POLITECNICO DI TORINO

Master's Degree in Automotive Engineering

Master's Degree Thesis

Research on Chinese consumer car choice preferences based on product quality perspective

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Abstract

In recent years, China has become the world's largest automotive market. Rising socioeconomic levels and disposable income have led consumers to prioritise vehicle quality and reliability. In this fiercely competitive market, Chinese, Japanese, American and European car brands hold significant market shares in the Chinese passenger car sector. This study investigates Chinese consumers' perceptions and preferences regarding vehicle brands from these regions, focusing on key quality dimensions such as safety, durability, reliability, performance and innovation. Primary data were collected via a structured questionnaire, yielding 102 valid responses which captured the participants' demographic profiles and their evaluations of various quality attributes. Statistical analyses, including descriptive statistics, Pearson correlation and multiple linear regression using IBM SPSS Statistics, revealed that safety and durability were considered the most important quality factors influencing purchase decisions. German brands achieved the highest overall quality ratings, followed by Chinese brands, while Japanese and American brands received comparatively lower evaluations. Furthermore, consumers who perceive Chinese brands to be of high quality are more likely to intend to purchase new energy vehicles, whereas those who rate German brands highly tend to prefer traditional fuel vehicles. These findings provide automakers and marketers with valuable insights to help them enhance their competitiveness by aligning product quality improvements with the evolving expectations of consumers in the Chinese market.

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1. LITERATURE REVIEW

1.1 Importance of Quality in the Automotive Market

1.1.1 What is Automotive Quality

Automotive quality is the standard of excellence maintained in the design, production and service of vehicles and their components. It contains multiple characteristics, generally consisting of five aspects: performance, service life, reliability, safety, and economy, that is, applicability, the characteristics of the product that meet the use requirements, emphasizing continuous improvement, defect prevention, and maximizing Reduce variation and waste. In the past era, quality was often regarded as the growth of sales and the improvement of profits. Quality problems were always overcome by quantity. Quality is becoming variety today. It is not just a characteristic of the product or service itself, but the cornerstone of the whole organization's operation and management. Quality management intersects all levels and activities of the organization, from strategic planning to daily operations, from leadership to every behavior of employees.

The view of quality seen as optimizing social impact reflects a broader understanding of the role of organizations in society and their long-term sustainability. As show Figure 1 Source: the EFQM Model Brochure, it Improves overall performance through continuous improvement and innovation of processes, products and services, and by increasing the satisfaction of all stakeholders, This includes the expectations and needs of all stakeholders such as customers, employees, suppliers and society. The EFQM model （European Foundation for Quality Management） emphasizes managing and improving quality through systematic evaluation of organizational performance, including stakeholder perceptions and the organization's strategic and operational performance, encouraging the establishment of a positive culture in which everyone is committed to the improvement of quality and the overall success of the organization. In summary, automotive quality enriched by the perspective of the EFQM model, becomes a more detail concept that goes beyond traditional defects and reliability indicators, with manufacturers focusing not only on the direct quality of vehicles but also on sustainable practices and strategies that maintain the automotive industry long-term success and consumer satisfaction.

Figure 1 Source: the EFQM Model Brochure

1.1.2 The Important Role of Automotive Quality in the Market

High-quality vehicles can significantly improve brand reputation, increase customer satisfaction, and increase brand loyalty. Conversely, poor quality can lead to recalls, damage brand reputation and cause financial losses. For example, the Chinese electric vehicle brand WM Motor was recalled by the country in October 2020 for 1,282 faulty cars due to battery cell quality issues. And it continued to have multiple spontaneous car combustion accidents afterwards, which had a significant impact on the WM Motor brand and reduced consumer trust. According to relevant data, WM Motor's sales in 2022 were only 29,450 units, a year-on-year decrease of 33.3%, which was less than the three-month sales of Weilai and Ideal. This also made WM Motor be surpassed by other domestical electric vehicle brands. On October 10, 2023, WM Motor issued a notification letter on its official Weibo saying that WM Motor Technology Group's pre-reorganization application had been passed and WM Motor was on the verge of bankruptcy due to battery cell quality issues. And it continued to have multiple spontaneous car combustion accidents

Afterwards, which had a significant impact on the WM Motor brand and reduced consumer trust. According to relevant data, WM Motor's sales in 2022 were only 29,450 units, a year-on-year decrease of 33.3%, which was less than the three-month sales of Weilai and Ideal. This also made WM Motor be surpassed by other domestical electric vehicle brands. On October 10, 2023, WM Motor issued a notification letter on its official Weibo saying that WM Motor Technology Group's pre-reorganization application had been passed and WM Motor was on the verge of bankruptcy. Once consumer trust is lost, it is difficult to regain. According to research, car brands that consistently provide high-quality vehicles have loyal customer bases, higher market shares, and higher profitability. This is because

quality is often the number one factor consumers consider when purchasing a vehicle. It affects not only the initial purchase decision, but also long-term satisfaction and the likelihood of repeat purchases. Automotive quality plays a key role in shaping consumer perceptions, influencing market dynamics and improving manufacturer competitiveness. For example The following two tables show JD power's management program for automotive quality. Customer feedback collected in both programs reveals not only the immediate and long-term reliability of the vehicle, but also how these aspects impact customer satisfaction and loyalty. We can see that today's customers expect more than just a reliable vehicle; they seek a comprehensive experience that delivers convenience, connectivity, sustainability and safety, reflecting wider social and environmental values. As Kotler says: Marketing is a process by which companies create value for customers and build strong relationships in order to capture value from customers in return. The ability to integrate the voice of the customer into the pursuit of quality and excellence is unique to leading brands, building customer loyalty and driving innovation for future success.

Aspect	Initial Quality Study (IQS) Details	Vehicle Dependability Study (VDS)
Objective	To measure vehicle quality by examining problems experienced by owners within the first 90 days of ownership.	To measure long-term reliability of vehicles, specifically during the third year of ownership.
Survey Population	Owners and lessees of new, current model-year vehicles surveyed after 90 days of ownership.	Owners of 3-year-old vehicles
Sampling Method	A sample of vehicle owners is drawn from registration data, manufacturer customer databases, and other sources	Owners are selected through various sources, including state registration data and manufacturer customer databases, to ensure a representative sample of the vehicle population.
Survey Content	Main nine categories: Exterior, The Driving Experience, Features/Controls/Displays (FCD), Audio/Communication/Entertainment/Navigation (ACEN), Seats, Heating, Ventilation, and Air Conditioning (HVAC), Interior, Engine/Transmission, and Quality of Service.	Main eight major vehicle categories: Exterior, Features/Controls/Displays (FCD), Audio/Communication/Entertainment/Navigation (ACEN), Seats, Heating, Ventilation, and Air Conditioning (HVAC), Interior, Engine/Transmission, and the Driving Experience

Scoring	Problems are expressed as the number of problems per 100 vehicles (PP100). The study focuses on two types of problems: defects/malfunctions and design-related issues.	The VDS also uses a PP100 score to indicate the number of problems reported per 100 vehicles. A lower score signifies higher dependability.
Ranking	Vehicles and brands are ranked within their segments based on their PP100 scores. Lower scores indicate higher quality.	Vehicles are ranked within their segments based on their dependability scores. Awards are given to the highest-ranked vehicles in each segment.

1.2 Overview of the Chinese Automotive Market

The long-term rapid development of Chinese economy has given a strong driving force to the development of China's automotive industry. In 2012, China overtook the United States to become the world's largest automotive market. Its importance and global influence can not be ignored, as the world's largest automotive market, China not only occupies an important position in the market scale, but also through technological innovation, international cooperation and policy guidance, and actively promote the transformation and sustainable development of the global automotive industry. And now, Chinese automotive market is experiencing a period of dynamic and change.

1.2.1 Characteristics of the Chinese Automotive Market

a) Huge market size and development potential

Chinese auto market has become one of the largest in the world after years of rapid development. Chinese cars sold 31.436 million units overall in 2024, up over 4.5% year-on-year, hitting a new record high and remaining the world's No. 1 for 15 consecutive years since 2009 (as shown in Figure 2). And in 2024 according to the Chinese Government statistics, the annual number of motor vehicles will reach 453 million, of which 353 million will be cars; and there will be 543 million motor vehicle drivers, of which 506 million will be car drivers, a four- times increase compared to 10 years ago. Behind this large market size is the result of China's sustained economic growth, accelerated urbanization and the expansion of the middle class, Meanwhile, China's current car ownership per 1,000 people is around 150, which is still a large growth potential compared to countries such as the United States (850), Germany (600), Japan (500) and South Korea (420)[11]. In terms of long-term development, there are still 500 million Chinese people who have yet to realize their dream of owning a car, and as long as the economy continues to grow, the increase in the passenger car market will remain considerable. With the improvement of living standards and the increase in consumer spending power, more and more Chinese families are purchasing cars, especially in the

second and third level cities, where the growth potential of automobile consumption is particularly significant.

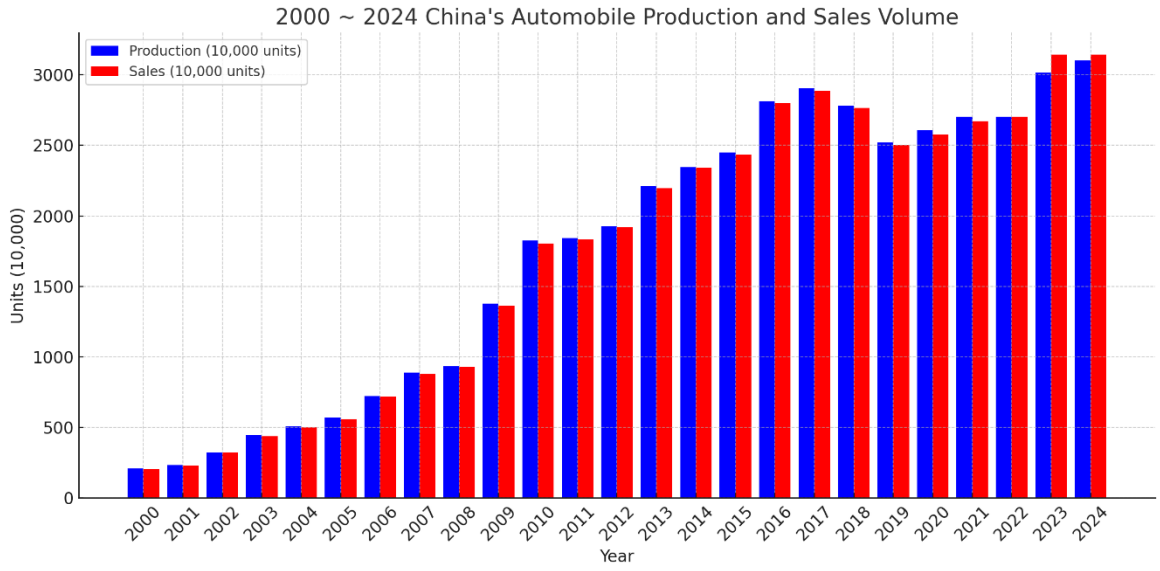


Figure 2 Source: China Association of Automobile Manufacturers

b) Competition is strong with a wide range of brands

The Chinese automotive market is diverse and competitive, with both domestic and foreign brands fiercely competing for market share. The Chinese market has not only attracted the participation of major global automakers, but has also led to the rise of many local brands, in 2024, 150 car brands exist in the Chinese car market, ranking first in the world. Brands in the market are divided into three main categories: joint venture brands, imported brands and independent brands.

Joint venture brands are mainly Volkswagen, Toyota, Honda, Ford, etc. These brands occupy a large portion of the market share through joint ventures and plants with local Chinese companies.

Imported brands such as BMW, Mercedes-Benz, Audi and other high-end brands, mainly for the middle and high-end consumer market.

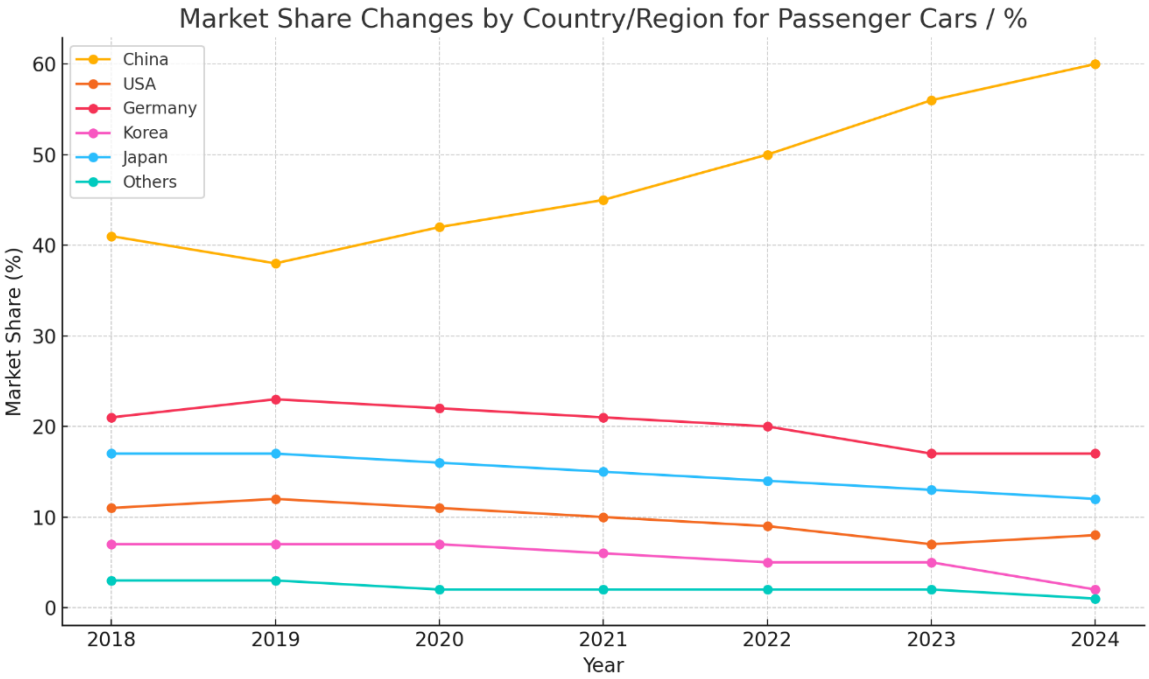
Domestic brands are mainly domestic automakers such as BYD, Geely, Great Wall, Chery, etc.

Data as shown in Figure 3, Although foreign brands still occupy an important position, the market share of independent brands is increasing year by year. In recent years, domestic brands have made remarkable achievements in technological innovation and brand building, and gradually won the recognition of consumers. For example, BYD has become one of the market leaders by virtue of its technological leadership in the field of new-energy vehicles. in 2023, BYD's total sales volume reached 3.02 million units, making it the world's champion of new-energy vehicle sales. Through continuous innovation, BYD has launched a number of best-selling models, such as the Han, Tang, Song and other

series of models, especially in the field of new energy, launched a disruptive significance of the ‘Blade Battery’, which greatly improves the safety and range of electric vehicles.

In the face of the rise of independent brands and the intensification of market competition, foreign brands are also constantly adjusting their strategies to remain competitive. For example, BMW has launched a number of electric and plug-in hybrid models for the Chinese market and has established a new production site in Shenyang. Ford has also entered into a co-operation agreement with China's largest power battery supplier, Ningde Times, to build a power battery plant in the US to further improve its competitiveness in the global market.

The Chinese auto market is characterized by strong brand competition, with major brands vying for market share through continuous innovation and strategic adjustments. The rise of independent brands and the strategic adjustments of foreign brands have made the market competition more diversified and complex.



Year	China	USA	Germany	Korea	Japan	Others
2018	41	11	21	7	17	3
2019	38	12	23	7	17	3
2020	42	11	22	7	16	2
2021	45	10	21	6	15	2
2022	50	9	20	5	14	2
2023	56	7	17	5	13	2
2024	60	8	17	2	12	1

Figure 3 Source: China Association of Automobile Manufacturers

c) The market landscape is changing

China's auto market is experiencing a transformation and upgrading from traditional fuel vehicles to new energy vehicles. This process involves not only the adjustment of product structure, but also the reshaping of the market pattern and the extension of the industrial chain.

1.Product structure adjustment: As new energy vehicle technology continues to mature, the types and number of new energy vehicles on the market continue to increase. in 2024, China's new energy vehicle sales reached 1,286.6 million units, a year-on-year increase of 35.5%, with a market penetration rate of 40.9%. The IHS Market report, shown in the Figure 4, provides a forecast of the outlook for new energy vehicles in the Chinese market, which indicates that consumer acceptance and recognition of new energy vehicles is increasing.

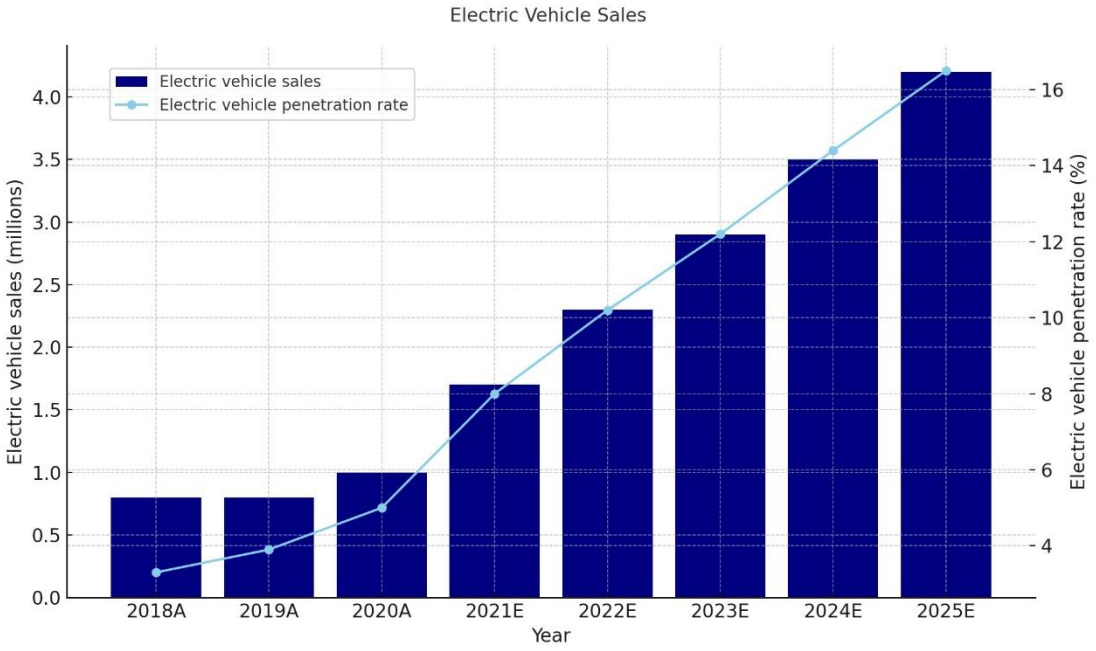


Figure 4 Source: ： IHS Markit report

Market landscape reshaping: the rise of domestic brands in the automotive market has changed the traditional market landscape. Reaching 56 per cent in 2023, the sales of passenger cars of domestic brands overtook those of foreign brands for the first time, changing the market pattern in which foreign brands had long occupied the dominant position in the medium passenger car market.

Industry chain extension: The rapid development of new energy vehicles has led to the upgrading and extension of the related industry chain. The rapid development of power battery, charging infrastructure and intelligent network technology has provided strong support for the entire new energy vehicle industry. For example, by the end of 2023, China had built more than 1.2 million public charging piles, forming the world's most complete charging infrastructure network.

2.With the popularity of digitalization and internet technology, the Chinese automotive market is experiencing a deep change in the way it is sold. Online sales platforms: The rise of auto e-commerce platforms has changed the way consumers buy cars. For example, companies such as Azera and Xiaopeng have launched online sales platforms that allow consumers to learn about models, book test drives and buy cars online via the internet. In 2024, sales on auto e-commerce platforms increased by 35% year-on-year, demonstrating the huge potential of online sales.

