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Research on Customer Loyalty of Online Short-term Rental Service:

A Meta-analysis

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Abstract: Online short-term rental service has developed rapidly recently. Various scholars focused on how to improve customer loyalty of online short-term rental service, but their conclusions are usually different. Therefore, we built a comprehensive analysis to derive a unified conclusion. A meta-analysis was conducted according to the effect sizes extracted from 35 empirical articles about customer loyalty of online short-term rental service. The effect of customer loyalty classification was further explored from the two sub-dimensions, behavioral loyalty and composite loyalty. The results of the main effect analysis show that only sustainability has no significant effect on attitude. The loyalty classification analysis proves the validity and particularity of the results from the perspective of sub-dimensions of loyalty. The conclusions of this study will bring significant enlightenment to the academic and industry.

Keywords: online short-term rental, meta-analysis, customer loyalty, loyalty classification

1. INTRODUCTION

In recent years, the rapid development of the mobile Internet has derived various commercial behaviors. Based on this background, the sharing economy (also known as collaborative consumption) mode has been known more and more widely around the world. Under this mode, consumers can collaboratively use resources that are underdeveloped and underutilized through payment-based sharing activities ^[1]. Online short-term rental, as the earliest industry in the development of the sharing economy, is currently a popular way to share space. It relies on technology and Internet facilities to connect landlords who have vacant rooms with tenants who need to use the rooms in a short time. Such short-term rental activities can meet the needs of customers, like providing lower-cost accommodation and opportunities to interact with local communities ^[2]. Online short-term rental industry has developed maturely in Euro-American countries. The representative platform is Airbnb. Since established in 2008, it has quickly occupied the global market. In August 2015, it entered the Chinese market, and its monthly valuation has reached \$31 billion in March 2017. The online short-term rental market in China started late and sprouted in 2011. At present, China's leading online short-term rental platforms are Xiaozhu, Tujia, Mayi and so on.

The online short-term rental service is increasingly popular with the public. Because of its close connection with the tourism industry, how to retain customers has become an issue discussed by all sides. This drives more and more researches to explore the problem of customer loyalty about the online short-term rental service ^[3]. The models which studied customer loyalty problems in the existing literature were mostly based on Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Unified Theory of Acceptance and Use of Technology (UTAUT), Prospect Theory (PT) and other related behavior theories.

However, we find that past studies showed some inconsistent results due to the investigation time, the location of the survey, the target population, the number of samples and other force majeure factors. For example, some scholars confirmed that perceived value had a significant correlation with behavioral loyalty ^[4], while other scholars showed that this correlation was not significant ^[5]. And the strength of correlation coefficients obtained in different studies was also inconsistent. Those inconsistencies will mix the academic

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cognition and bring some confusion to the practical work. Therefore, we integrate the results of empirical studies on customer loyalty of online short-term rental service by using meta-analysis, aiming to construct a comprehensive research model and get a unified conclusion to help online short-term rental platforms to carry out targeted marketing, improve customer loyalty and promote industrial development. Meta-analysis is a method that comprehensively analyzes a large amount of data extracted from a lot of previous studies and then summarizes the real correlation between the two variables ^[6]. Also, currently there is a lack of systematic quantitative reviews in the research field of online short-term rental, so it is suitable to use meta-analysis to explore customer loyalty issues.

In addition, the questions about loyalty in disparate questionnaires are usually differentiated ^[7]. In some literature, all the questions are similar to “whether or not you will recommend others to use the service”. But, all the items of other studies are similar to “are you willing to continue to use this service”. And the two types of questions may also appear in the same questionnaire. Therefore, there exist differences in the measurement of loyalty. Considering such a situation, we further research the effect of loyalty classification, and then discuss the differences in disparate dimensions of loyalty.

2. LITERATURE REVIEW

In previous studies, many behavior theories have been applied to research customer loyalty. We select subjective norm and perceived behavioral control from TPB, hedonic motivation and price value from UTAUT, and some other variables such as sustainability, social interactions, trust and perceived risk, together with attitude and satisfaction as our research model according to the frequency of path relationship and the importance of variables.

