

Analysis of Influencing Factors on Tent Popular Value Based on Product Data

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Abstract. Exquisite camping has become popular during COVID-19. More and more people choose camping to replace long-distance travel, which has encouraged companies to increase their investment in tent design and sales. This study wants to discover what the factors of the tent are important for the popular value and help the company better design the tents. The study collected 208 valid tent information in the Jingdong platform and use multiple linear regressions to analyze the data. It found that functional information can affect the popular value of the tent and the price negatively moderate the effect. The basic information about the tent has no effect on the popular value. These findings offer significant implications for the tent design.

Keywords: Online shopping; Camping; Covid-19.

1. Introduction

1.1 Background

The world has been significantly affected by the Covid-19 pandemic, especially in tourism. With the occurrence of the asymptomatic infection, the uncertain risk of the epidemic has increased sharply. It has reduced people's intention of traveling abroad owing to get rid of being infected. At the same time, many tourist attractions have been faced with temporary closure due to the local epidemic prevention policies. So global tourism has suffered the loss of more than four trillion dollars. However, as COVID-19 eased many people prefer to go camping around for a few days, which stimulates the rapid development of the camping industry. A new trend named exquisite camping becomes gradually prosperous. Based on a short distance, outdoor, light luxury, and delicacy, it has been popular with the public. Of all the camping equipment, tents that are resistant to natural conditions and give shelter are particularly indispensable, because people do not require overnight items, and the fast-moving consumer products also replace outdoor cookers. At the same time, many brands have begun to design unique tent products. On the one hand, diversified tents enrich consumers' choices, but on the other hand, which factors are important for consumers bothers the companies.

1.2 Related research

Britta and Gerhard used the structural equation model to study online shopping intention in COVID-19. The normative determinants are related to the consumer's online shopping intention. Also, hedonic motivation can predict the consumer's online shopping intention better than utilitarian motives [1]. The research conducted by Fan et al. examines the online shopping platform by creating the evaluation model. The online shopping platform model is constructed with probability double linguistic-combinative distance-based assessment (PDHL-CODAS). It has a great contribution to evaluating the online shopping platform fully and reasonably. Finally, the method is confirmed useful in science [2]. To explore how the price, the number of comments, the length of the comment, and the emotion of the comment influence product sales, Anu et al. used the linear regression model to analyze the online comment on Amazon. The final result indicates that the price, the number of comments, the length of the comments, and the emotion of comments all can influence product sales. By the way, the author also discussed management which is combined with the sales model and the analytics of the emotion [3]. Alireza et al. explored whether the constant COVID-19 made the situation of in-store and online shopping change permanently using a discrete choice model of the user's responses, using a descriptive analysis method, concluding that people still need to go shopping

in-store for fun, while they only spend time on online shopping [4]. Hoang Viet et al. compared utilitarian with hedonic motivations to analyze the different influences on the consumer intention of buying books in online shopping using an online survey sample of 275 Vietnamese consumers. The conclusion is that COVID-19 has a positive and significant effect on the consumer intention for buying books on the internet and utilitarian motivation affects the online purchase intention stronger than hedonic motivation [5]. Nebojša et al. in order to find the factors which influenced consumer satisfaction with online shopping in underdeveloped markets, created a conceptual model which includes seven variables: security, information availability, shipping, quality, pricing, time, and customer satisfaction and used the Confirmatory Factor Analysis and the Partial Least Squares method, discovering that security, information availability, shipping, quality, pricing, time can influence the consumer satisfaction directly [6]. The research conducted by Dr.R used the Convenient sampling method to attain the dataset of the college students from the Perambalur district and applied the Correlation analysis and the regression analysis methods, discovering that online shopping intentions are affected significantly by Ease of use & Perceived Usefulness [7]. Christopher A et al. researched the COVID-19 influence on travelers' future camping decisions and use the application of construal level theory (CLT: Trope & Liberman, 2010) and the COVID-19 scale to find the answers. The results show that the COVID-19 scale is significantly related to the camping decision [8]. Ayu et al. applied the AIDA (Attention, Interest, Desire, and Action) Model to study the tourists' interest in camping during COVID-19 and used the quantitative descriptive method, frequency analysis techniques, and scoring analysis. The result is that the tourists show great interest in camping during COVID-19[9]. Hamood Mohammed combined the expectation-confirmation model (ECM) with the task-technology fit (TTF) model to create a new model to study the key factors about continuing online shopping during COVID-19. The results show that perceived TTF is a key factor for consumers to go shopping online constantly and consumer satisfaction is directly affected by confirmation [10].