Smart showrooms and experience centres: many auto brands have opened smart showrooms and experience centres across the country to provide an immersive car-buying experience through digital means. For example, Azalea's NIO House and Xiaopeng's XPENG Experience Center not only display vehicles, but also provide users with social, entertainment and work spaces, enhancing brand stickiness and user experience. Virtual Reality (VR) and Augmented Reality (AR): Some automotive brands are beginning to

utilise VR and AR technologies to provide virtual test drives and vehicle demonstrations. Consumers can experience the driving experience and vehicle functions in a virtual environment by wearing VR glasses or using AR apps. This novel sales approach not only enhances the user experience, but also reduces the operating costs of physical shops.

3.Technological innovation is an important driver of Chinese automotive market development. For two examples, in February 2023, Ningde Times and Ford Motor reached a cooperation agreement, the main content of which is that Ford Motor invested US$3.5 billion, with Ningde Times providing technology and patent licenses, to jointly build a power battery plant in the US, which is expected to go into operation in 2026. in mid-2023, Volkswagen and Xiaopeng Automobile entered into a strategic cooperation, in which Volkswagen invested US$700 million to obtain a 5% stake in Xiaopeng Automobile, and Xiaopeng Automobile Volkswagen invested $700 million to acquire a 5 per cent stake in Xiaopeng Auto, while Xiaopeng Auto provided the G9 model platform, intelligent cockpit and software for a high-level assisted driving system, and co-developed two B-segment electric vehicles to be sold under the Volkswagen brand in China. Chinese companies are in the field of new energy vehicles and power batteries, not only leading the market, but also making significant progress in key technologies. As a result, China is gradually transforming itself from a mere market for vehicle sales into a market where new technologies originate and are first applied. The industrial landscape, dominated by joint ventures over the past 40 years, is changing.

These changes are driving the Chinese automotive market towards greater intelligence, digitalization and diversity.

d) Strong policy orientation

The development of China's automotive market is highly dependent on government policy guidance, which plays a key role in promoting market growth, driving technological innovation and guiding industrial transformation. The Chinese government has introduced a series of supportive policies aimed at promoting the development and popularisation of new energy vehicles. These policies, which include financial subsidies, tax incentives, licence concessions and infrastructure development, have greatly contributed to the growth of the new energy vehicle market. For example, under the 2023 policy, new energy vehicle purchases are eligible for a subsidy of up to RMB 20,000 per vehicle. The purchase tax exemption policy for new energy vehicles reduces the cost of vehicle purchase for consumers. The Announcement on the Continuation and Optimization of the Vehicle Purchase Tax Reduction and Exemption Policy for New Energy Vehicles, issued in June 2023, extends the purchase tax reduction and exemption policy to 2027. The government promotes the transformation and upgrading of the automobile industry through policy guidance, and promotes the improvement and upgrading of the new energy vehicle industry chain. The Development Plan for New Energy Automobile Industry (2021-2035) proposes that by 2035, the proportion of new energy automobile sales should reach over 50 per cent. Chinese government policies not only directly affect the market, but also through the creation of a favorable policy environment, stimulate market vitality, it is such a large

number of policy support, we can see a large number of new energy vehicle sales growth (in Figure 5).

Year	New Energy Vehicles Sales (10,000 units)	Growth Rate
2020	136.7	10.9%
2021	352.0	158.8%
2022	688.7	95.7%
2023	949.5	37.9%
2024	1286.6	35.5%

Figure 5 Source: China Association of Automobile Manufacturers

e) Significant regional differentiation

China is a wide area, and there are significant differences in the level of economic development, consumer habits, policy environment and infrastructure in different regions, which affect the market demand, model preference and sales strategy.

1. Differences in the level of economic development

- First-tier cities, such as Beijing, Shanghai, Guangzhou and Shenzhen, have developed economies, high incomes and strong spending power, and have a strong demand for high-end and new energy vehicles. For example, the percentage of sales of luxury and new energy vehicles in Beijing and Shanghai is significantly higher than in other regions.

- Second-tier cities: e.g. Chengdu, Hangzhou, Nanjing and Wuhan, which have rapid economic development and high growth potential in the automotive market. Consumers in second-tier cities have high demand for mid-to-high-end brands and cost-effective models.

- Third-tier and below cities and rural areas: These areas are relatively lagging behind in economic development and have lower incomes, with the main consumer market focusing on affordable and budget-friendly vehicles. For example, Wuling Hongguang and other microcars have better sales in these areas.

2. Differences in policy environment

The policy environment of local governments also has a great impact on the automobile market. There are differences in automobile purchase restriction, travel restriction, subsidy policy, etc., which directly affect the demand and structure of the local automobile market.

- Purchase-restricted cities: e.g. Beijing, Shanghai, Guangzhou and Shenzhen, which have implemented purchase-restricted automobile policies and strictly control the issuance of fuel-vehicle licences, but have given more policy concessions to new-energy vehicles, such as priority for licensing and subsidies for purchasing, which have boosted the sales of new-energy vehicles.

- Non-purchase-restricted cities: most second- and third-tier cities and rural areas do not have auto purchase restriction policies, the market is relatively free, and the demand for cars is mainly influenced by residents' income and consumption habits.

3. Differences in infrastructure

The level of infrastructure construction such as charging facilities is also an important factor affecting the new energy vehicle market.

- Developed regions: such as Beijing, Shanghai, Guangzhou and other first-tier cities and some economically developed second-tier cities, the infrastructure construction of charging piles and other infrastructure in these regions is more complete, providing convenience for the use of new energy vehicles. For example, by the end of 2023, more than 100,000 charging piles had been built in Beijing.

- Less developed regions: many third-tier and lower cities and rural areas are relatively lagging behind in the construction of charging infrastructure, with a limited number of charging piles and non-dense distribution points, which affects the promotion and use of new energy vehicles.

4. Differences in Consumption Habits

There are also differences in the car-buying habits and preferences of consumers in different regions, which have an important impact on the model structure and brand selection in the automotive market.

- High-end brand preference: Consumers in first-tier cities have a high preference for high-end brands and luxury models, such as BMW, Mercedes-Benz, Audi and other luxury brands in first-tier cities accounted for a high percentage of sales.

- Cost-effectiveness and practicality: Consumers in second- and third-tier cities and rural areas pay more attention to the cost-effectiveness and practicality of vehicles, and tend to choose economical and practical vehicles, such as Geely, Changan and Wuling and other national brands have better sales in these areas.

- Acceptance of New Energy Vehicles: Consumers in first-tier and some second-tier cities have a higher acceptance of new energy vehicles, mainly due to policy support and improved infrastructure. In some less-developed regions, consumer awareness and acceptance of new energy vehicles is relatively low.

1.2.2 Policies in the Chinese Automotive Industry

Industrial policy belongs to an important means of macro-control in China, which is conducive to the rational distribution of China's economic structure and is of great significance to the long-term development of China's economy. China's automotive industry, as the world's largest automotive production and consumption market, occupies an important position in the global economy. With the rapid development of the economy and the improvement of residents' living standards, China's auto market has experienced explosive growth. Policies have played a crucial role in the development of China's automotive industry, both promoting the development of traditional fuel vehicles and providing strong support for the rise of new energy vehicles.

1. Historical evolution of China's automotive industrial policy

The development of China's automotive industrial policies can be traced back to the early 1980s, when China began to implement economic reform and opening up. Over the decades, these policies have undergone significant changes to align with the country's economic goals and technological progress.

Early Development (1980s to 1990s):

- Openness and Joint Ventures: In the early 1980s, China implemented a policy of economic reform and opening up. This period marked the beginning of joint ventures between Chinese and foreign automobile companies. For example, the establishment of Shanghai Volkswagen in 1984 was a landmark event that marked the beginning of large-scale international co-operation in the automotive sector.

- Initial industrial policy: During this period, the state identified the automotive industry as a pillar industry, emphasised high starting point, scale, specialisation and linkage development, and introduced policies to support key enterprises and expand production bases for advanced auto parts. The Chinese government focused on establishing a basic industrial framework. Policies are aimed at attracting foreign investment, technology transfer and building local manufacturing capacity.

2. Market expansion and consolidation (1990s-2000s):

China's automobile market grew rapidly, driven by accelerated urbanisation and rising incomes. The government introduced policies to support domestic automobile enterprises, including fiscal incentives and subsidies. 1994 Automobile Industry Policy: This policy aimed at streamlining the development of the automobile industry to meet domestic market demand, improve market competitiveness and promote innovation. During the Eighth Five-Year Plan (1991-1995), the government supported key component manufacturers and prioritised the development of leading automotive firms. In 2004, the automotive industry policy focused on the restructuring of the automotive industry, supporting strategic mergers and acquisitions, raising industry standards, and promoting the development of independent brands. The policy aims to balance the introduction of foreign technology with the development of independent innovation. With the rapid growth of automobile

ownership, environmental issues are becoming increasingly prominent. The government introduced strict emission standards to reduce automobile pollution.

Promotion of New Energy Vehicles (2010s to present)

- New Energy Vehicle Policy: In recent years, the Chinese government has attached great importance to the promotion of new energy vehicles. Policies include substantial subsidies for new energy vehicle purchases, tax exemptions and investment in charging infrastructure. These efforts have made China a global leader in new energy vehicle adoption. At the same time, the Chinese government has optimized and improved the supply system of automobile technical standards and automobile product quality certification, guiding companies to continuously improve the quality of automobile products by improving the technical level of automobile product safety, reducing the fuel consumption of traditional fuel automobiles, and improving the low-temperature adaptability of new-energy automobiles, so as to give consumers peace of mind about their purchases and their use.

2. Formulation of automotive industry policy

Since the reform and opening up, China's automobile industry has been developing very rapidly. Especially at the end of the 20th century, China's automobile industry has made great changes, in which the scale, capital and social influence of the automobile industry have been greatly improved. Industrial policy can reflect the degree of national awareness of enterprise development, reasonable industrial policy can promote the development of enterprises, but unreasonable industrial policy will hinder the development of enterprises to a certain extent. Industrial policy also needs to keep pace with the times and change according to the development of the times.

1.3 Quality Analysis of Various Automotive Brands

1.3.1 Overview of Chinese Automotive Brands and Trends in Quality Improvement

After decades of development, China's automobile industry has gradually emerged onto the global stage. In the early days (the late 20th and early 21st centuries), the technical foundation of domestic brands was weak and many models started out as imitations, significantly lagging behind international standards in terms of quality. For example, domestic brands were often labelled as 'cheap and low-quality' for saloon cars in the late 1990s. The joint venture and cooperation improvement stage (2000s–2010s): Through joint ventures or technical cooperation with multinational car manufacturers, Chinese car manufacturers have made significant progress in production management and quality control. At the same time, this also became a shortcut for independent manufacturers to acquire technology from overseas brands — Geely's acquisition of the renowned safety brand Volvo Cars in 2010 was a landmark event that paved the way for Chinese auto brands to introduce advanced safety technologies. With the help of joint ventures and technology transfers, domestic models gradually improved in terms of core qualities such

as engines, chassis and safety structures. Independent innovation stage (nearly ten years): With the advent of the new energy and intelligent networking era, Chinese car brands have made significant strides in the areas of electrification and intelligence, giving rise to several technologically advanced local automakers, such as BYD and Nio. Major traditional independent car companies (such as Geely, Great Wall and Chery) have also created high-end sub-brands (such as Lynk & Co, Weilai and Hongqi), which are comparable to joint ventures and even luxury brands in terms of design, technology and product quality. One after another, quality milestones are being achieved: for example, in our car model has received a five-star safety rating from C-NCAP for the first time. It is evident that certain marques and models have achieved a position at the zenith of the J.D. Power new car quality index, thereby reflecting the ongoing improvement in the quality of domestic vehicles. For instance, in the most recent J.D. Power new car quality study（in Figure 6), the number of failures per 100 vehicles (PP100) of Chery, Geely and other domestic brands has entered the top of the industry, slightly higher than that of joint venture leaders such as Toyota and Honda. This suggests that the quality gap has been greatly narrowed.

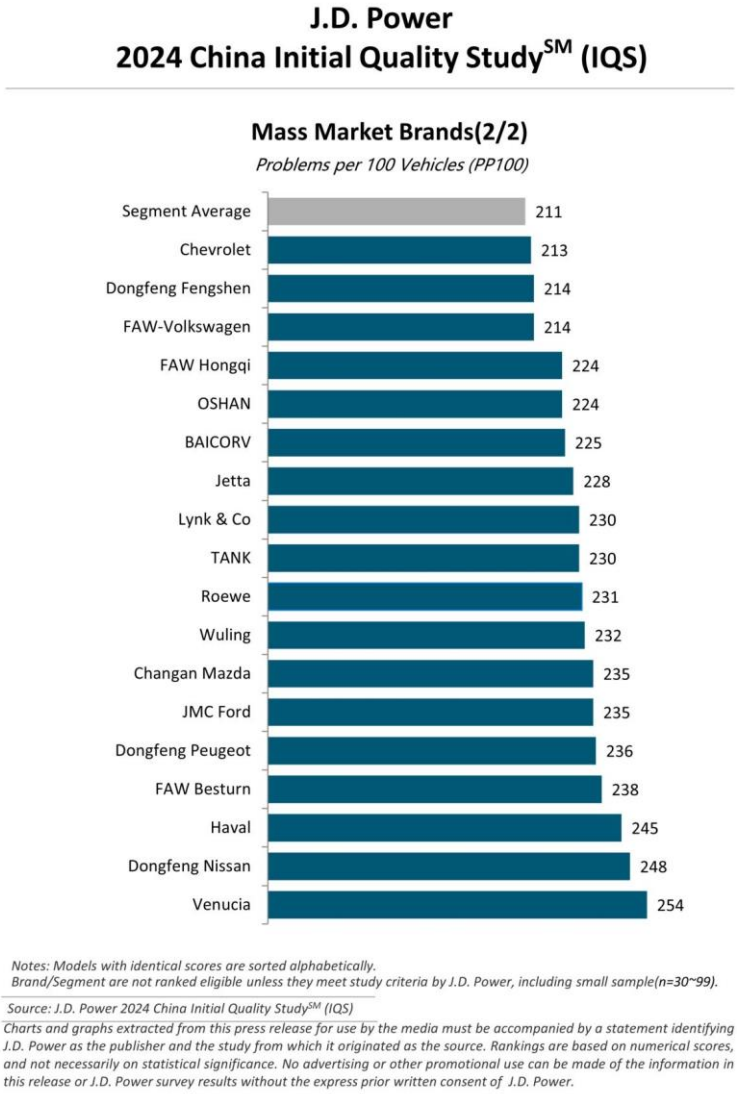


Figure 6 Source: the 2024 J.D. Power China Initial Quality Study (IQS)

For example, the BYD Han EV and the Hongqi H9 have won users over with their excellent workmanship and reliability since their launch, dispelling the notion that domestic cars are low quality. From imitation and joint venture technology learning to independent innovation and catch-up, the path that Chinese brands have taken to improve quality is clear. During this period, notable events include Geely's acquisition of Volvo, Chery being named the domestic new car quality champion for three consecutive years, and Great Wall WEY launching "China's first luxury SUV". These events have become the focus of industry discussion, indicating that domestic brands are moving towards improving quality and their brand image.

In terms of performance and configuration, there has been a significant improvement in the power performance and functional configuration of domestic models in recent years. Traditional fuel vehicles now have mature engine power and gearbox tuning, and the power output of 1.5T and 2.0T engines from domestic brands is comparable to that of joint

ventures at the same level. Breakthroughs have also been made in the field of new energy: many domestic pure electric vehicles now have a range of over 700 kilometres and excellent acceleration performance. Chinese auto brands are also renowned for their high-spec features. High-tech features such as smart cockpits, large screens and advanced driver assistance systems (ADAS) are often found in domestic cars priced over 100,000 yuan. This level of configuration is ahead of that of joint ventures and has become a selling point to attract young consumers. In Figure 7, A user survey of Geely Boyue models showed that they performed well in terms of exterior design, interior materials, power, and configuration, achieving a comprehensive reputation score of 4.9 out of 5, which is 13% higher than the market segment average. Many car owners recognise its performance in terms of space, power, and other features. Rich configurations and continuously upgraded performance have firmly established the cost-effective image of domestic cars in people's minds. Of course, some models still have room for improvement in terms of fuel/electricity consumption, but the overall improvement in performance indicators adds considerable value to domestic cars.

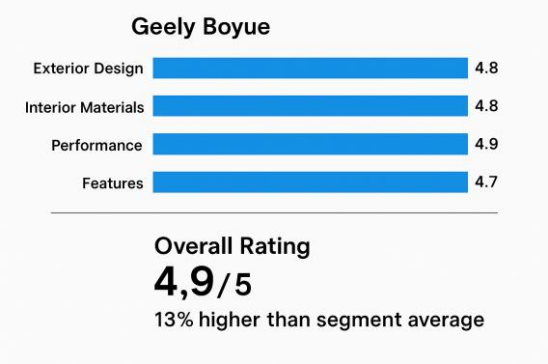


Figure 7 Source: Car Home

In terms of reliability and consistency, vehicle quality was once a weak point for domestic brands, but this has gradually improved in recent years through strengthened quality control and supply chain management. The initial quality of new cars is now comparable to that of joint ventures. In Figure 6, The 2024 China New Car Quality Study, released by J.D. Power, shows that the industry average number of problems per 100 vehicles is 212. Of these, the PP100 for the domestic brands Chery and Geely is 203 and 204 respectively, placing them among the top mainstream brands and only slightly above leading joint venture brands such as GAC Honda. This demonstrates that the consistency and assembly quality of new domestic cars leaving the factory has improved significantly. However, domestic brands still need to work hard on long-term reliability. A failure rate survey conducted after two to three years of vehicle use revealed that domestic brand models experienced a higher number of failures within the 20,000-kilometre and 40,000–80,000-kilometre ranges compared to foreign brands from Japan, Germany, and the United States. This exposes their shortcomings in low- and medium-mileage durability. In 2024, FAW Hongqi, the No. 1 domestic brand in the reliability study, had a failure rate of 185 PP100, comparable to the industry average but still behind mainstream joint ventures such as Toyota and Honda (around 140–160 PP100) (in Figure 8). While the quality of new cars

has improved significantly, consistency control and long-term durability are areas in which domestic brands need to improve.

