Are You a Local or a Visitor?: An Exploratory Study on Consumer Behavior in Online Group Buying Commerce

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ABSTRACT

With the rapid growth of online daily deals, the behaviors of consumers in such online group buying commerce have become popular research topics. We examine the effects of the period, price, discount rate and product category on the context that local consumers and visitors purchase the restaurant coupons in a group buying electronic marketplace. Applying the conjoint analysis algorithm, we study the actual transactional data sets on the Dianping.com, one of the largest online group buying commerce businesses. The results show that there is a clear discrepancy between the preferences of the two consumer groups. The local consumers tend to think high of discounts while the visitors likely care more on product category. In addition, the behaviors of two groups are different in product attribute selections. The findings could be useful to the businesses in terms of understanding the customers' purchasing and product designs.

Keywords
Online daily deals; Group buying; Consumer preference; Product attribute; Conjoint analysis

1. INTRODUCTION

Online group buying where the consumers with the same purchase intentions unite through the Internet, enhances the consumers’ bargaining power, and reduces suppliers’ uncertainties. In 2008, the birth of online group buying commerce or online daily deals brought Groupon syndrome. Online group buying commerce enhanced the network group buying into new stage. Groupon’s success has given rise to numerous copycats. Online group buying commerce has been popular in China where the growth of the online marketplace is outstanding. In 2010 China’s first group buying website manzuo.com was launched. Soon many online group buying businesses such as meituan.com, nuomi.com, lashou.com, and so forth, were founded in China. Statistical Report of China Group Buying Market, 2014 reveals that China’s online group buying turnover volume was 74.75 billion yuan, increased 38.87 billion yuan compared with 2013[1]; According to The 35th Statistical Report of Development Status of China's Internet, by December 2014, the number of Chinese group buying users reached 173 million, an increase of 32 million from the end of 2013. In the meantime, with the increase in the use of the Internet and the popularity of smart phones, consumers can participate in anytime, anywhere. The number of mobile phone users reached 119 million, accounting for 68.79% of the number of total users[2].

We understand that group buying has become an integral part of the new online consumption patterns. At the same time, the popularity of mobile phone deals release group buying regional limitation. People also can group purchase the desired product during their journey. As the group buying market competition is more and more fierce, merchants must fully understand the consumer preferences and meet the needs of consumers if they want to obtain benefits and long-term development. With the increase of smart phone group buying, merchants should not only consider the local consumers, but also consider the increasing visitors, and meet the demand of different groups of consumers, so as to access more consumers effectively and win a higher market share. Research on the preference of these two types of consumer groups would be significant for merchants to design group buying products and marketing strategies.
2. LITERATURE REVIEW

The literature about consumer preference can be grouped into two categories. The first category is the study of preference of single consumer group. The literatures here mainly study the effect of product attributes to the customers’ purchase choice. McHugh (1999) found that group buying mode attract consumers for two main reasons; First, Consumers can buy the products at lower prices than market prices. Second, Consumers may enjoy discounts on quantity and they can bargain with merchants together. Sun (2010) studied consumer trust in group buying environment, finding that business credibility and interactions between the seller and the buyer will enhance consumer trust. Kauffman et al. (2010) researched on group buying excitation mechanism, fairness and consumer engagement, to find that consumers think the discount is the basis of the fair price, and it has a positive impact on consumers’ satisfaction and purchase tendency. The second category is the literature on the differences among consumer groups. Ning and Zhang (2011) analyzed the catering industry through the questionnaires, to conclude that judgment of female consumers buying food in order is based on price, discount, product category, period, more concerned about the price while that of male consumers in order is price, product category, period, and discount. Qin and Lu (2012) analyzed the differences of new and old customers using the transaction data from women's clothing business in Taobao.com. They found that merchants’ information search service, credit guarantee service, and after-sales service have a stronger impact on new customers than old customers. Whereas, product information and the number of products have a stronger impact on old customers.

Overall, consumers likely consider a variety of attributes of the products during the purchase processes; the importance of each attribute is expected to be different to different groups of consumers. So, what are the preferences for attributes in different groups of consumers? What are the differences across consumer groups?

3. HYPOTHESES DEVELOPMENT

Blackwell et al. (2009) divided “Consumer buying decision process” into seven stages in Consumer Behavior: need recognition, information search, program evaluation, purchase decision, use, review, and disposition. In the program evaluation stage, consumers select their most satisfied goods and then purchase according to personal preferences after browsing the product information collected from group buying websites. Consumers are likely to have different preferences for each product attribute.

