Influence of Brand Logo on the Neuropsychological Mechanism of Luxury Goods Price Acceptance

Jingjing Wang

ABSTRACT
This study aims to study the influence of brand logo on the neuropsychological mechanism of luxury goods price acceptance. This study explores the neuropsychological mechanism of the impact of two basic external clues on the price acceptance of luxury goods, namely country of origin and brand logo, with the aid of the event-related potential technique in neuroscience. The amplitude of micro-impression group is significantly smaller than that of macro-impression group. Human cognition is monitored by the brain and human neuropsychological mechanism can reflect the level of conflict detected by the brain. This kind of cognitive monitoring mechanism can cause significant neural amplitude when mismatched.

Key Words: Event Related Potential, Luxury Goods, Price Acceptance

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Introduction
Do people feel painful and joyful at the same time when they pay for the product they choose? Does the product appearance or rather the product price drive the consumer to make the purchase decision? Why are high-priced products evaluated as high-quality products? In early studies, empirical judgments, questionnaire sampling, or behavioral observations were usually adopted to infer individual psychology for such questions (Snyder, 2015). For example, when buying expensive goods, the individual's "painful and joyful" feeling may be resulted from the reward (the product purchased) on the one hand and the loss (the money spent) on the other hand (Katz, 1960). Along with the application of neuroscience in interdisciplinary subjects (such as economics, psychology, etc.), such interdisciplinary subjects as consumer neuroscience have emerged as the times require.

As neuroeconomics is increasingly further subdivided and improved, it is hoped that the discipline can solve the above questions from the perspective of cognitive neural mechanism with the help of the objective and measurable research tools provided by neuroscience (Leary, 1990).

With the improvement of the living standards of the Chinese people and the rapid improvement of their purchasing power, more and more Chinese begin to buy luxury brands. Although China raised the import tax of luxury goods by more than 20% at the beginning of 2006, China's luxury goods market still increased by 20%. In 2009, China's luxury goods consumption surpassed the United States to become the world's second-largest consumer of luxury goods. Boston Consulting Group then predicted that China would overtake Japan as the world's largest consumer of luxury goods in 2017. However, it turns out that China's luxury
market is growing at a much faster rate than the company has expected. According to the latest China's 10-year official report released by the World Luxury Association on January 11, 2012, the annual consumption of China's luxury market has reached to a high of $12.6 billion a year (excluding private jets, yachts and luxury cars) by the end of December 2011, accounting for 28% of the global share and has become the world's largest consumer of luxury goods. The Chinese market is like a tempting cream cake, and every luxury brand craves to get a bigger slice in the fierce competition.

The rapidly expanding middle class new wealth is a special product of the great social and economic transformation in China and is also an important group for luxury goods consumption. These rising new riches have a considerable income and an avant-garde consumption concept, which work in an internationalized environment and socialize with high-end people. Therefore they tend to look for brand goods in shopping. Even if they can't afford sports cars, villas or yachts, they can save at least a few months' salaries to buy a Gucci windbreaker or a Louis Vuitton handbag (Aggarwal, 2004). Market analysis finds that consumers' purchases of luxury goods are affected by a number of factors, including internal clues directly related to the use of goods, such as quality, performance, etc., and many external clues that are not directly related to the use of goods, such as country of origin, brand, advertising, etc. China's middle-class is newly rising customer for luxury goods, and they do not have deep understanding of luxury goods, so they often rely on external clues for their purchases (Aggarwal, 2004). For example, one would buy a product produced in France, as he thinks France is the home of luxury goods, so the product shall be good and worth buying; or another would buy things that are endorsed by with the world's first-line film star, as he perceives that product with the same style with the movie star seems to be relatively high-end; still another one would buy a bag of a certain brand, simply because her leaders in her company all carry the bag of that brand. From the point of view of market consumption, luxury goods are expensive, but there are plenty of middle class new riches who are willing to pay big money for them even though it means they have to save money, as long as they approve them, be it a Dupont lighter worth several thousand yuan or a Lotos spare time mirror worth tens of thousands yuan. That's to say, as long as we can understand the psychology behind consumers' luxury consumption behavior and find out the external clues that affect the rules of consumers' price acceptance, we can help luxury companies to open up the market among the middle class consumers.