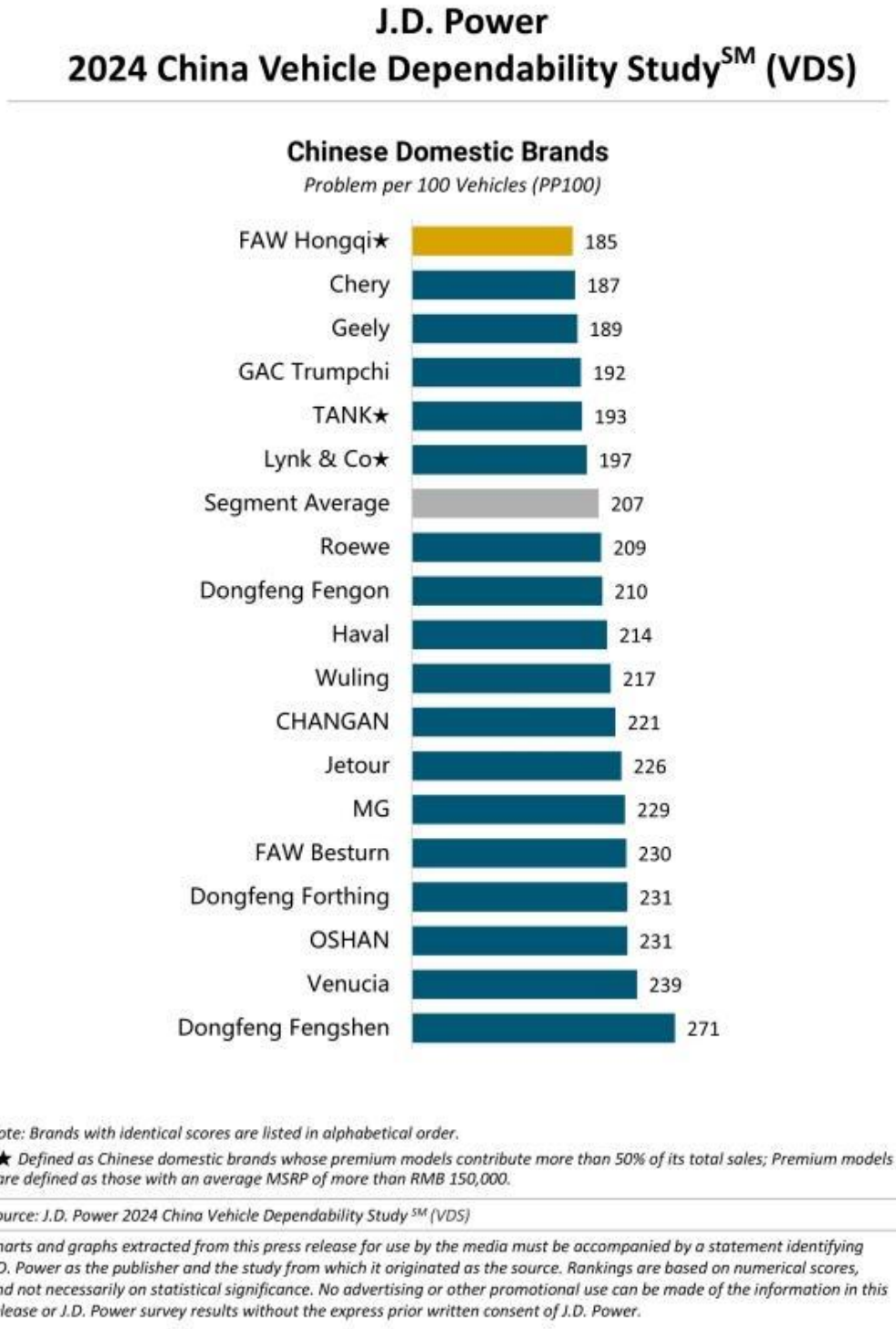


Figure 8 Source: the 2024 J.D. Power China Vehicle Dependability Study (VDS)

In terms of durability and maintainability, domestic car manufacturers have invested heavily in improving the durability of materials and the structural strength of their vehicles

in recent years. New models generally meet joint venture standards in terms of body rigidity and corrosion and rust prevention. Many domestic brands have withstood high-intensity use and have gradually established a reputation for durability. For instance, numerous Geely and BYD models are employed in online car-hailing and taxi services, and they continue to perform well even after covering hundreds of thousands of kilometres, which to a certain extent verifies their durability and reliability. Local brands can provide relatively convenient maintenance and repair services based on their nationwide network of 4S stores and after-sales services. Spare parts are plentiful and affordable, which keeps the daily maintenance costs for car owners lower than for imported joint venture models. This 'worry-free car use' experience is a significant advantage of domestic brands over joint ventures. A report revealed that the after-sales service satisfaction score of domestic brands increased to 81 points in 2024, marking a 2-point year-on-year increase and indicating progress in improving after-sales service quality by domestic manufacturers. Of course, the internationalization of the parts supply chain for some high-end domestic models has increased waiting times for maintenance, but overall, domestic brands have a large fleet of vehicles and a wide range of maintenance channels, winning consumers' trust in terms of durability and maintainability.

Finally, in terms of aesthetics and perceived quality, domestic brands attach great importance to the design and interior of their models, and have made significant progress in this area in recent years. Many manufacturers have hired internationally renowned designers to create fashionable and avant-garde models such as Lynk & Co and Weipai, changing the previous perception of domestic cars as cheap and old-fashioned as illustrated in Figure 9. The level of materials and craftsmanship used for interiors has also improved significantly. An increasing number of models feature soft coverings, stitching technology and surround ambient lights, greatly enhancing the technological and refined feel of the cockpit. Consequently, user-perceived quality has improved. A China Quality Association survey shows that, in 2024, the perceived quality score of vehicles by domestic brand users rose for the third consecutive year, reaching 80.7 points — higher than users' expected quality level for the first time. However, there is still a gap between domestic and luxury brands in terms of brand image and premium pricing. Many consumers say outright that domestic cars still have room for improvement in terms of luxury and quality control compared with German luxury cars. In 2024, the overall brand image score for domestic brands was 80.2, which was still about 1.5 points lower than for joint venture brands. This demonstrates that, to completely reverse the deep-rooted prejudices of some users and establish a world-class, high-end brand, domestic car companies must continue to build their brand and maintain long-term quality.

Figure 9 Source: Autodeal

Safety performance is one of the core qualities that consumers pay the most attention to. It often directly affects brand trust and image building. The recent Lynk & Co 08 cliff fall accident has attracted much attention and triggered widespread discussion, reflecting the actual progress made by domestic cars in terms of safety performance, as well as the public opinion challenges they are currently facing. In February 2024, a traffic accident occurred in Tongren, Guizhou, China, which sparked heated public debate: a newly launched Lynk & Co 08 rushed out of the road and rolled down a nearly 60-metre-high cliff to avoid an out-of-control truck. As a result, the three passengers in the car were uninjured and only suffered minor scratches. As can be seen in Figure 10 and Figure 11 taken after the accident, the vehicle's main structure, including the A/B/C pillars, remained intact, the roof was not significantly dented, and the doors could still be opened normally after the car had fallen to the ground. The airbags and air curtains in the vehicle also deployed correctly. This extreme case vividly reflects the great progress that Chinese independent brands have made in the field of passive safety in recent years. Thanks to strengthened body structures and advanced safety features, domestic cars now offer collision protection capabilities that rival those of joint venture models. In 2010, Geely Holding Group acquired Volvo Cars, which is renowned for its safety, and adopted its safety research and development concepts, applying them to high-end sub-brand models such as Lynk & Co. This accident involving a fall from a cliff is a "test" of the safety of domestic cars, confirming the technological leap made by Chinese car companies in terms of body design, collision energy absorption and occupant protection. The online circulation of such real events has

further enhanced consumers' perception of domestic brands as safe and reliable, reflecting the increased confidence brought about by improvements in the quality of domestic cars.

Figure 10 Source: Sohu Auto

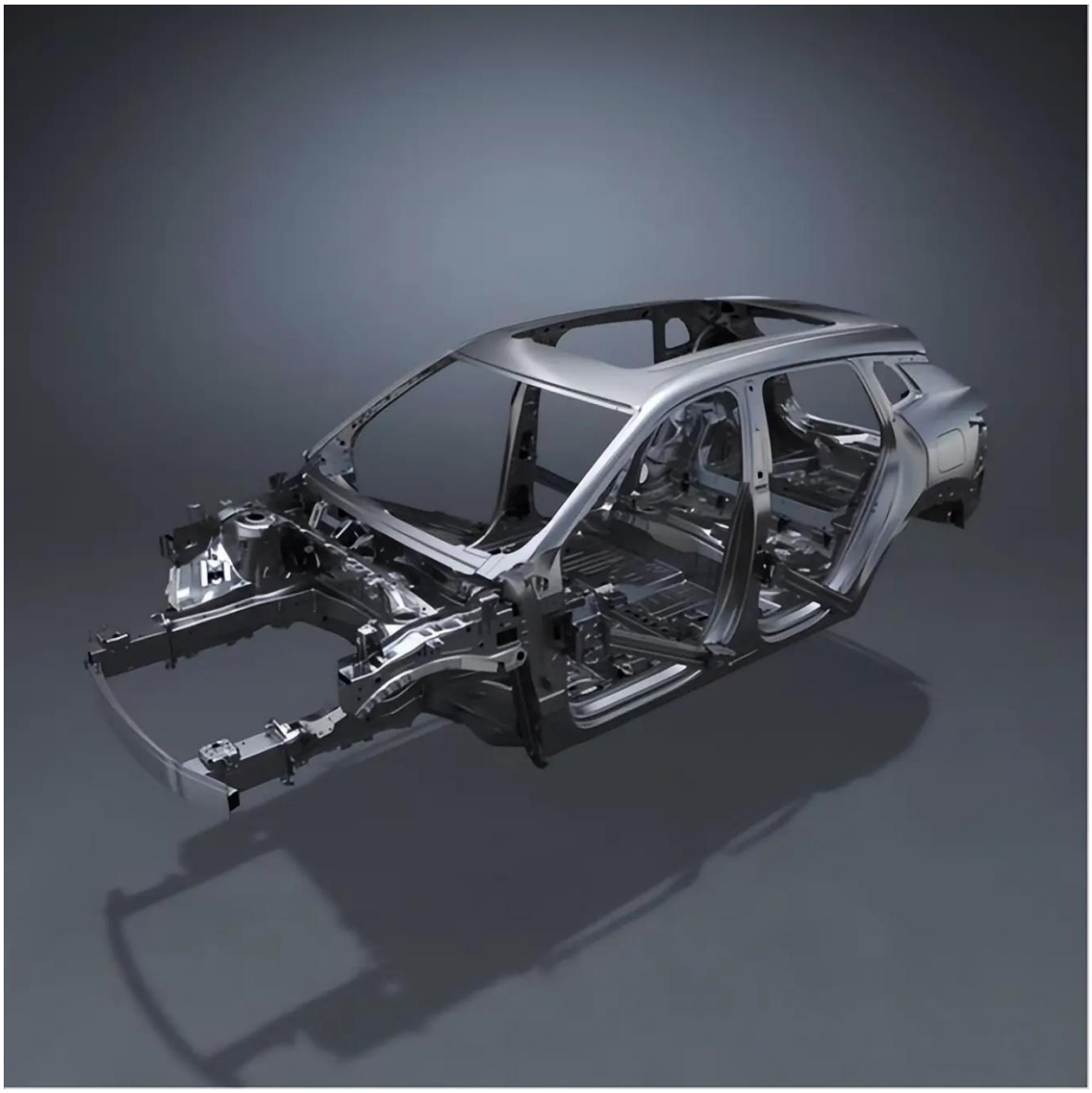


Figure 11 Source: Sohu Auto

Over the past five years, China's independent auto brands have undergone a historic transformation in terms of their overall quality image, shifting from a focus on price to a focus on quality. Market data shows that sales of independent brands have been rising steadily. In 2024, independent brands accounted for 61% of domestic passenger car sales, which is a significant year-on-year increase, as shown in the Figure 12. Improved product quality has effectively boosted consumer confidence, with more and more Chinese people now choosing to buy domestic cars. The younger generation favours the high specifications and intelligent features of domestic cars, and national pride in the new era has made 'buying domestic cars' a trend. The proportion of first-time car buyers choosing independent brands has surpassed that choosing joint venture brands, showing that independent brands have won recognition from the new generation of users through improving quality. Nevertheless, independent brands still need to develop long-term reliability and brand premium capabilities to reach the top international level. Nevertheless, a virtuous cycle based on quality is certainly taking shape: improved quality has increased

consumer loyalty and brand reputation, and the subsequent growth in sales and market share provides support for companies to invest more in quality improvement. With continuous technological innovation and quality management improvements, it can be foreseen that Chinese auto brands will create greater glory in future competitions and establish a new, high-quality "Made in China" image in the global auto market.

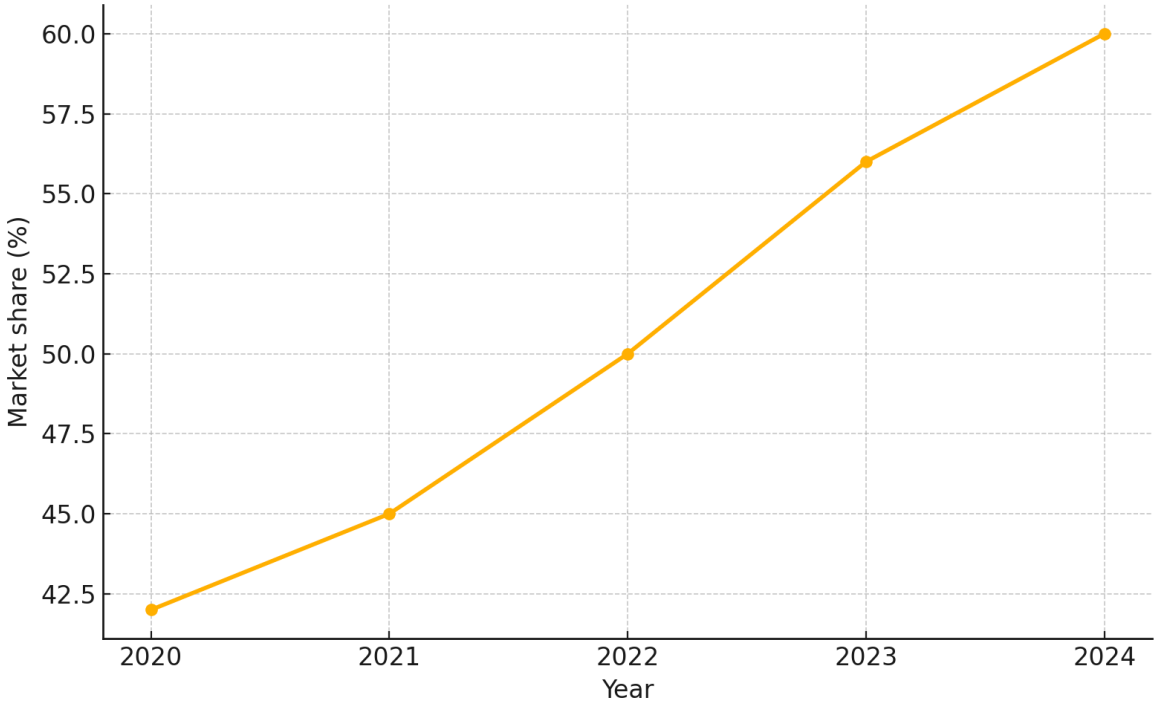


Figure 12 Source: China Association of Automobile Manufacturers

1.3.2 Overview of Japanese Automotive Brands and Trends in Quality Improvement

Japanese car brands entered the Chinese market earlier and have grown steadily through joint ventures, achieving a significant market share in the sedan and SUV segments. Japanese cars have generally established a good reputation among Chinese consumers for being fuel-efficient, durable and of consistent quality. This reliable image stems from the consistently high quality of Japanese products — as some studies have pointed out, Japanese products are renowned for their reliability worldwide. Since the late 1980s, Japanese car companies have successively entered the Chinese market through joint ventures. One notable example is the collaboration between Tianjin Automobile and Daihatsu/Toyota. While the development histories of major Japanese manufacturers (Toyota, Honda, Nissan, Mazda and Mitsubishi) in China are all different, they have all gone through the stages of introduction, localisation, innovation and upgrading. In the initial introduction stage, Japanese cars entered the Chinese market as imports or CKD kits. The range of models was limited, but the quality was obvious. It was at this time that the reputation of 'Toyota that can't be broken' gradually formed. During the localisation stage, joint ventures built factories in China for production, improving models according to local road conditions and fuel quality, and further improving quality stability. Take Toyota

as an example. As shown in the Figure 13, the company implements strict quality management throughout the production process, integrating customer needs into quality control and pursuing the goal of 'zero defects'. Honda has established the HQS (Honda Quality Standard) quality system and strictly controls product quality throughout the life cycle using lean production methods. It promotes this system in factories around the world to ensure consistent Honda quality. This series of measures has further strengthened the reputation of Japanese brands in China as reliable and durable. During the recent period of innovation, Japanese manufacturers have continuously launched upgraded technology products in response to the boom in hybrid power, new energy and SUVs (such as Toyota's hybrid "Dual Engine" series and Honda's Honda SENSING safety system), while maintaining high quality standards and incorporating new technologies. It is worth mentioning that around 2010, Toyota was involved in a global "brake door" recall incident, which impacted its brand trust. However, thanks to its robust quality management system and prompt crisis management, Toyota swiftly resolved the issue, restoring its reputation in China.

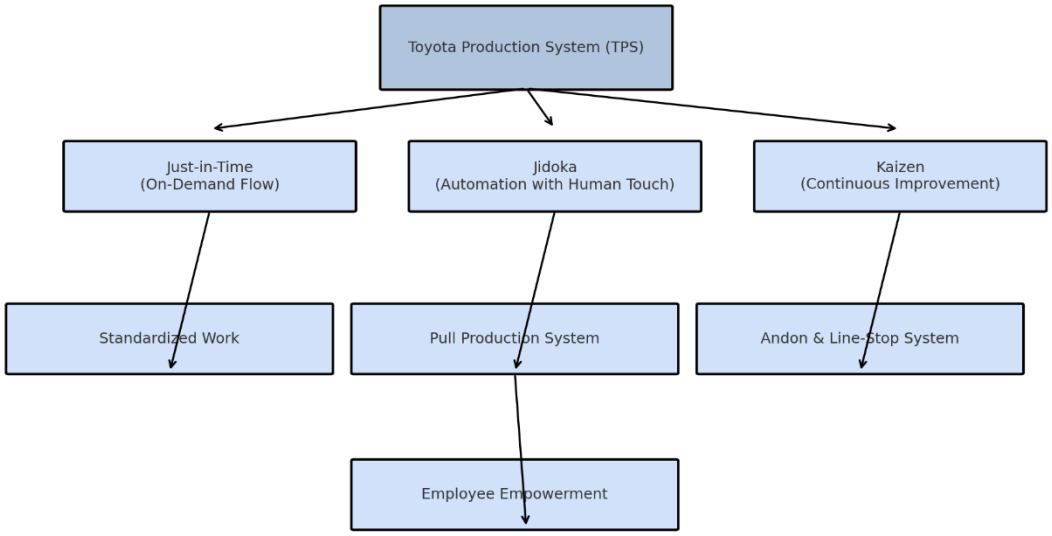


Figure 13 Toyota Production System, TPS, Source: Liu et al., 2018

Japanese cars have developed unique quality characteristics through long-term practice. In terms of performance and configuration, Japanese cars traditionally focus on smooth power delivery and fuel economy. Power indicators are not deliberately pursued to the extreme, but are sufficient for everyday needs. In terms of vehicle configuration, Japanese brands have long adopted a more conservative and practical approach, providing reliable and essential features without unnecessary extras. This pragmatic and balanced approach reduces the quality risks that may be caused by complex functions. In recent years, in response to changes in market competition, Japanese manufacturers have also begun to add technological features to some models, such as Honda's Honda SENSING intelligent safety

system and Toyota's new generation of car-machine interconnection. However, their configuration strategy still prioritises reliability and practicality, maintaining a balance between functionality and quality.

Reliability has always been the biggest strength of Japanese brands. Numerous quality surveys show that Japanese cars have had a low failure rate for a long time and remain stable and reliable even after years of use. During the manufacturing process, Japanese companies strictly adhere to the principles of standardisation and lean production, ensuring consistent manufacturing tolerances and process levels for the entire vehicle and its parts. This consistency is reflected in the minimal fluctuations in quality of vehicles produced in large quantities. Even with large-scale production, the assembly quality of each vehicle is close to that of the same model. This is thanks to rigorous process control, such as the Toyota Production System (TPS), which also ensures that Japanese models rank among the most reliable. Consequently, Japanese brands have repeatedly achieved good results in authoritative quality surveys. For instance, as shown in Figure 14, in J.D. Power's Vehicle Dependability Study (VDS), Japanese joint venture brands performed well in China. The 2024 China Vehicle Dependability Study revealed that FAW Toyota ranked first among mainstream brands, with only 154 problems per 100 vehicles (PP100).