Group buying can be regarded as a process of information search, program evaluation and purchase decision. It reflects all kinds of consumer preferences, thus, we choose price, discount rate, product category, and the period as four representing attributes. The conceptual model of this research on the consumer preferences of local consumers and visitors is as follows:

![Figure 1. Conceptual Framework](image-url)

Many scholars define consumer behavior from the varied perspectives. David and Abert (1984) found that consumer behavior refers to all kinds of actions taken by consumers to acquire, use and dispose of consumer goods or services. Shyam (1983) presented that consumer behavior can be defined from the three aspects: Consumers choose certain economic resources for the individual consumer; rational consumers carry on the rational consumption and saving decisions in the condition of given income constraints; economic resources refers to disposable income of consumers.

In summary, consumer behavior is a scientific study of the behavior of consumers in the acquisition, use and consumption of the products and services in the process of the occurrence of the characteristics and behavior of the heart of science. The objects of study are mostly the consumer behaviors of the individual and the group and the factors that affect consumer behavior determine its content and system structure.

Sheth (2004) pointed out that there are three factors that affect the behavior of consumers such as demographic factors (Gender, age, income and region), the social environment, and cultural values. Obviously, there must be differences in income level and cultural environment in different regions. With this rationale, we may propose the following hypothesis:

Hypothesis 1. The consumer behaviors in different regions will likely be different.

High discount rate can attract consumers so as to promote sales volume (Grewal et al., 1998; Lichtenstein and Bearden, 1989). However, price promotions will also reduce the profit margins of the business and also have a negative impact on the quality of the brand and the image of store. Meyer and Assunciao (1990) pointed out that, when the discount rate is relatively bigger, consumers will buy goods excessively, while, when the basic unified pricing issue, consumers will do moderate purchase. Gupta and Cooper (1992) found that consumers generally underestimate the actual value of goods, using discount rates to promote the sale.

Compared with the visitors, local consumers likely know more about the price level and consequently are more sensitive about discount rate. Thus, we can propose the following hypothesis:
Hypothesis 2. Local consumers pay more attention to the discount rate than visitors.

According to traditional economic theory, prices mean the purchase cost for transactions, representing the quantity of money given up, so the price can influence consumers’ purchase decision (Lichtenstein and Netemeyer, 1993)[16]. If consumers consider buying a commodity will have a significant impact on their spending budget. So the price in the process of purchase decisions will play an important role. Cui and Huang (1995) studied the Changchun province household consumption behavior, to point out that family income level is the decisive factor for tourism consumption behavior[17]. It can be inferred that the consumer will develop a strict budget for travel consumption, so the sensitivity of the price of product will be higher than the local consumers. Thus, we draw the following hypothesis:

Hypothesis 3. Visitors pay more attention to the price than local consumers.

Limited time buying is a promotional method in e-commerce platform where consumers are required to make decisions whether to buy in a certain period of time. Making decisions in a limited period of time lead to emotional responses, thereby feeling a sense of pressure, known as the time pressure. Time pressure is a kind of subjective emotional state and consumers’ decisions will be affected because of trepidation about urgency of time. Time pressure is based on concept of individuals with the perception of time, when the individual is aware of the remaining time is limited, there will be pressure reaction (Bronner, 1989)[18]. Tourism has the characteristics of allopatry and temporary, thus tourist consumers are more aware of the time limit (Cai and Xie, 2002)[19]. Thus, we propose the following hypothesis:

Hypothesis 4. Visitors pay more attention to the period than local consumers.

Asplet and Cooper (2000) found that clothing souvenirs integrated local cultural themes have enormous appeal to tourists[20]. Tourists tend to buy souvenirs with local characteristics (Kim and Littrell, 2001)[21]. Based on these literatures, we develop the following hypothesis.

Hypothesis 5. Visitors pay more attention to the product category than local consumers.

4. DATA AND VARIABLES

This research use the conjoint analysis to examine consumer preferences of consumer groups. The method has been widely applied in the field of marketing[22]. The basic idea of conjoint analysis is that, simulating the real product by assuming the product attributes, they then let the consumer to evaluate these virtual products according to his/her preference and then researchers make quantitative evaluation for the importance of each attribute using the methods of mathematical statistics.

Major terms of conjoint analysis can be summarized like followings:

(1) Attributes and Levels: Attribute are product features affecting consumer choice; Level refers to the different values of attributes.