1.3 Hypothesis development

1.3.1 Impact of gross weight on the popular value

Gross weight refers to the weight of the tent. Gross weight means a degree of lightness. Lighter tents can make it easier for the campers to carry, which can help reduce the fatigue of campers carrying heavy tents for long periods. So consumers are more willing to buy light tents and give them praise. The research presents the hypothesis below:

H1. Gross weight negatively influences the popular value.

1.3.2 Impact of tent space on the popular value

Tent space evaluates the interior space of the tent and the external space connected to the tent. The more space that the tents have which means campers have more spaces for activities whatever in or out of the tent. So consumers are more willing to buy larger spaces of tents owing to a variety of activities. Three hypotheses are proposed as follows:

H2a. Tent space- One room positively influences the popular value.

H2b. Tent space- One room and one hall positively influences the popular value.

H2c. Tent space- Two rooms and one hall positively influences the popular value.

H2d. Tent space- Three rooms and one hall positive influences the popular value

1.3.3 Impact of the applicable season on the popular value

The applicable season is the functional attribute of the tent and refers to the seasons which the tents suit for. A higher level of the applicable season can reduce the problems of buying different tents due to different seasons. So the higher level of the applicable season is a good choice for consumers to buy. Four hypotheses are proposed below:

H3a. Applicable season -One season general positive influences the popular value.

H3b. Applicable season -Two seasons general positive influences the popular value.

H3c. Applicable season -Three seasons general positive influences the popular value.

H3d. Applicable season -Four seasons general positive influences the popular value.

1.3.4 Impact of waterproof on the popular value

The waterproof index is another functional attribute of the tent and evaluates the ability that protects the people in the tent from rain. Camping is usually in places where are few people and communal facilities, it is difficult to find shelter during the rain. So tents with a high waterproof index are particularly important. So consumers are more willing to give a good comment about the waterproof index. Five hypotheses are presented as follows:

- H4a. The waterproof index $-x \geq 2500\text{mm}$ positively influences the popular value.
- H4b. The waterproof index $-2500\text{mm} \geq x > 2000\text{mm}$ positively influences the popular value.
- H4c. The waterproof index $-2000\text{mm} \geq x > 1500\text{mm}$ positively influences the popular value.
- H4d. The waterproof index $-1500\text{mm} \geq x > 1000\text{mm}$ positively influences the popular value.
- H4e. The waterproof index $-x \leq 1000\text{mm}$ positively influences the popular value.

1.3.5 Moderating effect of price on user sensitivity

All independent variables above can bring a better user experience for the consumers, but it does not mean consumers are willing to pay extra money for those owing limited money. In order to discover which independent variable is that consumers are more likely to pay the extra money, the study introduces the price for the moderating variable to test the moderating effect on the user sensitivities for the independent variables. The hypotheses are proposed in this investigation:

