according to Gefen et al. (2011) in their theory of sampling, increasing the sample size improves the accuracy of studying the target population in a research project. This is beneficial since it reduces the impact of outliers in data processing and ensures the development of statistically meaningful results. Finally, large sample size can generate significant results for the variables in this study and is vital to improve the findings' generalizability (Patel et al.,2003). The researchers initiated contact with a total of 427 online restaurants through telephone communication. Out of this sample, a total of 294 restaurant managers expressed their willingness to take part in the study. Following this, online questionnaires were distributed to the restaurant managers via WeChat and QQ. A total of 220 valid survey responses were collected, constituting the sample population for this study.

B. Measurement

All the items utilized in this study were derived from well-established scales crafted by previous scholars (Atuahene and Li, 2002; Xie et al.,2006; Derrien et al., 2020; de Sousa et al., 2020). The author selected 15 items, with guidance from two experienced senior academics who have expertise

in researching RP. These items were specifically chosen to align with the unique characteristics of OFDS services. Following this, the items underwent translation into Chinese through the back-translation technique. To guarantee translation accuracy, four academics conducted separate translations of the items from English to Chinese and vice versa. The researchers utilized a Likert scale with five points, ranging from "strongly disagree" to "strongly agree", in order to refine the items.

This questionnaire was distributed to 30 respondents who operate takeout restaurants in Baise, Guangxi, China. The scale was modified according to their feedback to make it understandable to restaurant managers.

Size, age, prices of main dishes are significant determinants of RP (Van et al., 2021). During the semi-structured interviews, several respondents highlighted that the impact of OFDS service on different types of restaurants is not the same.

IV. Result

This research model are built using reflective variables based on the fundamental conceptual model. Given the limited sample size and the non-normal distribution of the data, this study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the hypothesis (Hair et al., 2017). The research model was analyzed using SmartPLS 3.3.3 (Lee and Hallak, 2018).

A. Demographic Profile of the Respondents

This study consists of 164 ordinary restaurants (74.5%) and 56 ghost kitchens (25.5%). The description of the demographic profile of the respondents is described in Table 2.

B. Assessing Common Method Bias (CMB)

During Harman's single factor test, four factors

Table 2. Merchant respondents' profile

Variable	Items	Frequency(n=104)	Percent(%)
Is there a dining area	Yes	164	74.5
	No	56	25.5
Age of the restaurant	Lower than 1 year	91	41.4
	1 to 3 years	74	33.6
	3 to 5 years	33	15
	5 to 7 years	11	5.0
	Above 7 years	11	5.0
Age of takeaway business	Lower than 1 year	91	41.4
	1 to 3 years	74	33.6
	3 to 5 years	34	15.5
	5 to 7 years	11	5.0
	Above 7 years	10	4.5
Size(㎡)	Lower than 20	29	13.2
	20 to 50	91	41.4
	50 to 90	56	25.5
	90 to 150	29	13.2
	Above 150	15	6.8

Table 2. Continued

Variable	Items	Frequency(n=104)	Percent(%)
Number of employees	Lower than 3	53	24.1
	4 to 5	90	41.9
	6 to 9	67	30.5
	Above 10	10	4.5
The prices of main dishes	Lower than 30RMB	152	69.09
	30 to 60 RMB	53	23.83
	Above 6 RMB	15	7.08

were presented and the most-co-variance explained by one factor was 41.2 percent lower than the threshold of 50%. As unrotated factor analysis of all study items generated four factors in total explaining 76.3 percent of the variance. Given that a single factor solution did not arise, and a general factor did not account for most of the variance, common method variance was not regarded as a substantial threat in this research (Podsakoff and Organ, 1986).

C. The Measurement Model

The data pertaining to reliability are presented in Table 3. The data highlights the strong internal consistency reliability of the measures, as evidenced by their composite reliability. The range of Cronbach's alpha values observed in this study is between 0.834 and 0.969, which exceeds the established minimum threshold of 0.60 (Hair et al., 2017). Furthermore, the composite dependability values for the several measures range from 0.889 to 0.979, surpassing the suggested criterion of 0.70 as proposed by J.C. Nunnally (1978). Follow the guidelines proposed by Fornell and Larcker's (1981) , the average variance extracted (AVE) for each measure exceeds 0.50. The square root of AVE, denoted by the bold element on the diagonal in Table 4, is greater than the elements located below the diagonal. These elements depict the relationship between structures. This finding provides assurance of the discriminant validity of the variables.