(2) Full Profiles: All combinations of various levels of all attributes.

(3) Utility Functions: Used to describe the utility of the consumer to the individual level of each attribute.

(4) Relative Importance Weights: The importance of the attribute affecting for consumer decision making.

The full profiles analysis model can be expressed as:

\[ Y = b + \sum_{i=1}^{m} \sum_{j=1}^{k} v_{ij} x_{ij} \]

\[ i=1,2,...,m \text{ represents the } i\text{-th attribute of a product;} \]

\[ j=1,2,...,k \text{ represents the } j\text{-th level of attribute;} \]

\[ Y \text{ represents the preference score of a product;} \]

\[ b \text{ represents intercept, utility value of the profile is not selected.} \]

\[ v_{ij}, \text{ represents utility value of } j\text{-level of } i\text{-attribute;} \]

\[ x_{ij}, \text{ dummy variable, when the } j\text{-level of the } i\text{-attribute exists, the value is 1, otherwise 0.} \]

After getting the utility value of each level of each attribute, we calculate the relative importance of attribute \( W_i \)

\[ W_i = \prod_{i=1}^{m} I_i \]

\[ I_i = \max(v_{ij}) - \min(v_{ij}), j = 1, 2, ..., m \]

4.1 Data

The data of this study is collected from dianping.com website, one of the largest online group buying platforms in China. Our data contains user information, product information, transaction information, and so forth.

The collection of data is divided into the following 3 steps:

Step 1: Collect information of 5,960 products created and terminated in 2014 from a business district in Beijing.

Step 2: Collect information of users registered in 2013 and purchased products in dianping.com website, among them there are 214,328 Beijing users and 170,577 non-Beijing users. In the research, we assume that Beijing is local.

Step 3: Collect transactional information that users in step 2 bought products in step 1, including the transactions of 781,226 local consumers and 566,899 visitors.

4.2 Variables

As described in Table 1, our main variables are purchase quantity, discount rate, price, period, and category.

<table>
<thead>
<tr>
<th>Table 1: Variable Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td>Purchase quantity</td>
</tr>
<tr>
<td>Discount rate</td>
</tr>
<tr>
<td>Price</td>
</tr>
</tbody>
</table>
4.2.1 Dependent variable
Most previous studies using conjoint analysis have had the data collected through questionnaires as researchers assume that respondents’ rating represents their preference for products. In our study, we rather have the transactional data from a group buying website. Purchase quantity is assumed to reflect consumers’ favor degree. The greater purchase quantity is, the higher consumers’ favor degree is.

4.2.2 Independent variables
We have four attributes of period, price, discount rate, and product category as independent variables. The levels of each attribute is as described in Table 2.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Level of Attribute</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Less than 50</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>50-100</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>100-150</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>150-200</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>More than 200</td>
<td>5</td>
</tr>
<tr>
<td>Price</td>
<td>Less than 50</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>50-100</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>100-150</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>150-200</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>200-250</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product category</th>
</tr>
</thead>
<tbody>
<tr>
<td>local cuisine</td>
</tr>
<tr>
<td>seafood</td>
</tr>
<tr>
<td>Hot pot</td>
</tr>
<tr>
<td>Japanese &amp; Korean cuisine</td>
</tr>
<tr>
<td>barbecue</td>
</tr>
<tr>
<td>Dessert &amp; drink</td>
</tr>
<tr>
<td>Western food</td>
</tr>
<tr>
<td>Snack</td>
</tr>
<tr>
<td>Buffet</td>
</tr>
</tbody>
</table>

