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Research on the Establishment and Application of Logit Choice Model for Choosing Video Service Platform

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ABSTRACT: With the increasing popularity and performance of portable platforms in taiwan, the potential business opportunities of video service in the future are amazing In Taiwan. The price, program content quality, system quality and service quality it provides will significantly affect user satisfaction and willingness to choose. Therefore, understanding how content quality, system quality, service quality and price affect consumers' continued usage behavior, and exploring the regulatory effect of users' own viewing devices on the relationship between the quality of various platform services and selection behavior will help the industry to formulate appropriate market segmentation marketing strategies based on the user characteristics of different viewing devices (such as age and family composition) and provide manufacturers with marketing strategies, which is the main research motivation of this study. From the establishment and analysis of the logit choice model , the key factors that increase the willingness to use the video service platform are content satisfaction, ease of operation, service satisfaction and system stability. Therefore, in practice, decision makers can measure their specific business strategies based on the cost and benefit required to improve the above factors.

KEYWORDS: video service platform、logit choice model

1. INTRODUCTION

According to the latest survey in 2023 In Taiwan, 46.2% of viewers choose to watch video programs through online video platforms, while cable TV accounts for 43.4%. Therefore, with the rise of Taiwan's video service film and television services, multinational companies have rushed into Taiwan's film and television industry market and cable TV has completed digitalization. The Taiwan film and television industry market has evolved from the original cable TV monopoly to a fiercely competitive market shared by cable TV, Chunghwa Telecom MOD and Internet Telecom video service.

As for the devices that users use to watch video service, mobile phones allow viewers to watch videos at any time in their fragmented lives, so they mostly use their mobile phones to watch shorter types of videos such as YouTuber creations and MVs. Tablet users prefer to watch TV series through video platforms; and users who prefer to sit in front of the TV to enjoy the big screen and better sound and light effects tend to choose movies. Among the various viewing devices mentioned above, mobile phones account for more than 50%, followed by laptops, which account for about 30%. This result can be attributed to the portability of mobile phones and laptops. Therefore, when users choose to use a streaming media service platform, their viewing devices will also affect the degree to which they value the program content and information quality and operational characteristics, thereby resulting in a regulatory effect on the relationship between the quality of various services on the platform and their selection behavior. The research results of this adjustment effect will help the industry to formulate appropriate market segmentation marketing strategies based on the user characteristics of different viewing devices. This is also the motivation of this study.

2. LITERATURE

ReviewDeLone and McLean (1992) divided information system success into six constructs, in order: (1) system quality: refers to the output of the information system itself, including the reliability, flexibility, and usability of the system; (2) information quality: refers to the output of the information system, including the accuracy, reliability, completeness, and relevance of the information; (3) use: refers to the consumption of the information system output by system users; (4) user satisfaction: refers to the user's response to the output of the information system; (5) individual impact: refers to the impact of the information system on the user's usage behavior; (6) organizational impact: refers to the impact of the information system on the performance of the entire organization. In this model, system quality and information quality affect system usage and user satisfaction, and the two affect each other.

Related research mainly focuses on exploring consumer preference satisfaction and loyalty. Although this method can help understand the factors that influence consumer choices, it lacks the capabilities of forecasting and policy analysis. This study has not yet found any research using the random utility model to explore consumers' choice behavior of streaming video platforms. However, there are still some research results that use the random utility model to explore online shopping behavior that can be used as a reference. The above research shows that the application of the random utility model can indeed assist manufacturers in further quantitative strategy analysis

3. RESEARCH METHODS

According to the functional characteristics of the Logit choice model, it has the functions of elasticity analysis and attribute monetization analysis, which are introduced below (Ben-Akiva and Lerman, 1985):

$$U_{it} = V_{it} + \varepsilon_{it}$$

$$\begin{aligned} P_t(i) &= P_r\left(U_{it} \geq U_{jt}, \forall j \in C_n, j \neq i\right) \\ &= P_r\left(V_{it} + \varepsilon_{it} \geq V_{jt} + \varepsilon_{jt} \forall j \in C_n, j \neq i\right) \\ &= P_r\left(\varepsilon_{jt} \leq V_{it} - V_{jt} + \varepsilon_{it}, \forall j \in C_n, j \neq i\right) \\ &= P_r\left(\varepsilon_{jt} - \varepsilon_{it} \leq V_{it} - V_{jt}, \forall j \in C_n, j \neq i\right) \end{aligned}$$

$$P_{it} = \frac{1}{\sum_{i \neq j} e^{(V_{jt} - V_{it})}} = \frac{1}{\sum_{i \neq j} e^{(X_{jt} - X_{it})\beta_t}} = \frac{1}{\sum_{i \neq j} e^{X_{nt}'\beta_t}}$$

Elasticity analysis: Through elasticity analysis, we can know the percentage change of the probability of choosing a certain option in the utility function when the variable value in the utility function changes by 1%.

4. DATA ANALYSIS AND APPLICATION

The dependent variable is the willingness of consumers to continue to use different streaming media platforms. The independent variables are the program content quality, system quality and service quality provided by the streaming media. The demographic variables and usage characteristics are the control variables. The streaming media service device is the moderating variable. The coefficients of each variable are estimated through statistical software, especially the coefficients of price and satisfaction with each quality. The coefficient value can be used as a reference for prediction of the probability of continued use and strategic analysis (for

example, how much will the probability of continued use increase if the price is reduced by 5%).

Table1

Independent variable	standardized coefficien	t	Significance
Content satisfaction	.609	10.792	.000
Ease of operation	.299	7.070	.000
Service satisfaction	.291	6.928	.000
System stability	.178	4.266	.000

The independent variables that significantly and positively affect "continued use intention" are content satisfaction, service satisfaction, ease of operation, and system stability in order of their coefficients.

The above analysis process and results demonstrate the random utility model established by this model can predict the continued use of streaming media platforms under the program content quality, system quality, service quality and price provided by different streaming media platforms; and the coefficient analysis of each independent variable can provide manufacturers with better services (including various content quality) to increase product competitiveness, which is the strategic evaluation analysis of manufacturers.

CONCLUSION

Based on the above research, this study aims to understand the willingness to continue using the current streaming media service platform under different demographic variables, usage characteristics (including viewing time, content and price) and streaming media service platform satisfaction, and explore whether the above relationship varies due to consumers using different viewing devices, and then use the random utility model's Logit model to establish a probability model of consumer choice behavior, and use it to formulate and evaluate strategies.

According to the data analysis results, the key factors that increase the willingness to use the video service platform are content satisfaction, ease of operation, service satisfaction and system stability, according to their importance. This shows that improving the satisfaction level of the above factors can directly increase the probability of selection. Therefore, in practice, decision makers can measure their specific business strategies based on the cost and benefit required to improve the above factors, thereby promoting the optimization of benefits reference.

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