The outer loading elements estimated by the least squares method (Least Squares) are shown in Table 3. These data range from a minimum value of 0.771 to a maximum value of 0.97. Significantly, each item exhibited a higher loading on its respective construct than others. In addition, it is worth noting that the factor loading for each item on its respective construct exhibited a considerable level of statistical significance ($p < 0.0001$).

D. The Structural Model

The methodology was employed to develop interaction terms by multiplying the indicators of the predictor and moderator constructs (Al-Gahtani et al., 2007). Using a hierarchical approach, we compared models including interaction variables to those that did not. Figure 2 presents the outcomes of the structural model without moderator variables. The beta route coefficients provide insights into the extent to which various OFDS services influence the performance of restaurants, highlighting the variances in their impact. The beta path coefficients for basic services and click-through promotion service are 0.434 ($p < 0.05$) and 0.355 ($p < 0.001$), respectively. Both basic services and click-through promotion service have a beneficial impact on RP, with basic services having a more significant benefit compared to click-through promotion service. The observed directionality exhibits both expected characteristics and a statistically significant relationship. On the other hand, it can be concluded that the discount service has no substantial impact on the performance of

restaurants. This is supported by the beta path coefficient of -0.029, which is not statistically significant at the 0.05 level (p=0.645 > 0.05).

To concisely describe the findings of the research, we excluded the statistically insignificant moderator constructs, such as age. The beta values of all path

Table 3. Evaluation of measurement model

Dimensions	Items	Outer loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
a. The basic services	a1. Joining the delivery platform has increased your sales.	0.863	0.9	0.926	0.714
	a2. Joining the delivery platform has increased your customer traffic.	0.863			
	a3. Joining the delivery platform has increased your visibility.	0.839			
	a4. Joining the delivery platform has expanded your market.	0.823			
	a5. Joining the delivery platform has increased your income.	0.837			
b. The discount promotion service	b1. The introduction of discounts and concessions has increased your daily order volume.	0.97	0.969	0.979	0.94
	b2. The introduction of discounts and concessions has has increased your customer traffic.	0.982			
	b3. The introduction of discounts and concessions has increased your click through rate.	0.956			
c. Recommendation service	c1. Purchase promotional services to make your store more busy.	0.841	0.836	0.901	0.752
	c2. The purchase promotion business has increased the number of new customers for you.	0.904			
	c3. Purchasing promotional services has increased your click through rate.	0.856			
d. Merchant performance	d1. The discount promotion and purchase promotion business you have done on the delivery platform have improved your competitiveness.	0.836	0.834	0.889	0.667
	d2. Delivery platforms and value-added services give you more confidence when facing competitors.	0.809			
	d3. Using the delivery platform and participating in its discounts and promotions has increased your sales.	0.842			
	d4. Using the delivery platform and participating in its discounts and promotions has increased your store's revenue.	0.778			

Table 4. Discriminant validity (intercorrelations) of variable constructs

	basic services	Discount promotion	Click through Promotion service	Restaurant performance
basic services	**0.845**			
Discount promotion	0.504	**0.867**		
Click through Promotion service	0.193	0.075	**0.969**	
Restaurant performance	0.607	0.573	0.077	**0.817**

coefficients were modified due to the impact of the moderator constructs as shown in Figure 3. The beta coefficient for the relationship between basic services and RP exhibited a notable rise, rising from 0.434 to 0.514. On the other hand, there was a decline in the beta coefficient for the relationship between click-through business service and RP, with the value dropping from 0.355 to 0.309. Furthermore, the beta coefficient representing the relationship between discount and RP experienced a shift from -0.029 to 0.021. However, it is important to note that this change was rather small and did not reach statistical significance.