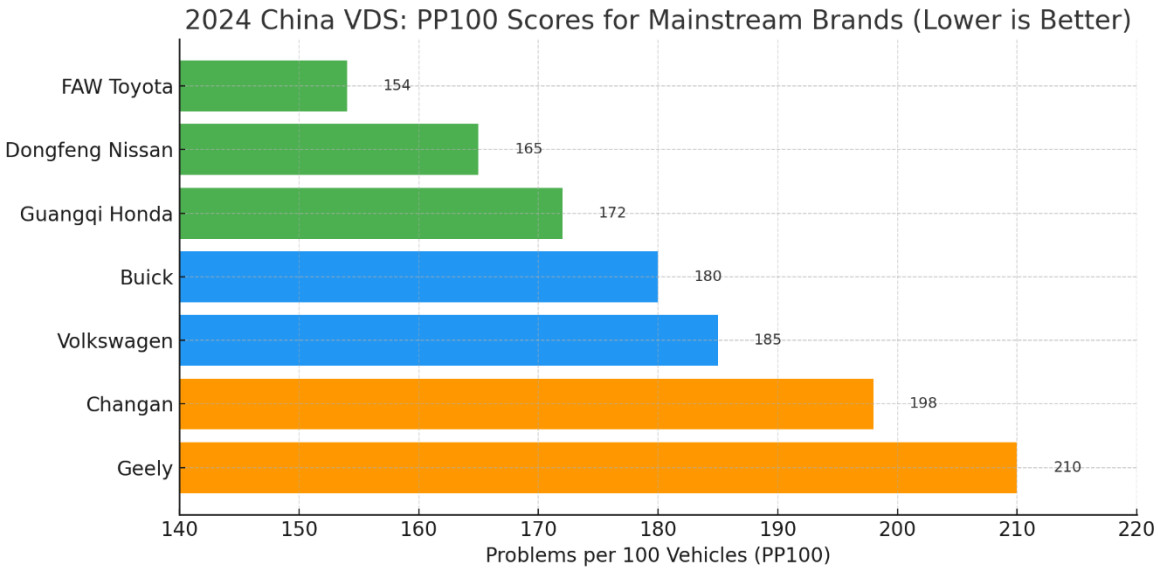


Figure 14 Source: the 2024 J.D. Power China Vehicle Dependability Study (VDS)

In terms of durability and maintainability, Japanese models are renowned for their long service life and resilience. Many consumers have reported that Japanese cars still perform well after more than ten years of use, and they retain their value well on the second-hand car market, which indirectly confirms their durability. In terms of engineering, manufacturers invest heavily in verifying vehicle anti-corrosion and anti-fatigue designs to ensure the durability of key assemblies. At the same time, Japanese joint venture brands have established extensive after-sales service networks and parts supply systems in China to facilitate maintainability. Vehicle design also takes ease of maintenance into account, and commonly used parts are easy to replace with long maintenance cycles and relatively

low costs. According to surveys such as the China Automobile User Satisfaction Evaluation, Japanese brands receive high ratings for after-sales service, quality and reliability. Consumers generally believe that Japanese cars are 'easy to drive', rarely experience major failures during everyday use and are economical and efficient to maintain, which further enhances public trust in the quality of Japanese cars.

Finally, in terms of styling, Japanese cars used to give the impression of being moderate and simple, with a practical design that was not overly exaggerated. However, in recent years, to cater to a younger market, Japanese manufacturers have introduced bold innovations to exterior designs and launched a series of stylish, dynamic models. The eighth-generation Camry and eleventh-generation Civic, for example, have sharper, sportier lines, making them more visually impactful and distinctive than previous models. In addition, Japanese cars have always been renowned for their interior craftsmanship, perceived quality and durability (as shown in the Figure 15). While the interiors of most Japanese joint venture models are not luxurious or expensive, they are rigorously constructed with exquisite detailing, and consumers can perceive their solid, reliable quality through touch and use. This down-to-earth perceived quality complements the vehicles' reliability and strengthens users' confidence in their overall quality. Among high-end brands, Japanese luxury cars such as Lexus are renowned for their exquisite craftsmanship, quietness and high-quality materials, setting the standard for perceived quality in the industry.

Figure 15 Source: Toyota official website

The above analysis of quality characteristics is supported by authoritative data. In the J.D. Power China Vehicle Reliability Study, Japanese brands such as Toyota, Honda and Lexus have consistently ranked at the top, with a significantly lower failure rate than the industry average. Vehicle failure rate statistics from the national market supervision department and third-party institutions also show that Japanese models have a significantly lower average number of failure complaints than domestic, German, and other categories of models. As shown in the Figure 16, the China Quality Association's 2024 user satisfaction report revealed that Japanese brands have achieved an impressive user satisfaction and loyalty score of around 80 points in the fuel vehicle sector, with a mere 11% complaint rate — tied with German brands for the top spot. In terms of user reputation, consumers on mainstream automotive forums and evaluation platforms have many positive reviews regarding the advantages of Japanese cars in terms of reliability and fuel efficiency. They also look forward to Japanese brands continuing to improve in terms of car-machine interconnection and interior luxury to meet new needs. This demonstrates that Japanese cars' quality advantages are deeply rooted in people's perceptions, but they must also keep pace with the

times and improve their performance in emerging indicators.

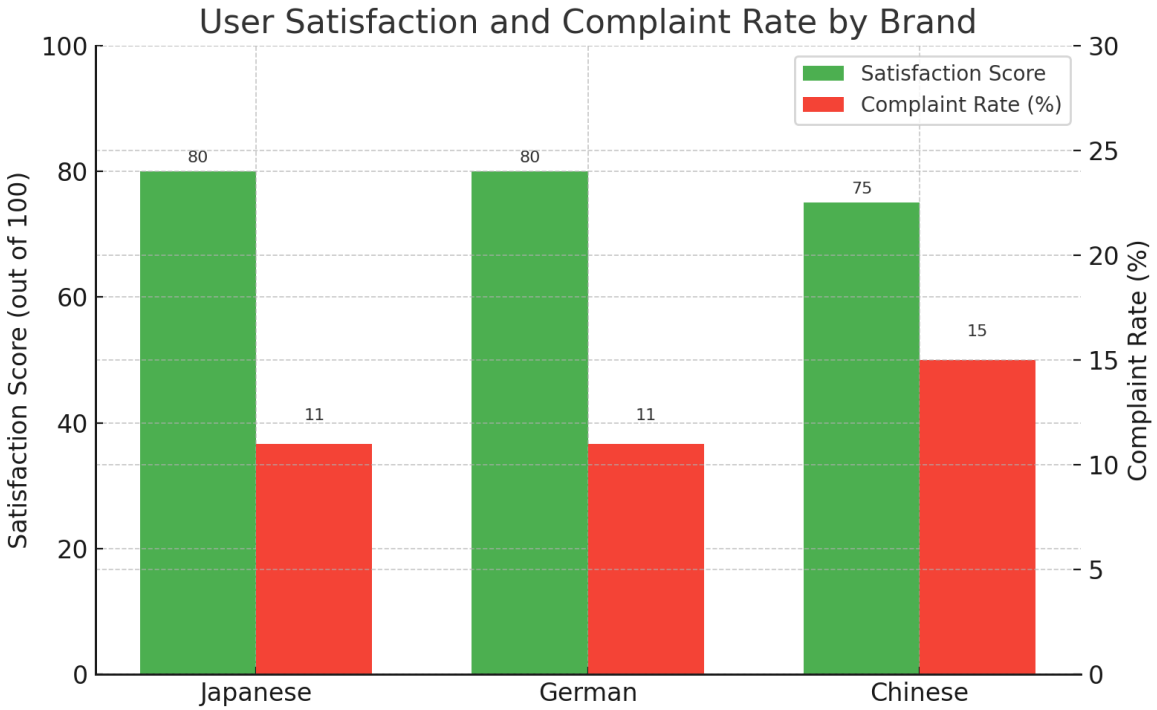


Figure 16 Source: the China Quality Association

This good reputation for quality directly influences the car-buying preferences of Chinese consumers. Many family buyers who prioritise economy and practicality often choose Japanese models for their first car, believing that Japanese cars cause the fewest problems and have the lowest long-term costs. However, the relatively conservative configuration and design strategies of Japanese brands have also caused some consumers, especially the younger generation, to turn to other brands in pursuit of newer functions and styles, despite the high quality stability they offer. This has posed new challenges for Japanese manufacturers, who must accelerate the pace of innovation while maintaining their quality advantages in order to meet changing market preferences. Overall, the success of Japanese cars in China demonstrates that a commitment to quality and continuous improvement in reliability and user satisfaction are key to achieving long-term market competitiveness.

1.3.3 Overview of American Automotive Brands and Trends in Quality Improvement

American brands once held an important position in the Chinese passenger car market. Since the end of the last century, American automakers such as General Motors and Ford have achieved impressive sales in China through the joint venture model, launching well-known models such as Buick, Chevrolet, and Ford. American cars once had a significant influence in the field of SUVs and medium and large sedans. Popular models included SAIC-GM Buick's GL8 commercial vehicle and LaCrosse sedan, and Changan Ford's

Focus and Mondeo sedans. These cars established the image of American cars as 'large, spacious, powerful and well-equipped'. Thanks to their early entry into the Chinese market, the Buick brand is now seen as a symbol of American luxury and durability. Classic models such as the Buick Century have made a lasting impression on the Chinese people.

However, as shown in the Figure 17, the market share of American cars in China has been declining in recent years. 2017 saw the peak of American brands' market share in China at around 12.3%, but this has been in decline ever since, falling below 10% by 2022. According to statistics from the China Association of Automobile Manufacturers, GM's sales in China have fallen from a high of four million vehicles in 2017 to just over three million, and its brands, such as Buick and Chevrolet, have shown sluggish growth. Ford China has seen sales decline for three consecutive years, from 957,000 vehicles in 2016 to just 202,000 in 2019. Some analysts have pointed out that the decline in the reputation of American brands' products is a major reason for the rapid decline in sales. Cui Dongshu, secretary-general of the China Passenger Car Association, said that Changan Ford's sharp decline in sales since 2017 is "related to worrying product quality", adding that if there were no quality issues, sales would not have fallen so quickly. Overall, doing business in China has become more difficult for American car manufacturers, and the decline in consumer confidence has gradually marginalised American brands in the face of fierce competition.

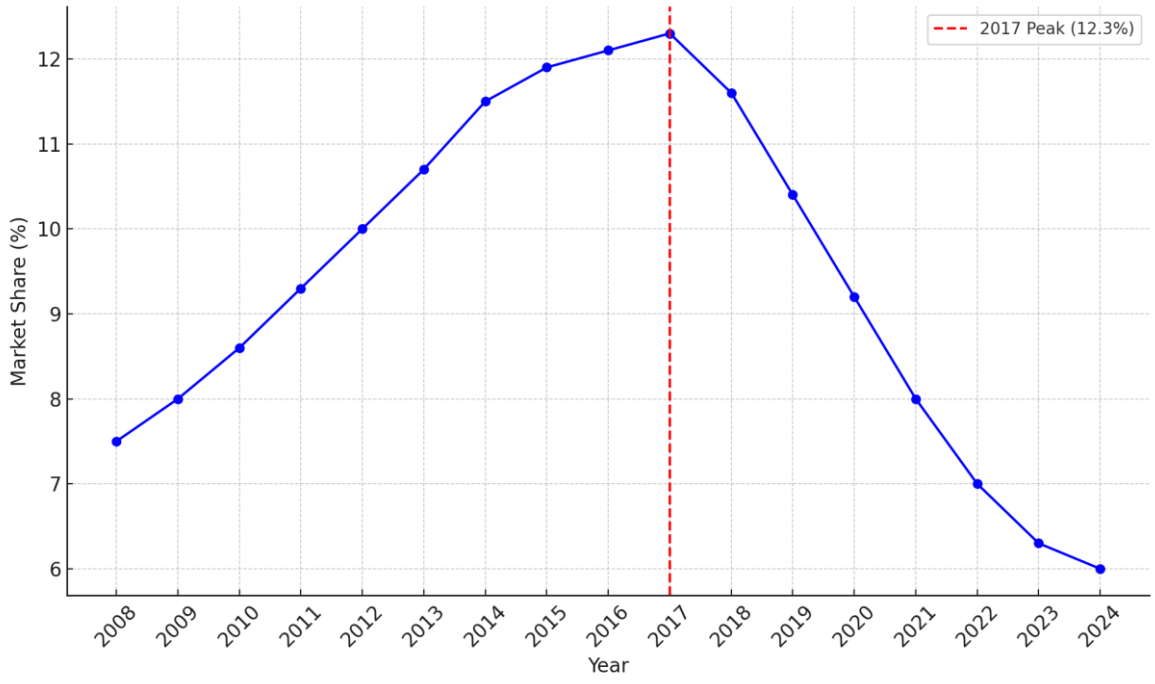


Figure 17 Source: China Association of Automobile Manufacturers

It is worth noting that the traditional stereotype of American brands among Chinese consumers has also affected their reputation. American cars have distinct advantages, such as a wide body, a comfortable ride, abundant power and a complete configuration. These features have made them popular with consumers who pay attention to space and

performance. However, their weaknesses are also prominent: high fuel consumption and poor workmanship are the most common criticisms of American cars. Even after more than 30 years of localisation improvements, American cars' long-standing image of high fuel consumption in the Chinese market has not fundamentally changed. High fuel consumption has caused some consumers to switch to Japanese and German models with better fuel economy. Furthermore, American car companies have long been perceived as producing "bulky, simple, crude and rough" vehicles. Although this impression originated during the period of competition between the United States and Japan in the last century, American brands' reputation for refinement and attention to detail is still relatively inferior to that of German and Japanese brands. These image disadvantages have been further magnified against the backdrop of the recent rise of Chinese brands and new energy vehicles, and represent an area in which American brands must urgently improve.

The development of major American car brands in China has been a tortuous process involving introduction, expansion, peak glory, a quality storm, adjustment and decline. Initially, they gained a foothold in the market thanks to the strength of their products, and they enjoyed a period of peak popularity. However, the subsequent quality issues (such as Ford's gearbox failure recall, the Kuga axle breakage incident and the Jeep Compass engine throttle issue) gradually undermined consumers' confidence in the durability and quality of American cars. In recent years, American brands have adjusted their strategies. For example, Ford launched the 'China 2025 Plan' to emphasise quality improvement, while GM has also strengthened quality control and significantly improved new car warranty services. However, rebuilding the past reputation and regaining consumer trust will require convincing, sustained improvement in product quality and reliability.

The current quality, performance and improvement trends of American cars can be seen in the following areas:

Performance and features: American cars have always been known for their powerful engines. Their engine displacement and power are often superior, their acceleration and traction performance is excellent, and their chassis tuning tends to be comfortable and stable. In terms of configuration, American models tend to be well equipped with features such as large leather seats, in-car entertainment systems and intelligent driving assistance, fully catering to consumers' preference for 'high horsepower + high configuration'. As shown in the Figure 18, the Buick LaCrosse is a typical example of an American mid-to-high-end saloon car. It has a slender, spacious body and is equipped with a 2.0T turbocharged engine that provides ample power and smooth acceleration. In the Chinese market, the LaCrosse is renowned for its spaciousness and comfort, and is popular with consumers who prioritise the driving experience. Some owners have commented that it is 'heavy and solidly built', and that it is stable and safe at high speeds. However, relatively high fuel consumption is also mentioned by users, though many think this is the inevitable price of large displacement and a heavy body. Those who prefer American cars are often prepared for the higher fuel consumption. In recent years, American brands have also caught up with the trend of intelligent technology, introducing new car-machine interconnection and automatic driving functions to enhance their products' innovative

performance. However, it should be noted that high performance and high configuration often result in higher fuel and energy consumption for the entire vehicle. Achieving a balance between power and energy efficiency is becoming an important issue for improving American cars. For instance, GM and Ford have started promoting technologies like small-displacement turbocharging and 48V mild hybrid systems in order to reduce fuel consumption and comply with strict environmental regulations.

Figure 18 Source: Buick official website

Reliability and conformance: Compared with Japanese and some German brands, American cars are slightly less reliable. Consumers commonly complain about minor faults in some American models, including electronic and electrical system failures, abnormal noises in the body and interior, and transmission issues. For example, some Ford Focus owners reported problems such as transmission oil leakage, abnormal noise and shaking, and engine compartment leakage, indicating that there is room for improvement in product consistency and parts quality control. Some studies have highlighted differences in the assembly processes of different vehicle batches, suggesting that quality control stability in American joint venture factories needs to be improved. This inconsistency causes consumers to doubt the long-term reliability of American cars. As shown in Figure 19, In J.D. Power's Vehicle Dependability Study (VDS), American brands lag behind Japanese and German brands. For instance, FAW Toyota (154 PP100) topped the 2024 VDS mainstream car brand reliability list, followed by GAC Honda (172 PP100); meanwhile, American Changan Ford ranked third (174 PP100). American brands are rarely found at the top of the luxury car and domestic brand categories. This suggests that American cars still lag behind their main competitors in terms of controlling failure rates after three years, with durability being one of their shortcomings. However, American manufacturers have begun to work hard to improve reliability indicators in recent years.

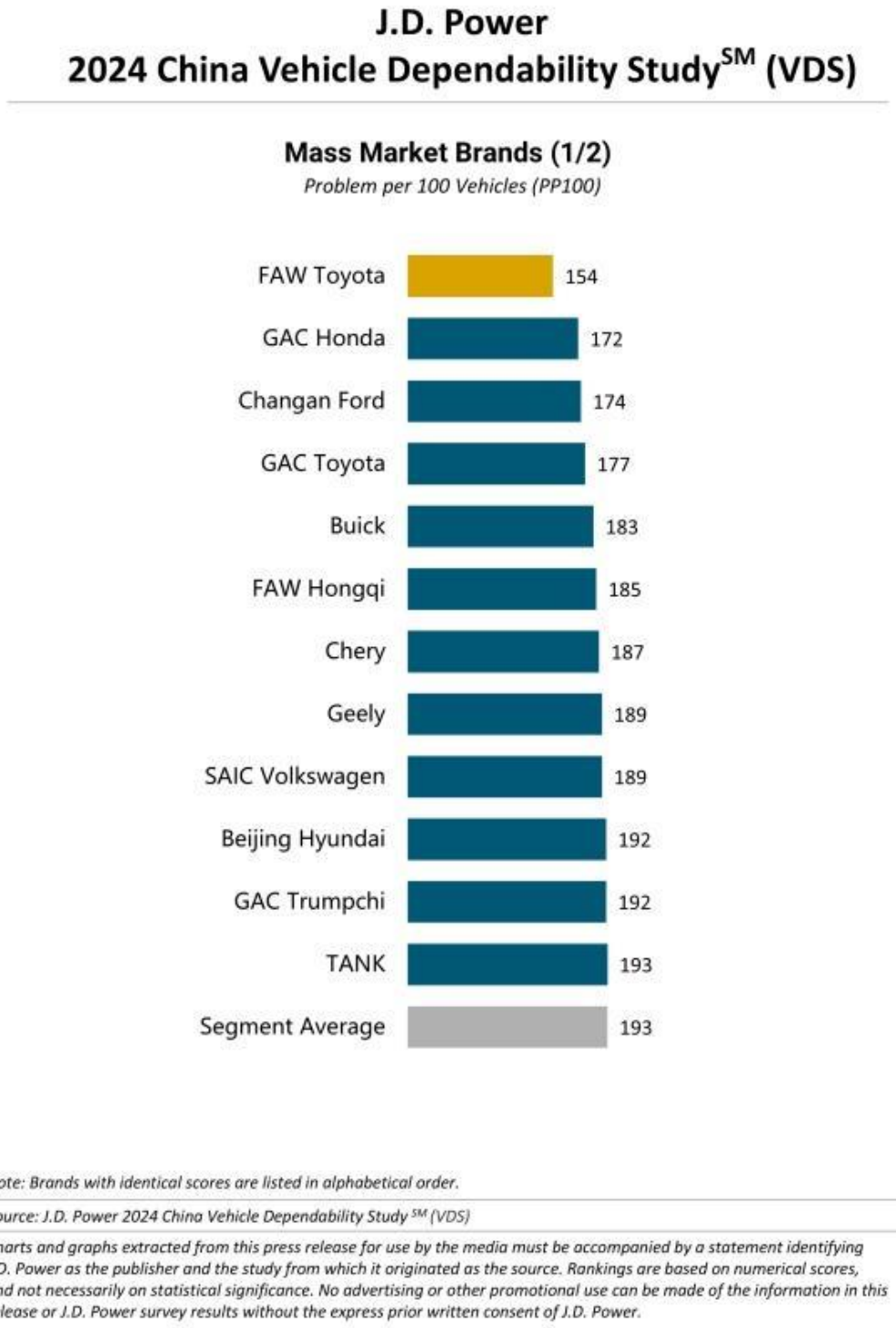


Figure 19 Source: the 2024 J.D. Power China Vehicle Dependability Study (VDS)

Durability and serviceability: Traditionally, American cars give the impression that their "three major parts" are solid and durable, particularly with regard to the longevity of mechanical components such as engines and chassis. Many early Buick and Chevrolet models are still running well after more than ten years of use, confirming the importance of

American engineering in ensuring mechanical durability. At the same time, American joint venture brands in the country once had a very sound after-sales service network, and spare parts were relatively easy to supply and maintain, which made consumers worry-free when using cars. However, there are also some shortcomings: the long-term durability of electronic systems is average. Once a car is too old, the failure rate of components such as the central control screen and electronic control unit increases, reflecting the need for improvement in the collaborative durability design of software and hardware. Furthermore, in recent years, some American brands' channels in China have shrunk, and the number of after-sales outlets has decreased, affecting the convenience of maintenance. For example, when the Lincoln brand was initially sold as imports, there were few after-sales outlets and a long waiting period for parts, inconveniencing car owners. Similarly, when Tesla entered China, users complained about the long maintenance cycle and high costs due to the tight supply of parts. Mainstream American joint venture brands generally have moderate maintenance costs, and the prices of regular maintenance parts are comparable to those of joint venture models of the same level. However, some imported or high-end models have expensive special parts (such as high-performance brake discs and air suspension components), resulting in high maintenance costs. Additionally, GM models have experienced transmission oil leakage and Ford models have encountered power steering failures, both of which require frequent maintenance and affect users' perception of the durability of American cars. In response to these issues, American car companies have recently extended the warranty period for vehicles and major components, introducing policies such as a 5-year, 160,000-kilometre warranty. Conversely, they have strengthened the localisation of parts and supply chain management to improve maintenance response speed and reduce costs. They are striving to provide consumers with a more reliable and worry-free experience throughout the vehicle's life cycle.

