FACTORS INFLUENCING THE CONSUMPTION OF ELECTRIC VEHICLES IN CHINA

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FACTORS INFLUENCING THE CONSUMPTION OF ELECTRIC VEHICLES IN CHINA

Thematic Certificate

To

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ABSTRACT

In recent years, environmental pollution and the increasing depletion of oil resources have made humans strongly question traditional cars. As a result, clean and environmentally-friendly electric vehicles have become the focus of attention of major automobile companies and even countries. In the increasingly mature consumer market of new energy vehicles, all parties are competing fiercely. In such an environment, it is important to grasp the characteristics and rules of consumer behavior of new energy vehicles in China, which will be of practical guidance to Chinese new energy vehicle manufacturers in product development and design, product positioning and pricing, and other marketing strategies. This study conducted a quantitative study on the consumption of new energy vehicles and writes this study.

This research mainly used empirical studies to investigate the demographic characteristics and purchasing behavior of potential consumers of new energy vehicles in China, using "potential consumers of electric vehicles" as the research object. The study used statistical analysis software to conduct multivariate statistical analysis on the valid samples collected, to study the characteristics of potential consumers of new energy vehicles in China, and to analyze the factors that concern the purchasing decision of potential consumers of new energy vehicles in China.

The study introduced the development of consumer behavior, the current situation of domestic and foreign research, the introduction of relevant theoretical models, the factors influencing automobile consumption, the motivation of consumers' purchase, the description of new energy vehicles, the situation of domestic and foreign new energy vehicle market consumption, and the problems faced in the development of new energy vehicles. Then, variables and questionnaires were designed to meet the purpose of this study. In the quantitative study, frequency analysis, reliability analysis, factor analysis, and other statistical analysis methods of statistical analysis software were used

to analyze the data of the valid samples. Through the study, five potential consumer concern factors were extracted. The study also found that there were no significant influence of consumers' gender, life cycle, and geography on potential consumers' choice of new energy vehicles, but age, education level, income, and occupation were the most important factors to influence consumers. Finally, the findings were discussed and future research work is anticipated.

Keywords: Consumer behavior, Influencing factors, Electric vehicles（EV)

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Chapter 1 Introduction

1.1 Overview of Study

In terms of energy problems, the share of fossil energy consumption in total energy consumption has steadily increased year by year since 1973, with an average annual growth rate of 1.2%, until it accounted for 28.2% of total energy consumption in 2018 (International Energy Agency, 2018). According to the China National Petroleum Corporation Institute of Economics and Technology (CNPC, 2019), China's oil dependence reached more than 70% in 2019. These figures indicate that China's energy crisis is relatively urgent. However, under the influence of the development and use of new energy sources, but also simultaneously with the impact of the epidemic on the global economy, the share of primary energy consumption has declined significantly, with an annual change of -4.5% in 2020 and an annual change of -6.3% in carbon emissions (bp World Energy Statistics Yearbook, 2021). Among these, the rapid development of EVs in recent years is one of the reasons that have made the energy and environmental problems less severe.

When it comes to a low-carbon economy, the automobile industry is a part of it that cannot be ignored. "Electrification, intelligence, and sharing" have become the strategic direction of the global automotive industry, and EVs are the most important part of the future changes in the automotive industry. In China, since 2012, the State Council has introduced several policies to support the development of the EV industry, making the sales and ownership of EVs in China rank among the top in the world, and the technology level has been continuously improved and has certain advantages in the international arena.

According to data compiled by the National Bureau of Statistics of China (NBSC, 2022), the focus of China's future automotive development will shift to EVs that are green and less costly to use. In 2021, China's EV sales completed 3.521 million units, up 1.6 times year-on-year, ranking first in the world for seven consecutive years. Among them, the production and sales of pure EVs were 2.442 million and 2.916 million, an increase of 1.7 times and 1.6 times respectively; the production and sales of plug-in hybrid vehicles were 601,000 and 603,000, an increase of 1.3 times and 1.4 times respectively; the production and sales of fuel cell vehicles were 0.2 million, an increase.

There is no doubt that China is the world's largest market for EVs. However, the reason for the continued rise in sales is mainly dependent on China's policy support, which is very strong in terms of financial subsidy for EV technology, application areas, and market expansion. According to a new document issued by the Chinese government in 2022, the policy subsidies for EVs will be gradually reduced until they are completely withdrawn after 2023. This is not good news for the sustainable development of China's EV market.

1.2 Significant of Study

At present, China's new energy vehicles are in the primary stage of new energy development, just like the developed countries in Europe, America, and Japan. Due to the unbridgeable gap between the traditional automobile industry, most of the automobile manufacturers in China are hoping to catch up and surpass the automobile industry of developed countries in this period of major changes in the automobile industry, for which the state has also increased the attention and support to electric vehicles. As early as July 1, 2009, the "New Energy Vehicle Production Enterprises and Product Access Management Rules" were implemented, detailing the types of new energy vehicles, the subsidy standards and scope of subsidies for the purchase of new energy vehicles, and the implementation of new energy vehicle pilot projects in cities across the country until 2021.

At present, automobile consumption is becoming a social consumption trend, and new energy vehicles are attracting more and more consumers' attention because of their economic, environmental protection, and energy-saving features, but consumers are at the initial stage of cognition of electric vehicles. In this study, we hope to understand the demographic characteristics of potential consumers of electric vehicles and their awareness of electric vehicles in China by taking potential consumers of electric vehicles as the research object. Secondly, by studying the preference of potential EV consumers for new energy vehicles and the factors influencing their purchase decisions, we will find out the indicators and decision factors that potential EV consumers are concerned about. Thirdly, based on the characteristics of potential consumers of EVs, we will provide guidance and suggestions for the production, marketing, and positioning of EV manufacturers. Finally, the study will provide effective and reasonable suggestions for the national development strategy of new energy vehicles.

1.3 Objective of Study

The rapid development of EVs is one of the more important factors in China's efforts to address environmental and energy issues. As the main consumer of EVs, consumers' willingness to purchase largely determines the market development and market share of EVs.

However, existing research on EVs in China is mostly on the industry itself, the construction of public facilities, policy subsidies, and technology. Not much research has been done on consumer behavior and it is not well developed. For example, there are differences between actual and potential consumers, and the neglect of these differences may lead to some key factors being overlooked. The factors influencing Chinese consumers' consumption of EVs can be collated and analyzed through theories related to consumer behavior. This study focuses on filling in some of the gaps that may have been overlooked by comparing and sorting out the studies of many previous researchers.

These factors can stimulate consumers' desire to consume the product and thus ensure the sustainable development of the product in the market. So, the objective of this study is:

1. to find out what the factors influencing the consumption of EVs in China, and how much these factors influence the market.
2. These factors will stimulate the consumer desire for EVs in China in the future,
3. and thus give new technical ideas and marketing strategies for the sustainable development of EVs in China.

1.4 Contribution of Study

In recent years, China's new energy vehicle industry has achieved remarkable results with the continuous support of policies. This study analyzes the factors influencing the purchase intention of electric vehicle consumers by using both quantitative and qualitative research methods, and through literature data mining, it is found that domestic research on the purchase intention of electric vehicle consumers is still relatively comprehensive, and the volume of journal literature is growing, but the volume of authoritative scholars' articles is relatively small. At the same time, there is an unbalanced promotion and application among domestic regions, the construction of charging facilities is not perfect, and there is still a gap between the inner performance and range of products and consumer expectations. This study is submitted as a graduation independent research paper at Siam University, Thailand, which can add a little Chinese experience and reference in the academic field of Thai universities after the study of Chinese electric vehicle consumer behavior.

1.5 Limitation of Study

This study is an empirical analysis based on the behavior of potential consumers of new energy vehicles. Through designing a questionnaire, statistical processing, and analysis of a large number of survey data, we describe the situation corresponding to each stage of the former consumers' purchase decision process. The research object is to analyze the characteristics of consumers and their attention to product-related attributes from the perspective of consumer behavior and marketing, hoping to make a more accurate explanation from both qualitative and quantitative aspects. Due to the limitations of the research conditions, time, and my research level and effort, this study has the following shortcomings

Although this study covers a wide area, the sample size was unevenly distributed and the respondents were not widely interviewed due to the limitation of the website and the time of the questionnaire release, which may limit the generality of the research findings. In the design of the questionnaire, there may be a lack of reasonable design of the items in the questionnaire, which may affect the findings of the study. From the results of the reliability and validity tests,

the reliability and validity of the scale are within the statistically acceptable range, but there is still a need to further improve the scale and make further modifications and additions to it.

The study is based on empirical research, and the findings are time-bound. Therefore, we must adjust the research content and revise the findings in response to the changes in the market and the changes in potential consumers' consumption perceptions and preferences.

Chapter 2 Literatures Review

2.1 Introduction

This chapter focuses on a review of consumer behavior research and a review of existing consumer behavior theories and models. It begins with a review of the conceptual history of the independent and dependent variables, followed by a review of theories that explain the relationship between the independent and dependent variables. Finally, an overview of consumer behavior is presented, with an introduction to important consumer behavior models, and an introduction to two marketing models.

2.2 Literature Reviews

The term independent variable comes from mathematics. In mathematics, y = f(x). In this equation the independent variable is x and the dependent variable is y. A variable that can affect other variables in a mathematical equation is called an independent variable. If (x) takes any quantity, (y) has a unique quantity corresponding to (x), then accordingly (x) is called the independent variable of this function, and (y) is the dependent variable of this function.

2.3 Theory of Reviews

An independent variable is a factor or condition that is actively manipulated by the researcher and causes a change in the dependent variable so that the independent variable is seen as the cause of the dependent variable. There are continuous and categorical variables of independent variables, and if the experimenter manipulates the independent variable as a continuous variable, the experiment is a water number type experiment. If the experimenter manipulates the independent variable as a categorical variable, the experiment is a factor-type

of the experiment. In psychological experiments, an obvious issue is to have an organism as a subject responding to a stimulus. The stimulus variable here is the independent variable.

There are several classifications of independent variables as follows.

(1) Stimulus characteristic independent variables: If the different responses of the subjects are caused by different characteristics of the stimulus, such as the intensity of the light, the intensity of the sound, the frequency of the word, the type of orange, etc., we call such independent variables that cause changes in the dependent variable stimulus characteristic independent variables.

(2) Environmental characteristics independent variables: Various characteristics of the environment in which the experiment was conducted, such as the lighting condition of the laboratory, temperature, the presence or absence of an audience, the presence or absence of

noise, day or night, etc., can be used as independent variables. Time is a very important and ever-present independent variable, especially in experiments on memory, and you can even say that there are almost no memory experiments that do not use time as an independent variable.

(3) Subject characteristics independent variable: Various characteristics of a person, such as age, gender, occupation, culture: degree, inward and outward personality traits, left or right hand as a sharp hand, high or low self-evaluation, etc., can be used as independent variables.

(4) Temporarily caused subject differences: This mainly refers to the subject differences caused by giving different instructions. Temporary differences in subjects are usually caused by the arrangement of the main subjects, that is, by the different instructional words given by the main subjects. For example, subjects use different learning methods to examine whether there are different effects on memory.

Dependent variables are those that are determined by purely economic factors within the economic mechanism and are not governed by policy. The dependent variable is "the variable to be explained within a theory" and is determined by the model.

The dependent variables are random variables with some probability distribution, and their parameters are the elements estimated by the joint cubic equation system. The dependent variable is determined by the model system and has an impact on the model system. Dependent variables are generally economic variables. Within the economic system, the dependent variable is a variable that changes on its own due to purely economic factors and is usually not influenced by policy factors, such as prices, interest rates, exchange rates, and other variables in a market economy.

In general, the dependent variable is associated with a random term, i.e.:

$Cov(Y_i, \mu_i) = E((Y_i-E(Y_i))(\mu_i-E(\mu_i)))=E((Y_i- E(Y_i))\mu_i)=E(Y_i\mu_i)-E(Y_i)E(\mu_i)=E(Y_i\mu_i)\neq 0$

In the joint cubic equation model, the dependent variable acts as both the explanatory variable and the explanatory variable in different equations.

To effectively change the dependent variable in promoting social progress, one must start by changing the independent variable that determines the dependent variable.

2.4 Research Relevant

2.4.1 Current status of abroad consumer behavior research

The study of consumer behavior in the West began at the beginning of the twentieth century, with Freudian psychologists pioneering the study of motivation, which provided the initial theoretical methods and techniques for the study of consumers and their behavior, and in the 1960s consumer behavior became a separate discipline. In 1968, Muss-Engel and others at Ohio State University published Consumer Behavior.