- H5. Price intensifies the negative effect of gross weight on the popular value.
 - H6a. Price intensifies the negative effect of applicable season-Two seasons general on the popular value.
 - H6b. Price intensifies the negative effect of applicable season-Three seasons general on the popular value.
 - H6c. Price intensifies the negative effect of applicable season-Four seasons general on the popular value.
 - H7a. Price enhances the negative effect of tent space- One room and one hall on the popular value.
 - H7b. Price enhances the negative effect of tent space- Two rooms and one hall on the popular value.
 - H7c. Price enhances the negative effect of tent space- Three rooms and one hall on the popular value.
 - H8a. Price strengthens the negative effect of waterproof index $-2500\text{mm} \geq x > 2000\text{mm}$ on the popular value.
 - H8b. Price strengthens the negative effect of waterproof index $-2000\text{mm} \geq x > 1500\text{mm}$ on the popular value.
 - H8c. Price strengthens the negative effect of waterproof index $-1500\text{mm} \geq x > 1000\text{mm}$ on the popular value.
 - H8d. Price strengthens the negative effect of waterproof index $-x \leq 1000\text{mm}$ on the popular value.
- A conceptual model is provided and shown in Figure 1 to help the defined hypotheses be tested and proven in greater detail.

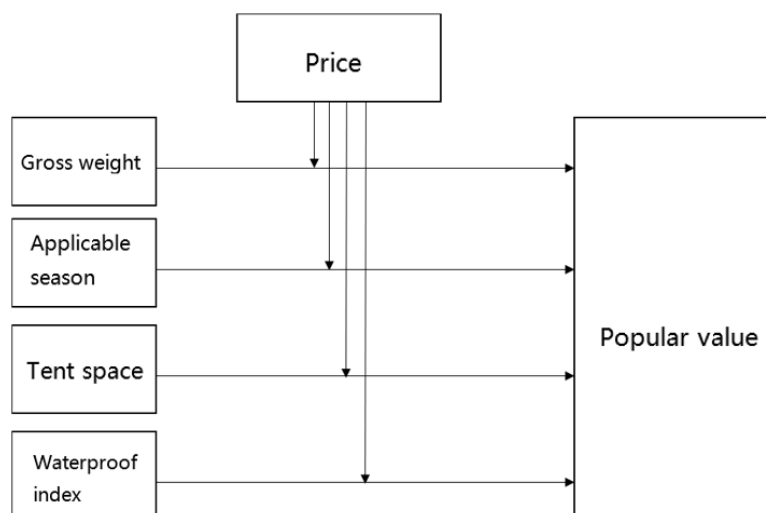


Fig 1. Conceptual framework.

2. Method

2.1 Data collection

This paper gathered information from the Jingdong platform, an online purchasing platform, in order to examine our conceptual framework. The Jingdong platform is a comprehensive online retailer in China and it is used for goods trade between merchants and consumers. It has online travel, video, clothing, and other 12 categories of tens of thousands of brands and goods. As a result, it has grown to be one of the most well-known and significant e-commerce websites in the industry. Consumers can buy any things they want and receive the great delivery service. Many consumers are willing to comment on the user experience on the platform after they complete the purchase.

To make the data more representative, we selected two famous brands in a tent called Mobi Garden and TAN XIAN ZHE. TAN XIAN ZHE was established in Zhejiang, China in 2009 and was mainly engaged in all kinds of outdoor supplies and equipment, especially tents. With close prices and excellent quality, it has quickly occupied the Chinese market and remained the first place on the Jingdong platform. Mobi Garden is the other Chinese brand and focuses on the research, design, and sales of outdoor products. It advocates natural, free, and happy pastoral gatherings, making more people participate in outdoor activities and be fond of the brand. Thus both two brands are top levels in the Jingdong platform, which can represent the tent industry.

This study selected those two brands and collected 1334 tent basic information and the number of comments submitted to the Jingdong platform, including the price, the gross weight, the tent space, and other information in September 2022. After cleaning the data, our sample contained 208 tents with basic information and 208 comments. The data collection included the price, and the gross weight was submitted. So the information is deficient. Therefore, we exclude this information from our data collection.

2.2 Variables

2.2.1 Dependent variables

The popular value evaluates the number of good comments below each tent on the Jingdong platform. When consumers finish the process of buying tents on the Jingdong platform, they will receive a note for commenting on the tents they bought. So the number of comments can measure the amount of the tent sold and the good comment can measure how much the consumers are fond of the tent.