The model that incorporated these moderator factors produced unforeseen results. More specifically, age did not exhibit any significant moderating effect. All the moderator constructs exclusively exhibited interaction effects with click-through business service upon RP. It is worth mentioning that there was a significant positive relationship between the size of the restaurant and the click-through business service, as evidenced by a beta value of 0.237 ($p < 0.05$). In contrast, the prices of main dishes negatively interacted with click-through business service upon RP, evidenced by a beta value of -0.272 ($p < 0.05$).

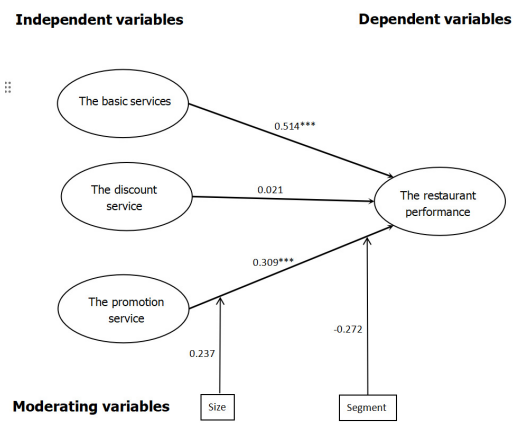

Figure 3. Structural model results without interacting variables (path coefficients and P-values)

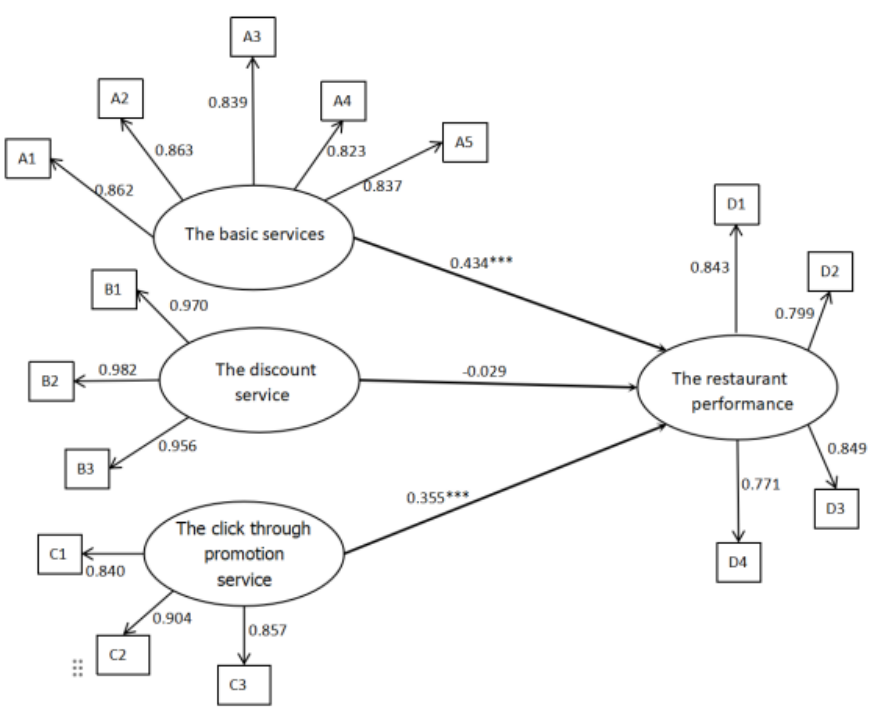

Figure 2. Structural model results without interacting variables (path coefficients and P-values)

It is important to assess the magnitude and direction of the main path coefficients, taking into consideration the effects of interaction factors (Al-Gahtani et al., 2007). The direct-only model explains 45.8% of the variability in RP, while the moderating model demonstrates a larger share, with an R2 value of 0.552.

V. Conclusions and Recommendations

A. Conclusion

The findings are all summarized in Table 5. As shown in this table, the basic services had a favorable impact on the RP, however, no moderating variable exhibited an interaction with the RP. Additionally, our research findings indicate that the impact of discount service on RP was weakly negative, but not statistically significant, regardless of any potential interaction with the moderator variables. This finding aligned with the consensus among scholars on the complexity of discounted service impact on business performance, which means that the impact of discount promotions on business performance varies in different market contexts and discount designs (Lattin & Bucklin, 1989; Mela et al., 1998). The takeout market is characterized by intense pricing rivalry and deep platform intervention. One possible explanation for this phenomenon is that OFD platforms intentionally mitigate the influence of discounts on the growth of RP by changing the background algorithm of the OFD platform, with the aim of incentivizing more restaurants to purchase click-through promotion service. Alternatively, this situation may arise due to restaurants implementing ineffective discount strategy.