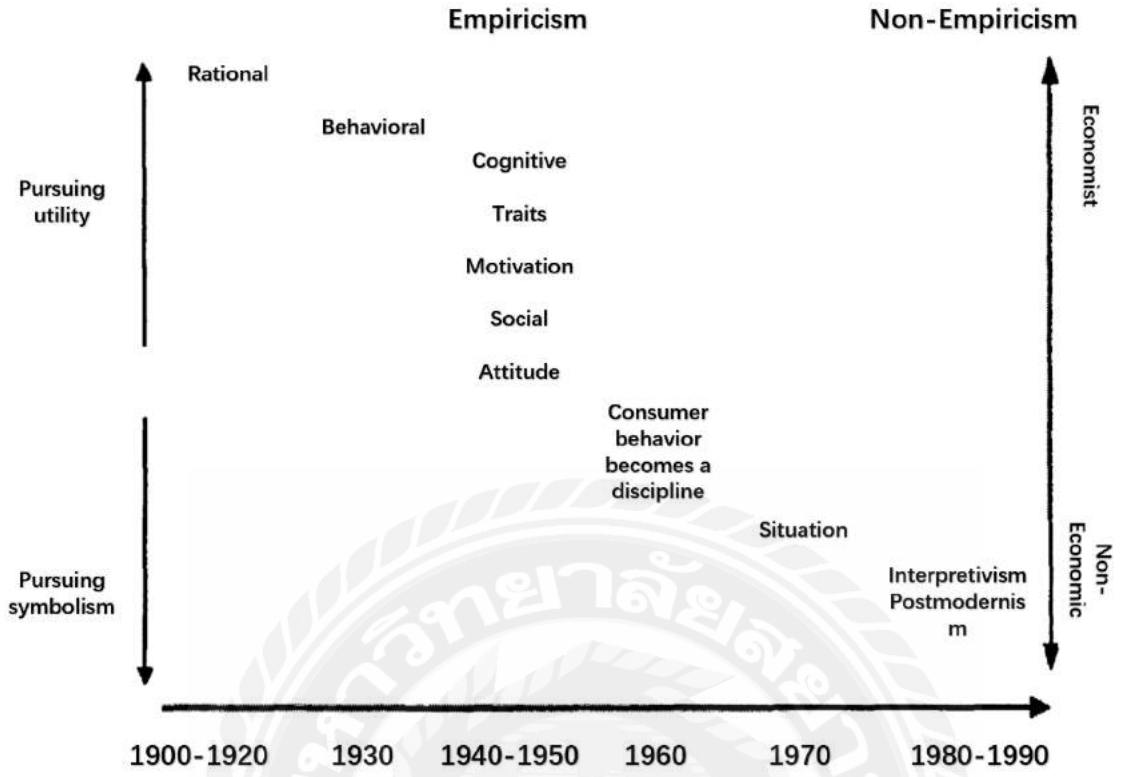

Figure 2.1 The development line of consumer behavior theory

Since the mid-to the late 1990s, it has become a consensus among scholars that Western research no longer focuses on the consumer purchase process, but on the value acquisition and consumption dimensions. The trends and hotspots of consumer behavior theories have been focused on the following aspects: 1. Consumer decision-making research. The individual decision-making process and influencing factors, family decision-making pattern and influencing factors, and decision-making in specific situations, etc. 2. Customer value research. Research on brand perception, brand-consumer relationship research, quality perception, etc. 3. Consumer intervention. Consumer intervention in corporate marketing, such as advertising, pricing, channel design, factors affecting consumer intervention, etc. 4. Consumer psychology. Emotional experience, consumer perceptions. 5. Research specific consumer groups. Female consumer behavior, college student consumption, generational consumption research, etc. 6. Specific industry consumption phenomenon research tourism, service industry cell phone consumption, commodity housing market consumer behavior research, etc.

In terms of research lines, one of the lines of Western consumer behavior research is positivist research, which believes that the consumer purchase process can be divided into several stages, and research stages, such as consumer perception, cognition, learning, attitudes, decision-making, feedback, and other processes to carry out segmentation research.

Another line of research is the so-called post-modern interpretivist line, which argues that consumer behavior is influenced by context and that there are no common behavioral patterns, and that the characteristics of consumer behavior can only be understood by linking the individual consumer to his or her environment. However, this line of research is influenced by the researcher's level and subjective factors, making it difficult to draw objective conclusions, However, this line of research is influenced by the researcher's level and subjective factors, which make it difficult to reach objective conclusions, and is therefore not commonly used.

2.4.2 Current status of China's consumer behavior research

The study of consumer behavior in China started late, and Chinese scholars have mainly conducted descriptive studies on specific consumer groups, such as college students and farmers, or behaviors, such as tourism, sports products, and real estate. The few in-depth empirical studies that have been conducted so far have mainly used Western research models to conduct comparative studies or tests of Chinese consumer behavior and attempted to build analytical models, which is an introduction to research methods. However, this type of study is based on a "slice-and-dice" study of Chinese consumers using foreign analytical tools and does not bring a breakthrough in the research meaning. Through literature data mining, it is found that the research on consumers' willingness to purchase new energy vehicles in China is still relatively comprehensive, with a growing trend of journal literature, but fewer authoritative scholars have published articles. This indicates that there is still room to improve the research on the factors influencing consumers' purchase of new energy vehicles in China.

2.4.3 Current status of consumer behavior research on vehicles

Previous studies on automobile consumption behavior are mostly at the macro level, mainly on the demand for automobiles, the characteristics of automobile consumption and future development trends, the current situation of automobile consumption in a certain region, and the analysis of factors affecting automobile consumption.

Wang Qinying and Liu Jinping (2008) analyze the short- and long-term elasticity of automobile consumption demand by establishing an autoregressive dynamic model of automobile consumption demand and forecasting the number of automobiles in the future. After nearly a century of development, the automobile consumption markets in Europe and North America are now in the fifth stage of the automobile consumption market, which is characterized by the higher popularity of cars, the increase in the use of cars by housewives, students and the elderly, the tendency of the vehicle to become smaller again, and the relative stability of the automobile consumption market. China is still in the third stage of the vehicle consumption market, where cars are starting to move towards the family stage and the proportion of small cars has increased significantly. The consumer mentality varies, some consumers are waiting to buy, due to the Tesla brake failure incident, resulting in the original

cautious purchase mentality of some consumers who appear aversion to purchasing, and some even refused to buy mentality. At the same time, due to the differences in local economic strength, distribution, and marketing of automobile manufacturers, the current situation of automobile consumption in each local market is different, The market is growing rapidly, and market is growing rapidly, and cars are becoming smaller and more luxurious.

There are few in-depth micro-analyses of the factors influencing automobile consumption in China. The study also summarized and categorized the rationalized and rationalized decision-making of automobile consumption and obtained a hierarchical system of six influencing factors. The factors influencing irrational decision making are, in order of importance, safety, price, economy, brand, dynamics, and comfort, while the factors influencing irrational decision making are, in order of importance, after-sales service, national auto consumption policy, purchase loan cost, urban traffic facilities construction, urban traffic management level, and emission standard. Yan Junsheng, Qian Yongkun, and Ai Gang (2002) conducted an empirical analysis of the factors affecting private vehicle consumption by a fuel tax, which showed that the more the cost decreases after the implementation of fuel tax, the greater the stimulating effect on vehicle consumption. However, the latest documents released by the government this year show that government subsidies will be gradually reduced until they are eliminated. So the impact of subsidy policy on the consumption of EVs will be less necessary in future studies compared to policies such as the unlimited number and unlimited traffic. Xingguang (2002) found that different social classes have a great influence on vehicle consumption and consumption characteristics.

2.5 Conceptual Framework

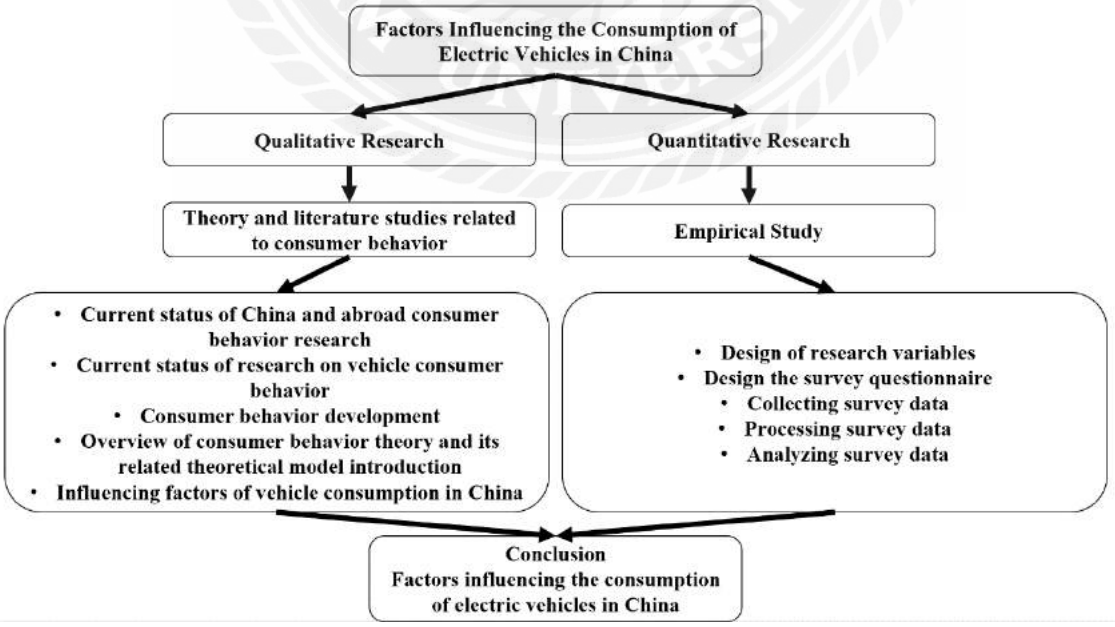

Figure 2.2 Conceptual Framework of this study

2.6 Terms and Definition Used in This Study

2.6.1 A Review of Consumer Behavior Research

A consumer is a member of society who buys or uses material goods and receives services or activities for personal purposes. In a narrow sense, a consumer is an individual who consumes the use value of goods or services. In a broader sense, consumers are the demanders, buyers, and users of products or services.

Consumers can be divided into real consumers and potential consumers according to their consumption status. A real consumer is a consumer who has a demand for a certain kind of consumption and has consumed it. A potential consumer is a consumer who has a demand for consumption but has not made a purchase but is likely to do so in a future period.

Consumer behavior is determined by internal factors and influenced by external factors. Consumer behavior is generally characterized by autonomy (the decision to make a purchase), causality (there is a specific reason for the consumer behavior), purpose (it arises from a specific purpose), continuity (it is a continuous process of activity), and variability (the behavior changes).

Many economists and psychologists have done a lot of research on consumer behavior and have proposed various theories and interpretations, which can help us to understand consumer psychology, behavior, and influencing factors scientifically.

The approaches to the study of consumer behavior can be broadly divided into two categories: positivism and interpretivism. The positivist view emphasizes the objectivity of science and considers consumers as rational decision makers. On the contrary, the interpretive view emphasizes the subjective significance of consumers' individual experiences and considers that any behavior is governed by multiple causes rather than by a single cause.

The study of consumer behavior forms the basis of marketing decisions and is inseparable from marketing activities in the corporate market. It is important for improving the level of marketing decisions and enhancing the effectiveness of marketing strategies. It can provide support for research in the following areas

1. Brand image and brand management

Through the study of consumer behavior, the brand development strategy is formulated based on understanding the awareness, purchase rate, loyalty, conversion rate, reputation, and other indicators of each brand, understanding the image, status, and evaluation of each brand in the minds of consumers, as well as the image of the product category and the image of brand users.

2. Product positioning

Only by understanding the position of the product in the mind of the target consumers, and whether the product is accepted by consumers, can we develop an effective marketing strategy.

3. Market segmentation

Market segmentation is the basis for developing most marketing strategies. The purpose of market segmentation is to find the right target market to enter and to develop targeted marketing programs based on the characteristics of the target market's needs so that the unique needs of consumers in the target market can be more fully satisfied.

4. New product development

By understanding the needs and desires of consumers and their evaluation of various product attributes, companies can develop new products accordingly. It can be said that consumer behavior research is an important source of new product ideas and an important way to test whether various aspects of new products, such as product performance, packaging, taste, color, specifications, etc., are acceptable and where they should be further improved.

5. product pricing

If the product pricing and consumer affordability or disconnected from the consumer recognition of the value of the product, the best products are difficult to open in the market.

6. the choice of distribution channels

Consumers prefer to go where and how to buy the product, which can also be learned through consumer research.

7. The development of advertising and promotional strategies

A thorough understanding of consumer behavior is the basis for the development of advertising and promotional strategies. Through consumer behavior research, we can understand their access to information, their attitude and evaluation of advertising and promotional behavior, and the impact of advertising and promotional behavior on their consumption behavior, so that we can develop reasonable and effective advertising and promotional strategies.

2.6.2 Theories and models related to consumer behavior

1. Engel Models

Engel’s model also called the EKB model, is one of the more complete and clear theories of consumer behavior. This model was developed by Engel, Kollat, and Blackwell in 1968 and revised in 1984. The focus is on the purchase decision process.

The model is divided into four parts: (i) the central control system, i.e., the information input, (ii) information processing, (iii) the decision process, and (iv) the external influences.

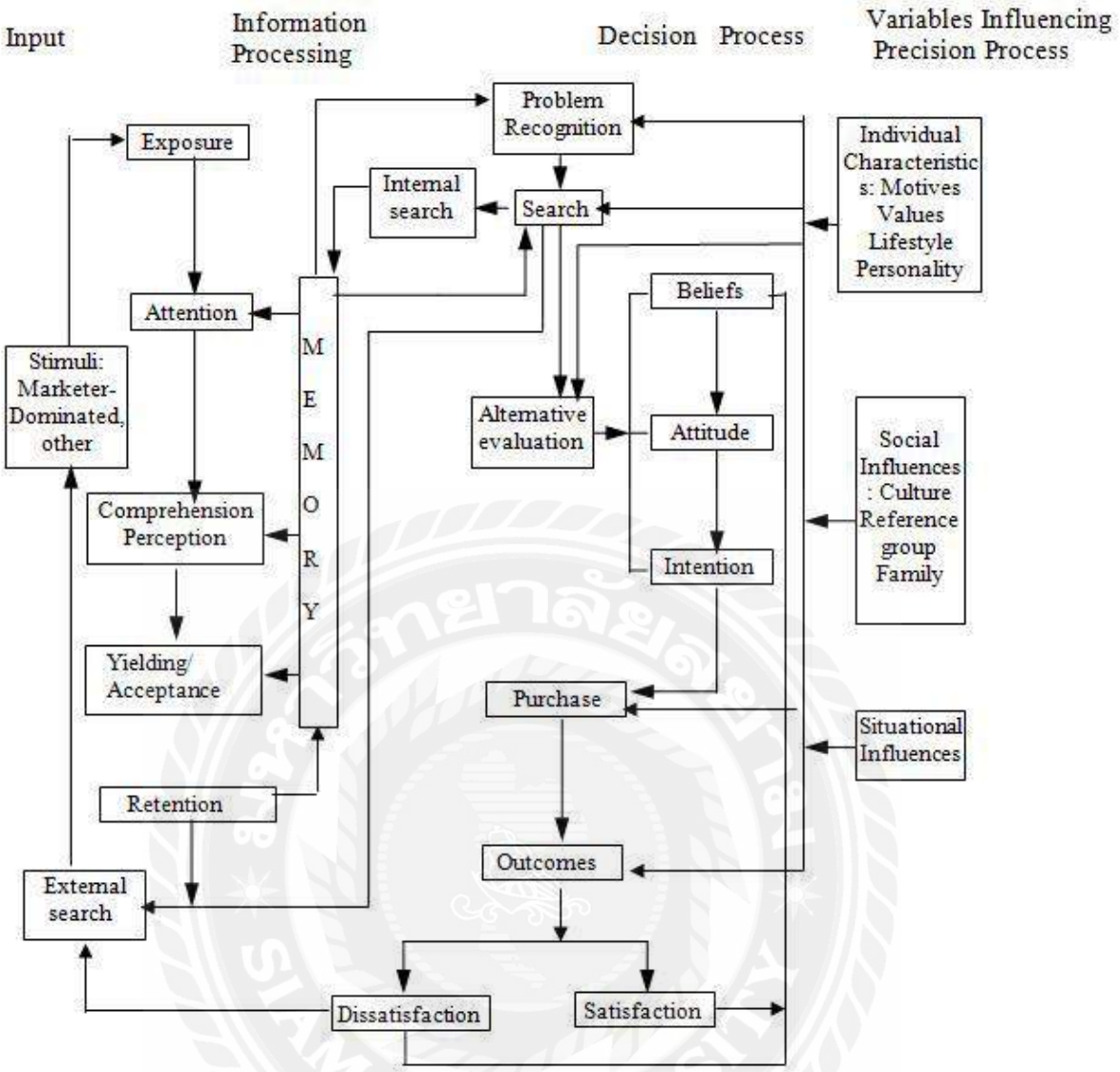

Figure 2.3 The EKB model, Engel, Kollat, and Blackwell, 1968

According to the EKB model, external information is input into the central control system under the action of tangible and intangible factors, i.e. filtering and processing of personal experiences, evaluation criteria, attitudes, and personality stored in the brain, which are elicited, discovered, noticed, understood, remembered and stored in the brain, constituting the information processing process, and researching and evaluating choices internally, and evaluating choices for external exploration, i.e. selection, resulting in decision options. Throughout the process of decision-making, research and evaluation options are also The entire decision-making process is also influenced by environmental factors, such as income, culture, family, social class, etc. Finally, a purchase process is generated, and the consumer experience of the purchased product leads to a conclusion of satisfaction or not. This conclusion is fed back into the central control system, forming information and experiences that influence future purchasing behavior.