2.2.2 Explanatory variables

(1) Gross weight. Gross weight represents a degree of lightness. This study quantifies gross weight by measuring the number of the tent's weight

(2) Applicable seasons. Applicable season refers to the seasons which the tents suit for. So the applicable season is operationalized as the level of the season general, including one season general, two seasons general, three seasons general, and four seasons general.

(3) Tent space. Campers can organize various activities in the larger tent space. Tent spaces are measured by Number of the rooms and halls.

(4) Waterproof index. The waterproof index evaluates the ability that protects the people in the tent from the rain. So it is classified as five levels of the waterproof ability which include $x \geq 2500\text{mm}$, $2500\text{mm} > x > 2000\text{mm}$, $2000\text{mm} > x > 1500\text{mm}$, $1500\text{mm} > x > 1000\text{mm}$ and $x \leq 1000\text{mm}$.

2.2.3 Moderating variables

(1) Price. For consumers with a limited budget, the price has an impact on the choice of the tent. The higher the price, the greater the impact on the different levels of the functions. Table 1 shows the each and every variable definition.

Table 1. Variable measurement

Variable Type	Variable Name	Variable Description
Independent variables	Gross weight	Number of the tent's weight
	Applicable season	Level of the season general
		One season general Two seasons general Three seasons general Four seasons general
	Tent space	Number of the rooms and halls
Moderating variables		One room One room and one hall Two rooms and one hall Three rooms and one hall
	Waterproof index	Level of the waterproof ability
		$x \geq 2500\text{mm}$ $2500\text{mm} > x > 2000\text{mm}$ $2000\text{mm} > x > 1500\text{mm}$ $1500\text{mm} > x > 1000\text{mm}$ $x \leq 1000\text{mm}$
	Price	The selling price of the tent
Dependent variables	Popular value	Number of the good comments on Jingdong platform

3. Results

3.1 Descriptive statistics

Table 2 provides descriptive statistics and Table 3 lists descriptive statistics of the classified variables, including frequency and percentage.

Table 2. Variable description statistics

Variables	Mean	Std. Deviation	Max	Min
Popular value	150.822	490.604	5000	0
Price	1173.945	1138.154	5999	46
Gross weight	11.227	49.442	500	1

Table 3. Variable description statistics.

Variables	Frequency	Percentage (%)
Waterproof index		
x > 2500mm	70	33.7
2500mm >= x > 2000mm	78	37.5
2000mm >= x > 1500mm	23	11.1
1500mm >= x > 1000mm	12	5.8
x <= 1000mm	25	12.0
Applicable season		
One season general	82	39.4
Two seasons general	2	1.0
Three seasons general	21	10.1
Four seasons general	103	49.5
Tent space		
One room	159	76.4
One room and one hall	34	16.3
Two rooms and one hall	13	6.3
Three rooms and one hall	2	1.0
	208	100.0

3.2 Empirical analysis

This study used multiple linear regressions and Table 4, Table 5, Table 6, and Table 7 show the results. This study first tested the main effects. Model 1 shows the direct effects of the independent variables.

Applicable season-Two seasons general ($\beta = 774.695$, $p < 0.05$), applicable season-Four seasons general ($\beta = -166.941$, $p < 0.05$), waterproof index- $x \leq 1000\text{mm}$ ($\beta = 230.669$, $p < 0.05$) were all significantly correlated with the popular value, proving that they are crucial to the quantity of positive comments.

H3b and H4e are supported and H3d is not supported. Other variables had no significant impact on the popular value. Therefore, those hypotheses were not validated.

3.3 Moderating effect

Models 2 and 3 centralized the variable of price and examined the moderating effects. the regression coefficient of the interaction between applicable season-Two seasons general and the price was significant ($\beta = -21.516$, $p < 0.01$). The coefficient on the interaction term between applicable season-Four seasons general and the price was significant ($\beta = 0.167$, $p < 0.05$). As other interaction items were not significant and those hypotheses did not hold. Table 8 lists the outcomes of the hypotheses tests.

