

Trend of Logo Design Style for Chinese Car Trade from 2000 to 2019

Meiyan Feng^{1 a*} and Ming Liu^{2, b}

¹YUNNAN Technology and Business University, 10 Jinguan Road, Songming city, Kunming, China

²YUNNAN Technology and Business University, 10 Jinguan Road, Songming city, Kunming, China

^a22778918@qq.com, ^b19663209@qq.com

* corresponding author

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Abstract: For an car brand, the design of car logo is very important. A good logo is very important for both companies and consumers. Logo not only represents the brand culture, but also improves the trading volume of the car brand. Based on China's car trade, this article focuses on the trend of logo design style in China's car trade in 2000-2019. Using heavy information analysis and clustering algorithm analysis methods, two research schemes are proposed. One is to study the change of logo style of CHANG'AN Car in the past 10 years, the other is to study the difference of logo style of CHANG'AN, Harvard and JAC car in 2015. The research results show that in 2000-2019, the logo design style of China's car trade has changed from complicated to simplified, which used to be animal patterns, but now the popular one is simple letters. The previous logo is very heavy, while the current logo size is moderate.

1 Introduction

More than 100 years ago, the first car in the world was born. After that, many countries have developed their own car brands, and slowly China has also invented cars. The growth history of China's car trade is very long and hard. The growth of the car trade is growing. Compared with China in the last century, the car is a luxury for most people, but now the car is everywhere.

With the growth of car trade, people are changing the design style of car logo. This article studies this change. In [1], the author uses the Chinese car sales information and the discrete choice model of differentiated products to link the brand type and demand. The results show that Chinese consumers prefer the model with semantic brand (7.64% higher than alphanumeric), but the preference of phonological name is the least (4.92% lower than alphanumeric). In [2], the author first describes the impact mechanism of tax policy on car production, consumption structure and technological innovation of car related enterprises. Last, in view of the deficiencies in the transformation and upgrading of the car trade, the article puts forward suggestions to improve the current situation of tax policies. In [3], the author takes 279 cities in 31 provinces of China from 2003 to 2015 as samples, describes the impact of urbanization on car energy consumption in the income gap, and further discusses the heterogeneity of car energy consumption in different regions. The verdict shows that considering the income gap, the impact of urbanization on car energy consumption increases first and then decreases. In [4], the author introduces heterogeneous R & D subsidy into the two sector technology model to investigate the impact of subsidy and directional technology on environmental quality, and evaluates the direction of technology change and the dynamic process of environmental quality in China's car trade. The results show that clean technology and non clean technology have a strong impact on environmental quality. In [5], the author uses inductive and down-to-earth theoretical construction technology to test what impels the company to conduct experiments on a novel technology platform in China, plug-in electric vehicle (PEVS). In [6], to observe the impact of financial subsidies on the R & D activities of novel energy vehicle enterprises in China, the author starts from the perspective of enterprise R & D intensity. Empirical analysis shows that financial subsidies have a positive impact on the R & D intensity of novel energy vehicle trade chain enterprises. In [7], the author describes and describes the public

policy trajectory of China's novel energy vehicles (battery electric, plug-in hybrid and fuel cell vehicles) from 2009 to the first quarter of 2008. The article points out that in recent years, the policies adopted by the central government have changed dramatically, from a simple buyer incentive (demand driven policy) to a more complex set of policies, including not only incentives for the buyer, but also incentives for car manufacturers to invest in R & D and technology densification (demand driven + technology driven policy). In [8], the author describes how the growth of unbalanced institutional structure leads to the change of industrial structure in China's transformation by comparing the three pillar industries of car, oil and machinery. This article argues that due to this unbalanced growth, China's country is not enough to be considered as a state of growth, at least in the early 21st century. In [9], the author aims to use panel information evaluation method to analyze the influencing factors of Southeast Asia's natural rubber export to China. The results show that NR price, exchange rate and China's economic slowdown have a significant impact on NR exports to China, while NR production in Southeast Asia has no significant impact on NR exports. In [10], this article uses the super efficiency DEA model to calculate the ecological efficiency of 30 provinces. The results show that China should change its economic growth mode from high energy consumption and pollution to low energy consumption and pollution.