The model suggests that the consumption process goes through five stages: need recognition, information search, evaluation of alternatives, purchase, and outcome. The process of consumption behavior begins long before actual consumption occurs and its effects continue long after consumption.

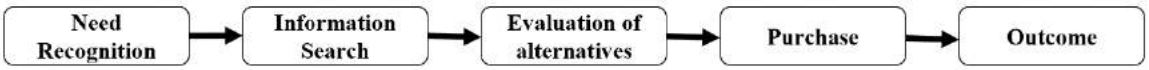

Figure 2.4 Five stages of the EKB model, Engel, Kollat, and Blackwell, 1968

The model in Figure 2.5 illustrates that consumers go through all five stages of the purchase process, but in reality, this is not the case and consumers may cross or reverse some of these stages. However, the model in Figure 2.5 will be used in this study because it illustrates the full range of thought processes that occur when a consumer is faced with a new, highly-involved purchase.

Need recognition

The consumer's consumption process starts with the recognition of a problem, and the need may arise from internal or external stimuli. The decision to purchase a good begins as soon as the consumer becomes aware of a need and has an urge to solve the problem and needs and is ready to buy a good to satisfy it. The reasons for the onset of the demanding state can be simple or complex. Out of stock, dissatisfaction with the product being used, new needs due to life changes, purchase of related products, encouragement and inducements from the marketer, can make the consumer feel the gap between the ideal state of life and the real one.

Information Search

Once the demand is awakened, consumers are motivated to search extensively for information and carefully weigh the various options available to them.

The consumer's first choice for information gathering is to mobilize his or her personal experience and existing knowledge, the so-called internal search. When the consumer already has a lot of experience with the product to be selected, he will have a better feeling about the product and make his own choice as a result. When consumers think that an internal search is not enough information to make a decision, they start to search externally. External searches include visiting retail stores to make comparisons,

They can also look for professional product reviews in various publications. External sources of information can be divided into three types: personal sources: family, friends, neighbors, and acquaintances, commercial sources: advertising, salesmen, distributors, packaging, exhibitions, and public sources: mass media, and consumer review organizations. Through information gathering, consumers are already familiar with some of the competing brands in the market and their characteristics.

Evaluation of alternatives

After receiving information, consumers enter the choice evaluation phase. The most popular model of the consumer evaluation process is cognitive, and consumer judgments of products are mostly based on consciousness and rationality. Consumers perceive each product as a set of attributes or characteristics that unlock the benefits they seek and satisfy their needs. Consumers use product attributes or performance characteristics, such as price, texture, warranty, color, odor, etc., as criteria for evaluation, but at the same time assign different weights of importance to these attributes and characteristics.

Purchase

After selection evaluation, consumers form a preference or purchase intention for a product. However, purchase intention is not the same as a real purchase. Two other factors interact between intention and decision. The first factor is the attitude of others, such as the strong opposition of people close to the consumer or the motivation of the consumer to comply with the wishes of others. The second factor is the influence of unanticipated circumstances, such as the disappointment of learning about the brand to be purchased. The presence of both factors may prevent the consumer from making a final purchase.

Outcome

After purchasing a product, the consumer reevaluates the product through his use and the judgments of others and compares the actual performance of the product he observed with his expectations of the product, generating a corresponding response. Consumer satisfaction is a function of expectations and perceived performance of the product. If the performance of the purchased product is found to be roughly in line with or exceeds expectations, the consumer will feel mostly satisfied or very satisfied.

On the contrary, if consumers find that the performance of the product does not meet their expectations, they will be disappointed and dissatisfied. Whether consumers are satisfied with the product will directly affect their future purchase behavior. If they are satisfied with the product, they are more likely to continue to use the product on their next purchase. Some survey data show that about half of a company's business level comes from its inherent, satisfied customers and that some of those disappointed customers would never buy from the company that disappointed them again.

2. Howard-Sheth models

The Howard-Sheath model is based on the concept of "stimulus-response". The model consists of three parts: input, where the consumer receives information through external stimuli. This section describes how consumers process the impressions formed in their brains after receiving stimuli or information, and how consumers' motivation, confidence, and other factors lead to their willingness to make purchases.

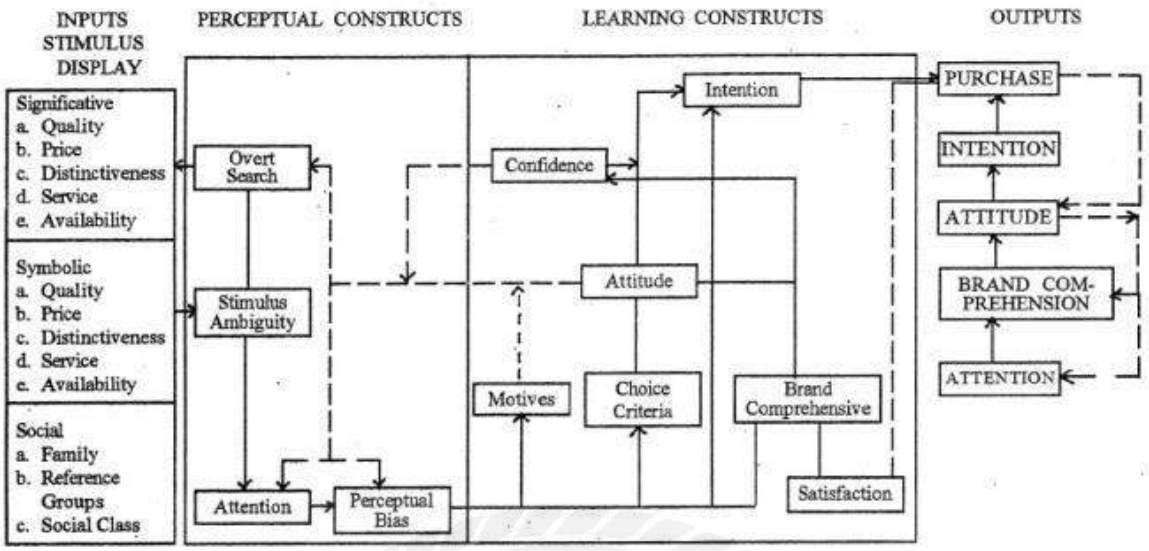

Figure 2.5 The Theory of Buyer Behaviour, John Wiley, 1969

The Howard-Sheth model was developed by Howard in 1963 and revised in 1969 in collaboration with Sheth. It focuses on the four major factors of consumer buying behavior. (1) Inputs (2) External variables (3) Perceptual and Learning Constructs (4) Outputs. The Howard-Sheth model describes consumer buying behavior through four major factors.

Inputs. Stimulus or input factors, which are controlled by the sales department, include product stimuli, symbolic stimuli, and social stimuli. Substantive product stimuli, such as the quality, price, features, availability, and service of a product. Product symbolic stimuli, such as product characteristics conveyed to consumers through salespersons, advertisements, and media. Social stimuli, such as family, related groups, social class, etc.

External variables refer to external influences in the purchase decision process, such as culture, personality, and financial resources. Extrinsic factors include related groups, social class, culture, subculture, time pressure, and product selectivity. Time pressure refers to the amount of time a consumer subjectively believes he can spend before making a purchase, or the amount of time he can spend on the purchase. Often, time pressure can inhibit or shorten the purchase decision process, causing consumers to make hasty decisions and possibly leading to undesirable purchases.

Perceptual and Learning Constructs. refers to the factors that act between stimulus and response. It is the most basic and important element of the Howard-Sheth model. It describes how inputs and external factors act in mental activity to elicit outcomes. The model suggests that the extent to which consumers are receptive to inputs is influenced by demand motivation and responsiveness to information, which in turn depends on the strength of the consumer's desire to buy and the effectiveness of "learning". Consumers tend to show "cognitive awakening" to interesting products and "cognitive defensiveness" to irrelevant

product information. As for consumers' preferences, they are governed by internal "decision arbitration rules". The "decision arbitration rule" refers to the consumer's tendency to prioritize various products for purchase based on the strength of motivation, the urgency of need, expected satisfaction of desire, consumer neediness, and perception of past consumption.

Outputs refer to the purchase behavior resulting from the purchase decision process, which includes three stages: cognitive response, emotional response, and behavioral response. The cognitive response refers to attention and understanding. The affective response refers to attitudes, i.e., the buyer's estimate of the relative ability to satisfy his or her motivation.

The Howard-Sheth model considers input and external factors as purchase stimuli, which influence the buyer's psychological activity by evoking and forming motivation and providing information about various options. The consumer is influenced by the stimulus and previous purchase experience, starts to receive information and generates various motivations, generates a series of responses to the available products, and forms a series of mediators of the purchase decision, such as selection evaluation criteria, intentions, etc. Under the interaction of motivation, purchase options, and mediators, certain tendencies and attitudes are generated. These tendencies or attitudes are combined with other factors, such as constraints on purchase behavior, to produce a purchase outcome. The information about the feeling of the purchase outcome is also fed back to the consumer, influencing the consumer's psychology and next purchase behavior.

3. NICOSIA Models

This model was developed by Nicosia in 1966 in his book "Consumer Decision Process". Nicosia model is based on a flowchart of the consumer buying process into a decision process, which simulates the consumer decision process.

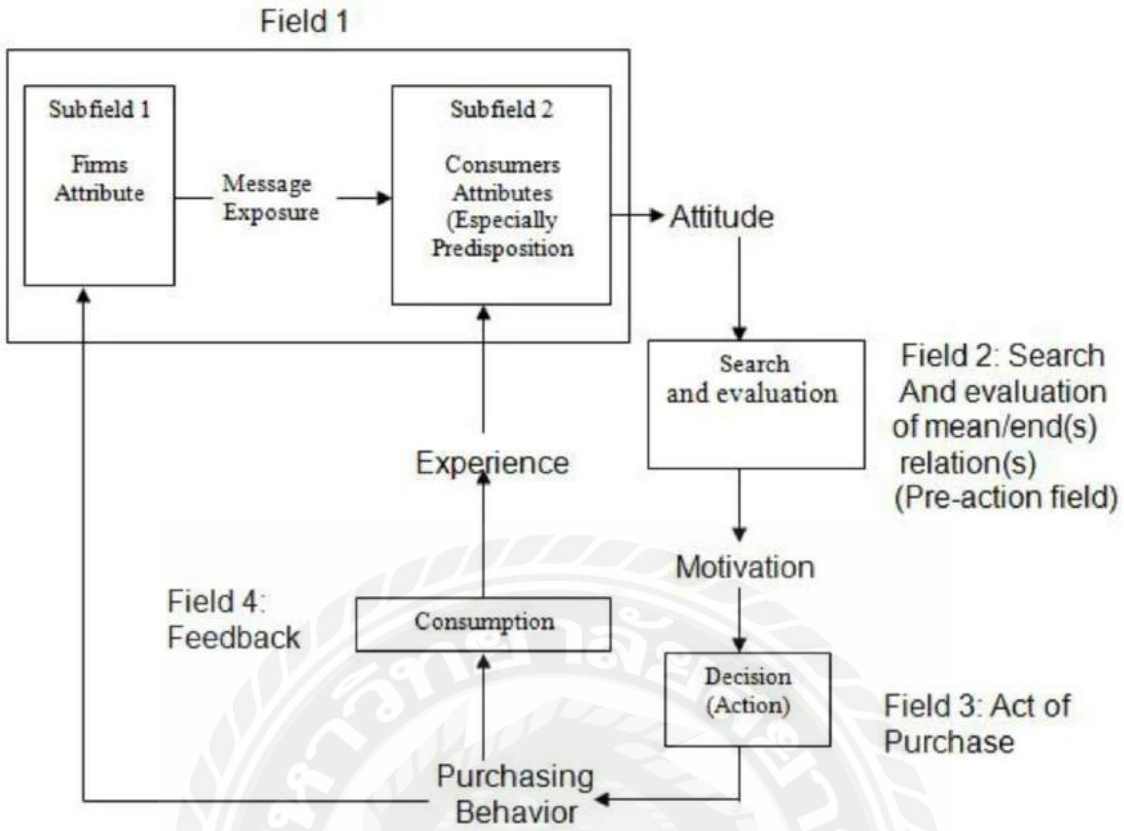

Figure 2.6 Nicosia model of consumer behavior

The first part, from the information source to the consumer's attitude, includes both the company's and the consumer's attitudes Information flow, the manufacturer transmits information about the product to the consumer through the media such as advertising, and the consumer internalizes it to form the attitude.

In the second part, consumers investigate and evaluate the product, and form the output of purchase motivation Information seeking and solution evaluation, after the formation of consumer attitudes, consumers become interested in the manufacturer's products, and use the information collected as a criterion for evaluation, thus creating the purchase motivation.

