

Research on Marketing Strategies of Luxury Used Cars in Hangzhou Based on Consumers' Purchasing Intention

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Abstract: The target market for second-hand cars is complex and diverse, with different consumer needs and preferences. Existing marketing strategies are difficult to accurately target, which affects the effectiveness. Therefore, this article investigates the marketing situation and strategies of luxury second-hand cars in the Hangzhou area, and conducts in-depth analysis of the problems existing in their marketing, and proposes corresponding marketing strategy optimization suggestions. The study first conducts data crawling through trading websites such as Guazi Second hand Car, Renrenche, and Youxin Second hand Car to obtain experimental research data samples. Then, the study analyzes the sales volume, price and sales volume relationship, consumer reviews, purchase intention factors, and other data of luxury second-hand cars from different brands in Hangzhou. Factor analysis and structural equation modeling analysis indicate that price competitiveness (score 9.0) has the greatest impact on consumer purchase intention. However, the impact of consumer reviews on prices is 0.5, indicating that positive reviews can increase acceptance of prices.

1. Introduction

With the development of the economy and the improvement of consumer income levels, the second-hand car market has gradually become an important component of the automotive industry. Especially in first tier cities like Hangzhou, the demand for luxury used cars continues to grow, and consumers are showing increasing interest in high-quality, low-priced luxury used cars. However, despite the enormous market potential, current marketing strategies face many challenges in meeting diverse consumer demands. This study aims to explore in depth the purchasing intention of consumers in the luxury second-hand car market in Hangzhou and analyze the key factors that affect their purchasing decisions. Through market research and data analysis, this article hopes to provide targeted marketing strategy optimization suggestions to increase the sales volume of luxury used cars.

Although the existing literature on automotive marketing strategies has been extensive, there are still many bottlenecks in practical applications. Especially in terms of consumer behavior analysis, market dynamics changes, and digital marketing effectiveness, research is relatively insufficient.

Therefore, this article will use methods such as data investigation and factor analysis, combined with big data technology, to accurately identify factors that affect consumers' purchase intention, and propose practical and feasible marketing strategies to promote the development of the luxury used car market in Hangzhou.

Firstly, this article lays the background and research objectives of the luxury second-hand car market in Hangzhou through the introduction section. Subsequently, research results related to second-hand car marketing are reviewed in the literature review, laying a theoretical foundation for subsequent analysis. Next, the research methodology section provides a detailed introduction to the data collection and analysis process, including the application of factor analysis and structural equation modeling. The results and discussion section conducts an in-depth analysis of the data, revealing the main factors that influence consumer purchasing decisions. Finally, in the conclusion section, the research findings are summarized, and the limitations of the study and future research directions are proposed.

2. Related Works

There are currently a large number of literature studies on automotive marketing strategies. Pillai proposed an intelligent framework based on artificial neural networks for estimating the cost of used cars. He used the Keras regression algorithm to train the model on data from 30 brands and 140000 used cars in the United States, and validated it on data from 35000 cars [1]. Purnomo found through qualitative research and data analysis that digital marketing strategies are crucial for conversion rates[2]. Liu et al. studied the strategy of manufacturers selecting vehicle types based on consumer behavior and government subsidies in the car sharing market through a game model [3]. Ater&Yoseph used differential research design and administrative and proprietary data to find that after the "dieselgate" incident, the number of car transactions involving Volkswagen manipulation decreased by 18%, and the resale prices of these cars decreased by 6% [4]. McCarthy et al. found through interviews that social media has become a key marketing channel, and trust is crucial for leveraging fan communities[5]. Antara&Rastini analyzed the impact of brand image, promotion, and service quality on customer satisfaction with car rental services through multiple linear regression. The results showed that brand image, promotion, and service quality had a significant positive impact on customer satisfaction [6]. Abedian et al. developed a mathematical method based on game theory for planning the optimal marketing mix strategy in a dynamic competitive market. The results showed that the optimal strategy for brand A was pricing strategy, while the optimal strategy for brand B was product strategy [7]. Xu et al. explored the impact of online and offline shopping channels on consumer decision-making and analyzed effective marketing strategies across different channels. It was found that shopping channels affect consumers' psychological distance, thereby influencing the decision-making process [8].