This article focuses on the change trend of logo design style in China's car trade during the two decades of 2000-2019. According to the change trend, this article selects two research schemes, and the specific research methods and schemes are shown below.

2 Method

2.1 Heavy information analysis

Some fields extensively use heavy information analysis. The heavy information means a novel information developed on the basis of electronic brain, Internet of things, cloud computing. Now, heavy information is extensively used in commercial aspect, medical aspect, education aspect. Everything has its meaning, the same with heavy information. The meaning of heavy information is complete information information. Many people use the information of multifarious dimensions and angles to record something which they do and judge their initial traits. Therefore, although heavy information has not yet developed a unified verdict in the current academic circles, the research about heavy information provides an significant theoretical basis for the further application of heavy information technology. Heavy information analysis primarily has four traits: extensive data, special types of information, special speed of information processing and low value density of data. In this article, the heavy information analysis method is used to analyze the changes of car logo style in the 10 years from 2000 to 2019. The specific analysis steps are as follows:

Collect the car logo information from 2000 to 2019, and integrate and sort out the information;

Analyze and calculate the collected information with heavy information, and save the analysis results;

Analyze the results after the results come out, and draw relevant verdicts.

2.2 Overview of clustering analysis algorithm

Clustering algorithm is also known as cluster analysis, which is a statistical analysis method to study (sample or index) classification problem, and also an important algorithm of information mining. For example, this article uses clustering analysis algorithm to mine the information of logo design of Chinese car trade in 2000-2019, and describes the information. The expression of a clustering algorithm mining information rules is:

$$A \Rightarrow B \quad (1)$$

In the upper formula, A represents the information of information, B represents the information after mining.

K-means algorithm is used in clustering algorithm. K-means algorithm accepts input K, and then divides n information targets into K clusters to make the clustering satisfied: the similarity of targets

in the same cluster is higher, but the similarity of targets in different clusters is smaller. Cluster similarity is calculated by using a "center target" (gravity center) obtained from the mean value of the targets in each cluster. K-means algorithm's working process is as follows: foremost, the author randomly selects K targets from N information targets as the initial clustering center, while for the remaining targets, they are assigned to the most similar clustering centers (represented by clustering centers) according to their similarity (distance) with these clustering centers, and then the clustering centers of each novel cluster are calculated. (the mean value of all targets in the cluster), this process is repeated until the standard measure function begins to converge. In general, mean square deviation is used as the standard measure function. K clusters have the following characteristics. Each cluster is as compact as possible, and each cluster is as separate as possible. The mean square deviation formula is as follows:

$$\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \mu)^2} \quad (2)$$

3 Experiment

This article studies the change of logo design style in China's car trade from 2000 to 2019. There are two research schemes in this article. The first one is to select the change of logo of the same car brand in 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018. In this article, the author selects CHANGAN Car as the research target, focusing on the logo design of the brand in 2000-2019. The ratio of design style to logo design style of Chinese car brands. The second scheme is to select different car brands in the same year to study the change of logo. This article selects CHANGAN, Harvard and JAC car as the research targets, describes the change of car logo of each car brand in 2015, and the proportion of each car brand's logo design style in China. See Figure 1 and Figure 2 for details.