Design and perceived quality: American cars emphasise a tough and atmospheric style in terms of styling design. Their muscular lines and wide body proportions give them a powerful appearance, appealing to consumers who value masculinity and individuality. At the same time, the interior is renowned for its spaciousness and comfort, with seats and space often surpassing those of its peers. However, American models have long lagged behind German models in terms of refinement and workmanship details. In the past, many American car interiors featured strong plastics and uneven seams, resulting in an average perceived quality. For instance, the interior materials of the Buick LaCrosse were criticised for lacking a sense of luxury, while the Ford Mondeo was accused of having a bland interior design and constant minor problems, earning it a regular place on the monthly complaint list. All of these factors have weakened the high-end image of American brands. To reverse this situation, American manufacturers have invested heavily in design and technology in recent years. GM's Buick and Cadillac brands have introduced design languages such as the Avista concept car to enhance fashionability, while Ford has improved the finish of the central control interface and ergonomics and introduced more high-end materials. Buick, for example, has adopted an integrated cockpit design with soft coverings and noise-reduction materials in its new models, greatly improving the vehicle's NVH performance and interior texture. Cadillac's focus on 'new American luxury' is

evident in models such as the XT6 and LYRIQ, which feature crystal buttons and 64-colour ambient lighting to create a luxurious atmosphere. In addition, improvements in assembly quality are evident in the data. J.D. Power's China New Car Quality Research shows that Buick ranked fifth for initial new car quality in 2024 (164 PP100), with significant reductions in assembly defects. These improvements demonstrate that American brands are gradually closing the perceived quality gap with German and Japanese brands. However, the brand premium feel of American cars is still only medium, and it will take time for consumers to equate them with 'exquisite' and 'high quality'. Going forward, American manufacturers must strive for consistent, high-quality design, ensuring each product offers users an experience of exquisite materials and excellent workmanship. This will enhance the brand's positioning in consumers' minds.

From the above analysis of various dimensions, it is clear that American cars have obvious advantages in terms of performance and comfort. However, they still have shortcomings in terms of reliability, energy efficiency and craftsmanship. It is encouraging that, over the past five years, American brands have implemented a range of quality improvement measures to address these issues, with some success. For instance, the initial quality scores of new cars from American joint venture brands have improved consistently, according to the authoritative quality report released by J.D. Power, with some models ranking among the best; for example, Chezhi.com's statistics show that some American models (such as the Buick E4 electric car and the Lincoln Navigator) have achieved zero complaints for every 10,000 vehicles, demonstrating impressive quality stability. However, in terms of long-term reliability (VDS) and user satisfaction, American brands still lag behind the benchmark, as reflected by their failure to top the three-year vehicle reliability rankings. Therefore, American car companies must adhere to data-driven quality management, such as using the EFQM model for self-assessment and improvement, to comprehensively improve quality capabilities in areas such as leadership and strategy. At the same time, they must listen to Chinese consumer feedback and quickly address issues. For high-frequency complaints such as engine oil burning and abnormal gearbox noise, special quality research and recall services should be carried out promptly. For emerging quality problems such as car system jamming, OTA upgrades should be used to improve the user experience. Through continuous closed-loop improvements, American brands are expected to further consolidate their strengths in performance and comfort while addressing their weaknesses in reliability and durability and improving their reputation for quality amid fierce market competition.

In summary, American brands have a distinct two-sided quality performance: on the one hand, their advantages in terms of strong power, ample space and rich configuration make them uniquely competitive in terms of driving comfort and performance; on the other hand, their shortcomings in terms of insufficient reliability and stability, high fuel consumption and less refined details make some consumers worry about their long-term quality. This 'two-sidedness' in quality directly affects the purchasing decisions of different consumer groups. Those who enjoy the feeling of large-displacement acceleration and prioritise vehicle control and ride comfort are often willing to accept American cars and tolerate

their higher fuel consumption and the occasional minor fault. In their view, the satisfaction derived from the solid materials and driving experience of American cars compensates for these shortcomings. Conversely, consumers who prioritise durability, reliability and low fuel consumption may be more inclined towards Japanese or German models, viewing American cars as a higher-risk option. For example, some car owners said in their car purchase evaluations that they would 'never buy a Ford car again' due to frequent abnormal noises and minor issues. This illustrates how a negative quality experience can permanently affect consumers' trust in a brand.

The decline in the market share of American brands in China in recent years largely verifies the profound impact of quality factors on market performance. American cars used to rely on highlighting selling points such as large space and high performance to win the market. However, in the current context of more rational and mature consumers, stable quality and reputation are the cornerstones of maintaining brand loyalty. The ups and downs of American brands have shown that, even if they win through marketing and performance for a while, they will eventually be unable to escape the fate of 'high opening and low closing' if they cannot ensure continuous improvement of product quality and eliminate major defects. Conversely, once American manufacturers invest the same enthusiasm in quality management as in their power research and development, they will be able to create high-quality models that offer both performance and reliability. As GM, Ford and others gradually introduce the world's latest platforms and technologies to China, strengthening local testing and quality control, it can be foreseen that the overall quality level of American cars will steadily improve. In the new era of electrification and intelligence, the new generation of American models (including the Buick E4 and the Ford Mustang Mach-E) have shown signs of improving quality. If these models can gain a good reputation for reliability after being released onto the market, then American brands are likely to reverse the current unfavourable situation.

In short, improving the quality of American cars in the Chinese market will be both challenging and promising. Maintaining the traditional advantages of American cars — namely, power, comfort and reliability — while improving consistency and durability with a spirit of excellence, will be the key to reshaping the image of American brands. American brands can only regain widespread trust when consumers can enjoy the driving pleasure of "driving American cars" without worrying about long-term quality. In the fiercely competitive Chinese car market, quality is paramount. American car manufacturers are learning from past mistakes and seeking to reinvent themselves through comprehensive quality management.

1.3.4 Overview of European Automotive Brands and Trends in Quality Improvement

1.3.4.1 Overview of German Automotive Brands and Trends in Quality Improvement

German car brands are world-renowned for their exquisite engineering quality and rigorous manufacturing processes. As the birthplace of the modern automobile, Germany has a rich

automotive heritage and a unique culture of precision engineering. In China's high-end car market, the German luxury brands Mercedes-Benz, BMW and Audi (collectively known as BBA) remain dominant. According to statistics from the China Association of Automobile Manufacturers, the cumulative sales of BMW, Mercedes-Benz and Audi in China in 2024 will be approximately 715,200, 713,900 and 645,000 respectively. This accounts for more than 70% of the Chinese luxury car market and they will continue to rank among the top three luxury brands. Clearly, German brands have a high market share in China.

The process of German brands entering the Chinese market can be traced back to the early days of reform and opening up. In the 1980s, Volkswagen was the first to establish a joint venture with Shanghai, assembling the first Santana saloon in 1983 as shown in Figure 20.

Figure 20 Source: CarNews China

The Santana has since become popular across the country, achieving a market share of over 60% at its peak and reaching a cumulative production and sales volume of four million vehicles. Thanks to its excellent quality, comfortable driving experience and durability, Santana has become synonymous with the words 'sturdy' and 'durable'. Older Chinese consumers often say, 'Buy a Santana when buying a car', showing that the Volkswagen Santana has established German cars' reputation in China as 'sturdy, durable and easy to drive'. Since then, Audi has cooperated with FAW in production since 1988, establishing a high-end, reliable image for government vehicles. In the 21^(st) century, Mercedes-Benz and BMW have also started joint ventures in China, continuously expanding the country's high-end private car market. Following decades of development, German brands have become renowned for their advanced technology and reliable quality. They have long held a dominant position in various market segments, setting the standard with their high market

share and premium reputation. Although German cars are renowned for their rigorous quality control, the industry has also experienced quality crises and regained consumer trust through improvements. For instance, Volkswagen received widespread complaints in China due to DSG gearbox failure. The DSG dual-clutch transmission had defects such as shaking and power interruption in its early days, and the manufacturer did not address the issue promptly. 'So when the DSG crisis hit, Volkswagen was reluctant to address it properly, and it dragged on for three years. Ultimately, the technical defect evolved into a crisis of trust for the brand." Following exposure of the problem by the CCTV 3.15 Gala in 2013, the General Administration of Quality Supervision, Inspection and Quarantine of China intervened, forcing Volkswagen to initiate a recall. Since then, Volkswagen has invested heavily in improving the reliability of DSG technology and strengthening after-sales service. Through timely remediation and rigorous quality improvement measures, Volkswagen has gradually regained consumer trust.

German car manufacturers have always integrated comprehensive quality management into every stage of the product research, development and manufacturing process. They ensure the quality of each stage, from design to production, by implementing measures such as simultaneous engineering and digital factory 'quality gate' control. German cars are generally known for their strong power performance and driving control. German models also enjoy a high reputation for high-speed driving stability, thanks to their solid chassis tuning and precise steering, which gives drivers sufficient confidence. For instance, many consumers have reported that the Volkswagen Tiguan SUV has good suspension rigidity and stable handling. German brands focus on the concept of the 'driver's car' and have long been developing technologies such as turbocharged direct injection engines and high-performance chassis to enhance vehicle power and handling. In terms of configuration, German cars also prioritise the integration of advanced safety and technology features. As early as the 1990s, Mercedes-Benz and BMW were among the first brands to equip their models with active safety systems such as ABS anti-lock and anti-skid technology. More recently, brands such as Volkswagen have been promoting new technologies such as L2 driver assistance and anti-collision warning systems. German brands lead the industry in powertrain technology, with Volkswagen's TSI turbocharged + DSG dual-clutch power combination once setting the industry trend. A variety of advanced features make German cars perform well and offer a high level of technology. These characteristics also result in German cars receiving high evaluations from consumers in terms of driving pleasure and handling experience. According to J.D. Power's Automotive Product Appeal Index Research (APEAL) (shown in Figure 21), consumers rate the driving quality of German luxury brands highly. For instance, Porsche topped the 2024 China APEAL luxury car brand charm index ranking, while Audi and BMW took second and third place respectively, demonstrating the outstanding appeal of German cars in terms of power control and user experience. However, the pursuit of high performance is accompanied by relatively high fuel consumption. In recent years, German manufacturers have worked hard to balance power and energy efficiency through technologies such as engine miniaturisation and 48V mild hybrid systems.

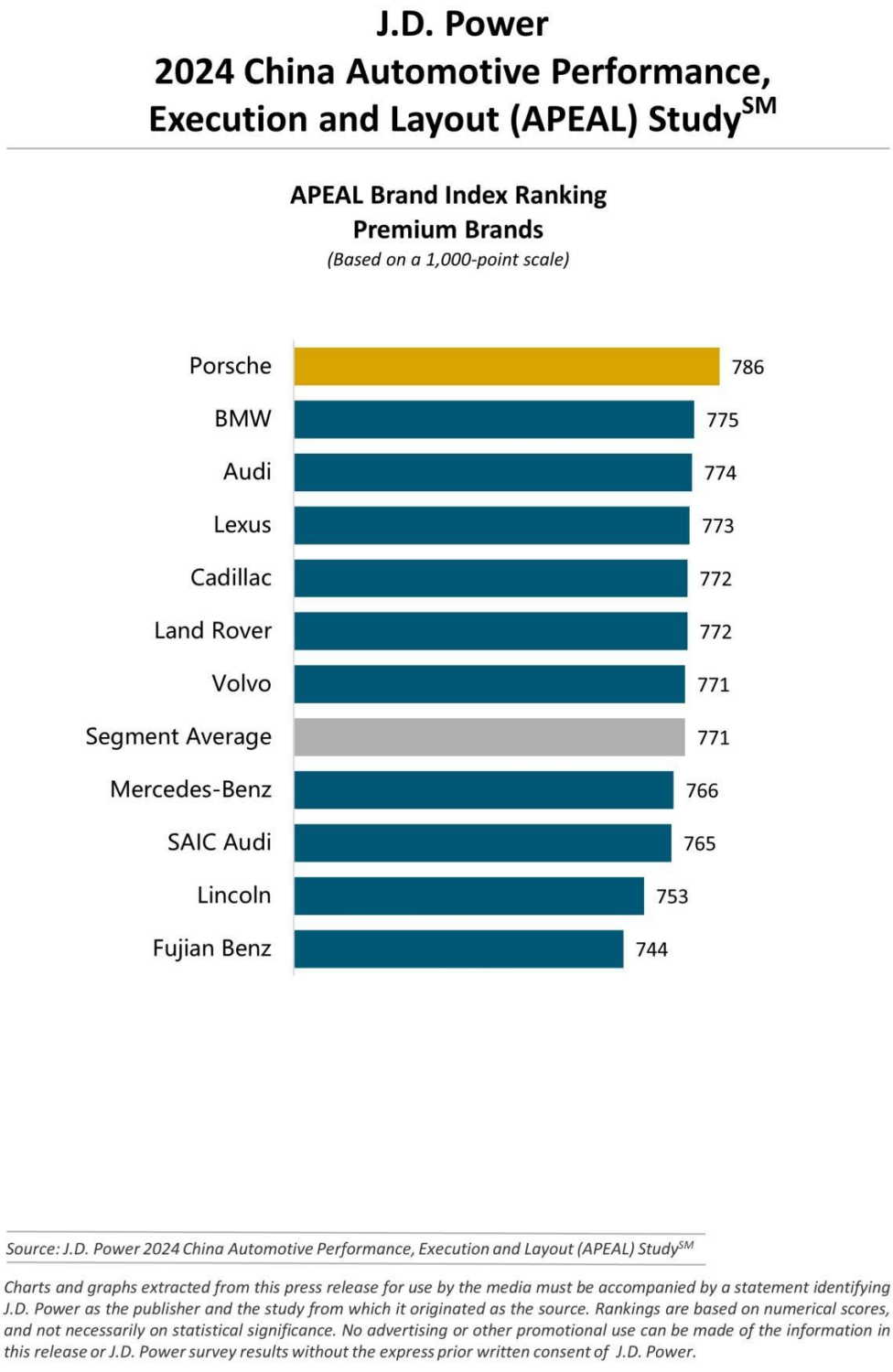


Figure 21 Source: the 2024 J.D. Power APEAL study

In terms of reliability and consistency, German cars gained a reputation for durability and stability in the early Chinese market thanks to the "three major parts" (engine, gearbox and chassis). However, as automotive electronics have improved, the failure rate of some German models has increased, particularly among luxury brands. There have been issues

with electronic components and small parts. For instance, some Mercedes-Benz and BMW owners reported that cars over five years old are susceptible to minor issues such as oil leakage and sensor failure. This is partly due to the reliability challenges that German brands have faced by actively adopting new technologies. Nevertheless, it should be emphasised that German cars' tradition of reliable and durable core components has not been lost, and key systems such as engines and gearboxes still offer a high level of durability. Furthermore, German manufacturers are renowned for their rigorous production processes and consistent quality. Mercedes-Benz, Volkswagen, BMW and others have established strict quality control systems in both Germany and joint venture factories in China. The factories of SAIC Volkswagen and BMW Brilliance, for example, are all built to German standards, from monitoring the quality of parts supplied to inspecting vehicles at the end of the production line, to ensure consistency in mass production. Volkswagen and other companies are also promoting the '0-kilometre test' in their domestic factories. This involves each new car being dynamically inspected on a professional test track after rolling off the assembly line, in order to identify and resolve any potential issues in good time. These measures ensure stable mass manufacturing quality for German brand models, fine control of assembly workmanship and minimal differences between batches. According to the J.D. Power New Car Quality Study (IQS) as shown in Figure 22, German joint venture brands generally have a similar number of initial failures to the industry average, and some leading German luxury brands perform even better than average. It is worth mentioning that Chinese consumers are relatively tolerant of the quality of German cars. According to a J.D. Power survey, owners of German brands have a certain tolerance for occasional quality issues, and there is relatively little difference in the net recommended score (NPS) between owners of problematic and non-problematic vehicles. This shows that German car owners generally trust the brand quality and are willing to accept repairs if they encounter minor faults. Brand loyalty is not significantly affected by this. Overall, while German manufacturers' reliability performance remains at the forefront of the industry as they strengthen local quality management and supply chain supervision, they need to continue improving to maintain their reputation in the context of increasing electronic and electrical complexity.