2.1 Theory of planned behavior

The Theory of Planned Behavior (TPB) has been widely used in the tourism and hospitality industry to understand the behavioral intention of tourists. For example, some scholars used this theory to study the purpose of tourists to visit a destination ^[8] or to explore the intention of customers to book green hotels ^[9]. This theory proposes three presupposition factors that determine behavioral intention, which are attitude, subjective norm and perceived behavioral control. Among them, attitude refers to the individual’s evaluation of whether he or she likes or dislikes one certain behavior. Subjective norm is an external pressure that pushes or constrains individual behavior according to public reaction. Perceived behavioral control refers to the degree of control over the implementation of a certain behavior determined by the individual consciousness. For the online short-term rental industry, some scholars have studied customer loyalty towards Airbnb by using TPB ^[10]. Because choosing accommodation is a planned behavior for tourists, we consider TPB as the basic theory of relevant research ^[11].

2.2 Unified theory of acceptance and use of technology

The model of Unified Theory of Acceptance and Use of Technology (UTAUT) which mainly included four factors that influence behavioral intention, namely performance expectancy, effort expectancy, social influence and facilitating conditions, was initially used to study the adoption of information technology based on the non-consumer environment. Venkatesh et al. ^[12] further expanded it. The extended model is called UTAUT2 which is made more suitable for the consumer environment. Compared with UTAUT, UTAUT2 adds three new measurement dimensions, namely hedonic motivation, price value, and habit. Hedonic motivation refers to the degree of pleasure the individual feels when performing a specific behavior. Price value is the measurement of an individual's perceived value of specific behavior and its monetary cost. Habit represents the driving factor for

an individual to implement a particular behavior out of habit continuously. UTAUT and its extension model are gradually applied to the research of online short-term rental industry. For example, Lin et al. ^[13] adopted UTAUT and its extension model to study customers' purchase behavior towards Airbnb.

2.3 Other related variables

In addition to the above behavior theories' variables, scholars have explored many other constructs. Barnes and Mattsson ^[14] predicted that in the next ten years, sustainable development and environmental issues will become the main consideration for the successful development of the sharing economy. Sustainability (SUS) has been widely applied in research on the adoption and loyalty of online short-term rental service. There is no doubt that online short-term rental platforms provide opportunities for tenants to interact with landlords and residents, and allow tenants to connect with local communities to share their personal experiences. Therefore, the factor, social interactions (SI), needs to be taken into account ^[10]. The overall goal of trust (TRU) is to enable individuals to build good perceptions, to ensure that individuals believe the service is trustworthy, and the process of use or transaction is safe ^[15]. Hence, given the particularity of online short-term rental platforms, trust can be considered as a critical factor influencing consumer behavior. Generally speaking, in the case of deciding whether to purchase or repurchase the online short-term rental service, consumers can only evaluate the risk of the transaction based on the existing information displayed by the platform, so the perceived risk (PR) of consumers plays a crucial role in their repurchase intention ^[4].

2.4 Customer loyalty

As a basic concept of marketing, customer loyalty has always been tightly bound up with the companies' performance ^[16] and been a hot topic in the field of tourism management. In general, attitude (ATT) and satisfaction (SA) are variables that are strictly related to the measurement of loyalty, so we will also regard the two variables as constructs of the research model.

Following the opinion of Jacoby and Chestnut ^[17], this study divided loyalty into three sub-dimensions: attitudinal loyalty (AL), behavioral loyalty (BL) and composite loyalty (CL). According to Zhang et al. ^[7], attitudinal loyalty can be said to mean that customers' belief in value leads to their overall attitude toward products or services, and is a kind of loyalty on the psychological level, such as the intention to recommended to others or preference. Behavioral loyalty is the result of customer behavior, which links to purchase, repurchase and continued purchase intention. Composite loyalty combines attitudinal loyalty and behavioral loyalty.

The research model established in this paper is shown in Figure 1.