Table 4. Regression results.

Dependent variable	Model 1	Model 2	Model 3
	Popular value	Popular value	Popular value
Constant	247.805** (4.688)	228.858** (4.292)	182.446** (3.209)
Independent variables			
Applicable season-One season general[Reference item]	-	-	-
Applicable season-Two seasons general	774.695* (2.262)	750.619* (2.206)	-14820.258** (-2.815)
Applicable season-Three seasons general	-215.567 (-1.842)	-184.220 (-1.571)	-147.155 (-1.253)
Applicable season-Four seasons general	-166.941* (-2.357)	-134.602 (-1.865)	-92.966 (-1.268)
Moderating effects			
Price		-0.060* (-1.997)	-0.206** (-2.650)
Applicable season-Two seasons general*Price			-21.516** (-2.952)
Applicable season-Three seasons general*Price			0.191 (1.642)
Applicable season-Four seasons general*Price			0.167* (1.977)
R ²	0.062	0.080	0.136
Adjusted R ²	0.048	0.062	0.106
F	4.497**	4.418**	4.513***

Note: Standard errors are reported in parentheses;***p<0.001,**p<0.01、*p<0.05.

Table 5. Regression results

Dependent variable	Model 1	Model 2	Model 3
	Popular value	Popular value	Popular value
Constant	174.686** (4.475)	163.984** (4.224)	162.449** (4.152)
Independent variables			
Tent space-One room[Reference item]	-	-	-
Tent space-One room and one hall	-89.568 (-0.963)	-64.220 (-0.694)	-70.552 (-0.752)
Tent space-Two rooms and one hall	-124.070 (-0.874)	-57.164 (-0.400)	-98.770 (-0.515)
Tent space-Three rooms and one hall	-152.686 (-0.436)	94.501 (0.262)	-97.871 (-0.058)
Moderating effects			
Price		-0.077* (-2.439)	-0.088* (-2.482)
Tent space-One room and one hall*Price			0.052 (0.607)
Tent space-Two rooms and one hall*Price			0.070 (0.387)
Tent space-Three rooms and one hall*Price			0.074 (0.139)
R ²	0.008	0.036	0.039

Dependent variable	Model 1 Popular value	Model 2 Popular value	Model 3 Popular value
<i>Adjusted R²</i>	-0.007	0.017	0.005
<i>F</i>	0.552	1.911	1.150

Note: Standard errors are reported in parentheses;***p<0.001,**p<0.01、*p<0.05.

Table 6. Regression results

Dependent variable	Model 1 Popular value	Model 2 Popular value	Model 3 Popular value
Constant	93.771 (1.601)	97.909 (1.692)	96.399 (1.657)
Independent variables			
Waterproof index-x>2500mm[Reference item]	-	-	-
Waterproof index-2500mm>=x>2000mm	37.664 (0.467)	46.048 (0.577)	46.984 (0.584)
Waterproof index-2000mm>=x>1500mm	107.576 (0.913)	60.514 (0.513)	-74.961 (-0.317)
Waterproof index-1500mm>=x>1000mm	57.312 (0.374)	52.053 (0.344)	53.990 (0.355)
Waterproof index-x<=1000mm	230.669* (2.020)	215.908 (1.912)	202.945 (1.780)
Moderating effects			
Price		-0.075* (-2.477)	-0.047 (-0.922)
Waterproof index-2500mm>=x>2000mm*Price			-0.024 (-0.343)
Waterproof index-2000mm>=x>1500mm*Price			-0.266 (-0.735)
Waterproof index-1500mm>=x>1000mm*Price			0.001 (0.011)
Waterproof index-x<=1000mm*Price			-0.129 (-1.269)
<i>R²</i>	0.021	0.050	0.061
<i>Adjusted R²</i>	0.002	0.027	0.018
<i>F</i>	1.113	2.140	1.419

Note: Standard errors are reported in parentheses;***p<0.001,**p<0.01、*p<0.05.