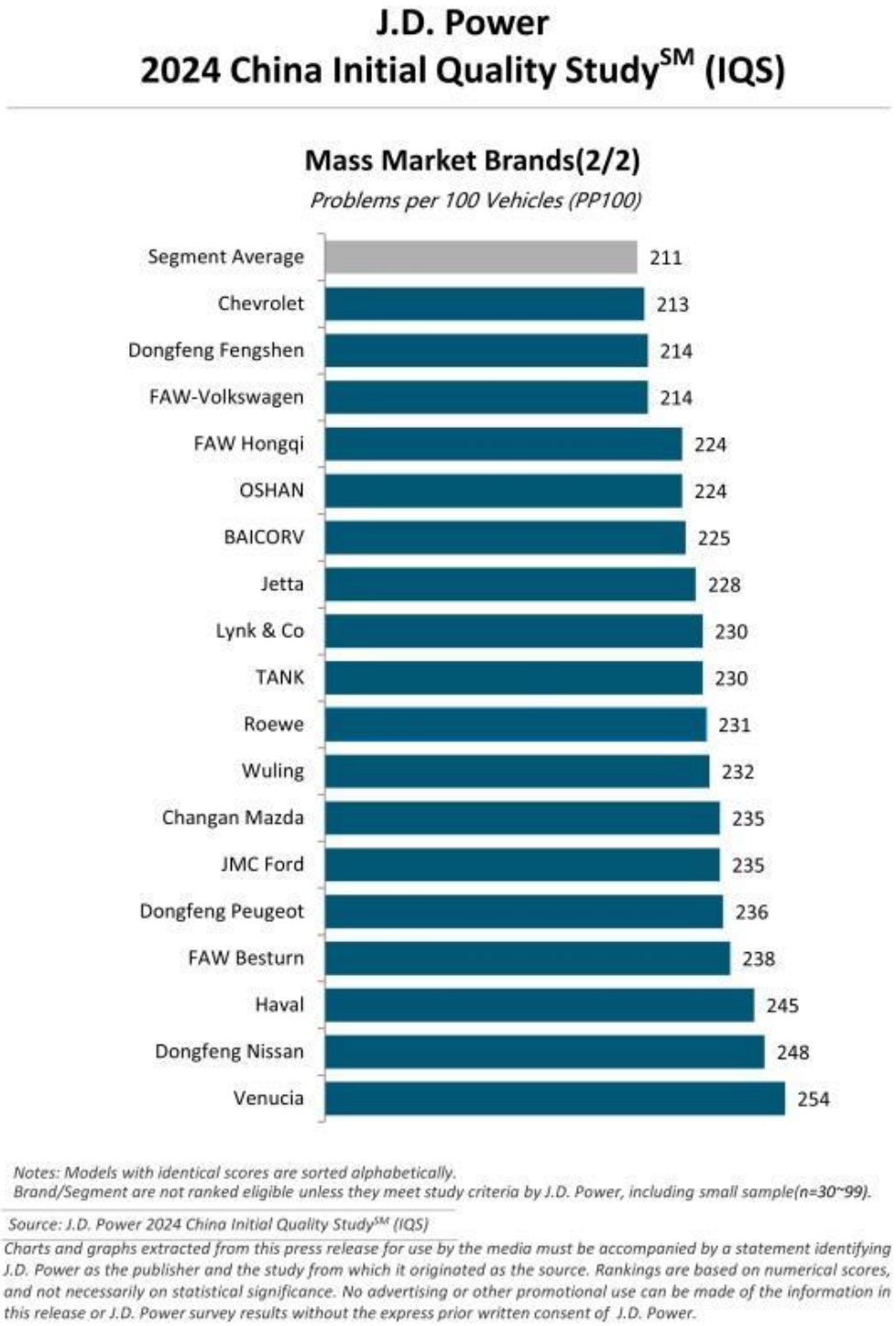


Figure 22 Source: the 2024 J.D. Power IQS study

When it comes to durability and reliability, German cars have always been renowned for their solidity. They use high-strength steel and have a thick body structure, and the idea that 'German car steel plates are thick' has almost become a label for safety and durability among Chinese people. In fact, German vehicles perform outstandingly in terms of passive

body safety and achieve excellent results in collision tests. For example, the new version of the C-NCAP test awarded the SAIC Volkswagen Tiguan L Pro a five-star safety rating, which proves its excellent body safety performance. At the same time, German brands invest heavily in research and development to ensure that the main mechanical components maintain good performance throughout their long life cycle. Many Volkswagen and Audi models continue to perform well after covering 200,000 to 300,000 kilometres. However, the cost of repairs and maintenance is a major challenge for German cars. German models are technically complex, with exquisite materials used for their parts, leading to high replacement and repair costs. Additionally, luxury brands charge higher fees for after-sales service than Japanese brands. The Auto Parts-to-Whole Ratio Index, released by the China Insurance Association, shows that luxury German models have extremely expensive parts — the Mercedes-Benz C-Class's parts-to-whole ratio coefficient is 823.59% (the total price of the parts is more than eight times the price of the whole vehicle). Among the models with the highest parts-to-whole ratio, 7 of the top 10 are German luxury brands. Therefore, even if the purchase price of some German cars is not outrageous, the maintenance cost of using the car for several years is considerable. Because of the high maintenance cost, German luxury car owners are more sensitive to quality issues and often actively defend their rights once repeated failures occur. In order to reduce the burden on consumers in the later stage, German manufacturers have also been improving this situation in recent years, such as extending the warranty period and launching prepaid maintenance packages. It is worth affirming that German brands have a wide after-sales service network in China. For example, Volkswagen's 4S stores are almost all over the country, which can provide professional and fast maintenance support. This has effectively alleviated consumers' anxiety about maintenance costs and convenience to a certain extent. However, the reality of high service costs still needs to be faced. How to optimize the cost of parts and maintenance convenience while ensuring high quality is the direction of German manufacturers' efforts.

In terms of aesthetics and perceived quality, the design style of German cars tends to be conservative and understated, prioritising functionality. The exterior styling typically features simple lines that emphasise a stable temperament. While this classic, durable aesthetic lacks avant-garde fashion, it caters to consumers' preference for 'grand and classy' models. In terms of interior design, German brands pay particular attention to craftsmanship and materials. Models from Audi, BMW and Mercedes-Benz often feature high-grade leather, solid wood panels and metal buttons, giving them a luxurious and refined appearance. In terms of assembly technology, German cars emphasise a tight fit, with the seams of the bodywork and interior parts being uniform and delicate. This perceived quality, which pays attention to detail, allows consumers to intuitively perceive "thick materials and excellent quality" as soon as they sit in the car. Of course, German design's steadiness may also be seen as a lack of fashion sense by young people, as it is slightly more conservative than the romantic and avant-garde French and Italian models. However, in recent years, German brands have kept pace with the times by introducing sporty and youthful design elements. Examples include BMW's angel eye headlights, Mercedes-Benz's starry grille and Audi's OLED taillights. At the same time, German

manufacturers have also begun to emphasise the beauty and user-friendliness of the human-machine interface in the context of automotive digitalisation. The latest MBUX, iDrive and other car systems, for example, strive for simple and user-friendly UI design. However, no matter how their appearance evolves, German cars have always been renowned for their quality. The heavy sound of the door, the delicate and sophisticated interior and the compact body are all features that have not changed over the years and will continue to give consumers the satisfaction of knowing they are getting value for money.

Based on the above analysis of various quality dimensions, it is clear that German car brands are leading the industry in terms of performance, functional configuration, reliability, consistency, durability, and perceived quality. The overall quality level is exceptional. This is inseparable from their commitment to comprehensive quality management. After introducing production in China, German manufacturers also localised the original quality system. For instance, Mercedes-Benz, BMW and Audi have implemented quality standards in their Chinese factories that are synchronised with those in Germany. Every vehicle undergoes a strict 0-kilometre road test before rolling off the assembly line. Synchronous engineering is used in R&D to advance design, processes and quality control in parallel, thus preventing potential problems at the development stage. Digital quality gate (Q-Gate) management has been introduced into the production process and quality checkpoints have been set up for each stage. If standards are not met, the vehicle will not progress to the next stage, thus creating a quality wall with multiple checks. In after-sales service, German brands emphasise rapid response and technical support, actively recalling or servicing vehicles to solve common quality defects. This zero-tolerance attitude towards quality issues helps German brands correct mistakes and improve quickly. In recent years, however, German cars have encountered new challenges in the field of software electronics, such as bugs in complex on-board systems and errors in OTA upgrades. Manufacturers have established software testing and update mechanisms to strengthen control of electronic and electrical quality, meeting the requirements of the intelligent network era.

It is worth noting that the 'Volkswagen Emissions Gate' scandal in 2015 tarnished the reputation of the German car industry. The Volkswagen Group was exposed for cheating in diesel vehicle exhaust emission tests and not only had to pay a huge fine, but its actions also seriously impacted the reputation of German cars. As the media commented, the fallout from the 'Emissions Gate' scandal is bound to affect confidence in German manufacturing worldwide, thus seriously endangering Germany's Industry 4.0 plan. This scandal plunged German brands into a global trust crisis. However, rather than despairing, German car companies learned from their mistakes and took active measures to restore their reputation. Volkswagen quickly launched a worldwide recall and rectification involving 11 million diesel vehicles, and reorganised the company's quality and compliance system to strengthen supervision of the product development process. Other German manufacturers, such as Mercedes-Benz and BMW, have also increased investment in new fields, such as new energy vehicles and autonomous driving, in order to reshape their image as innovative and environmentally friendly companies. Subsequent market

feedback suggests that German cars are gradually emerging from the shadow of the 'Emissions Gate' thanks to their long-standing reputation for quality. In the Chinese market, where diesel passenger cars are not popular, the 'Emissions Gate' has had limited direct impact on consumers' purchases of German cars. Today, German brands remain a popular choice for Chinese consumers seeking a high-end car, demonstrating that their solid product quality and brand reputation have enabled them to withstand the test of the crisis.

1.3.4.2 Overview of Italian Automotive Brands and Trends in Quality Improvement

In the Chinese passenger car market, Italian car brands have a limited overall share, but they are known for their unique style and performance, and have a dedicated following. The mainstream Italian car brands in China are represented by Fiat and Jeep, the latter being a US brand owned by Chrysler and merged with Fiat. Fiat entered the Chinese market through the Nanjing Fiat joint venture in the late 1990s, but withdrew in 2008 due to poor sales. However, Fiat made a comeback in 2010 by establishing GAC Fiat in a joint venture with the GAC Group. The company launched models such as the Freemont and the Viaggio and reached an annual sales peak of 68,000 units in 2014. As for the Jeep brand, it was introduced to China by the Fiat-Chrysler Group as an SUV brand and achieved success by capitalising on the SUV boom. Around 2015, domestically produced models such as the Cherokee, Renegade and Compass were successively launched and Jeep's annual sales in China rose rapidly, reaching over 200,000 units in 2017. In the realm of high-end luxury, Italy boasts renowned super-luxury sports car brands such as Ferrari, Lamborghini, and Maserati. These brands are celebrated for their exceptional performance and design, yet they cater to an extremely selective group of high-end customers and have minimal influence on the broader landscape of the Chinese automobile market. Nevertheless, these luxury brands have established an enviable reputation for high-end quality, showcasing Italy's exceptional automotive design and engineering expertise. Ferrari and Maserati, for example, are often regarded as pinnacles of craftsmanship and performance, as well as benchmark products of 'Made in Italy'. Overall, Italian cars have a very small presence in the Chinese market, and their reputation for quality mainly remains within the evaluation circle of senior car enthusiasts. There is still a clear gap with mainstream brands such as German and Japanese cars.

Although the range of Italian cars available in China is relatively limited, we can still analyse their performance and improvement trends in terms of quality. Specifically, Italian cars have strengths and weaknesses in terms of power performance and configuration level. Fiat's small-displacement turbocharged engine technology, for example, has been successful: the 1.2T turbocharged engine, developed jointly by the PSA Group and Fiat, won the 'Best Engine of the Year' award in the 1.0–1.4 L category of the International Engine of the Year Awards for four consecutive years. These engines perform well in terms of parameters and fuel economy, providing models such as the Feixiang and the Zhiyue with an acceptable level of power output and fuel-saving performance. However, the powertrain tuning of Fiat's Chinese models is generally satisfactory, while the power of small cars is mediocre and they lack competitive advantages in terms of high-speed re-

acceleration capabilities. At the same time, Italian joint venture models often have conservative and simple configurations. For example, early Fiat models had relatively simple configurations and lacked the electronic technology that was popular in the Chinese market at the time, which put the products at a disadvantage. Updates to the comfort configuration and human-computer interaction system were slow, failing to meet Chinese consumers' timely expectations for intelligent configurations.

Italian cars are world-renowned for their exceptional aesthetic design. From cute retro cars like the Fiat 500 to supercars like Ferraris and Lamborghinis, Italian design is renowned for its creativity and artistic flair as shown in Figure 23 and Figure 24. Some Chinese consumers find the styling and interior design of Italian cars very attractive, regarding them as the intersection of "ancient Eastern civilisation and Western Renaissance" in car design. Mazda's design director, for example, once commented that Italian sports cars have 'romantic proportions and curves that make people fall in love at first sight', reflecting the pinnacle of Italian aesthetics. Many domestic car enthusiasts praise the dynamic appearance of Alfa Romeos and the luxurious materials used for Maseratis' interiors, regarding Italian cars as "emotional choices".

Figure 23 Source: Car Home

Figure 24 Source: Stellantis official website

However, Italian cars are not highly regarded by mass consumers in terms of perceived quality. On the one hand, due to cost and positioning, ordinary models such as the Fiat have relatively basic interior workmanship and materials, and the assembly process is average, making it difficult to match the fine, solid finish of German luxury cars. On the other hand, frequent minor problems also undermine users' perception of quality — no matter how beautiful the design, if the car frequently displays fault warnings or makes abnormal noises or leaks oil, consumers will question its reliability. Therefore, Italian cars present a contradictory impression of 'emotional and rational dislocation' to mainstream Chinese consumers: they appreciate their fashionable appearance and unique taste, but are concerned about quality stability and subsequent maintenance issues and are reluctant to buy them. For this reason, Italian brands have not been able to convert their perceived quality advantages into market recognition. In recent years, to cater to Chinese consumers' demand for quality, brands such as Maserati have strengthened the craftsmanship and technological features of new models. For example, they have upgraded infotainment systems and improved interior workmanship. They hope this will improve users' perception of quality. However, these improvements are mainly reflected in luxury cars costing millions, which does little to improve the perceived quality of popular models.

In summary, Italian car brands have a positive image in the Chinese market, but this is marred by some significant weaknesses. While they excel in design and sports performance, they lag behind significantly in terms of reliability, durability, and after-sales service. However, it is worth noting that, in the context of the electrification transformation of the global automotive industry, Italian car companies are trying to improve quality and reshape their reputation through new strategies. Following the formation of the Stellantis Group, for example, the company integrated the resources of Fiat Chrysler and Peugeot

Citroën to promote global unified quality standards and R&D platforms, thereby improving the product reliability and manufacturing consistency of its brands. Secondly, Stellantis has embraced the innovative strengths of China's electric vehicle industry, announcing in October 2023 that it would invest around 1.5 billion euros to acquire almost 20% of Leapmotor's shares, becoming a strategic shareholder in the Chinese new energy vehicle company. By forming a joint venture with Leapmotor and introducing China's leading electrification technology ecosystem, Stellantis hopes to accelerate the improvement of its electric vehicle products' technical level and quality reliability. "The Stellantis Group will use the electric vehicle ecosystem led by Leapmotor technology to help achieve the group's electrification goals in its 2030 strategic plan." This is regarded by the industry as a bold attempt by European car manufacturers to leverage China's supply chain and technology to compensate for their own deficiencies. Similarly, Maserati plans to introduce more electrified models to enhance its brand image, leveraging the inherent advantages of electric power and a low failure rate.

Currently, the improvement of the quality of Italian brands in the Chinese market is still in its infancy. Some authoritative quality surveys also suggest that its brand reputation could be improved. **According to the 2024 Automobile Brand Quality Ranking** (Fuel Vehicles) released by the China Automobile Quality Network as shown in Figure 25, of the 36 brands below the industry average, several are Fiat brands that remain from the GAC Fiat era: Dongfeng Fiat (which has actually been delisted) ranks near the bottom, and the Jeep brand has had frequent recalls and complaints in recent years; its overall quality evaluation is not ideal. However, feedback from car owners also highlights some positive signs: a small number of loyal Jeep fans recognise its 'sturdy and durable' off-road mechanical qualities and praise the chassis and four-wheel drive performance. They expect Stellantis to fulfil its promise to improve parts supply. Fiat fans miss the car design and driving pleasure and believe that 'the feelings are still there and I hope the quality can keep up'. Looking to the future, as Stellantis deepens its cooperation with Chinese partners and Italian brands learn from China's experience in electrification and the use of new materials, there is reason to believe that Italian cars will gradually become more reliable and improve their overall quality, gaining a more stable reputation in the Chinese market.

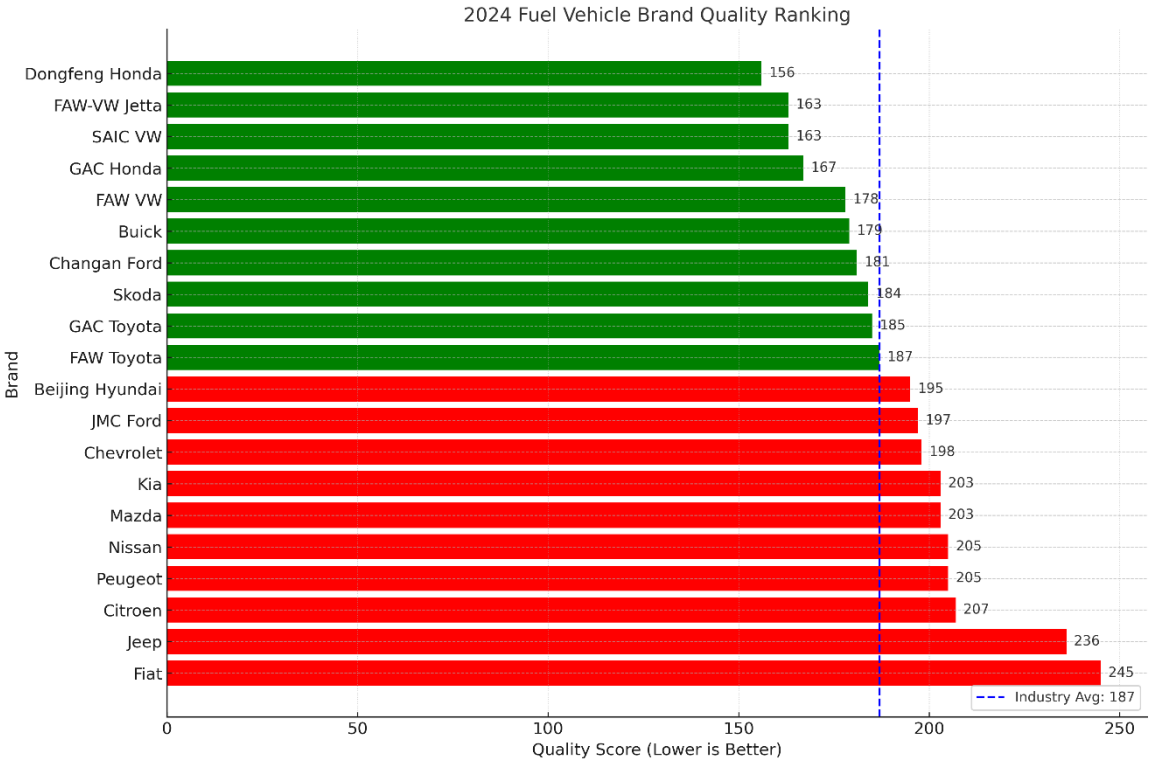


Figure 25 Source: China Automobile Quality Network

1.3.4.3 Overview of French Automotive Brands and Trends in Quality Improvement

French car brands enjoyed a brief period of success in China, followed by a period of decline. Although their current market share is now negligible, their development history has had a profound impact on how Chinese consumers perceive car quality. French car manufacturers entered the Chinese market as early as the 1990s and were among the first foreign companies to do so. Peugeot and Citroën represent French joint ventures in China. Citroën, a brand under the PSA Group, established the Dongfeng Peugeot Citroën Automobile Company with Dongfeng Motor in 1992. They launched models such as the Fukang (Citroën ZX), which gained a good reputation in the late 1990s thanks to its durable chassis and comfortable ride. Then, in 2002, the Peugeot brand joined Dongfeng Peugeot Citroën Automobile, and the company entered the market with models such as the 307. They also achieved good sales in the mid-2000s. The "Fukang phenomenon" laid the foundation for French cars in China, and from 2000 to 2010 they accumulated a group of loyal Chinese consumers thanks to their unique French design and chassis technology. However, since the beginning of the 2010s, Dongfeng Peugeot/Citroën has experienced obvious ups and downs: the SUV wave and the rise of independent brands have exposed the problems of slow update speed and a limited range of products for French cars. Sales of French car brands peaked around 2015 — for example, Dongfeng Peugeot sold almost 400,000 vehicles that year — and then fell continuously. This is due to quality issues with the products themselves: according to feedback from car owners and third-party statistics, the Dongfeng Peugeot 508 has experienced many quality failures since its launch, with frequent reports appearing on major complaint websites. The Renault brand has taken a different approach in China. Initially, Renault cooperated with Dongfeng to produce the

Koleos SUV and other models, but the market response was mediocre. In recent years, Renault has turned to small-scale imports and cooperation projects to maintain its presence in the Chinese market. In early 2024, Renault established a research and development centre employing around 150 people in Shanghai, with the aim of developing a new generation of electric models for Europe and taking advantage of China's speed and cost advantages in electric vehicle research and development. Renault Group CEO De Meo pointed out: 'By setting up a research and development centre in Shanghai, we hope to integrate China's electric vehicle industry's absolute competitiveness in terms of researchand development, cost, and technology into European product development, thereby enhancing our global competitiveness.' This demonstrates a new approach by French car companies to the Chinese market: rather than selling cars on a large scale, they are leveraging China's technology and supply chain to drive their global business. Specifically, French brands have a long-standing reputation for excellence in terms of chassis and control performance and configuration, with the Citroën brand being particularly renowned as the 'chassis master'. French cars have a well-established suspension system that prioritises comfort and filtering out road shocks. Many models provide a solid "heavy chassis" feeling when driving on complex domestic roads, and high-speed stability and steering control are generally good. This excellent dynamic performance stems from PSA's long-term technical expertise — for example, Citroën's renowned hydraulic suspension technology, and the unique suspension structures adopted by many models to enhance driving smoothness and control balance. However, French brands are often "half a beat slow" in terms of configuration. While there are occasional creative designs, such as the fixed central control steering wheel on early Citroën C4s and the sci-fi cockpit layout on Peugeot 3008s, French cars have been relatively slow to keep up with the rapid development of intelligent driving assistance and car networking in the Chinese market. Around 2015, while mainstream joint venture models were adding large-screen navigation, in-car connectivity and LED headlights, the configurations of Dongfeng Peugeot and Citroën's models were relatively conservative and lacked eye-catching technological upgrades. This conservatism has damaged their competitiveness — consumers often feel that French cars 'drive well but have poor configurations'. In recent years, however, Dongfeng Peugeot has recognised this issue and emphasised a high-specification, high-value-for-money strategy for new models such as the Citroën Versailles C5 X, which comes with a range of safety and comfort features as standard in an attempt to restore its technological image. Overall, however, the lagging configuration was once a key reason why French cars missed out on the market. In the short term, the brand's awareness of cutting-edge intelligent configurations still needs to be improved.