Feruza pointed out that effective marketing strategy is the key to the development of enterprises, which is closely related to their survival and involves long-term promotion plans, brand loyalty building, and competitive advantage acquisition[9]. Cataltepe et al. found through multiple regression analysis that MC (marketing capabilities) has a significant mediating effect on the relationship between DC (dynamic capabilities) and firm performance, with pricing, marketing research, and marketing strategy having the closest impact on firm performance [10]. Bauer et al. explored the role of blockchain in addressing market information asymmetry and proposed that multi-party authentication supported by blockchain can improve quality signals in the market. The results indicated that blockchain technology can effectively improve market operations, reduce intermediary profits, and address issues of overpricing [11]. Park et al. pointed out that companies are gradually realizing that investing in social and environmental improvements can not only

enhance credibility, but also increase long-term profitability. Sustainable marketing should be the core of corporate strategy, rather than just a part of product development and sales [12]. Lopes & Casais analyzed the content marketing framework from the perspective of inbound marketing, explored its role in promoting customer brand interaction and loyalty, and provided content marketing management strategy recommendations for digital marketers based on theoretical review [13]. Wichmann et al. explored the four core issues of marketing mix (MM): participants, composition, implementation, and deployment, and found role ambiguity, tool integration, increased action customization, and increased importance of emerging markets [14].

Although existing automotive marketing research covers various strategies and methods, there are still some bottlenecks: firstly, the combination of deeply applied technologies (such as artificial intelligence and blockchain) with actual marketing strategies has not been fully explored; secondly, there is still a lack of research on consumer behavior and its relationship with digital marketing effectiveness, especially the dynamic changes in different market environments and cultural backgrounds; in addition, a large amount of research focuses on single brand or event cases, lacking systematic analysis of the overall market environment and multi brand strategies, resulting in insufficient comprehensive understanding of the industry. Finally, the exploration of sustainable marketing and social responsibility is still in its early stages, and there is an urgent need for more empirical research to measure their impact on long-term performance of enterprises.

3. Methods

3.1 External Variables of Used Car Business Factors

This article considers the seven relevant factors of the second-hand car business as part of the external variables of the model, as described below [15-16]: (1) Vehicle condition factor: the level of excellence that the used car business can achieve in terms of vehicle technology, appearance, interior, and other aspects; (2) Diversity factors in vehicle selection: the level of richness that can be achieved in the selection of vehicle models, configurations, colors, and personalized satisfaction in the second-hand car business; (3) The authenticity factor of vehicle information: the degree of authenticity that the second-hand car business can achieve by providing consumers with information such as vehicle age and mileage, maintenance records, and accident records; (4) Competitive factors in vehicle prices: the level of affordability that second-hand car businesses can achieve in terms of consumer expenses; (5) After sales service guarantee factor: the degree of guarantee that the second-hand car business can achieve in terms of after-sales services such as warranty and rescue; (6) The importance factor of additional services: the degree of completeness of the second-hand car business in terms of trade in, financial services, and customer care; (7) The usefulness factor of information channels: the usefulness of various channels provided by the second-hand car business to consumers to understand business-related information [17].

3.2 Homogenization Phenomenon in Product Strategy

The current product strategy of second-hand car companies is not scientific enough, and the supply of products does not match customer demand. According to relevant surveys, some companies have a limited range of product types and limited space for customers to choose from. The degree of differentiation of second-hand cars is relatively small. Although some companies have achieved differentiation in product quality and service, there is still a certain gap between them and customer expectations. In addition, with the development of the handcart industry, the expansion speed of enterprises has accelerated, but the quality of services has not been effectively improved, and the advantages of online marketing have not been fully utilized. The advantages of

enterprises have been weakened, and homogenization is serious, which affects the core competitiveness of enterprises and is not conducive to their further development [18-19].

In the eyes of high-end second-hand car consumers, the price formation mechanism is opaque, there is a lack of risk control mechanism, a lack of high-end consumption experience, and inadequate financial and insurance services. All of these factors make it difficult to stimulate the purchasing desire of potential consumers. Consumers can only turn to the new car market demand for alternative solutions or postpone consumption, so the huge consumption demand cannot be released. This cites the current lack of formal and reputable high-end second-hand car operating companies/platforms in the market to provide consumers with the products and services they need. In this situation, the necessity and urgency of researching and creating high-end second-hand car operating companies/platforms are highlighted. We cannot miss the good opportunity to grasp and acquire this blank market, and provide consumers in this market with specific products and related high-quality services they need [20].