In the third part, consumers take effective decision-making actions This process is influenced by the availability of the brand and the distributor's factors.

In the fourth part, the result of the consumer's purchase action is remembered and stored in the brain for the consumer's future purchase reference or feedback to the company. Information feedback, after the purchase of the product, through the process of use, the consumer has a real experience of the purchased product, from the degree of satisfaction with the use of the purchase, influencing the repurchase behavior, while the manufacturer also from the consumer's intention to purchase and the degree of satisfaction with the use of information feedback, as a reference basis for quality improvement, pricing, advertising, and other marketing strategies.

2.6.3 Analysis of the factors and motives influencing automobile consumption in China

Because of the differences in each consumer's environment, the information they receive, the way they perceive things, and the basis for their decisions, there are no two consumers in the world who are the same. Each consumer's needs, motivations, habits, and psychology are different, so consumer behavior is very different. In the case of automobile consumption, there are various types of factors that influence consumer behavior, which is broadly classified into the 10 categories as follows

1. Cultural Factors

Social culture

The cultural connotation varies greatly from one nationality to another and from one society to another. The majority of people in the middle of the income range put their money saved for years into improving their housing conditions first. Only when their housing conditions are satisfied and they still have savings will they consider whether to buy a vehicle and before that they will consider whether they have a certain amount of emergency funds left after buying a vehicle. Because Chinese people are conservative consumers, there is a big difference between the consumption concepts of people in developed countries.

Subcultures

Subcultures are also seen as "cultures within cultures," where members of a subcultural group not only share the values of the dominant culture but also have their unique lifestyles and behavioral norms. The influence of subcultures is more direct and important, and sometimes even deep-rooted, in the purchasing behavior of vehicle consumers. A significant number of women are interested in bright colors, cute shapes, warm interiors, and easy-to-use automatics. Therefore, the vehicle creates a warm, romantic, fashionable, Therefore, to create a warm, romantic, and fashionable atmosphere for a vehicle, more can meet the needs of female consumers.

Social class

Social class is a concept commonly used in foreign marketing, because social class is a criterion for market segmentation, and the consumer behavior of different classes of consumers is very different. A person's social class is different, their value orientation is also different.

The American management scientist Philip Kotler(2016) pointed out in his book "Marketing Management" that almost all human societies exhibit some kind of stratification, characterized by a more consistent lifestyle and values within the same stratum, Therefore, individuals can move from one class to another. From the point of view of market research, social stratification is of great economic importance.

2. Social factors

As a person, the consumer's consumption choice, which is not entirely an individual independent choice, is influenced to a large extent by social factors. Consumers' purchasing behavior is influenced by social factors such as reference groups, families, and social roles.

Reference group

The reference group is one of the most important factors in the influence of the social environment on individuals. It is a prominent expression of the social nature of consumer behavior. A reference group is an individual or group of individuals that an individual uses as a reference or comparison when forming his or her purchasing or consumption decisions. It is not only the person or group that has relevant contact with the individual consumer, but also the person or group that does not have direct contact with the individual consumer but influences the individual.

In the absence of objective standards, individuals often base their consumption choices on the standards of the group. Reference groups are an important influence on consumer behavior, and almost all consumer behavior occurs in the context of the role of reference groups.

Reference groups provide consumers with information and experiences about products and brands through informational, utilitarian, and value-expressive influences that shape values and ultimately motivate consumers to buy. The degree to which consumers perceive informational interpersonal influences affects their product evaluation. Utilitarian influence, as a necessary group rule and social standard, is strongly influenced by the recognition and esteem of its reference group for the consumption of such goods. Expressions of value influence the consumer's self-identification process, as a person adopts the behavior or opinion of another person because it is associated with a satisfactory self-definition of that person. Moreover, the influence of value expressions creates cultural meanings, and by following the example of a reference group that embodies the cultural meanings desired by the individual, the individual obtains the cultural meanings he or she desires and achieves the goal of social identity.

Family

The family is one of the most important reference groups, which influences every person from the earliest age and continues to do so for the rest of his or her life. Most of the values, habits, aesthetics, and self-worth are acquired from the family as the first classroom of life. Therefore, the family has the greatest and most direct influence on the consumer behavior of individuals.

Family members have regular relationships with each other, live together, and have frequent contact and face-to-face communication. In the consumption behavior of families, family members often assume different roles, including the roles of initiator, influencer, decision maker, buyer, and user. There is a tendency to interchange roles in different areas of consumption. At the same time, the level of involvement of husbands and wives in the

family's purchasing activities has a very different impact on consumption, and the influence of children cannot be ignored.

Roles and Positions

Throughout one's life, one participates in many groups - families, clubs, and organizations. However, the position of each person in different groups can be defined by role and status. Thus, each consumer simultaneously assumes many different social roles and has a specific dominant role at a given time, each of which represents a different status and influences his or her purchasing behavior to varying degrees.

3. Political Factors

Government policies and laws have a great influence on auto consumption.

Automobile consumption policies include policies at the purchase stage, policies at the retention stage, and policies at the use stage. With the increase in the proportion of private vehicle purchases, the influence of auto consumption policies on the auto market is growing. According to the analysis of experts, before October 1998, the way of purchasing cars was mainly limited to cash purchases. In October 1998, CCB was the first to launch auto consumption loans, but as an important means to promote auto consumption, there are still various imperfections in auto credit consumption. In China, in addition to the normal consumption costs, users have to bear a lot of miscellaneous fees, such as purchase surcharges, vehicle inspection fees, household registration fees, insurance fees, annual examination fees, road maintenance fees, traffic control fees, toll fees, civil construction fees and various local ambiguous fees during the use of cars. China can be considered the country with the largest number of taxes and fees on private vehicle purchases and use, and it is an indisputable fact that there are many fees. China's "Industrial Policy for the Automobile Industry" explicitly encourages the private purchase of cars, but in practice, the macro environment is still not much relaxed, and the policy is still suppressive. Given the real situation in China, it is time to adjust the auto consumption policy, otherwise, it will not only affect the future auto market, but more importantly, it will weaken or even shake the position of the auto industry as the pillar industry of the national economy in China.

In 2009, the central government introduced the policy of halving the purchase tax on following passenger cars in response to the financial crisis, which greatly boosted the sales of middle-class cars and made China's vehicle sales exceed 10,000 units in 2009, achieving a growth of more than the previous year to become the world's largest vehicle sales market. With such a high effect from just one policy of halving the purchase tax, it is clear that if the government makes corresponding adjustments to other auto consumption policies, it will have a huge impact on China's auto consumption and will give a great boost to the development of China's auto industry.

4. Economic Factors

The auto consumer credit environment

For the average consumer, auto consumer loans can relieve financial pressure and promote rational consumption For the manufacturer, it can reduce capital occupation. For dealers, it can transfer the risk of default to banks, and for banks, it can find a new source of capital. Therefore, auto consumer credit is regarded as a "golden key" to starting the auto consumption market.

However, the lack of a sound credit system for auto consumers in China has increased the risk of auto consumer credit for banks. The banks are unable to set up differential interest rates and return guarantees according to the credit level of consumers, and the mortgage registration system has been the bottleneck of auto consumer credit. To reduce the financial risk, banks are forced to set high thresholds, and the procedures are cumbersome and time-consuming, which keeps many consumers out of the market. According to a survey conducted by the China Social Survey Office in Beijing, Shanghai, Guangzhou, Changsha, Wuhan, and other cities on the willingness of personal loans to purchase cars, the survey results show that 5% of people have taken out personal loans to purchase cars and expressed satisfaction. 31% of people said they would wait and see for a while before making plans. Twenty-nine percent of the people who had inquired about this business had to give up the loan because of the many aspects involved in the implementation of the loan.

Influence of other environments such as the stock market and housing market

The price elasticity of demand for cars is high for the average consumer. Therefore, when the macroeconomic environment is good, consumers are more willing to use the rest of their capital to purchase a vehicle because they expect their capital invested in the stock market and housing market will bring significant income. As a result, most consumers are unable to purchase a vehicle because they are "short of funds". Therefore, other environments such as the stock market and housing market also have a direct impact on the consumption of cars.

Vehicle Price and Maintenance Cost

In the current Chinese auto market, the key factor affecting the vehicle in the average family is the price, the high price is the most important factor affecting the consumption of cars in the short term. The reason for this is self-evident China is a developing country with low national income, the expensive price is bound to limit the purchasing power of consumers. At the same time, the cost of gasoline and maintenance costs as the necessary expenses of the vehicle, and its price changes are bound to cause a keen response from consumers, directly affecting the enthusiasm for vehicle consumption.

According to the China Consumers' Association's "Household Vehicle Consumption Survey", 67% of the respondents' main consideration when purchasing a vehicle is still the price.

5. Personal factors

The purchasing process is also influenced by the personal characteristics of the consumer, especially age, life cycle stage, occupation, economic status, lifestyle, personality, and self-concept. Age and life-cycle stages change as people's preferences for automotive products increase with age.

Occupation

Consumers' occupations also influence their consumption patterns. Blue-collar workers buy work clothes, work shoes, and lunch boxes, while company presidents buy expensive suits, travel by air, and apply for country club membership. Therefore, consumers in different occupations have different goals for purchasing automobiles.

Economic Status

Economic status also has a significant impact on consumers' product choices, including spendable income, savings and assets, debt, ability to borrow, and attitudes toward spending and saving. For the average person, a vehicle is a high-end consumer good, and it is not possible to buy a vehicle without reaching a certain level of economic status, and there are differences in the type of vehicle purchased by people who are better off than those who are less well off.

Lifestyle

Lifestyle is the pattern of a person's activities, interests, and views of the world. Lifestyle portrays the image of a "whole person" who interacts with the environment. From an economic point of view, a person's lifestyle indicates the way he chooses to allocate and organize his leisure time.

Personality and self-concept

Each person has a unique personality that influences his or her consumer behavior. Personality is the unique psychological trait of a person that leads to a relatively consistent and continuous reflection of the environment in which he or she lives. Personality differences can lead to differences in consumer buying behavior, which in turn affects the consumer's choice of brand for an automobile product.

The "post-90s" have some spending power and most of them have financial support from their parents. Those who do not want to ask their parents for money usually choose to take out a loan to buy a vehicle. They prefer sporty and fashionable models, have a certain degree of brand loyalty, and are more willing to get more direct information about the models from visual advertisements and magazines, etc. These are the common psychological characteristics of the "post-90s" consumer group in choosing and purchasing cars. They emphasize their individuality and pursue their feelings.

6. Psychological Factors

Consumer choices are also influenced by four main psychological factors: motivation, cognition, learning, and beliefs and attitudes.

Motivation

According to Maslow's motivation theory, we know that consumers have different motivations to buy cars. For the sake of the economy, if consumers usually move around the city or suburbs, small cars with small size and displacement will be the first choice for them. But for those who need to drive a lot on the highway, the mid-size vehicle may be the main consideration. For those who like to travel in the mountains or on country trips, Jeeps and other off-road vehicles are likely to be the main targets. Thus, whether or not consumers choose to buy a vehicle and what type of vehicle to buy are driven by the need to satisfy a specific need at a particular point in time.

Cognition

A motivated consumer may be ready to buy a vehicle at any time, but how he or she acts depends on his or her perception. Cognition depends not only on the qualities of the vehicle itself but also on the relationship of the vehicle as a stimulus to its surroundings and the consumer's perception of the vehicle.

It also depends on the relationship of the vehicle as a stimulus to its surroundings and the situation of the individual consumer.

Learning

Due to the changing environment of automobile marketing and the emergence of new products and brands, vehicle consumers have to collect information before they can decide to buy a vehicle, which is a learning process in itself. At the same time, consumers' consumption and use of automotive products is also a learning process.

Beliefs and Attitudes

Consumers acquire their beliefs and attitudes through practice and learning, and these beliefs and attitudes, in turn, influence their next purchase.

7. Influence of traffic conditions

Currently, in some cities, the principle of separating political and economic centers is adopted in urban planning, such as the southward relocation project of the Changchun city government. Such plans have stimulated consumer demand for cars. However, the planning of some cities still lacks a strategic vision. For example, most cities are backward in construction, which makes urban traffic circulation more and more difficult. In general, most of the pavements in China have low pavement level, low speed, poor passing capacity, narrow urban roads, non-networked roads have not been fundamentally improved, high speed, high efficiency of the urban transport system has not been formed, mixed traffic, non-traffic occupy the road in the city is very common traffic management level is generally not high, and the corresponding design capacity is far from the design of the traffic, reducing the original insufficient The level of traffic management is generally low, which is far from the design capacity, and reduces the efficiency of the traffic facilities.

8. Influence of vehicle marketing techniques

Frequent price cuts lead to delayed consumption behavior of potential vehicle buyers. Gifts, free maintenance, and extended after-sales service are conducive to the advancement of consumers' vehicle purchase plans.

9. Impact of Complementary Products

The increase in oil prices will discourage some people from purchasing cars, and may also cause consumers who had planned to purchase large displacement cars to purchase smaller displacement cars or consumers to abandon the purchase of traditional vehicles and purchase new energy vehicles such as hybrid, pure electric, and natural gas vehicles. This will eventually lead to a shift in the structure of the automobile market.

10. The impact of alternatives

The development of public transportation will lead to more people choosing public transportation. Currently, the municipalities in Beijing and other major cities are actively developing public transportation systems, especially the emergence of rail subways and light rail in major cities, as well as increasingly cheap public transportation, which will make a large proportion of consumers abandon their vehicle purchase plans. Currently, even a mountainous city like Chongqing has its light rail, and will also vigorously promote urban metro transportation, these public transport policies will affect the majority of consumers' vehicle purchase plans. In the case of Beijing, the opening of a large number of subway lines, bus lines, and a convenient public transportation system, will cause many rational people to abandon their vehicle purchasing plans.

2.6.4 Analysis of the motivation of auto consumption in China

Consumer motivation is the driving force that facilitates and provides purpose and direction to consumer behavior. Motivation is a compelling need that drives people to act to achieve a specific goal and is the direct cause of the behavior. The motivation to buy a vehicle arises when this need has to be satisfied through the act of buying. It is an autonomous motivation that directly drives consumers to carry out a certain purchase activity, appropriately reflecting their psychological, emotional, and spiritual needs, and in essence, the motivation to adopt a purchase behavior to satisfy certain needs. According to Maslow's Hierarchy of Needs and McGuire's Psychological Motivation Theory, the motivation for auto consumption in China is divided into the following 9 categories.