Methods
This study examines the luxury price acceptance from the perspective of the two dimensions of the country of origin and the clues of luxury brands, with single / double country of origin, macro / micro impression of country of origin, presence or absence of logo and logo types adopted as the research classification basis, so as to provides new ideas for the study of luxury consumption. Previous studies on the country of origin of luxury goods generally involved only one dimension of the country of origin (the country of brand or the country of production). This study comprehensively examines the two dimensions of the country of origin, and country of brand and the country of production, and investigates the impact of macro/micro impressions on country of origin and single/dual country of origin on price acceptance. On the other hand, few studies have focused on the logos of luxury goods. The only study on luxury logos classifies luxury items in terms of the “LOGO Prominence Scoring” obtained through a small scale questionnaire. The study is very subjective. In this study, the brand logos are classified into common logo, non-logo, name logo, and pattern logo, which are innovative.

In the study, the 64-lead electrode cap of the international 10-20 system is used to monitor and record the ERP (Event Related Potential) signals of the cerebral cortex of the subjects. The electrode cap takes the Ag/AgCl sintered alloy as electrode to ensure that the accuracy of the potential recording is not affected by the polarization potential. Moreover, the surface of the Ag / AgCl electrode is not easily damaged, and there is no need for frequent chlorination of the electrode. The collected ERP signals are amplified by an amplifier, which are converted into digital signals to be recorded in the computer (Wilcox et al., 2009). The resulting signal becomes analytical ERP data after the noise reduction process.

Results and discussions
Influence of brand country on luxury goods price acceptance: a neural mechanism perspective
A total of 14 subjects (8 females and 6 males) are paid to participate in the experiment. In order to
Table 1. Comparison of price acceptance rate between 10 microscopic group and macro sister

<table>
<thead>
<tr>
<th></th>
<th>Average value</th>
<th>Standard deviation</th>
<th>Number of samples</th>
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<tbody>
<tr>
<td>Microscopic impression group</td>
<td>84.64</td>
<td>17.75</td>
<td>14</td>
</tr>
<tr>
<td>Macro impression group</td>
<td>60.03</td>
<td>19.70</td>
<td>14</td>
</tr>
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Table 2. Paired-sample T-tests for scoring the perceived value of microscopic and macroscopic groups

<table>
<thead>
<tr>
<th></th>
<th>Microscopic impression group</th>
<th>Macro impression group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodity value</td>
<td>4.14</td>
<td>3.57</td>
</tr>
<tr>
<td>Show off value</td>
<td>3.93</td>
<td>3.57</td>
</tr>
<tr>
<td>Hedonic value</td>
<td>3.57</td>
<td>3.43</td>
</tr>
<tr>
<td>Quality value</td>
<td>4.07</td>
<td>3.43</td>
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</table>

Table 3. Paired testing of the observed group and macro amount of fertilizer

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<tr>
<th></th>
<th>Microscopic impression group</th>
<th>Macro impression group</th>
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</thead>
<tbody>
<tr>
<td>Coo (I)</td>
<td>4.07</td>
<td>3.43</td>
</tr>
<tr>
<td>Coo (J)</td>
<td>0.997</td>
<td>0.97</td>
</tr>
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Table 4. Comparison of price acceptance rate between name mark group and pattern mark group

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Number of samples</th>
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<tbody>
<tr>
<td>Pattern logo</td>
<td>37.63</td>
<td>24.31</td>
<td>20</td>
</tr>
<tr>
<td>Name logo</td>
<td>44.13</td>
<td>25.98</td>
<td>20</td>
</tr>
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</table>

guarantee the effect of the experimental scenario, the subjects who know about the watch industry are selected through the pre-test questionnaire, wherein subjects are selected on the condition that they can correctly name the countries of origins of the top 5 luxury watch brands (Patek Philippe - Switzerland, Vacheron Constantin - Switzerland, Audemars Piguet- Switzerland, Cartier - France, Rolex - Switzerland). All the subjects are right-handed, with an average age of 28 years old (ranging from 24 to 37 years old) normal vision or normal corrected vision, and without any mental illness or history of mental illness.