3.3 Applying Big Data Technology to Promote Precision Marketing

Big data is an important technology that supports the development of e-commerce. It can analyze massive amounts of data, study the consumption behavior, trajectory, and characteristics of each consumer, and draw consumer portraits, and classify them according to specific standards. The second-hand car market involves various types of cars, and customers have different requirements for car brands, prices, and conditions. Therefore, big data technology can be used to analyze consumer groups and classify them according to two key factors, namely brand and price, in order to achieve precise marketing. This can meet the needs of customers and increase the sales of used cars.

4. Results and Discussion

4.1 Obtaining Data on Luxury Second-Hand Car Transactions in Hangzhou

Firstly, choosing a well-known second-hand car trading platform in the Hangzhou area (such as Guazi Second hand Car, Renrenche, Youxin Second hand Car, etc.). Then, writing a crawler script to simulate user behavior and access relevant pages of these websites, focusing on capturing data related to luxury used cars, such as vehicle brand, age, mileage, price, condition, sales records, and the location of the vehicle. After data capture is completed, the raw data will be cleaned to remove duplicates, missing, and irrelevant information. Finally, the cleaned data will be stored for subsequent analysis and processing. Through this method, a large amount of real-time data on the Hangzhou luxury used car market can be obtained for further market analysis and marketing strategy formulation.

4.2 Data Analysis

This article will conduct an exploratory analysis of luxury used car related data collected online, including brand awareness, vehicle condition, cost-effectiveness, market discount activities, after-sales service, convenience of trading platforms, regulatory effectiveness, salesperson professionalism, vehicle appearance and internal configuration, etc.

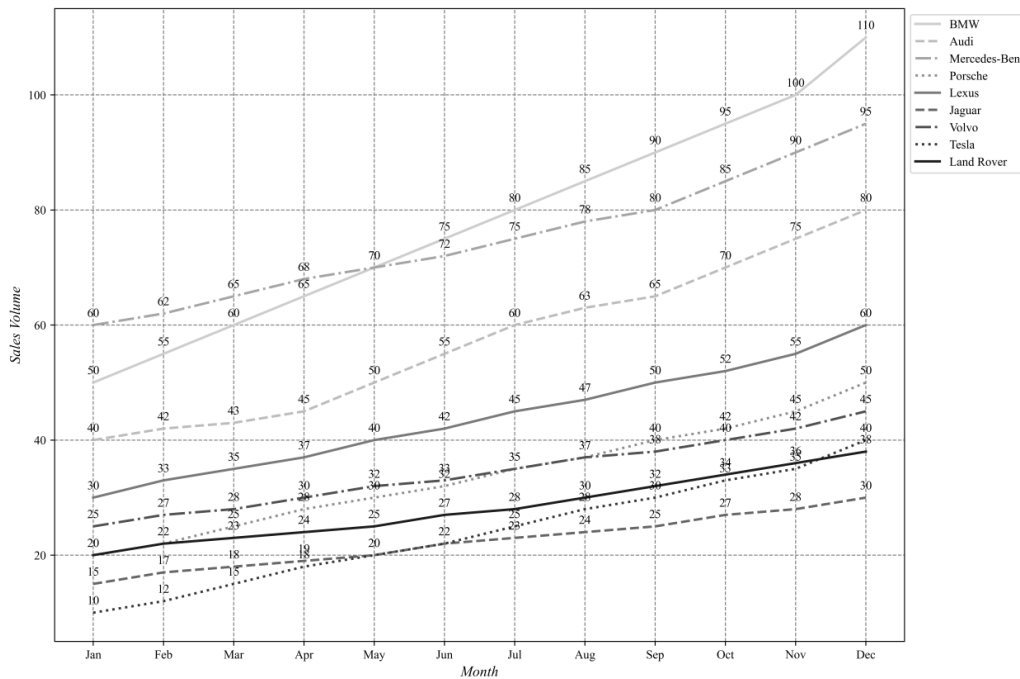


Figure 1: Sales trends of luxury used cars from different brands

From the sales analysis of luxury second-hand cars in Hangzhou in Figure 1, it can be seen that BMW, Mercedes Benz, and Audi have relatively ideal sales and are showing a continuous upward trend. The sales of other brands are also increasing month by month, but the growth momentum is relatively flat, such as the used cars of emerging brand Tesla.