1. Emotional Motivation

Emotional motivation is the desire to buy triggered by a person's emotional needs. Nowadays, more and more parents are giving cars to their children as birthday gifts, dowry, etc.

2. Realistic Motivation

Similarly, some consumers are motivated by the desire to buy a vehicle because of "affordability" and "practicality". Driven by this motivation, consumers pay special attention to the function, quality, and practical utility when purchasing a vehicle, but do not

overemphasize the vehicle model, configuration, etc., and hardly consider the brand, shape, and interior of the goods and other non-utility value factors. Such consumers use the vehicle to load goods or for family travel, they will choose a large space, stable performance, and low failure rate the vehicle, rather than choose high-end luxury cars.

3. Motivation for a new purchase

There is a part of consumers who mainly pursue the newness of the vehicle, and the core motivation of these consumers is `. fashionable" and "quirky". At present, fashionable cars are very popular among consumers and can satisfy the psychological needs of fashionable consumers because their design incorporates the characteristics of various types of cars and becomes a fashion.

4. Motivation for buying

The main characteristic of some consumers is the pursuit of brand names. Driven by this motivation, consumers purchase vehicles almost regardless of price and actual use value, but only through the purchase and use of high-end luxury cars to reflect their status and position, from which they get psychological satisfaction.

5. Motivation to buy for excellence

Some consumers are primarily motivated by the quality of the vehicle. These consumers focus on internal quality when purchasing a vehicle, but do not give much thought to the appearance of the specimen and price.

6. Aesthetic Motivation

Some consumers are mainly interested in the artistic value of the vehicle. These consumers are most concerned with the aesthetic value and decorative effect of the vehicle, focusing on the shape, color, and pattern of the vehicle, while the actual use value of the vehicle is of secondary importance. Women, especially young women, are typical of this type of consumer, and they have a very sensitive sense of fashion. A vehicle like the Volkswagen Beetle with fashionable elements, beautiful and bright colors, cute and cute shapes, and warm interiors will trigger their strong desire to buy.

7. Motivation to buy cheap

Some consumers are mainly interested in the low price of cars. These consumers are most concerned about the price when buying a vehicle, are not overly concerned about the style, appearance, and quality of the vehicle, and prefer to buy vehicles that are discounted for some special reason. When the price of a vehicle falls continuously, such consumers will act quickly because of the relatively low price of the vehicle.

8. Hobby Purchase Motivation

A small number of consumers buy cars to satisfy their hobbies or interests. The famous Taiwanese artist Lin Zhiying likes to collect racing cars, and the same Hong Kong singer Aaron Kwok is fond of the Ferrari series.

9. Climbing Motivation

A very small number of consumers are competitive and do not want to be left behind. These consumers do not buy cars out of actual need, but to compare themselves with others and to show off to others. Their behavior depends to a large extent on the social group they belong to and is largely blind.

Chapter 3 Research Methodology

3.1 Introduction

To analyze the actual situation of the purchase decision of potential consumers of pure electric vehicles, this study uses a mixed research method. Based on the theoretical analysis of the qualitative research method in Chapter 2, the main line of the purchase decision of potential consumers of pure electric vehicles is the quantitative research method, and the empirical analysis is conducted by a questionnaire survey to investigate the consumption demand and consumption trend of potential consumers of pure electric vehicles.

Consumers are relatively cautious when purchasing a vehicle, and they usually consider a variety of factors such as price, performance, environmental protection, service, appearance, safety, brand, displacement, space, and so on. However, different types of consumers have different priorities. Meanwhile, this study studies the characteristics and motivation of potential consumers of pure electric vehicles in China through a survey, and analyzes the factors that may affect the consumption of hybrid and pure electric vehicles in China based on the concern of the purchase decision process, and also analyzes the overall characteristics of potential consumers.

3.1.1 Mixed Research Method

Mixed methods research is a branch of multi-method research that integrates the use of quantitative and qualitative data collection techniques and analytical procedures in the same research project. As such, it is based on the philosophical assumptions that guide data collection and analysis, as well as a mixture of quantitative and qualitative collection techniques and analytical procedures (Molina, 2017).

Qualitative research is often interpretive because researchers need to make sense of the subjective and socially constructed meanings expressed about the phenomenon under study. This type of research is sometimes referred to as naturalistic research because researchers need to work in natural settings or research contexts to build trust, engage, make meaning, and gain a deeper understanding.

Much qualitative research begins with an inductive approach to theory development in which naturalistic and emergent research designs are used to construct theory or develop a richer theoretical perspective than already exists in the literature. However, some qualitative research strategies begin with deductive approaches that use qualitative procedures to test existing theories (Yin, 2018). In practice, many qualitative studies also use retrospective methods to develop theories, developing inductive reasoning and iteratively testing deductive reasoning throughout the research process.

Qualitative research has several main characteristics: 1. the researcher is usually not considered to be independent of the person being studied. 2. the people involved are referred

to as participants or informants. 3. it aims to study the attributional meaning and association of participants. 4. generally employ non-probability sampling techniques. 5. based on meanings expressed through words and images. 6. the methods used to collect data are unstructured or semi-structured. 7. Collection leads to non-standardized data, usually requiring classification. 8. An analysis by conceptualization. 9. the meaning of the results obtained from spoken or textual images.

In this study, qualitative research is used less and is mainly a supporting role. In this study, we review a large amount of theory and literature, and based on these textual data, we organize and summarize the factors affecting Chinese consumer behavior and consumption influence in Chapter 2. The questionnaire design for the quantitative study is then based on these summarized elements.

A quantitative research design is often associated with positivism, which is linked to a deductive approach in which data are collected and analyzed to test theories. However, it may also include an inductive approach, in which data are used to develop theories. Researchers may analyze quantitative data to determine hypotheses to test in the next round of data collection and analysis. It is also possible that the initial hypothesis framework is imperfect or even non-existent and a preliminary analysis of the quantitative data is required to inductively elucidate these hypotheses before further analysis.

Quantitative research examines the relationships between variables that are measured numerically and analyzed using a range of statistical and graphical techniques. It usually includes controls to ensure the validity of the data, and the method usually uses probability sampling techniques to ensure generalizability. Researchers are considered to be independent of those being studied, and they are often referred to as respondents.

Quantitative research designs can use a single data collection technique, such as a questionnaire, and a corresponding quantitative analysis procedure. This is referred to as a single-method quantitative study. Quantitative research designs can also use more than one quantitative data collection technique and corresponding analytical procedures. This is referred to as a multi-method quantitative study. For example, you may decide to use questionnaires and structured observations to collect quantitative data and conduct statistical analysis of these data.

A mixed-methods research design may use deductive, inductive, or retrospective methods to develop theories. For example, quantitative or qualitative research may be used to test one or more theoretical propositions, followed by further quantitative or qualitative research to develop a richer theoretical understanding. Theories can also provide direction for research. In this way, a particular theory can be used to provide a focus for the research and provide boundaries for its scope (Tashakkori & Tetley, 2010).

Mixed methods research draws on the characteristics of both quantitative and qualitative research. In mixed methods research, quantitative and qualitative techniques are combined in

a variety of ways, ranging from simple, consistent forms to more complex and continuous forms. How quantitative and qualitative research are combined, and the extent to which this combination may occur, have led to multiple variations of mixed methods research (Creswell and Plano Clark 2011; Nastasi et al. 2010). We now briefly consider these.

Parallel mixed-method studies involve the use of quantitative and qualitative methods within a single phase of data collection and analysis, respectively. This allows both sets of results to be interpreted together, providing a richer and more comprehensive answer to the research question than would be possible using a single-method design. If you are collecting qualitative and quantitative data in the same research phase to compare how these data sets support each other, you would use a parallel triangulation design.

Using a parallel mixed-methods design should provide richer data than a single-methods design, be shorter in time, and be more practical than a sequential mixed-methods design.

Sequential mixed methods studies involve multiple phases of data collection and analysis. In this design, researchers will follow the use of one method with another to expand or elaborate on the initial set of findings. A two-stage research design, results in two alternative mixed-methods research strategies, either a sequential exploratory research design or a sequential interpretive research design. In a more complex, sequential, multi-stage design, a mixed methods study would involve multiple stages of data collection and analysis.

3.2 Research Design

There are five main types of quantitative research methods for consumer behavior: observation, experiment, questionnaire, conversation, and model. In this study, we use questionnaires to obtain the consumption needs and trends of potential consumers of pure electric vehicles. This study is descriptive, and the purpose of descriptive research is to obtain an accurate description of an event, person, or situation. The main purpose of this study is to describe the characteristics of the potential consumers of pure electric vehicles in China, the various characteristics based on attention analysis, as well as the consumer needs and consumption trends. Throughout the research on automobile consumption by domestic and foreign scholars, we can find that the following factors influence automobile consumption: cultural factors, socio-cultural and social factors, political factors, economic factors, personal factors, psychological factors, transportation conditions, marketing techniques of automobile companies, and complementary products and substitutes. All of these factors affect the consumption of automobiles, and none of them can be an absolute factor in the consumption of automobiles.

3.2.1 Demographic variables

Demographic variables are information about the economic and social background of the subject of the study. Kotler, a leading American marketer, classifies demographic variables into ten categories: age, gender, household size, household life cycle, income, occupation, education, religion, race, and nationality. Concerning the actual situation in China, the characteristics of vehicle consumers, and the purpose of this study, the following demographic variables will be used to represent gender, age, average monthly disposable income, education level, and occupation.

3.2.2 Purchase decision process variables

Based on the existing research on the factors influencing automobile consumption by domestic and foreign scholars, and based on the theory of the consumer purchase decision process, this paper considers the motivation for purchasing hybrid and pure electric vehicles, information collection channels, reference groups in the decision process, and the importance of specific indicators of concern to potential consumers.

Pure electric vehicles are crucial to China's new energy strategy and the construction of a green, harmonious, environmentally friendly, and economical society. At present, new energy vehicles are still fully developed and consumers' attitudes towards new energy vehicles are still unclear. This study selects brand, cost, environmental protection, styling, function, performance, service, national auto consumption-related policies, and reference groups as the factors of concern for potential consumers of pure electric vehicles when purchasing new energy vehicles, hoping to find out the key factors through the analysis of primary data.

Table 3.1 Electric Vehicle Consumer Focus Factors

Culture	Brand
	Factory reputation
	Consumer reputation
Cost	Selling price
	Monthly usage cost
	Repair and spare parts cost
	Policy subsidies
Appearance	Styling
	Color
Environment protection	Zero Emission
	Recyclable parts and components without pollution
Power Performance	Top speed
	Acceleration capacity

	Hill climbing performance
Safety	Body Structure Design
	Crash part quality
	Crash energy absorption design
	Safety Equipment
Comfort	Interior space
	Interior Decoration
	Interior noise
Service	Credit Services
	Pre-Sales Service
	After Sales Service
Publicity	Advertisement
	Family and friends' opinion
	Market share

3.3 Hypothesis

A hypothesis is a testable statement of the proposed relationship between the independent variable, which measures the cause, and the dependent variable, which measures the effect (Pollock, 2015). That is, a research hypothesis must present the hypothesis of a testable relationship that contains an independent variable and a dependent variable, and the research hypothesis needs to present how the independent variable explains the dependent variable.

The following are the research hypotheses of this study.

Safety is one of the very important elements of a vehicle and an important factor influencing consumer spending. In recent years, various brands of electric cars in the safety more or less have some problems, such as the Shanghai Tesla brake failure incident, yes a large number of consumers reject the Tesla brand, resulting in Tesla's sales falling, a long period of low sales growth. Good safety is the basis of the vehicle, the better the safety, the more assured the consumer to buy.

H1：The better the safety of electric vehicles, the stronger the willingness of consumers to buy them.

The range of the vehicle as a means of transportation is very important. Since gas stations are fully developed facilities in today's society, fuel cars do not have the problem of range anxiety. Unlike electric cars, the range of electric cars depends on their infrastructure (charging piles), charging technology, and battery technology. The first thing that most consumers consider when they are faced with an electric vehicle is how long does it take to charge a full battery? How many kilometers can be driven? Will I be stuck on the road because I ran out of power during the journey?

H2: The better the charging efficiency and range of electric vehicle batteries, the stronger the consumers' willingness to purchase.

Consumers who buy any goods are to use the function of this commodity, and the function of the vehicle is driving, walking, that speed, 100 km acceleration, uphill power, and other performance is one of the important factors affecting the consumer's willingness to buy.

H3: The better the performance of electric vehicles, the stronger the consumers' willingness to buy them.

3.4 Population and Sampling

3.4.1 Population

The population is usually defined together with the elements that make it up: a population is the set of all the elements that make it up, and the elements are the most basic units that make up the population. In social research, the most common type of population is composed of individuals in society, who are the elements of the population.

For example, when we conduct a study on the career choice tendency of college students in a certain province, the set of all college students in that province is the total of our study, and each college student is the element that constitutes the total. For example, if we want to study the quality of life of families in a city, then all the families in the city constitute the total of our study, and each of them is an element of the total.

In this study, the total population is all potential consumers in all regions of the country.

3.4.2 Sampling

The common forms of sampling according to the principles of probability theory are divided into two main categories: probability sampling and non-probability sampling. The difference between the two is that probability sampling draws samples according to the random principle, while the latter does not draw samples according to the random principle.

In this study, we use convenience sampling and snowball sampling, which are non-probability sampling.

Non-probability sampling, i.e., does not draw samples strictly according to the random principle but selects samples based on the subjective experience and subjective judgment of the investigator.

Compared with probability sampling, although this type of non-probability sampling of poor representation, the information provided is more fragmented, and it is difficult to make accurate inferences from the conclusions of the sample survey overall. However, because it is very simple and easy, and through the investigation of the sample and a general understanding of some of the overall situation, the survey research work is very enlightening.

Therefore, it is suitable for the kind of survey object of the overall difficult to define specific and does not need to accurately infer the overall situation of the survey.

One way of releasing the questionnaire in this study is through the Questionnaire Star platform, by posting the questionnaire on the site and informing the netizens in each region to answer the questions under the questionnaire link through the web release of the survey message, so it belongs to the convenience sampling.

Snowball sampling, that is, a small sample as the basis, gradually expands the size of the sample until a sufficient sample is found. This method is suitable for situations where the overall survey is not clear and is often used in exploratory field studies, especially

It is especially suitable for the study of small group relationships. For example, if we want to understand the social circle of a person's frequent contacts, we can use the clues provided by this person to find more people with whom he is associated.