In terms of reliability and consistency, the early Dongfeng Citroën Fukang was renowned for its durability. Old car owners used to say that the Fukang was indestructible, which gave the French car a reliable initial impression. However, as electronic and electrical systems became more prevalent in cars, the stereotype that French cars have many minor problems gradually emerged. Many owners of Peugeot and Citroën models reported electronic failures (e.g. sensor alarms and electronic part failure) and minor problems with parts (e.g. abnormal noises from the windscreen wipers, window lift failures and water

seepage from the sealing strips) after a few years of use. While these problems are usually not fatal, they occur frequently and affect users' trust in the vehicle's reliability. As shown in Figure 26, Third-party quality survey data also supports this view: According to statistics from a Chinese automobile quality complaint website, the Dongfeng Peugeot 408 received a large number of complaints from car owners due to engine failure, abnormal oil consumption and tyre cracking. In the year from March 2019 to March 2020 alone, the Peugeot 408 received 2,142 complaints on Chezhi.com, ranking first among all car models. Clearly, the lack of reliability has seriously damaged the reputation of French cars. In terms of consistency, the low sales volume of French cars means that the domestic production line capacity is underutilised and quality control investment is relatively limited. This makes it difficult to ensure consistent quality between batches. Some users have reported that some vehicles of the same model perform normally, while others develop minor faults one after another, reflecting the weakness of manufacturing consistency.

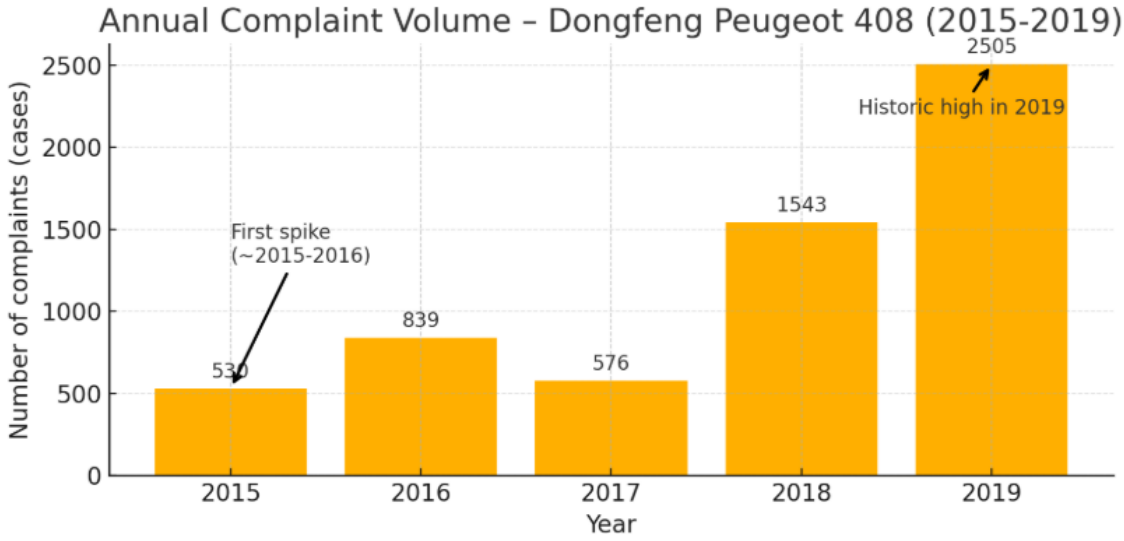


Figure 26 Source: China Automobile Quality Network

In terms of durability and maintainability, French cars generally perform well in terms of the lifespan of hardware such as mechanical chassis. In China, many old Citroën models, such as the Sega and the Élysée, have retained their chassis compactness after more than ten years of use, and the suspension is durable. Some mechanics have praised the chassis for its solid and durable performance. This is related to the French brand's focus on chassis design and materials. The term "chassis master" also indicates that the chassis has a relatively long life. However, French cars perform poorly in terms of the durability of body accessories and electronic components. Aging headlights, loose interior parts and frequent electronic module failures are more common after years of use, for example. In addition, there have been negative reports regarding the durability of the powertrain. The Peugeot/Citroën 1.2T three-cylinder engine has been found to have defects such as premature ageing and timing belt failure, which can result in blockage of the oil pipeline and engine failure. Some cars experienced serious problems after covering around 50,000

kilometres. This incident undoubtedly damaged consumers' confidence in the durability of their engines. In terms of maintainability, French brands also face challenges in China. Firstly, the service network has been reduced; the decline in sales has led to a decrease in the number of Dongfeng Peugeot/Citroen 4S stores and an uneven distribution. Many third- and fourth-tier cities had difficulty locating after-sales outlets. Although Dongfeng Peugeot/Citroen Automobile introduced initiatives such as 'cooperative special maintenance stations' later on, in an attempt to fill the gap with smaller maintenance outlets, the overall service coverage and convenience still lags behind that of Japanese and American brands. Secondly, in terms of the supply and price of accessories, the problem of insufficient spare parts inventory is more prominent due to the low ownership, and some car owners have reported long waiting times for maintenance. In addition, the high price of imported parts has increased maintenance costs. There are also issues with service quality. Some Dongfeng Peugeot 4S stores have poor attitudes towards after-sales service due to business difficulties. Some car owners have expressed deep dissatisfaction with Peugeot 4S stores, believing that they are slow to address faults and evade responsibility. Taken together, these factors have greatly reduced the quality evaluation of French cars throughout their entire life cycle. In response to these challenges, French car brands have introduced changes, including lowering the prices of certain accessories, improving logistics response times and extending the warranty period, with the aim of enhancing user experience. However, it will take time for consumers to regain their trust.

In terms of aesthetics and perceived quality, French brands are renowned for their bold, avant-garde designs as shown in Figure 27.

Figure 27 Source: Business & Technology News Update

Peugeot and Citroën models often incorporate romantic elements and innovative concepts, and their distinctive shapes are easily recognised. The "lion claw" taillights and dot matrix grilles of Peugeot models, for example, and the rounded, smooth body curves of Citroën cars, reflect French romance and elegance. This design aesthetic has won over fans who appreciate the unique look of French cars. In terms of perceived quality, some French models have also given people the impression of exquisite craftsmanship. This is especially true of the early imported flagship cars, such as the Citroën C6 and the Peugeot 607, which were once hailed as representatives of 'French luxury' thanks to their exquisite interior materials and thoughtful details.

To revive its business in China, PSA and Dongfeng launched the 'Yuan Plan' in 2020, aiming to reverse the decline by focusing on quality improvement and customer experience. In terms of quality, Dongfeng Peugeot established the 'C-DMQCC Quality Control Centre of Excellence' and introduced the PSA global quality monitoring system. The company claims to produce cars that meet the highest joint-venture standards, and it launched measures such as the '7-day no-reason return' policy to regain consumer trust. By around 2022, the decline in sales of Dongfeng Peugeot and Citroën had eased and the number of complaints had decreased compared with the peak period. According to statistics from Chezhi.com, the number of complaints about French brands decreased by around 1.3% in early 2024 compared with previous months. 32%). Meanwhile, the Stellantis Group, formed from the merger of PSA and FCA, is attempting to re-enter the Chinese market with new electric models. In 2023, Stellantis invested in Leapmotor and formed a strategic partnership with Chinese start-up car companies. This 'big move' is seen as a last-ditch effort by the French system (broadly speaking, Stellantis includes Peugeot and Citroën). The purpose is not only to acquire Chinese electric vehicle technology, but also to establish a new business model in China. In the future, new electric Peugeot and Citroën models are expected to be introduced to China through imports or co-production, with quality directly synchronised with that in Europe. The relatively simple mechanical structure of electric vehicles can be used to address the minor issues associated with traditional fuel-powered vehicles. From Renault's perspective, establishing a Chinese R&D centre has produced initial results. Renault plans to reduce the development cycle for new models by two-thirds, and to improve product reliability and cost-effectiveness by using the Chinese supplier system. These measures demonstrate the importance that French car manufacturers place on quality improvement and technological innovation.

In general, French car brands are experiencing a period of reflection in China. However, they are also seeking to improve their reputation for quality with new strategies. French cars have surprised Chinese consumers, but have also disappointed them. The current study of quality factors influencing car purchases highlights that French cars are an extreme case, reminding us that technology and features alone are insufficient for gaining a foothold in the market. Persistent quality improvement and service enhancement are key to winning over consumers. As French brands learn from their mistakes, reform and innovate, their quality image may gradually improve in the future. If they can combine hard power, such as chassis and safety, with soft power, such as reliability and service, to create a new image

of "advanced technology, solid safety, outstanding design, and reliable quality", there is still a chance for French cars to find their place in the Chinese market. In a Chinese auto market where quality is key to success, the lessons learned and transformation attempts of French brands provide valuable inspiration for this study.

1.4 Perspectives of Chinese Consumers

1.4.1 Definition of Product Quality by Chinese Consumers (Key Factors in Purchasing Products)

The concept of 'product quality' as understood by Chinese consumers is multi-dimensional, not single-indicator. According to Garvin's theory of quality management, there are eight dimensions of product quality: performance, characteristics, reliability, compliance, durability, maintainability, appearance, and perceived quality. In the eyes of Chinese consumers, 'high quality' means excellent power performance, a rich and reliable configuration, durability, exquisite workmanship, and safety and comfort. In the Chinese market, these quality dimensions will be emphasised due to local culture and consumer preferences. Firstly, with regard to performance and characteristics, Chinese consumers tend to focus on performance indicators such as engine power and smooth acceleration, as well as the richness of vehicle configuration. For instance, smart cockpits and car networking functions have emerged as key selling points in recent years. Many consumers tend to choose models equipped with advanced driver assistance systems and large-screen entertainment systems to satisfy their desire for technology and convenience. Secondly, reliability and durability are particularly emphasised. Most consumers expect the vehicle to "not have major problems after driving for a few years" and regard it as an important sign of quality if it is worry-free and durable. The saying "Toyota is indestructible" is widely circulated among Chinese consumers because Toyota cars are renowned for their reliability and durability. Many car owners believe that buying a Toyota will reduce the worry of repairs. 'Toyota is indestructible' is a well-known saying in the car market, mainly due to the reliability and durability of Toyota cars. This is evident from the good reputation of Japanese cars in China. Chinese consumers generally agree that Japanese brands "have fewer problems and are worry-free to use." Third, exterior design and ride comfort are also valued. Chinese consumers often regard spacious space as part of quality, and family cars generally hope that there is ample space in the back row and trunk. At the same time, they also expect fashionable styling and well-made interiors, believing that these will enhance the grade and quality of the vehicle. As a McKinsey survey shows in Figure 28, when consumers choose a car, they pay great attention to factors such as static experience (interior space, seat comfort, etc.) and collision safety, which are the top four considerations along with brand trust and car cost. Among them, "collision safety" is often regarded as an important part of quality. Many families will refer to collision test ratings such as C-NCAP when buying a car to judge the quality performance of the vehicle in terms of passive safety.

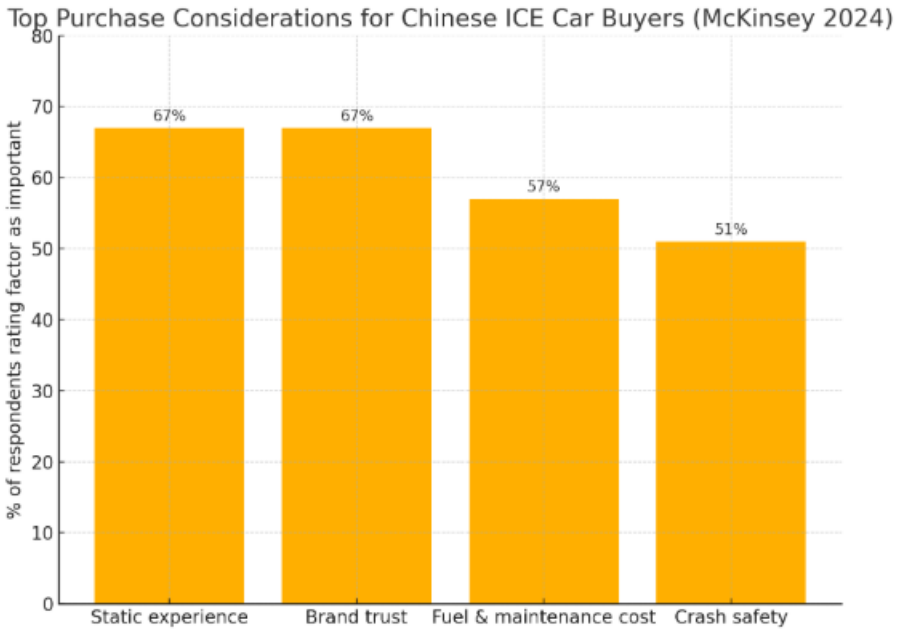


Figure 28 Source: McKinsey China Auto Consumer Insights 2024

China's cultural background and consumer psychology have shaped a unique perception of quality. Safety and reliability are prioritised, which is related to the Chinese family concept: buying a car is not just for you, but also for the safety of your family. According to a survey by the China Consumers Association, the most selected factor in response to the question "What do you care most about when buying a car?" is safety, which is considered more important than factors such as price and power. 'When buying a car, car safety performance has become the primary consideration for consumers.' Brand trust is also an important part of quality perception. Many Chinese consumers regard brand reputation as a guarantee of quality, believing that large manufacturers and well-known brands are more reliable. A McKinsey survey revealed that, for consumers of traditional fuel vehicles, 'trust in the brand' is one of the main factors influencing car purchase decisions. In the Chinese market, consumers' trust in domestic brands is growing, though foreign brands have long held a dominant position based on historical reputation. The concept of cost-effectiveness reflects Chinese consumers' unique understanding of quality — the pursuit of the highest possible quality and configuration within an acceptable price range. Cost performance can be described as a comprehensive balance of performance, configuration, reliability and price. For example, consumers will think a car is of "higher quality" if it has a richer configuration, is more economical to use and has a trustworthy brand at the same price. This sensitivity to value means that manufacturers must pay attention to both quality and cost in the Chinese market. For this reason, many domestic brands emphasise 'high configuration and low price', providing higher-level performance and configuration at a more affordable price to meet consumers' expectations of good value for money.

Culturally and psychologically, Chinese consumers also attribute unique meanings to the

concept of quality. On the one hand, the saying "those who have a large space will win the world" is particularly relevant in the 200,000 yuan family car market, where large space is equated with status and practicality. This makes manufacturers pay special attention to wheelbase and body size when designing models to cater to this preference for quality. On the other hand, long-term quality stability is highly valued. Experienced consumers are concerned not only with the absence of defects when the new car leaves the factory, but also with the car's performance after 5 or 10 years of driving. Therefore, service strategies such as extra-long and lifetime warranties are attractive in China because they convey confidence in durable quality. In short, Chinese consumers have a 'dual perspective' on product quality: on the one hand, they consider the technical quality of the car itself (hard indicators such as performance, durability and safety); on the other hand, they also consider consumer psychology and value (soft factors such as brand reputation, cost of use and 'face' considerations).

1.4.2 Chinese Consumers' Perspectives on Chinese Cars (Particularly, Evaluations of Their Quality)

Over the past two decades, the perception of Chinese brands owned by Chinese companies has evolved significantly. Initially labelled as 'cheap and low-quality', Chinese brands have gradually established a reputation for 'high quality and low price' through their actual performance, changing many consumers' perceptions. Research shows that, by 2024, self-owned brands will have narrowed the quality gap with mainstream international brands within three years. For example, in the 2024 New Car Quality Study (IQS) released by J.D. Power, the industry average number of failures per 100 vehicles (PP100) for new cars is 212. Chinese brands are close to this level, with some leading domestic manufacturers performing even better than the industry average. Reflecting on user satisfaction, as shown in Figure 29,the China Quality Association survey results also confirm this trend: in 2024, user satisfaction with domestic brand passenger cars reached 80 points, the same with the joint venture brands (80 points). This is a significant improvement on the 5-point difference seen in 2014. The quality image of Chinese brand cars is changing from 'low quality and low price' to 'reliable and affordable', and more and more Chinese consumers are beginning to recognise the improvement in the quality of domestic cars.

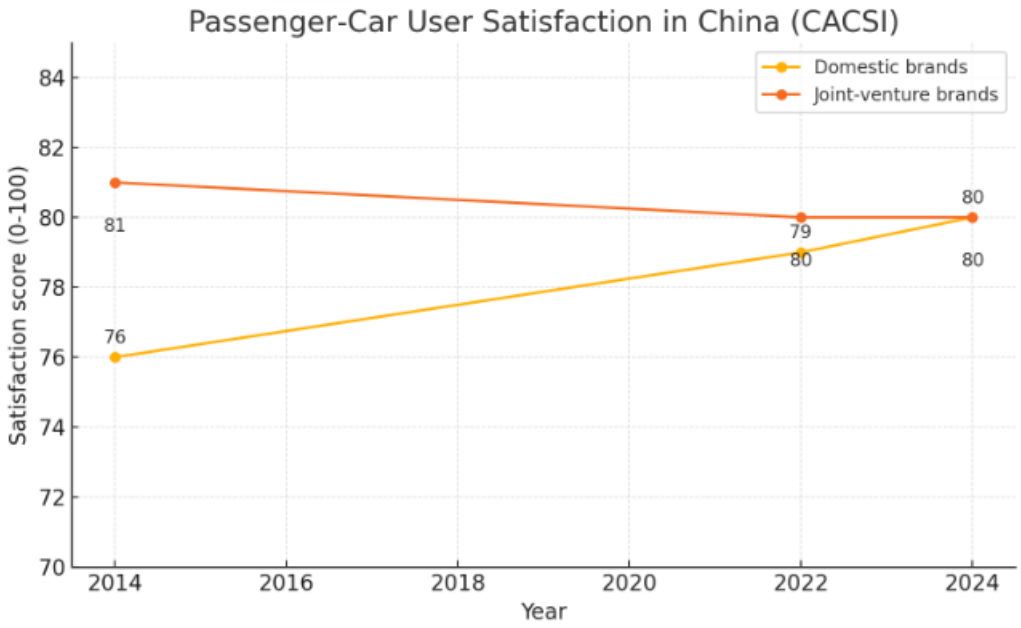


Figure 29 Source: China Quality Association

Objective quality improvement is the cornerstone of changing consumer perception. Many authoritative evaluations and data show that Chinese brands have significantly improved in terms of both new car quality and long-term reliability. In the annual new car quality study by J.D. Power, the average number of failures for domestic brands has declined year on year, and the gap with mainstream joint venture brands has narrowed. In the 2020 IQS report, 25% of Chinese brand car owners said that they bought domestic cars because of 'good quality or performance', which was almost 10 percentage points higher than in 2015. Conversely, the proportion of domestic car owners who bought cars primarily for affordability dropped from 12% in 2015 to 6% in 2020. This shows that an increasing number of consumers are choosing domestic cars because of their excellent quality rather than simply because they are cheap. In the 2024 J.D. Power China Auto Product Charm Index Study, brands such as Chery and Roewe won multiple model awards in market segments, demonstrating improved user satisfaction with regard to design and configuration. From the quality of new cars leaving the factory to reliable performance after a few years of use, it can be said that domestic brands are gradually building the 'hard power' that consumers trust.