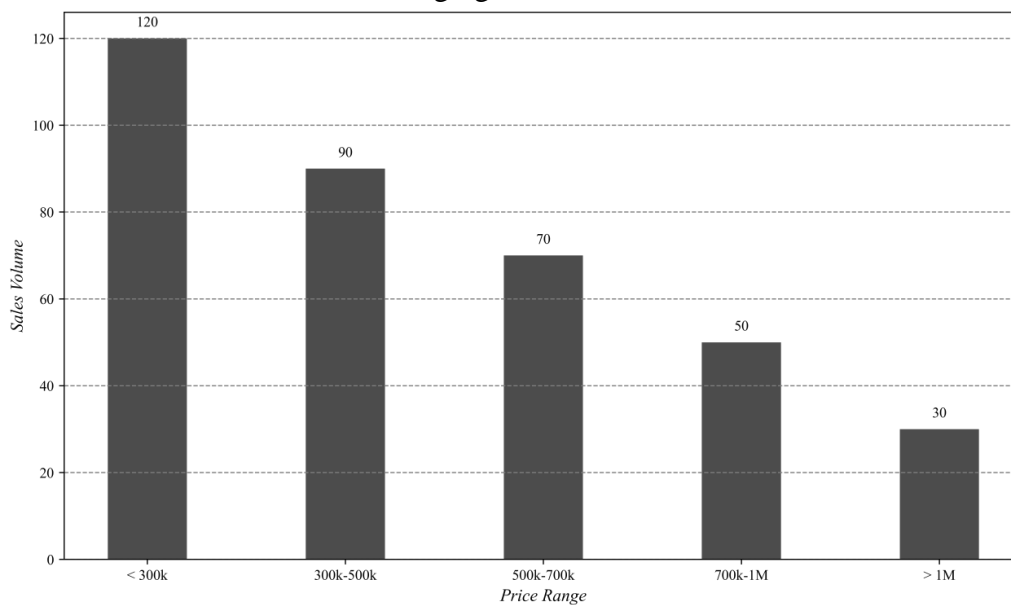


Figure 2: Relationship between price range and sales volume of luxury used cars

The experiment analyzed the sales distribution of luxury second-hand cars in different price ranges. From the bar chart, it can be seen that second-hand luxury cars priced below 300000 have the highest sales volume and dominate the market, which may be related to the fact that mass consumers are more inclined to purchase luxury cars with higher cost-effectiveness. As prices rise, the sales volume of used cars gradually decreases, especially luxury cars priced over 1 million,

which have significantly lower sales volume and only account for a small market share. In the luxury second-hand car market, models in the lower price range are more popular, indicating that consumers still maintain a cautious attitude towards prices when purchasing cars, as shown in Figure 2.

Table 1: Sales volume, price, and consumer evaluation

Brand	Sales (units: vehicles)	Average Price (10,000 RMB)	Condition Rating (out of 10)	Consumer Review Rating (out of 10)	After-Sales Service Rating (out of 10)
BMW	150	350	9	8.5	8
Mercedes-Benz	130	380	9.2	8.8	8.5
Audi	120	340	8.8	8	7.8
Tesla	80	450	9.5	9	9.2
Lexus	90	320	8.7	8.2	8
Volvo	70	300	8.5	7.5	7.5

Compared to other brands in Table 1, although Tesla has lower sales (80 units), its vehicle condition and after-sales service ratings are the highest, indicating consumer recognition of its quality and service. Overall, there is a negative correlation between price and sales volume, and lower priced luxury models such as Lexus and Volvo have also gained a certain market share, reflecting that consumers pay more attention to cost-effectiveness when buying cars. These data provide important basis for optimizing marketing strategies, and businesses should make targeted adjustments in brand promotion, pricing strategies, and after-sales service to meet the diverse needs of consumers.