This is done by first finding one or a few subjects that meet the purpose of the study, and then finding additional relevant subjects based on the clues provided by these subjects, and so on until the purpose of the study is achieved. However, the sample selected by the snowball sampling method can sometimes be highly arbitrary and specific, and thus not very representative.

Another way to publish the questionnaire in this study is to forward the link to the questionnaire to one's friends and family, after asking them to forward it to their friends or family to achieve a snowball effect.

3.5 Sampling size

A total of 291 respondents were collected, i.e., potential consumers who would consider electric vehicles when purchasing cars. 37 invalid questionnaires that did not consider electric vehicles, were incomplete, did not match the model, or were contradictory were excluded, resulting in 254 valid questionnaires, with a recovery rate of 87%.

Since the questionnaire is published online, it effectively avoids the convergence of potential EV consumers in the same region or group due to economic, cultural, and geographical factors.

3.6 Data collection

3.6.1 Introduction

The thematic part of this questionnaire includes the following seven aspects: whether potential consumers would consider electric vehicles, the reasons for potential consumers to choose new energy vehicles, the importance ranking of seven indicators of electric vehicles, the acceptability of electric vehicle cost, the way to purchase a vehicle, the main way to get information about the vehicle market, and the importance of each factor in the process of

choosing an electric vehicle. Among them, the scale of "the importance of each factor in the process of purchasing electric vehicles" adopts the "Likert scale" which is widely used in market research analysis, with the scale of "Strongly disagree" to "Strongly agree" asked respondents to check the box. "Ranking the importance of the seven indicators of electric vehicles. Using the method of listing indicators, respondents dragged each indicator on the web to rank the importance in order from top to bottom. The rest of the questions were designed as multiple-choice questions, and respondents were asked to make single or multiple choices.

The background information of the users included gender, age, family status, marital status, average monthly disposable income, living standard, education level, occupation, household use of cars, region, and other basic information. The full questionnaire can be found in the Appendix.

3.6.2 Sample Data Characteristics

1. Gender Composition

The percentages of potential consumers who chose to consider electric vehicles were 71.68% and 28.32% for men and women, respectively.

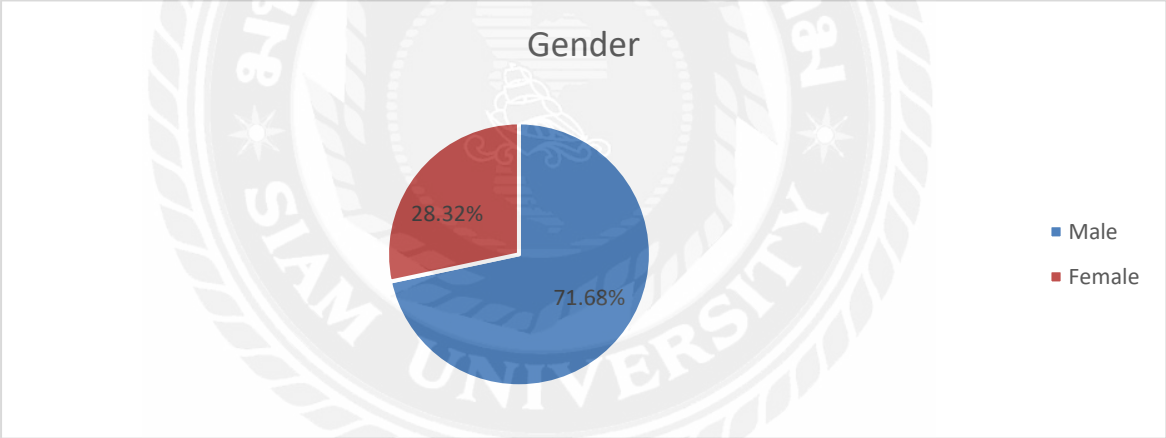

Figure 3.1 Gender Composition

2. Age Composition

Age is one of the most important factors that influence people's consumption. Consumers of different ages have different ways to get effective information about products, their needs for products, their acceptance of products, and their buying styles. In terms of age group, the highest percentage of participants in the survey is 44.88% for 26-30-year-olds and the second highest is 30.81% for 31-40-year-olds. It can be seen that the 26-40 years old age group is the main consumer group, accounting for 75.69%.

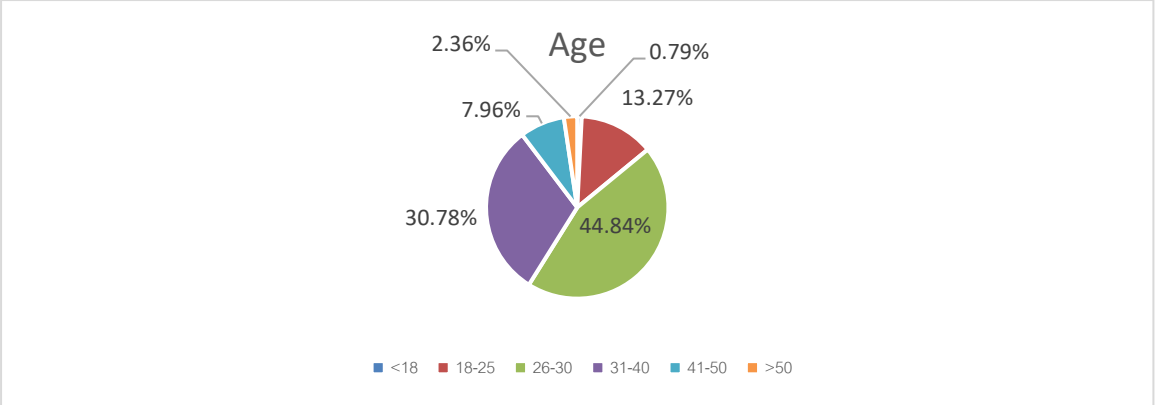

Figure 3.2 Age Composition

3. Revenue

The income level of the respondents is concentrated in the range of 5,000-10,000 yuan.

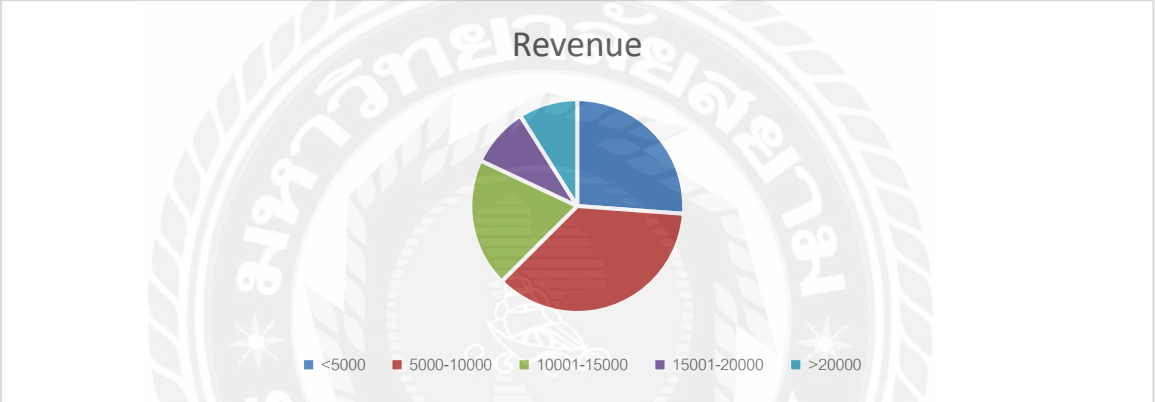

Figure 3.3 Revenue Composition

4. Education and occupation

The respondents' education level is high, and they are all concentrated in a college education or above, and their occupation is mainly company employees.

3.7 Data analysis

After the completion of the questionnaire, we downloaded the questionnaire information from the Questionnaire Star platform and exported the created Excel sheet, eliminated the invalid questionnaire data that did not consider electric vehicles, incomplete answers, models that did not match or contradict each other, and rebuilt the Excel sheet with valid data, imported the data into statistical data analysis software (SPSS) for processing, and used frequency analysis, reliability analysis, factor analysis, etc. to The questionnaire items were analyzed by reliability analysis, and factor analysis.

Reliability analysis

The 29 secondary indicators of the ten dimensions of the Likert scale were analyzed for their reliability, the indicators that hurt the reliability were eliminated, and the 25 optimized indicators were extracted.

Factor analysis

The main purpose of the analysis was to analyze the variables of interest in the purchase decision process of potential consumers of hybrid and pure electric vehicles and to extract a small number of streamlined variables that could explain the maximum variation of the original data from the 25 observed variables.

3.8 Reliability and validity analysis of the scale

Reliability refers to the degree of reliability of the measurement instrument itself, which measures the reliability, consistency, and stability of the questionnaire results. Reliability itself is not related to the correctness of the measurement results but is a test of the stability of the measurement itself. The general measurement is prone to error, which is mainly due to the researcher's improper design of the questionnaire, improper sampling design, improper situation investigated by the investigator, or the investigator's negligence, in addition to the respondents due to their personality, age, education, social class and other psychological reasons that affect the correctness of the respondent’s answers. After the reliability analysis, you can understand whether the questionnaire itself is good and proper, as a basis for improvement and correction, to avoid making wrong judgments.

There are various methods to examine the reliability, among which Cronbach α is the most commonly used in empirical studies and social science studies to test reliability, which indicates the consistency between the scores of each question on the scale.

The formula is α=(k/(k-1))*(1-(∑Si^2)/ST^2)

Table 3.2 Cronbach α

Cronbach's α	Internal consistency
α ≥ 0.9	Excellent
0.9 > α ≥ 0.8	Good
0.8 > α ≥ 0.7	Acceptable
0.7 > α ≥ 0.6	Questionable
0.6 > α ≥ 0.5	Poor
0.5 > α	Unacceptable

Reliability analysis of each of the ten dimensions of the Likert scale in the questionnaire was performed using SPSS software

The results of the reliability analysis of the data on the three indicators of the cultural dimension are as follows：

Table 3.3 Reliability analysis

Factors	Cronbach α	K of Items
Culture	0.789	3
Cost	0.876	4
Appearance	0.806	2
Environment protection	0.915	3
Power Performance	0.838	3
Safety	0.941	4
Comfort	0.832	3
Service	0.804	3
Publicity	0.745	3

The results of the reliability analysis for each of the above dimensions showed that all of the above dimensions had good stability. Finally, the reliability analysis of the Likert scale was conducted after the dimensional reliability analysis, and the value of the whole scale was 0.8384, indicating that the whole scale has a high degree of internal consistency and stability.

The most ideal method for validity analysis is to measure the structural validity of the scale using factor analysis. From the results of the SPSS analysis, the value of the KMO for testing the bias correlation between variables was 0.929, indicating that there was no significant difference in the degree of correlation between the variables. Therefore, the factor analysis will have a relatively good result.

From the results of the analysis, the concentrated values of the variables were between 0.508 and 0.893, indicating that the reconstructed factors explained more than 0.4 of the variance of the original factors, and the overall variance data used to reflect the number of extracted common factors and the explanatory power of the total variance showed that the cumulative variance of the extracted five common factors explained 70% > 50%, and the information extraction was within the appropriate range. is within the appropriate range.

Chapter 4 Data Analysis

4.1 Introduction

This section is based on the questionnaire used in the quantitative research methodology in Chapter 3, which was collected to perform descriptive and inferential analysis of the data variables that have been analyzed by reliability and validity analysis.

4.2 Description of statistical variables

4.2.1 Reasons for potential consumers to choose electric vehicles

Regarding the reason why they chose to buy new energy vehicles, 76.92% of respondents chose to buy electric vehicles because they are cleaner and more environmentally friendly than traditional fuel vehicles. 61.06% of the respondents chose to buy new energy vehicles because they are more "economical and less costly to use". 14.9% of potential consumers chose new energy vehicles for safety reasons. 21.63% of respondents chose to buy a new energy vehicle because the government provides subsidies for the purchase of new energy vehicles. Only 5.29% of respondents would choose to buy a new energy vehicle because of mandatory policy requirements. Only 1.92% of potential consumers would choose to buy a new energy vehicle because of a friend's recommendation.

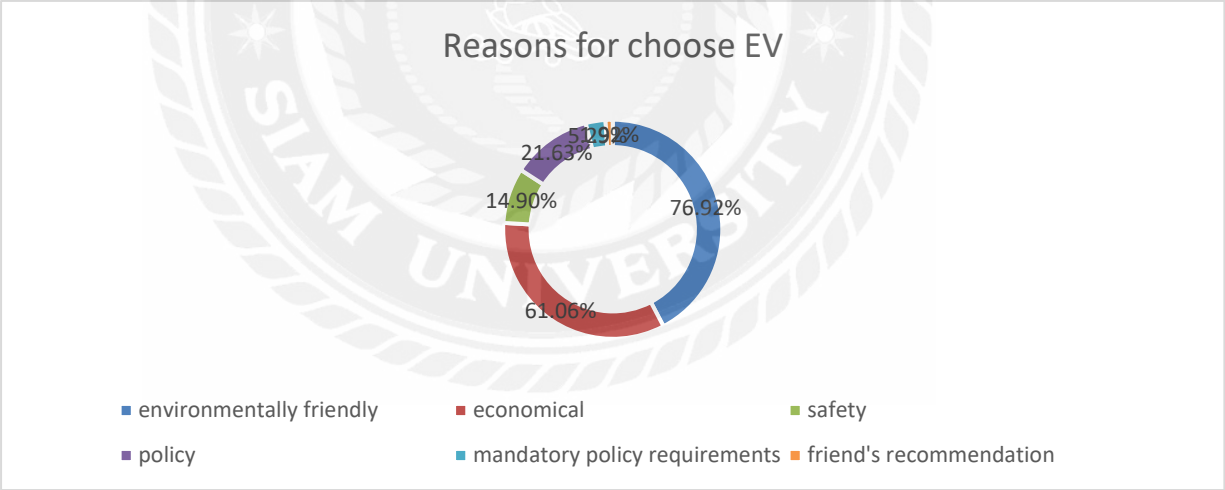

Figure 4.1 Reasons for choosing EV

4.2.2Potential consumers' expectations of the cost of choosing a new energy vehicle

Respondents to the survey were sensitive to the cost of new energy vehicles, including both the purchase cost and the annual maintenance cost of the vehicle during use. Among potential EV consumers, 58.65% of respondents expect the price of an EV of the same configuration to be less than 120% of the price of a conventional vehicle after deducting the national EV subsidy. 36.06% of the respondents wanted the ratio to be 120-150%, 4.81%

wanted the ratio to be 150-180%, and only 0.48% of the respondents could accept the ratio to be 180-200%.