The behavior data collected and analyzed in this study are price acceptance rates, with the data processing method the same as that of Experiment I. Table 1 shows the price acceptance rates for luxury items of the macro-impression and micro-impression groups.

According to the paired sample T test results (see Table 1), there is a significant difference in the price acceptance rates between micro-impression group and macro-impression group (t=3.032, p=0.000), and the price acceptance rate of luxury goods of the micro-impression group (M=84.64, SD=17.75) are significantly higher than that of the macro-impression group (M=60.03, SD=19.70).

After the questionnaires are collected, the results of the collected questionnaires are first sorted out with Excel software. Then, the results of each question item are analyzed by SPSS software, and the paired samples of macro-impression group and micro-impression group are tested by T test. The results of the descriptive statistical analysis of the questionnaire data are shown in Table 2.

In order to analyze the relationship of N2 component between the micro-impression group and the macro-impression group, the paired tests are further performed on these two stimulation types, and the results are shown in Table 3. The results show that the N2 amplitude of micro-impression group (M=0.833, SE=0.759) is significantly smaller than that of macro-impression group (M=0.670, SE=0.712), and p=0.004<0.05.

Influence of logo types on luxury goods price acceptance: a neural mechanism perspective

The behavior data collected and analyzed in this study are price acceptance rates, with the data processing method the same as that of Experiment I. Table 4 shows the price acceptance rates for luxury items of the name logo group and the pattern logo group. According to the paired sample T test results, the price acceptance rate of luxury goods of the name logo group (M=44.13, FSD=25.98) is significantly higher than that of the pattern logo group (M=37.63, SD=24.31), and p=0.024.

The paired sample T-test analysis results of the questionnaire data show that there is a significant difference in the overall evaluation of the product value between the two experiments. In particular, among the five dimensions of luxury...
value, there are significant differences in flaunting value, while there are no significant differences in hedonic value, materialist value, unique value and quality value. That is to say, the type of luxury logo has a significant influence on the evaluation of commodity value, which mainly exists in the dimension of flaunting value.

The ERP data obtained by the experiment is processed according to the foregoing ERP data off-line processing method. The ERP waveform of 200 ms before the stimulation image is presented is taken as the baseline of the analysis. The analysis is continued to 800 ms after the stimulation image appears, with total analysis duration of 1000 ms. In this study, variance analysis of repeated measurements of subjects is used to analyze the data with FSPSSF software. According to the logo types (name logo vs pattern logo), the stimulation materials are divided into two types, and the ERP differences caused by the two logo types are compared, as shown in Figure 1.

The results of further paired sample T-test (see Table 5) show that the LPP amplitude is significantly higher in the name logo group ($M = 5.949$, $SE = 1.095$) than that in the pattern logo group ($M = 5.280$, $SD = 1.195$), and $FFP = 0.000 < 0.05$.

**Conclusions and prospect**

Most of the existing price studies focus on mass consumer goods, and these studies have revealed some rules and characteristics of price acceptance of many consumers. But luxury goods are different from mass consumer goods, as they are special commodities (Li et al., 2007) in which the intellectual value of commodities accounts for a large proportion of the total value of commodities (Li et al., 2007). The micro (concrete) impression of the brand country is superior to macro (abstract) impression of the brand country in promoting consumers' price acceptance. Therefore, we propose to adopt "chasing effect for ideal country of origin" to summarize the phenomenon that "when the country of origin clue is closer to the ideal country of origin in the consumer's mind", the consumer is more tended to accept the price of the product.

Classical economic theories and the latest neuroscience research results show that there exists a process of "mismatched gains and losses" between the perceived value of a commodity and the perceived loss of money in consumer price acceptance. And our human cognition is monitored by the brain. The N2 component of ERP can reflect the level of conflict detected by the brain. This cognitive monitoring mechanism will trigger significant N2 amplitude in the event of mismatch. The closer the country of origin clue is to the ideal country of origin in the stereotype, or the more easily the logo can be recognized, the higher the consumer's perceived value of the product, and the higher the match with the value of expensive goods. As a result, the resulting cognitive conflict is smaller and the N2 amplitude is smaller, which is in the end reflected in the consumer behavior that the smaller the cognitive conflict, the higher the purchase rate will be.

**References**

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