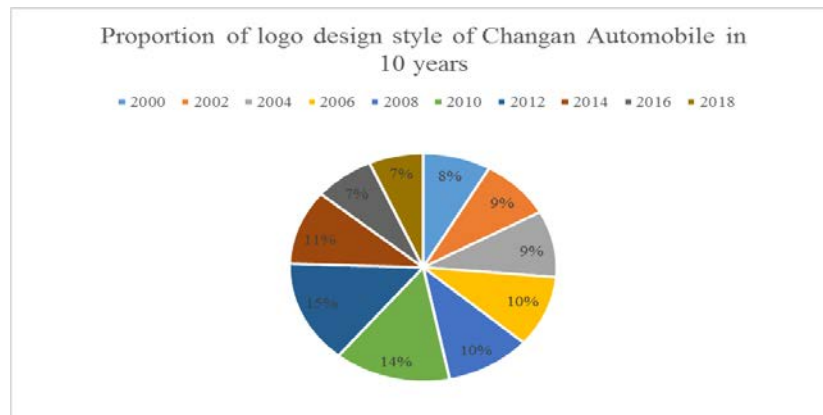


Figure 1 Proportion of logo design styles of CHANG'AN Car in 10 years

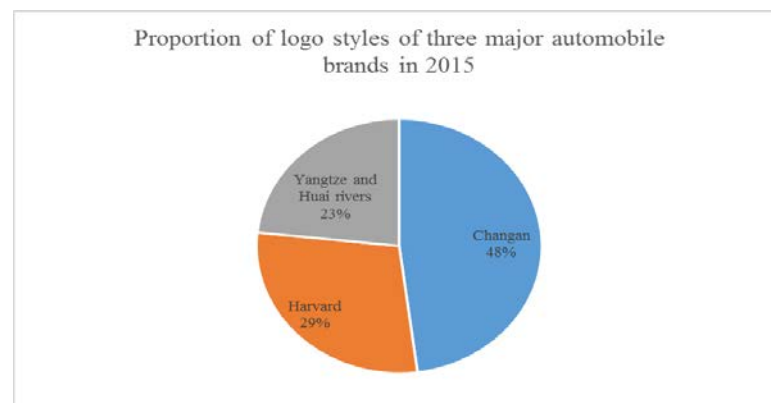


Figure 2 Proportion of logo styles of three major car brands in 2015

4 Results

Through the research and analysis of the above two schemes, it can be found that the logo design style of car brand is constantly changing. From 2000 to 2019, the logo design style of CHANG'AN Car changed from complicated to simple, which used to be animal patterns, but now the popular is simple letters. The previous logo is very heavy, while the current logo size is moderate. In the 10 years of the study, the proportion was 8%, 9%, 9%, 10%, 10%, 14%, 15%, 11%, 7%, 7%, respectively. It can be seen that CHANG'AN Car accounted for a stable proportion in 2000-2008, increased sharply in 2010, and declined slowly after 2014. This is because CHANG'AN Car just developed in 2000 and is important for China's car trade, so its logo occupies a heavy part in the market. In 2010, CHANG'AN car was redesigned. Considering the logo, it has become more easy from the original complexity, so it has a heavy share in the market. The reason for the decrease in the ratio in 2014 is that many Chinese car brands have developed, which leads to the less proportion of CHANG'AN car. In the second plan, in 2015, CHANG'AN, Harvard and JAC accounted for 48%, 29% and 23% respectively. It can be found that in 2015, the style of CHANG'AN car was quite popular with the public, and Harvard and JAC accounted for the same proportion.

5 Verdict

This article studies the trend of logo design style change in China's car trade from 2000 to 2019. To study the trend, this article proposes two research programs. The first is to study the proportion of CHANGAN Car's logo design style in 10 years, and the second is to study the proportion of CHANGAN Car, Harvard car and JAC car in 2015. From the research results, it can be found that the logo style of CHANGAN Car is determined by Complicated and simple, with various styles. Before, they used to be animal patterns, but now they are popular with simple letters. The former logo is very heavy, while the current logo is generally popular with the public, which accounts for a heavy proportion in China's car trade. In addition, there are many deficiencies in this study, such as no research on other car brands, nor thinking about the differences between Chinese car brand logos and foreign car brand logos. These problems will be solved slowly in the future research.

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