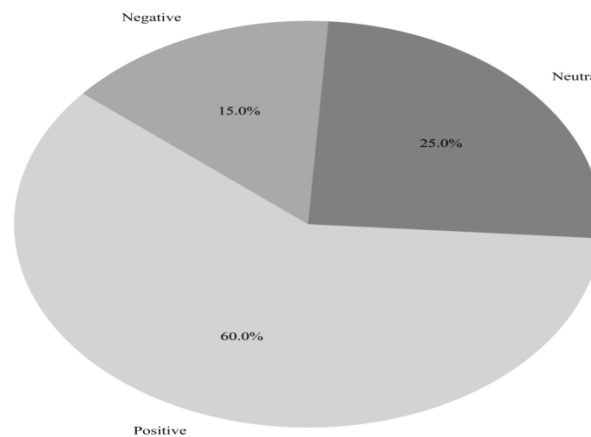


Figure 3: Consumer sentiment analysis

This experiment conducted an emotional analysis of consumer reviews of luxury used cars. From the pie chart, it can be seen that positive reviews account for 60%, indicating that the majority of consumers are satisfied with luxury used cars. In addition, neutral reviews account for 25%, and this group of consumers may have some reservations about the after-sales experience or vehicle condition. Negative reviews account for 15%, which is relatively low, indicating that most consumers have a positive attitude towards the overall performance of luxury used cars. In the luxury second-hand car market, consumers generally have a positive purchasing experience, especially giving high ratings to the quality and service of the vehicles, as shown in Figure 3.

4.3 Analysis of Factors Influencing Purchase Intention

The luxury used car market has a high level of user stickiness. To further investigate the influencing factors of consumer satisfaction and its positive and negative correlation with satisfaction, we will use factor analysis and equation modeling for in-depth analysis.

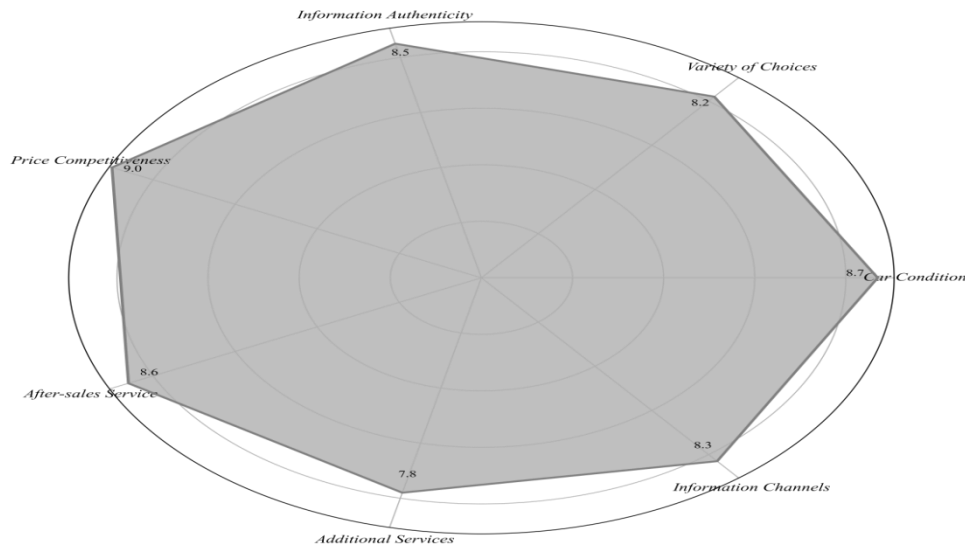


Figure 4: Analysis of factors influencing consumer purchase intention

From the analysis of factors influencing consumer purchase intention in Figure 4, they can be ranked in order of importance as price competitiveness, vehicle condition, after-sales service, information authenticity, information channels, diversity of choices, and additional services. Although rated relatively low, the additional services (7.8) and vehicle selection diversity (8.2) are still important factors affecting consumer experience, indicating that consumers hope to obtain information through diverse information channels and enjoy more choices when choosing vehicles. Overall, these factors work together to form a complex system that influences consumers' willingness to purchase luxury used cars. Businesses should consider these factors comprehensively and optimize their marketing strategies to improve consumers' purchasing experience and satisfaction.