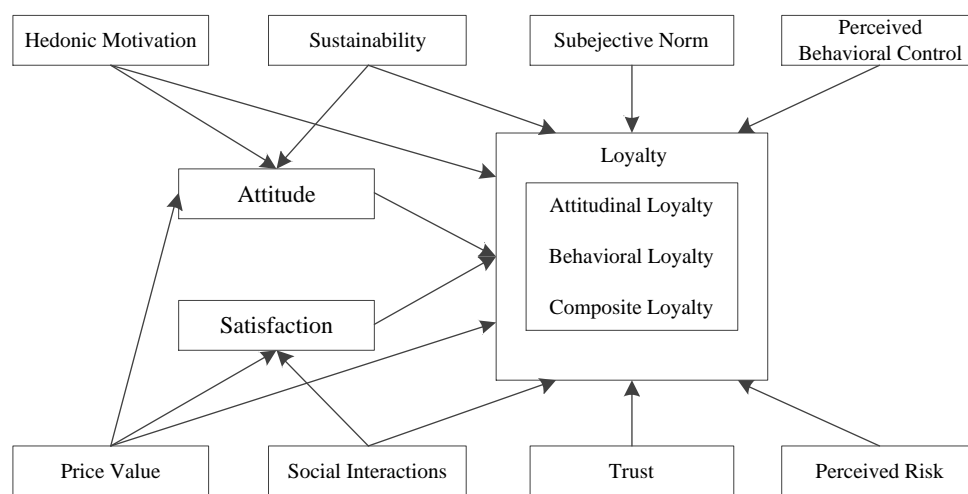


Figure 1. Conceptual model

3. METHODOLOGIES

3.1 Data collection and coding

To analyze the customer loyalty of online short-term rental service, we took "p2p accommodation", "peer-to-peer accommodation," "online short-term rental," "loyalty" and "behavioral intention" as keywords. We searched the literature related to customer loyalty of online short-term rental service in some popular databases from 2008 to now, such as the Web of Science, Google Scholar, Elsevier, ACM, JSTOR, Emerald and IEEE Xplore. Finally, 108 related articles have been obtained.

The criteria of literature selection adopted in this paper are: (1) the literature on customer loyalty of online short-term rental service must be empirical; (2) the literature must report the effect sizes needed for meta-analysis; (3) the literature must report the sample size. Also, some literature which studied the adoption behavior or loyalty of landlords to online short-term rental platforms should not be included in this study. Finally, we selected 35 papers for meta-analysis, including 26 Journal articles, seven dissertations and two conference papers.

After carefully reading the articles selected for meta-analysis, we extracted the following information: author name, publishing year, research object, country or area, sample size and effect sizes of model's constructs. At the same time, to ensure the consistency of the model's construct, we merged some variables with similar meanings extracted from different literature. For example, the subjective norm of TPB is identical to the social influence of UTAUT, and perceived behavioral control is similar to facilitating conditions. Also, perceived enjoyment and hedonic value are talking about hedonic motivation. Economic benefits, perceived value and financial benefits are all equal to price value. Therefore, the subsequent analysis will merge these above variables. Due to the limited number of literature available for meta-analysis, only one is attitudinal loyalty, so the follow-up analysis only proceeds from the perspectives of behavioral loyalty and composite loyalty. Among them, 19 are about behavioral loyalty, and 15 are composite loyalty.

3.2 Statistical analysis

We adopted R 3.4.2 to conduct the meta-analysis. The outcome reflects the results of the fixed-effect and the random-effects model. We choose the results of the random-effects model because it assumes that there are differences between studies. That is, denying the assumption that all studies are homogeneous, and the results obtained are very rigorous^{[18][19]}.

Meanwhile, the publication bias of each relationship was calculated by fail-safe N. The calculation formula was as follows:

$$Z = 0.5 * \ln\left(\frac{1+r}{1-r}\right) \quad (1)$$

Where r is the correlation coefficients reported in selected articles.

$$N_{fs.05} = \left(\frac{\sum z}{1.645}\right)^2 - N \quad (2)$$

Where z is derived from r in Equation (1), and N is the number of studies on a specific path relationship.

4. RESULTS

4.1 Main effect analysis

The effect sizes of each relationship in the model are combined, and the results are shown in Table 1.