Within the highly competitive realm of the restaurant industry, the OFD platform presents a distinctive promotional and advertising medium for dining companies. The hypothesis put forward in this study suggests that the utilization of click-through promotion service as a means of advertising plays a crucial

Table 5. Hypotheses conclusions

Hypotheses	Finding	Result
H1: The basic services of OFD platform has a significant positive influence on RP.	Yes: (beta = 0.415, $p < 0.001$)	Supported
H2: The discount service of the OFD platform has a significant positive influence on RP.	No: not significant	Not supported
H3: Purchasing the click-through promotion service has a significant positive influence on RP.	Yes: (beta = 0.366, $p < 0.001$)	Supported
H4a: The size will positively moderate the influence of basic services on RP.	No: not significant	Not supported
H4b: The size will positively moderate the influence of discount service on RP.	No: not significant	Not supported
H4c: The size will positively moderate the influence of click-through promotion service on RP.	Yes: (beta = 0.237, $p < 0.05$)	Supported
H4d: Age will positively moderate the influence of basic services on RP.	No: not significant	Not supported
H4e: Age will positively moderate the influence of discount service on RP.	No: not significant	Not supported
H4f: The age will positively moderate the influence of click-through promotion service on RP.	No: not significant	Not supported
H4g: The prices of main dishes will positively moderate the influence of basic services on RP.	No: not significant	Not supported
H4h: The prices of main dishes will positively moderate the influence of discount service on RP.	No: not significant	Not supported
H4i: The prices of main dishes will positively moderate the influence of click-through promotion service on RP.	Yes: (beta = -0.272, $p < 0.05$)	Refused

role in improving overall performance. Nevertheless, the comparatively elevated cost of service may make it economically impractical for many restaurants. Consequently, we hypothesized that the implementation of click-through marketing strategies would have a favorable impact on the overall performance of restaurants. There was a positive interaction between size and click-through business service on RP. This implies that the impact of click-through business service on enhancing performance is particularly significant for restaurants of considerable size. The operational issues faced by small restaurants are exacerbated by this phenomenon, although the extent of its impact differs across different types of eateries. It is imperative to acknowledge that small-scale restaurants may not necessarily be at a disadvantage due to the implementation of this particular service. The prices of main dishes negatively interacted with click-through business service upon RP. This finding indicates that as the level of the main dishes increases, the restaurant's reliance on click-through business service decreases. This phenomenon is caused by the spending habits of consumers. Consumers are more willing to order high-end food from restaurants rather than ordering takeout.

B. Implication

1. Theoretical Implication

This study develops a novel model based on business performance theory. The focus is on exploring the impact of OFDS services on RP. Additionally, this study examines the moderating effect of merchant attributes on the relationship between OFDS services and RP. Understanding these correlations is essential, as it can provide a solid theoretical foundation for relevant research. This approach not only addresses the direct impacts of OFDS services but also delves into the nuanced ways merchant characteristics influence these relationships.

2. Practical Implication

First, discount service does not significantly improve merchant performance. While discounts may enhance the online customer traffic and transaction volume of merchants, they cannot substantially augment their profits. Therefore, catering enterprises should not regard price wars as the main method to improve competitiveness.

Furthermore, click-through promotion service enhances RP substantially. Utilizing click-through promotion service can significantly enhance merchants' order volume and visibility. Therefore, merchants should purchase click-through promotion service at their discretion.

C. Limitations

This research faces two primary limitations. Firstly, its geographical scope is confined to Baise Guangxi, a middle-sized city in China. This constraint may limit the representativeness of our findings for the broader Chinese population. To enhance generalizability, we recommend employing extensive parametric sampling. This approach aligns with Saunders et al. (2009), who suggest that a larger sample size can lead to a more uniform distribution, thereby yielding more reliable results. Secondly, the study gathered data in a relatively short period just after the pandemic. This might not permit the data to represent the long-term takeout business operations of the restaurants in the takeout industry.

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