The structural equation model explores the impact of brand reputation, price, vehicle condition, after-sales service, and consumer reviews on purchase intention. The results show that brand reputation has the most significant impact on purchase intention, with a path coefficient of 0.5, indicating that brand reputation can significantly enhance consumers' purchasing decisions. The condition of the vehicle also has a significant impact on purchase intention, with a coefficient of 0.4, while the impact of price is slightly weaker, at 0.3. The impact of after-sales service is minimal, with a coefficient of 0.2. The impact of consumer reviews on prices is 0.5, indicating that positive reviews can increase acceptance of prices. Overall, brand reputation and vehicle condition are the main factors affecting purchase intention, while the role of price and after-sales service is relatively small, as shown in Figure 5.

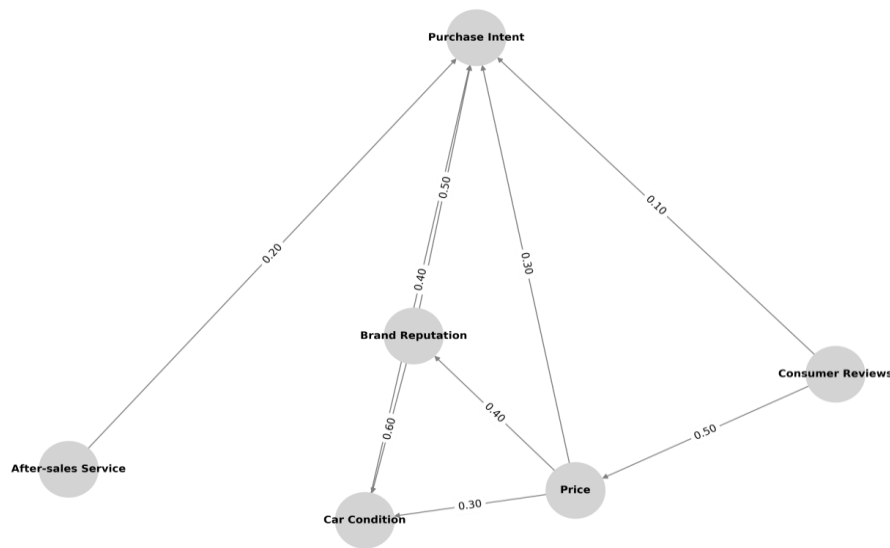


Figure 5: Structural equation modeling analysis

4.4 Discussion

From the sales trends of different brands, traditional brands still dominate the second-hand car market, while the growth momentum of emerging brands should not be underestimated. The price factor is closely related to sales volume, and luxury cars in the low price range are more attractive. Consumer emotional feedback further confirms this trend, with the majority of consumers holding a positive attitude towards luxury used cars. Finally, the core factors that affect purchase intention indicate that price, condition, and brand awareness are key factors for consumers to make purchasing decisions. The analysis of data reveals the consumption trends of the luxury used car market from multiple dimensions, providing data support for further optimizing sales strategies.

5. Conclusion

In order to increase the sales volume of the luxury second-hand car market in Hangzhou, this study reveals the key factors that affect consumers' purchase intention through in-depth analysis of the Hangzhou luxury second-hand car market. Brand reputation and vehicle condition have been proven to be the most important considerations for consumers when purchasing a luxury used car, while the impact of price and after-sales service is relatively small. This indicates that consumers are more concerned about the quality of vehicles and the reliability of the brand, rather than price discounts. Through big data analysis, we also found that luxury used cars in the low price range are more popular in the market, especially those priced below 300000 yuan. Meanwhile, consumers generally hold a positive attitude towards the overall purchasing experience of luxury used cars, further driving the growth of this market. However, research has also exposed problems in the current market, such as severe homogenization phenomena and inadequate marketing strategies to meet diverse needs, especially the lack of personalized services for different consumer groups. The limitations of the study are mainly reflected in the limited sources and coverage of data samples. Although a large amount of data has been obtained through online platforms, it has not comprehensively covered all factors that may affect purchasing decisions. Future research can further expand the breadth and depth of data samples and introduce more complex statistical models to improve the predictive ability of consumer behavior.

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