The combined effect size of SUS-ATT is 0.069. Its 95% confidence interval includes 0, and the z-score is not significant, indicating that sustainability has no significant effect on attitude. The remaining 14 combined effect sizes of the path relationships are significant. Among them, the impact of perceived risk on loyalty is -0.318, which is negative, and other related relationships are positive.

From the perspective of publication bias, the impact of PBC, HM, PV, ATT, SA on L and the influence of HM on ATT have positive FSN values. There is no publication bias in the six path relationships. The remaining nine relationships have negative FSN values and fail the test.

Table 1. The results of main effect analysis

Path	Combined effect size	95%CI	Z-score	P-value	$N_{f,0.05}$
SN-L	0.489	0.326 0.623	5.350	0.000	-1.271
PBC-L	0.638	0.514 0.736	7.930	0.000	0.280
HM-ATT	0.685	0.393 0.851	3.890	0.000	1.470
HM-L	0.662	0.512 0.773	6.750	0.000	6.997
PV-ATT	0.350	0.110 0.552	2.800	0.005	-4.592
PV-SA	0.512	0.337 0.653	5.170	0.000	-1.947
PV-L	0.445	0.308 0.564	5.850	0.000	9.188
SUS-ATT	0.069	-0.044 0.179	1.200	0.232	-4.950
SUS-L	0.305	0.102 0.484	2.900	0.004	-4.719
SI-SA	0.372	0.317 0.425	12.200	0.001	-2.542
SI-L	0.308	0.160 0.442	3.980	0.000	-5.635
TRU-L	0.369	0.158 0.548	3.330	0.001	-4.518
PR-L	-0.318	-0.514 -0.091	-2.710	0.007	-5.041
ATT-L	0.698	0.455 0.845	4.550	0.000	17.454
SA-L	0.692	0.537 0.802	6.620	0.000	21.360

4.2 Loyalty classification analysis

Table 2 shows the results of 15 path relationships' combined sizes from the perspective of loyalty classification.

PV-L has been studied the most in all relationships, reflecting that customers believe that the value of the online short-term rental service itself matches the price it provides. Overall, in the research context of composite loyalty, the combined effect sizes of PV-ATT, SUS-CL, and TRU-CL are 0.309, 0.294 and 0.379 respectively. Their 95% confidence interval contains 0, and z-scores are not significant. Therefore, the combined effect sizes of the three path relationships are not statistically significant. The combined effect size of PR-BL is -0.364. Its confidence interval also includes 0, and the z-score is not significant, so the correlation is not significant.

Regarding the SUS-ATT relationship, whether in the research context of behavioral loyalty or composite loyalty, the combined effect sizes are always less than 0.1. Its confidence interval contains 0, and the z-score is not significant. Therefore, sustainability is not a significant factor in the attitude of customers toward using online short-term rental service. It can be seen from Table 2 that SN, PBC, HM, PV, SI, ATT and SA have a more significant influence on CL than BL, and all of them are positive values and statistically significant, indicating that these seven variables have a stable positive impact on loyalty. Due to limited literature which was only one study in the BL or CL group, subgroup analysis was not successful for the three path relationships, HM-ATT, PV-SA, and SI-SA. However, from the results, the combined effect sizes in the three subgroups are significant. Also, the combined effect size of PR-CL is -0.259, and its confidence interval does not pass 0, and

z-score is significant, showing that PR has a significant negative impact on CL.