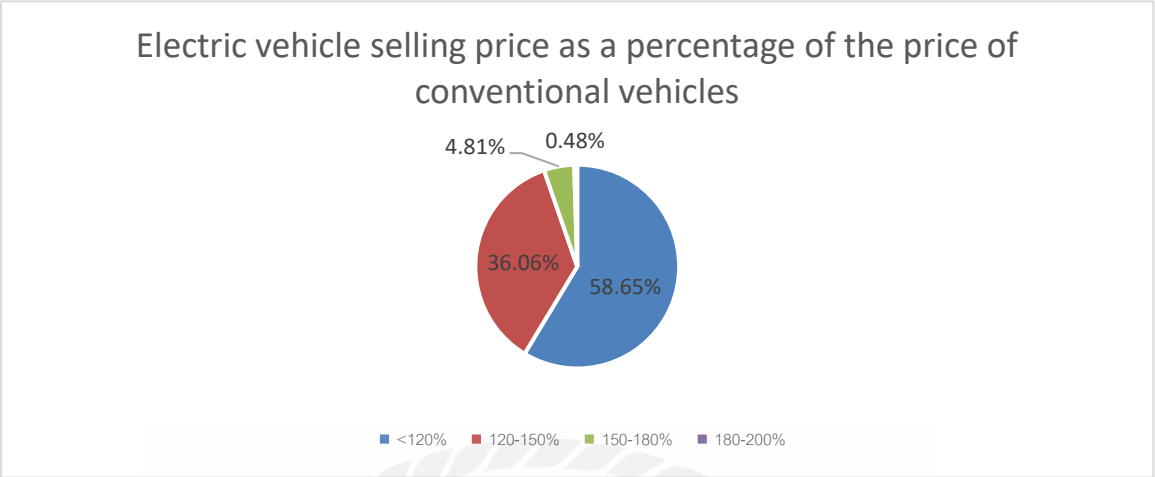

Figure 4.2 Electric vehicle selling price as a percentage of the price of conventional vehicles

4.2.3 Access to electric vehicles information for potential consumers

The media analysis (including the analysis of vehicle performance by newspapers, magazines, the Internet, and other media) was the main way for 64.4% of the respondents to get information about the car market in their daily life. 23.6% of the respondents took the advice of their relatives and friends as the main way to get information about the car market in their daily life. In contrast, only 6.7% and 5.3% of the respondents cited the manufacturer's advertisement and dealer's introduction respectively. This data shows that potential consumers trust more professional analyses done in the media.

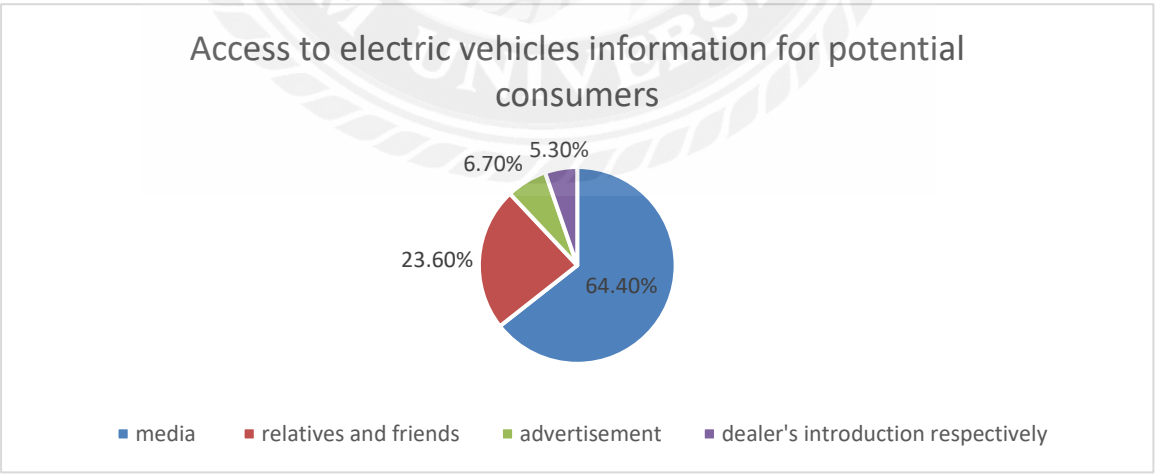

Figure 4.3 Access to electric vehicles information for potential consumers

Potential consumers' choice of electric vehicle purchase options

55.77% of the potential consumers choose to buy electric cars by installment. 33.65% of the potential consumers choose to buy electric cars by lump sum payment. 10% of the potential consumers want to be assigned a car by the unit, and their monthly income is less than RMB 5,000, and their professions are engineers, teachers, department heads, general civil servants, etc., while 0.48% are technicians, general office workers, etc. 0.48% of them have no special requirements for the purchase method and will choose the appropriate purchase method according to the actual situation when purchasing a car.

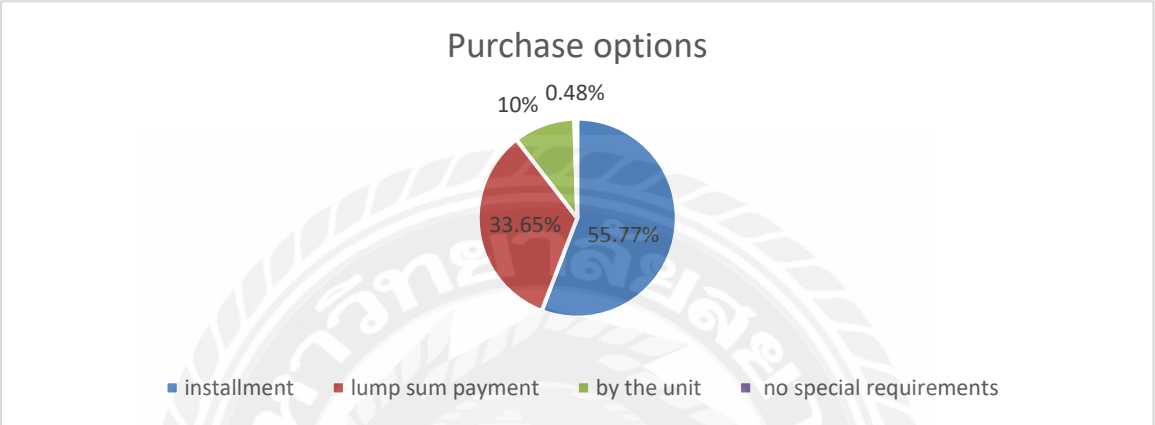

Figure 4.4 Purchase options

4.3 Results of the Study

All respondents who are willing to consider purchasing an electric vehicle ranked the importance of electric vehicle indicators in terms of "time to complete a charge", "ease of charging", "most range per charge", "battery life", "cost per charge", "car life", "car performance", and "car performance". "battery life", "cost per charge", "vehicle service life", "vehicle performance". The seven indicators are ranked in importance.

Potential EV consumers' opinions on the most important performance of EVs were mainly focused on the time required for each charge and the maximum range per charge, with 36.51% and 34.92% respectively, while 17.46% chose vehicle performance as the most important indicator of EVs. Those who chose ease of charging and battery life were 6.35% and 4.76%, respectively. At the same time, no one chose the cost per charge and the service life of the car as the most important indicators of pure electric vehicles.

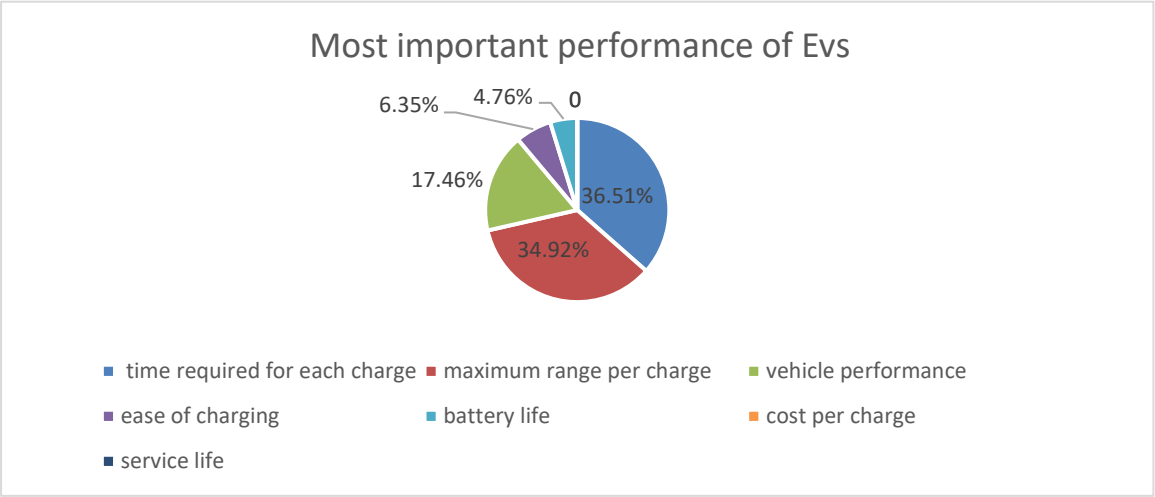

Figure 4.5 Most important performance of EVs

The convenience of charging is the second most important feature of EVs for 49.21% of potential EV consumers, and the time required per charge is the second most important indicator for 20.63% of EV buyers. The number of people who chose the cost per charge as the second most important indicator of electric vehicles was 9.52%. The second most important indicators for electric vehicles were 6.35%, 6.35%, 4.76%, and 3.17% for the maximum range per charge, battery life, vehicle life, and vehicle performance, respectively. From the above data, it can be seen that about 70% of potential EV consumers focus on the second most important indicator of pure electric vehicles, which is the convenience of charging and the time required for each charge.

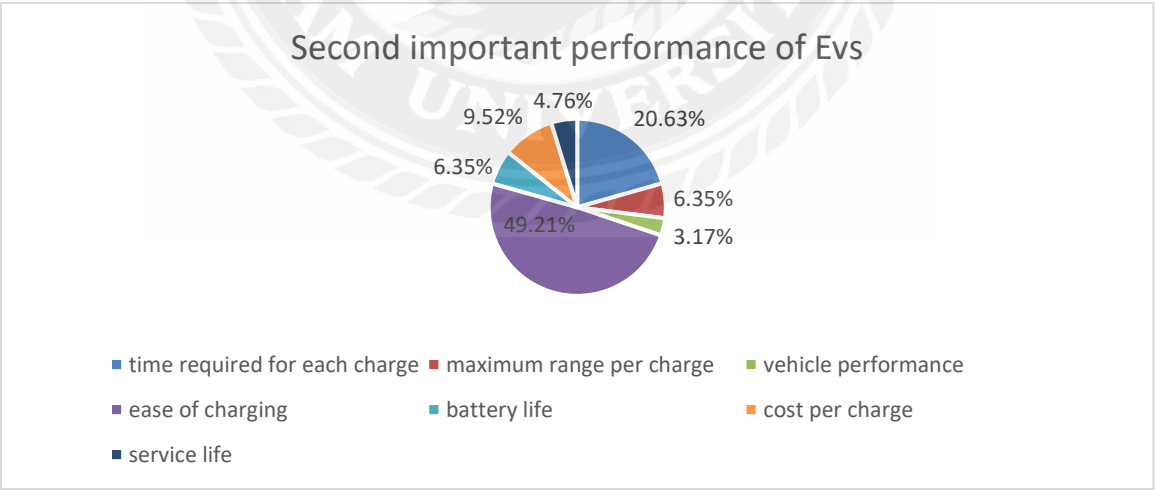

Figure 4.6 Second important performance of EVs

Those who ranked the maximum range of an electric vehicle after each charge as the third most important indicator of an electric vehicle accounted for 44.44% of the potential

consumers of electric vehicles. Another 22.22% of potential EV consumers ranked the ease of charging as the third most important indicator for EVs. Those who chose battery life as the third most important indicator of electric vehicles accounted for 12.70% of the total number of people who chose to buy electric vehicles. The number of potential EV consumers who chose the time required per charge, the age of the car, the performance of the car, and the cost per charge as the third most important indicator of an EV were 7.94%, 6.35%, 4.76%, and 1.59%, respectively.

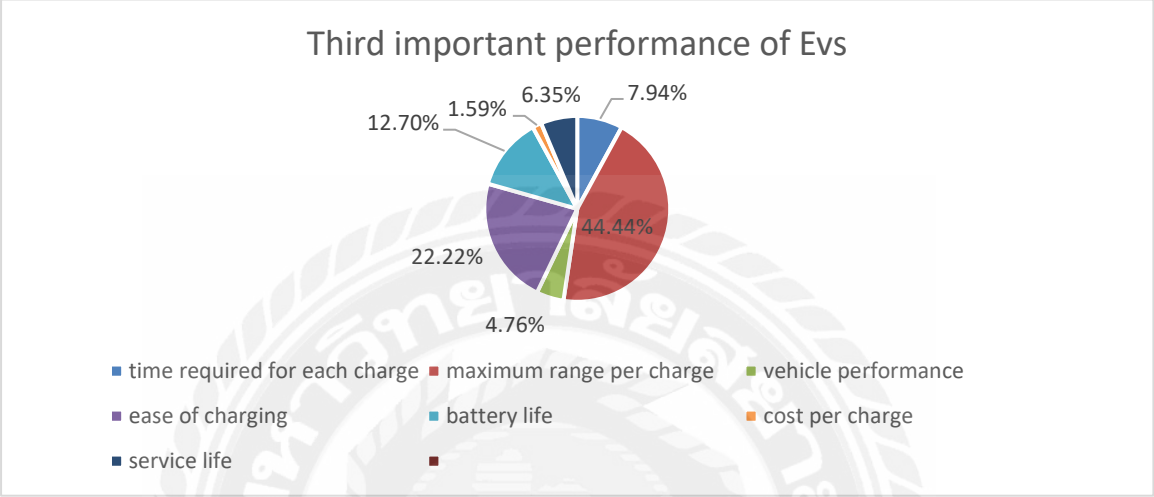

Figure 4.7 Third important performance of EVs

The number of respondents who ranked the battery life of pure electric vehicles as the fourth most important indicator of electric vehicles accounted for 67.92% of potential consumers of electric vehicles. Another 16.98% of potential EV consumers ranked the ease of charging as the fourth most important indicator of electric vehicles. The time spent per charge was the fourth most important indicator for EVs, accounting for 13.21% of those who chose to purchase an electric vehicle. Potential EV consumers who chose maximum range per charge, cost per charge, vehicle life, and vehicle performance as the third most important metric were 9.43%, 5.66%, 3.77%, and 1.89%, respectively.