Table 7. Regression results

Dependent variable	Model 1 Popular value	Model 2 Popular value	Model 3 Popular value
Constant	150.822** (4.425)	150.822** (4.490)	151.467** (4.494)
Independent variables			
Gross weight	-0.313 (-0.453)	-0.353 (-0.519)	0.158 (0.106)
Moderating effects			
Price		-0.079** (-2.658)	-0.081** (-2.676)

Dependent variable	Model 1 Popular value	Model 2 Popular value	Model 3 Popular value
Gross weight*Price			0.001 (0.385)
R^2	0.001	0.034	0.035
Adjusted R^2	-0.004	0.025	0.021
F	0.205	3.638*	2.465

Note: Standard errors are reported in parentheses;***p<0.001,**p<0.01、*p<0.05.

Table 8. Hypotheses testing results

Hypothesis	Description	Results
H1	Gross weight negatively influences the popular value.	Not supported
H2a	Tent space- One room positively influences the popular value.	Not supported
H2b	Tent space- One room and one hall positively influences the popular value.	Not supported
H2c	Tent space- Two rooms and one hall positively influences the popular value.	Not supported
H2d	Tent space- Three rooms and one hall positive influences the popular value	Not supported
H3a	Applicable season -One season general positive influences the popular value.	Not supported
H3b	Applicable season -Two seasons general positive influences the popular value.	Supported
H3c	Applicable season -Three seasons general positive influences the popular value.	Not supported
H3d.	Applicable season -Four seasons general positive influences the popular value.	Not supported
H4a	The waterproof index -x>=2500mm positively influences the popular value.	Not supported
H4b	The waterproof index -2500mm>=x>2000mm positively influences the popular value.	Not supported
H4c	The waterproof index -2000mm>=x>1500mm positively influences the popular value.	Not supported
H4d	The waterproof index -1500mm>=x>1000mm positively influences the popular value.	Not supported
H4e	The waterproof index -x<=1000mm positively influences the popular value.	Not supported
H5	Price intensifies the negative effect of gross weight on the popular value.	Not supported
H6a	Price intensifies the negative effect of applicable season-Two seasons general on the popular value.	Supported
H6b	Price intensifies the negative effect of applicable season-Three seasons general on the popular value.	Not supported
H6c	Price intensifies the negative effect of applicable season-Four seasons general on the popular value.	Not supported
H7a	Price enhances the negative effect of tent space- One room and one hall on the popular value.	Not supported
H7b	Price enhances the negative effect of tent space- Two rooms and one hall on the popular value.	Not supported
H7c	Price enhances the negative effect of tent space- Three rooms and one hall on the popular value.	Not supported

H8a	Price strengthens the negative effect of waterproof index-2500mm $\geq$ x>2000mm on the popular value.	Not supported
H8b	Price strengthens the negative effect of waterproof index-2000mm $\geq$ x>1500mm on the popular value.	Not supported
H8c	Price strengthens the negative effect of waterproof index-1500mm $\geq$ x>1000mm on the popular value.	Not supported
H8d	Price strengthens the negative effect of waterproof index-x $\leq$ 1000mm on the popular value.	Not supported

4. Conclusion

This study tests the factors that influence the popular value of tents on the Jingdong platform. the results indicate that the level of the season general (i.e., two seasons general) has a positive significant effect on the popular value and the price shows the negative effect of applicable season-Two seasons general on the popular value (see Table X, Model 3). Firstly, it means that the functional information can affect more on the popular value more than the basic information of the tent, especially the applicable season information. This inspires the company should put more effort into the functions of the tent than the basic composition. Secondly, Company can't set the price too high for the functions of the tents, which affects the popular value negatively.

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