Table 2. The results of loyalty classification analysis

Path	Loyalty	Number of studies	Sample size	Combined effect size	95%CI	Z-score	P-value
SN-L	BL	6	1747	0.418	0.261 0.553	4.900	0.000
	CL	2	927	0.660	0.447 0.802	4.990	0.000
PBC-L	BL	3	1234	0.609	0.426 0.744	5.490	0.000
	CL	2	927	0.678	0.491 0.806	5.600	0.000
HM-ATT	BL	1	1328	-	-	-	-
	CL	4	1295	0.616	0.255 0.827	3.070	0.002
HM-L	BL	3	2096	0.605	0.322 0.788	3.750	0.000
	CL	5	2164	0.694	0.563 0.791	7.680	0.000
PV-ATT	BL	3	2502	0.402	0.016 0.683	2.030	0.042
	CL	4	1295	0.309	-0.087 0.621	1.540	0.124
PV-SA	BL	2	831	0.585	0.417 0.714	5.830	0.000
	CL	1	153	-	-	-	-
PV-L	BL	9	2764	0.424	0.289 0.542	5.730	0.000
	CL	9	3807	0.466	0.225 0.654	3.580	0.000
SUS-ATT	BL	2	1878	0.065	-0.184 0.305	0.510	0.613
	CL	3	776	0.064	-0.007 0.134	1.770	0.077
SUS-L	BL	2	831	0.205	0.138 0.269	5.960	0.000
	CL	3	1171	0.294	-0.101 0.609	1.470	0.142
SI-SA	BL	2	831	0.377	0.317 0.434	11.390	0.000
	CL	1	153	-	-	-	-
SI-L	BL	4	1281	0.264	0.212 0.314	9.620	0.000
	CL	4	1873	0.355	0.078 0.580	2.490	0.013
TRU-L	BL	7	1040	0.371	0.238 0.490	5.200	0.000
	CL	3	1317	0.379	-0.190 0.757	1.320	0.186
PR-L	BL	4	1469	-0.364	-0.690 0.086	-1.600	0.110
	CL	3	1391	-0.259	-0.308 -0.209	-9.850	0.000
ATT-L	BL	5	2029	0.538	0.222 0.752	3.140	0.002
	CL	5	1507	0.809	0.508 0.934	3.910	0.000
SA-L	BL	5	1922	0.677	0.435 0.828	4.510	0.000
	CL	6	1924	0.704	0.471 0.845	4.720	0.000

5. DISCUSSION

By using meta-analysis, we examine the impact of subjective norm, perceived behavioral control and other six variables on loyalty and two sub-dimensions, namely behavioral loyalty and composite loyalty. The results of this paper are instructive for both the academic and industrial field of online short-term rental service.

First of all, traditional research was usually focused on customers' willingness to consume online short-term rental service, but did not deeply explore the influencing factors of customers' attitude and behavioral loyalty. The results of this study will help scholars understand consumers' behavior from multiple dimensions, and thus obtain more practical points of view.

Secondly, although sustainability has no significant influence on the customers' attitude whether in the

main effect analysis or the loyalty classification analysis, it has a positive impact on loyalty and behavioral loyalty, indicating that customers attach great importance to environmental protection nowadays. They will support consumption activities that contribute to the environment. Therefore, the sustainability factor cannot be ignored if the providers want to develop online short-term rental industry vigorously.

Finally, subjective norm, perceived behavioral control, hedonic motivation, price value, social interactions, trust, attitude, and satisfaction have a more significant impact on composite loyalty than behavioral loyalty, showing that customers' opinions on the use of online short-term rental platforms not only include their willingness to recommend others to purchase but also contain their desire to buy or repurchase the service. Therefore, the providers of online short-term rental service should consider how to improve the composite loyalty of customers from the marketing perspective. That is to say, not only should they work hard on attitudinal loyalty, but also make an effort in behavioral loyalty.

6. CONCLUSIONS

Based on the meta-analysis, we study the customers' loyalty to the online short-term rental platforms by adopting some well-known theories such as TPB, UTAUT and its extended model. The innovation of this paper lies in that it utilizes a quantitative review method to discuss the research problems, integrates the consistent or inconsistent conclusions of previous studies, and reaches a unified view.

The results of this paper have specific development significance for scholars and online short-term rental service providers. Online short-term rental platforms are still in the early stage of development in China, which needs to be explored continuously. We also broaden the research field of meta-analysis and apply it to the field of sharing economy.

The limitation of this study lies in the limited number of articles included in the meta-analysis. Although we have used as many keywords as possible to search for some popular databases, it is still difficult to find more research. Therefore, the sample size has certain limitations. At the same time, we fail to analyze the online short-term rental service from the perspective of attitudinal loyalty. Besides, it is also possible to consider the moderating effect of some factors in future research, to give better suggestions for the development of this industry.

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