4.2.3 Control variables
As a control variable, region of consumers is added both for local customers and visitors.

5. RESULTS
We ran conjoint analysis and the results are described in Table 3.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Level of Attribute</th>
<th>Local consumers</th>
<th>Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>importance /%</td>
<td>utility value</td>
</tr>
<tr>
<td>Period</td>
<td>Less than 50</td>
<td>2.447</td>
<td>2.52</td>
</tr>
<tr>
<td></td>
<td>50-100</td>
<td>0.548</td>
<td>1.72</td>
</tr>
<tr>
<td></td>
<td>100-150</td>
<td>-0.611</td>
<td>17.038</td>
</tr>
<tr>
<td></td>
<td>150-200</td>
<td>-1.162</td>
<td>-1.254</td>
</tr>
<tr>
<td></td>
<td>More than 200</td>
<td>-1.222</td>
<td>-1.51</td>
</tr>
<tr>
<td>Price</td>
<td>Less than 50</td>
<td>1.847</td>
<td>3.772</td>
</tr>
<tr>
<td></td>
<td>50-100</td>
<td>2.057</td>
<td>1.773</td>
</tr>
<tr>
<td></td>
<td>100-150</td>
<td>-0.761</td>
<td>-0.946</td>
</tr>
<tr>
<td></td>
<td>150-200</td>
<td>11.814</td>
<td>21.999</td>
</tr>
<tr>
<td></td>
<td>200-250</td>
<td>-0.24</td>
<td>-1.273</td>
</tr>
<tr>
<td></td>
<td>250-300</td>
<td>-1.378</td>
<td>-0.733</td>
</tr>
<tr>
<td></td>
<td>More than 300</td>
<td>-0.858</td>
<td>-1.431</td>
</tr>
<tr>
<td>Discount rate</td>
<td>0-10%</td>
<td>54.4</td>
<td>12.355</td>
</tr>
<tr>
<td></td>
<td>10-20%</td>
<td>4.524</td>
<td>23.121</td>
</tr>
<tr>
<td></td>
<td>20-30%</td>
<td>-0.38</td>
<td>1.036</td>
</tr>
</tbody>
</table>

Table 2. Level of Attributes

Table 3. Attributes across Consumer Groups
We can find that local consumers and visitors have a significant difference in their preference for catering products. As illustrated in Figure 2, local consumers prefer discount rate most and the relatively importance is 54.40%, followed by product category, they pay less attention to period and price. Visitors prefer product category most, followed by discount rate and price. We infer that local consumers are more aware of the local product price, they are more sensitive to the discount rate so they prefer discount rate most in Sales promotion activity. Visitors have different eating habits, so they prefer catering category most.

Figure 3. Utility Value of Period across Consumer Groups

As can be seen in the Figure 3, the longer the period is, the smaller the utility value is. Two types of consumers have same preference in the level of “less than 50”, in the level of “50-100”, visitors prefer it far more than local consumers, the other utility values of both groups are negative. We find that visitors pay more attention to shorter period than local consumers.
Figure 4. Utility Value of Price across Consumer Groups

In Figure 4, we find that the higher the price is, the bigger the utility value is. It shows that all consumers are more popular in low-cost products. Local consumers like “less than 50” most, and visitors like “50-100” most, we can conclude that visitors prefer cheaper products more than local consumers.

Figure 5. Utility Value of Discount Rate across Consumer Groups

As can be seen in the Figure 5, The utility value of discount rate by local consumers present the shape of “high edges and low middle part”, they like the level of “0-10%” most far away from others, followed by “10%-20%” and “80%-90%”, it imply that local consumers can be hardly influenced by discount because they know local products. In comparison, visitors prefer higher discount rate products, Businesses can attract more foreign consumers relying on higher discount rate.

Figure 6. Utility Value of Category across Consumer Groups

As illustrated in the Figure 6, both groups prefer “Japanese & Korean cuisine” most. The order of preference of local consumers is seafood, barbecue, and so on. The order of preference of visitors is western food, snack local cuisine. We can infer that visitors prefer to taste foreign food and local cuisine, on the one hand, Beijing restaurant is relatively developed so that it has numerous foreign food brands. On the other hand, visitors have their own unique consumption patterns.

6. CONCLUSION

We investigate the relations of the period, price, discount rate and product category with sales in a group buying electronic marketplace. We find that there are outstanding differences in consumer behaviors between local consumers and visitors. Based on this finding, Groupon-like online daily deals and merchants will have the opportunities to design diversified marketing methods according to preferences of consumer groups. Group buying websites may strengthen cooperation with partner merchants according to consumers’ preference and launch more popular products. The recommendations for each consumer group may enable online daily deals attract more number of website users, but also provide higher quality marketing channels for merchants. Meanwhile, merchants may cultivate loyal customers utilizing the characteristics of catering category, adopting their advices and improving the products and services constantly. Also they are able to attract new consumers or visitors by higher discount rate and short period.

This research has contributed on literature using the method of conjoint analysis. Further our finding comes from the analysis on the transactional data set of group buying website. However, our study has certain limitations. Firstly, we collect the data of restaurant businesses only. In the future study, we may extend the scope of analyses including hotel, tourism, film, and so forth. Secondly, we can adopt various divisions of consumer groups, such as age, gender, and occupation.

7. ACKNOWLEDGMENTS

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8. REFERENCES