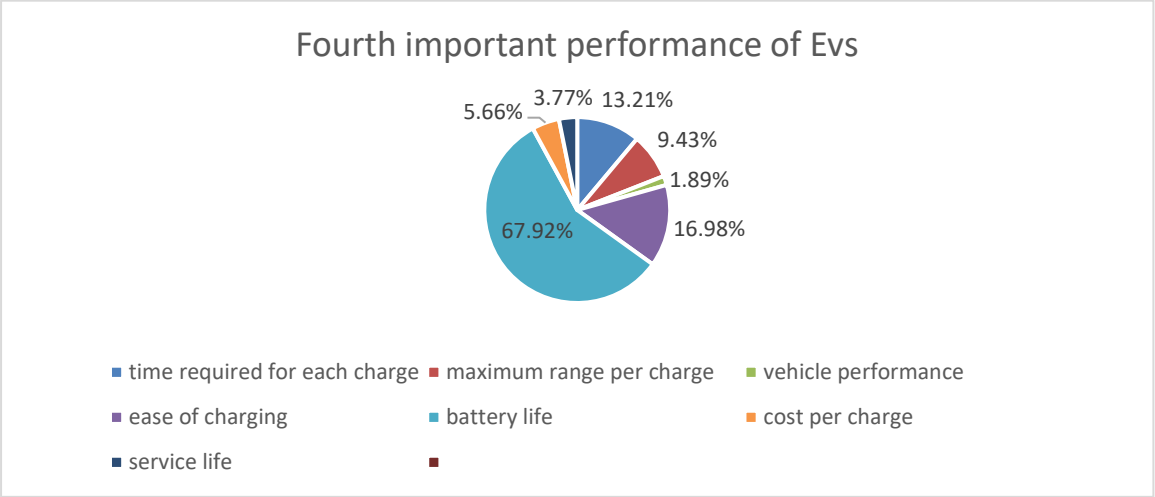

Figure 4.8 Fourth important performance of EVs

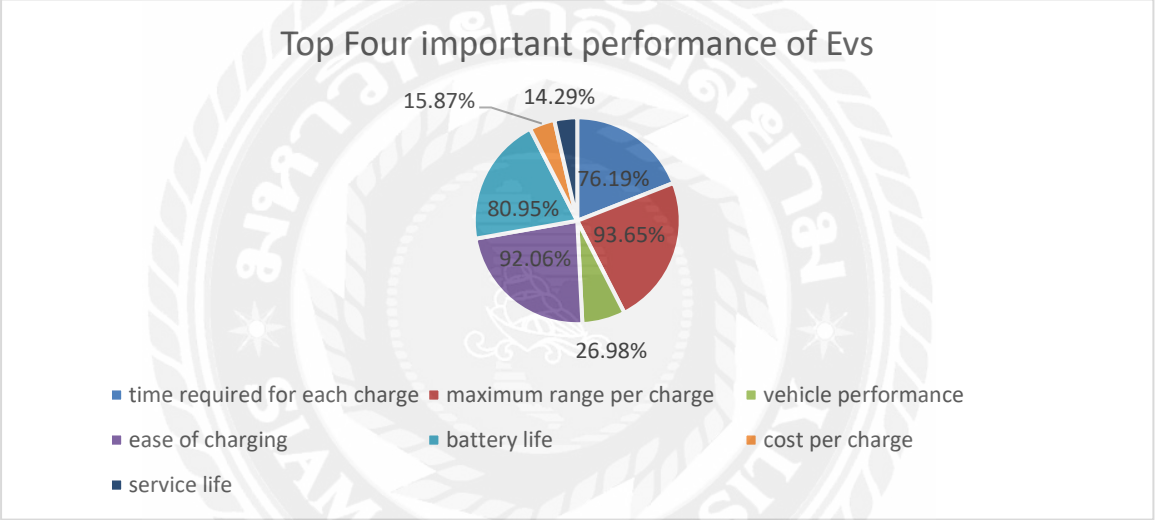

Figure 4.9 Top four important performance of EVs

Potential consumers of EVs ranked the top seven indicators in terms of importance: "time to complete a charge", "ease of charging", "distance that can be driven after each charge", "battery life", "cost per charge", "vehicle life" and "vehicle performance". Battery life", "cost per charge", "vehicle service life", "vehicle performance". We found that potential consumers of pure electric vehicles chose "distance they can drive after each charge", "ease of charging", "battery life" and "time to complete a charge" as the top four indicators in terms of importance. The four most important indicators of pure electric vehicles are "distance to drive per charge", "ease of charging", "battery life" and "time to complete a charge". The number of potential consumers who chose "distance that can be driven after each charge" accounted for 93.65% of the total potential consumers of electric vehicles. The number of potential consumers who chose "ease of charging" accounted for 92.06% of the total potential

consumers of EVs, while those who chose "battery life" accounted for 80.95% and those who chose "time to complete a charge" accounted for 80.95% of the total potential consumers of EVs. " accounted for 76.19% of the total number of potential consumers.

Chapter 5 Conclusion and Recommendation

5.1 Introduction

In this study, we analyze the characteristics of consumers and their attention to product-related attributes from the perspectives of consumer behavior and marketing, hoping to provide a more accurate explanation from both qualitative and quantitative aspects.

This chapter is a summary of the conclusions drawn from the data analysis and descriptions in Chapter 4, and then, based on the conclusions drawn, provides recommendations on the marketing strategies and government policies and regulations for electric vehicles in the Chinese market, thus providing some reference and advice for addressing the consumption of electric vehicles in China. However, there are still some shortcomings in this paper due to the research conditions, time, and the limitations of my research level and energy.

5.2 Conclusion

The main findings of this paper are that the survey found that the potential consumer market for electric vehicles in China is huge, and it is known that consumers choose electric vehicles for the reasons of clean and environmental protection, economic and low cost of use, and they mainly purchase vehicles for their daily life and work needs. This paper identifies the potential consumers of EVs in China, who want the purchase cost of EVs to be within 150% of the cost of a conventional car of the same configuration, and the annual maintenance cost to be within 5% of the selling price. They get their information through professional media and are more receptive to the purchase of EVs, and more than one-third of them choose to buy EVs by installment.

This paper identifies the factors that influence consumers' consumption of electric vehicles in China through the study of potential consumers. The indicators of electric vehicles that potential consumers focus on are "driving range after each charge", "time spent per charge", "ease of charging", "battery life and performance". "battery life" and "vehicle performance". The research of this paper provides suggestions for the development of BYD's new energy vehicles in terms of market expansion, product positioning, and product development, and these suggestions can provide some guidance for BYD's new energy vehicle development, development, manufacturing, and marketing.

5.3 Recommendation

5.3.1 Market Expansion

1. At present, with the international situation leading to the rising oil prices, consumers have realized the advantages of the cost of using electric cars over traditional fuel cars, although the national subsidy policy is gradually slipping, in terms laws and regulations have been encouraging the development of electric cars. Now is a good time for each car company to promote the sale of electric cars in the Chinese auto market.

2. Electric car companies should increase cooperation with governments, increase publicity, and increase the number of pilots, such as the pilot of electric cars and even driverless electric cars near the venues of the 2022 Beijing Winter Olympics, so that more and more people are familiar with the electric car industry as a matter of course.

3. car companies should increase their cooperation with some professional evaluation media or self-media, which are important channels for the main consumer groups of electric cars to get information nowadays.

4. They should pay attention to product innovation and R&D, especially in the new industry of electric vehicles, which will be updated very fast. For example, BYD's lithium iron phosphate blade battery technology has been fully supplied to other electric vehicle companies.

5. Vigorously build the construction of public charging piles and popularize them. The reason why consumers are anxious about the range of electric vehicles is simply that charging piles are not as popular as gas stations. It is even possible to build some stations where replaceable battery modules are stored for customers with different range options to solve the range anxiety problem of customers.

5.3.2 Product positioning

Focus on the 25-40-year-olds as the key marketing target, to reduce unnecessary costs in marketing. The product should meet the needs and preferences of young and middle-aged consumers aged 25-40, and be generally accepted by this group of consumers, with some fashion and fashionable colors.

As the monthly income of BYD's new energy car consumers is between 5,000 and 10,000, they are in the middle and low class of their environment, and their purpose of purchasing cars is for work and family life.

The majority of potential consumers are educated to undergraduate level or above, their consumption concept is relatively rational, they will fully collect information from all aspects of the product before consumption, and will verify the information and products they have learned one by one, car companies should do a good job of service seriously and carefully.

The potential consumers of electric vehicles are engineers, technicians, middle managers, and ordinary white-collar workers, who have a certain pursuit of quality of life. When developing products, electric car companies should focus on meeting the preferences of these people.

5.3.3 Product development suggestions

According to the consumer's desire and the initial delineation of the target customers, it is recommended that the following points be achieved in product development and services.

When developing products, they should attach great importance to the recycling and utilization of used batteries of electric vehicles, and strive to recycle the battery modules of each new energy vehicle after its end of life, and dispose of them after recycling or special treatment to achieve cleanliness and environmental protection, without causing damage to the original natural ecology.

Increase the technology development of electric vehicle systems and batteries, and the standardization, generalization, and modularization of various parts and components design and manufacturing, through technological innovation and other means to reduce production costs by all means, so that the sales price of electric vehicles after deducting the national subsidies is controlled within 150% of the same configuration of traditional cars, and the annual maintenance costs are controlled within 5% of the vehicle's selling price.

Pure electric vehicles should focus on "distance that can be driven after each charge", "charging convenience", "battery life" and "time to complete a charge " four indicators as the key research direction, in the above performance indicators are generally recognized by consumers.

5.4 Further Study

1. In terms of market segmentation of potential consumers of electric vehicles in China, we can consider introducing a more scientific definition and study of consumer life form scale.

2. Consider using more rigorous empirical analysis, such as conjoint analysis, to conduct more in-depth research on the preferences of product-related attributes of potential EV consumers and the main factors affecting their purchase decisions, and to draw more objective conclusions.

1. Improving consumer preferences in the new energy vehicle market

3. To improve the theoretical analysis of consumer behavior in the EV market, we can use the "structural equation model", a statistical method that combines regression analysis, path analysis, and empirical factor analysis, to establish a model that is consistent with the purchase decision of potential EV consumers in China.

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Appendix

Electric Vehicle Consumption Factors Questionnaire

Dear Sir, Madam

Hello, first of all, thank you for taking the time to read and answer this questionnaire

To better understand the factors that may influence the purchase of domestic electric vehicles in China, we are conducting this survey, which we guarantee is non-commercial and the results of which will be used for academic purposes only, and the information you provide will be kept strictly confidential. We sincerely hope that you will fill in this questionnaire carefully, and we appreciate your cooperation in this survey.

Please tick(√) the box of your choice after careful consideration. Unless otherwise stated, all choices are single.

1. Do you think that car exhaust is one of the main factors of the greenhouse effect?

□Yes □ No

2、 What do you think are the reasons for buying a car?

□ Means of transportation □ family needs □ Work needs □ herd mentality

3. If you were to buy a car, would you choose an electric car?

□Yes □ No

4、 When you buy an electric car, will you choose a Chinese brand of new energy vehicle?

□Yes □ No

5. Please rank the importance of the following indicators for electric vehicles, using 1 - 7 to indicate the most important to the least important.

Time to complete a charge ( )

Ease of charging ( )

Maximum range per charge ( )

Battery life ( )

Cost per charge ( )

Age of car ( )

Car performance ( )

6、 What is your reason for choosing to buy an electric car? Multiple choice possible

□ Clean and environmentally friendly □ economical, low cost of use □ Safe

□ Government subsidies □ Mandatory by policy and regulation □ Recommended by friends □ Other

7. What do you think is the appropriate price for an electric car of the same configuration minus the national subsidy for electric cars?

□<120% □120%-150% □150%-180% □180-200% □>200%

8 、 What do you think is the appropriate annual maintenance cost of the electric vehicle for the vehicle itself?

□<2% □2-5% □5-8% □>8%

9. The way you would like to buy a car

□ full payment □ installment payment □ Unit allocation □ Other

10、 The main way you get information about the car market is

□ Media analysis □ Family and friends advice □ Manufacturers' promotion □ Business introduction

11、 When you are buying a new energy vehicle, how much do you value each of the following factors (tick one of the corresponding choices)

	Items	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Culture	Brand					
	Factory reputation					
	Consumer reputation					
Cost	Selling price					
	Monthly usage cost					
	Repair and spare parts cost					
	Policy subsidies					
Appearance	Styling					
	Colour					
Environment protection	Zero Emission					
	Recyclable parts and components without pollution					
Power Performance	Top speed					
	Acceleration capacity					
	Hill climbing performance					

Safety	Body Structure Design					
	Crash part quality					
	Crash energy absorption design					
	Safety Equipment					
Comfort	Interior space					
	Interior Decoration					
	Interior noise					
Service	Credit Services					
	Pre-Sales Service					
	After Sales Service					
Publicity	Advertisement					
	Family and friends' opinion					
	Market share					

Population background information:

1. Your gender: □ Male □ female

2. Your age.

□< 18 □18-25 □26-30 □31-40 □41-50 □> 50

3. Your academic qualifications.

□ Primary School □ Middle School □ high school □ Tertiary

□ Undergraduate □ Master's degree and above

4. What is your approximate monthly income in RMB.

□< 3000 □3000-5000 □5000-8000 □8000-12000 □>12000

5. Your current occupation.

CEOs, company leaders, private business owners, government leaders, professors, experts, etc.

□ engineers, teachers, department heads, general civil servants

□ Technicians, general staff, etc.

□ General workers, service workers, self-employed businessmen, etc.

□ Students

□ Unemployed, semi-unemployed, etc.

7. Does your household currently use a car.

□Yes □ No

8. Your province and city.

□ Beijing □ Shanghai □Guangzhou □Shenzhen □Other:_____

Thank you for your cooperation and I hope you will forward this questionnaire to people you know and friends and family.