Chinese brands have gained a competitive edge in the electric vehicle sector in recent years. Domestic car companies have taken the lead in electrification and intelligent networking, launching a large number of advanced pure electric and hybrid models. According to the McKinsey report, consumers' awareness of China's emerging electric vehicle brands is among the highest, with four of the five most well-known electric vehicle brands being Chinese. Chinese auto brands have established a 'high-tech, high-spec' reputation among consumers thanks to technological innovation.

As product strength improves, so does the popularity of domestic brands among Chinese consumers. As shown in Figure 30, A global survey shows that 93% of Chinese

respondents have a positive opinion of their domestic car brands, which ranks them among the highest of all national brands. This trust and support stems from the outstanding performance of domestic cars in recent years and includes a certain amount of national sentiment. However, it is also important to acknowledge that some consumers still have a wait-and-see attitude towards Chinese cars due to historical issues. Some users still remember the quality issues with domestic cars in the early years, and although they recognise that new domestically produced cars have high specifications and perform well, they are still concerned about long-term quality. For example, there are occasional comments on car forums such as: 'New cars are good to use, but I don't know how reliable they will be in a few years.' These consumers are cautious yet optimistic about domestic brands.

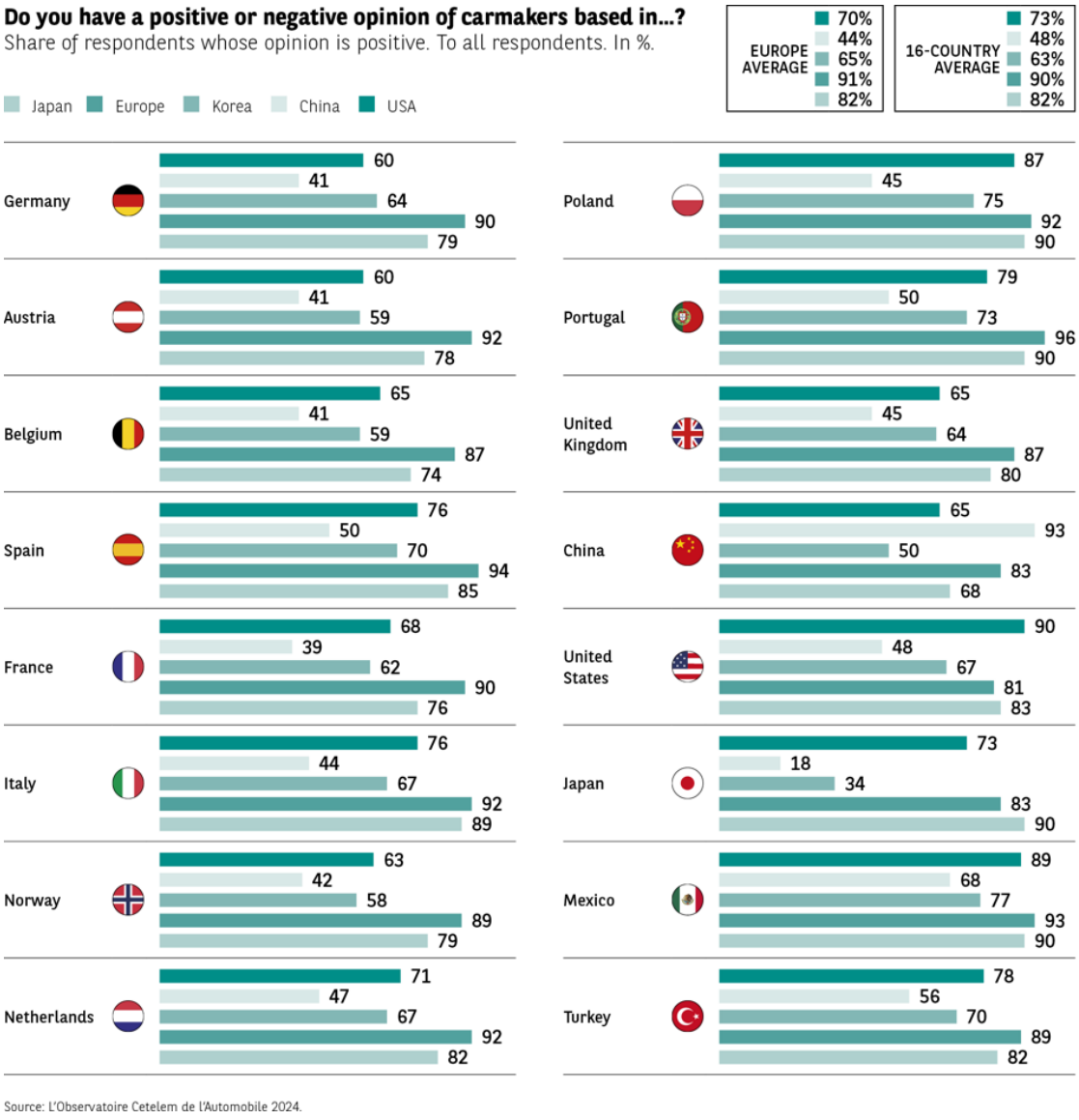


Figure 30 Source: L'Observatoire Cetelem

Feedback from consumers on well-known Chinese car platforms can provide a more vivid portrayal of this cognitive shift. For instance, a Great Wall Motors owner posted on Dongchedi (a popular Chinese car forum): 'Buying a domestically produced SUV is a

good option for those looking for a reliable vehicle. The quality of domestically produced cars has indeed improved in recent years." These words affirm the reliable and worry-free performance of domestic models. Another consumer, who had been waiting to see the joint venture, said: 'My friends bought domestic cars and drove them for five years without any major problems. I am also considering buying a new domestic car.' Clearly, word-of-mouth communication is dispelling doubts and encouraging more people to become domestic car owners. Of course, there are also a few rational voices: 'The quality of domestic cars is not bad now, but they don't hold their value as well as Toyotas and Hondas.' This involves factors such as brand recognition, and it will take time to close the gap. Overall, however, Chinese consumers' trust in and satisfaction with domestic brands is rising to unprecedented levels. As the China Quality Association pointed out: 'In recent years, the competitiveness of domestic brands has continued to increase, and market recognition and satisfaction have become increasingly high.' Today's Chinese consumers no longer equate "Chinese cars" with "cheap goods", but rather view them as a reliable, technologically advanced and cost-effective product choice. Chinese brands are shedding their low-quality image and achieving success in terms of both quality and user satisfaction.

1.4.3 Chinese Consumers' Perspectives on Japanese Cars

Japanese car brands have long enjoyed a reputation for reliability, fuel efficiency and durability among Chinese consumers. Japanese cars have long been synonymous with high quality in the Chinese market. Mainstream Japanese brands such as Toyota, Honda and Nissan have been deeply rooted in China for many years. Their products are renowned for their consistent quality and low failure rate, earning them the trust of consumers. Consumers consistently describe Japanese cars as "easy to drive and fuel-efficient". Many families consider these brands first when buying a car. This trust is not unfounded, but is based on years of experience of actual use and authoritative data. J.D. Power's vehicle reliability study (in Figure 31) shows that FAW Toyota ranked first in reliability among mainstream brands in 2024, with only 154 problems per 100 vehicles (PP100). This means that, on average, Toyota cars have only 154 problems per 100 vehicles after three to four years of use, which is far lower than the industry average of around 190. In comparison, second place in the same year among mainstream brands went to Guangzhou Honda with 172 problems per 100 vehicles, which puts Toyota in a clear leading position.

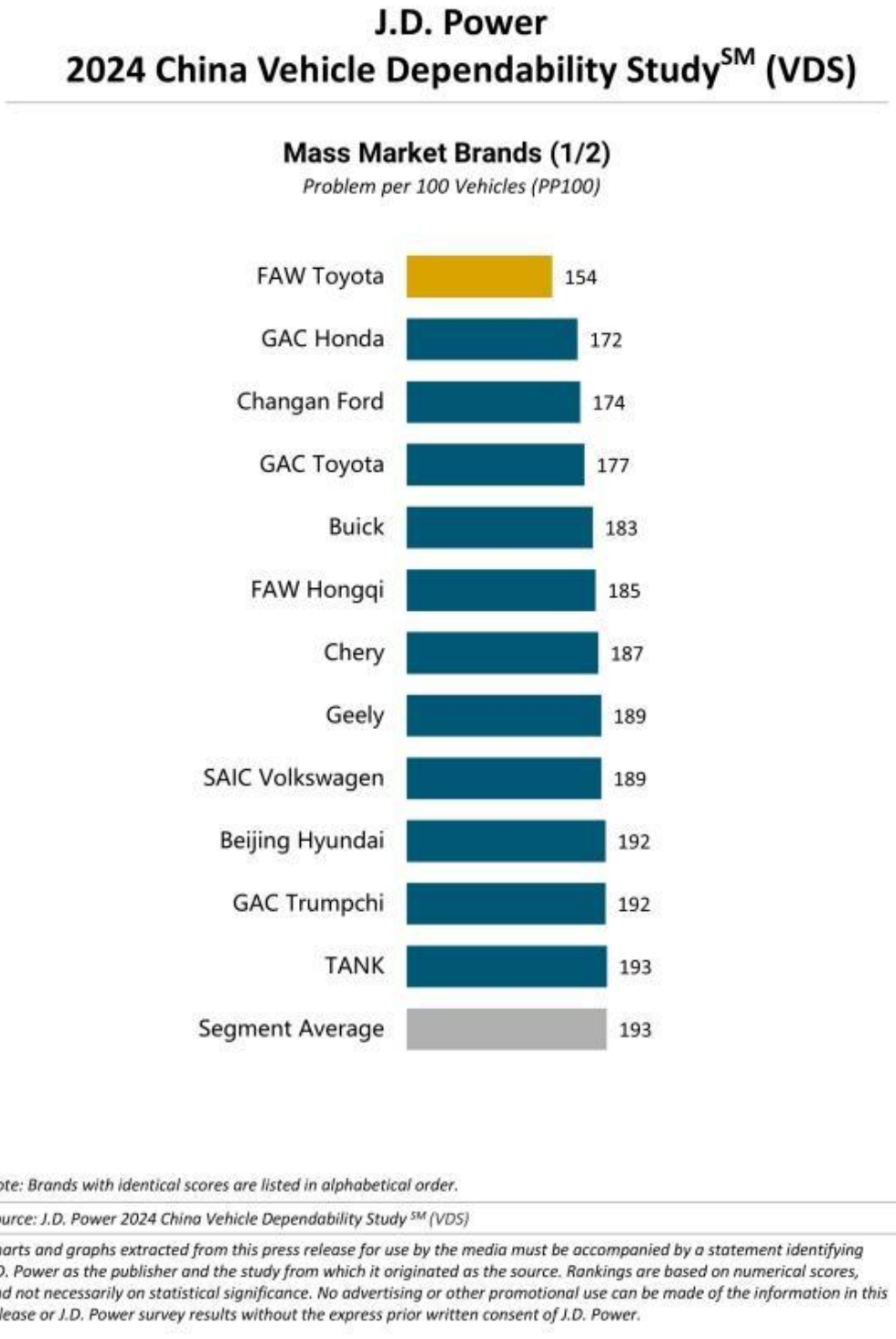


Figure 31 Source: the 2024 J.D. Power China Vehicle Dependability Study (VDS)

In terms of new car quality, GAC Honda has been ranked first among mainstream brands in China for five consecutive years. In 2024, it had an average of 195 failures per 100 cars, which was outstanding among all joint venture brands. These objective indicators confirm that Chinese consumers' evaluation of Japanese cars as 'excellent quality' is not prejudiced.

On Car Emperor, feedback from car owners such as "I have only done routine maintenance on my Corolla for 8 years and it has never left me stranded" is common, representing the true praise of many Japanese car owners for the vehicle's reliability. Of course, some non-product factors affect Chinese consumers' views on Japanese cars. The most typical of these is the political and historical context. Ups and downs in Sino-Japanese relations have impacted private consumption psychology. For example, around 2012, territorial disputes led to a wave of Japanese goods being boycotted in China, causing the sales of Japanese cars to fall sharply. However, the facts have proven that long-term quality is the determining factor. Whenever an incident subsides, rational consumers return to Japanese cars, and the market share of Japanese brands in China soon recovers. Following this, Japanese manufacturers also paid more attention to public relations and brand management in order to minimise the impact of historical factors. Judging by recent trends, young consumers born in the 1990s are less concerned about this issue and are more interested in the performance and reputation of the product itself. This means that Japanese brands can still maintain their strong appeal in fierce market competition thanks to their quality advantages. According to the survey shown in Figure 30**Error! Reference source not found.**, perhaps affected by geopolitical factors, the proportion of Chinese respondents who hold positive opinions on domestic automobile brands is as high as 68%.

In general, Chinese consumers' evaluation of Japanese brand cars can be summarised as follows: 'Buy with confidence, drive with peace of mind.' This trust stems from the decades-long reputation of Japanese cars for high reliability, as well as the positive word-of-mouth recommendations from consumers. It is foreseeable that, for a long time, Japanese brands will remain an important symbol of high-quality cars in the eyes of Chinese consumers, particularly in the family car sector. The reliability, durability, economy and fuel efficiency that Japanese brands emphasise align with the most essential car needs of Chinese consumers.

1.4.4 Chinese Consumers' Perspectives on American Cars

The image of American cars among Chinese consumers is both positive and negative. Traditional American cars are associated with the idea of a "big body, strong power, and comfortable driving". When many Chinese consumers think of American brands such as Buick, Ford and Chevrolet, they think of large bodies, heavy materials and powerful engines. This is because American car companies focus on large-displacement engines and solid chassis to provide excellent straight-line acceleration and driving stability. Consequently, many consumers comment that American cars 'feel safe to drive and are particularly stable at high speeds', believing them to be sturdy, crash-resistant and solidly built. At the same time, American models often have a variety of features and are good value for money, such as electric seats, automatic air conditioning and car audio systems, which were often found in joint venture cars in the past. This gives some consumers the impression that American cars 'use real materials and are very honest'. However, American cars also have some negative connotations in China. The first is high fuel consumption: Due to their heavy weight and large engine displacement, traditional American cars

generally have high fuel consumption. In an era of rising oil prices, this makes consumers who prioritise economy concerned about American cars. Secondly, many people stereotype American cars as not being as refined as German or Japanese cars. Some people joke that American cars have rough interiors and assembly processes, with large gaps and average materials. Although they are strong, they are not considered refined enough. These perceptions mean that American brands are the 'third choice' after German and Japanese brands for some consumers.

It should be noted that American cars are not actually much inferior in quality, and some of these evaluations are stereotypical. Objective data also shows that the quality level of American joint venture brands has improved in recent years. In the 2024 China Automobile Industry User Satisfaction Evaluation (in Figure 32), American brands scored 80 points, tying with Japanese brands and coming second only to German brands and Japanese brands, which scored 81 points. The scores "German 81 points, Japanese 81 points, American 80 points, Korean 79 points" show that American car owners still recognise the quality of their vehicles overall.

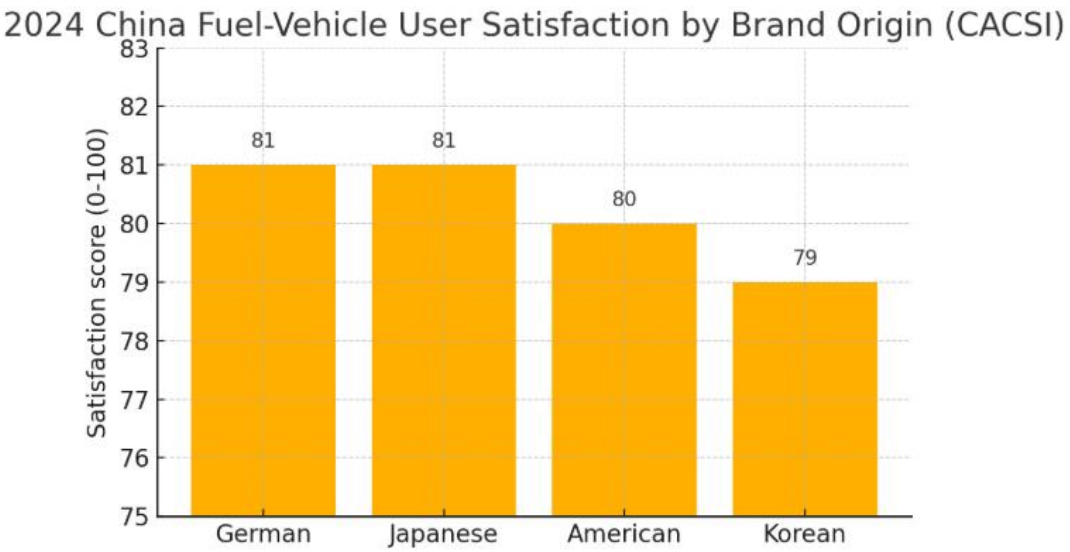


Figure 32 Source: China Quality Association

In recent years, Tesla, a representative of American new energy brands, has particularly set off a trend of electric vehicles in the Chinese market. Many young consumers regard Tesla as a "fashionable American technology brand" and admire its autonomous driving function and acceleration performance. This has enhanced the technological and avant-garde image of American cars to a certain extent.

Nevertheless, American brands are still considered slightly less appealing than German and Japanese brands by consumers, as reflected in purchasing behaviour and loyalty. Low brand loyalty is one of the problems faced by American cars in China. Unlike Japanese car owners, who often 'change cars but not brands', many American car owners tend to try German or Japanese cars for their next vehicle. One reason for this is that quality fluctuations and service problems with American cars in the past have reduced brand

loyalty. For example, a certain American SUV was recalled due to a gearbox failure, which sparked heated discussions online and caused many potential customers to switch to other brands. This kind of negative reputation is very harmful to the brand and takes many years to recover from. Chinese consumers react strongly to quality issues. Once a brand receives a high volume of complaints, consumer trust quickly disappears. Therefore, American brands need to maintain stable quality control to prevent all previous efforts from being wasted. In terms of social factors, American cars are not considered as luxurious as German cars or as reliable as Japanese cars. Some Chinese consumers who prioritise status prefer German luxury brands such as BBA (Mercedes-Benz, BMW and Audi), believing them to be of a higher quality. In contrast, although Cadillac and Lincoln have also worked hard to create a high-end image, they are not perceived as highly as German brands. In the Chinese auto industry, there is a saying that "whoever gets BBA gets the world" to describe the luxury car market, and American luxury cars have not managed to shake this pattern. This has led some consumers to believe that it is better to spend a little more money on a BMW than a Cadillac in order to gain greater recognition within their social circles. This concept poses challenges to the expansion of American brands in the high-end market.

Combined with actual consumer feedback, the diversity of evaluations of American cars becomes more apparent. One car owner praised: 'The chassis of American cars is heavy and safe, and they are very stable at high speeds. I chose it for this reason." This shows that consumers recognise the safety and durability of American cars. However, some car owners also complained: 'The car has good power, but there are constant minor problems and the fuel consumption is a bit high.' This reveals the dissatisfaction and regret of another group of users. Overall, Chinese consumers' views on American brands have evolved from simple praise and criticism to a more rational and comprehensive evaluation stage. They recognise the advantages of American cars in terms of power, safety and space, but also consider practical factors such as fuel consumption and resale value. When considering American cars at the same price as Japanese and German brands, consumers will carefully weigh up the performance configuration to see if it is worth the slightly higher fuel consumption and uncertain residual value. If the answer is yes, they are willing to pay extra for an American car that performs well and is affordable. American brands also have the opportunity to win back market share in urban areas thanks to technological advances. For example, Tesla is leading the Chinese high-end electric vehicle market, which undoubtedly strengthens the perception that "American cars = advanced technology".

1.4.5 Chinese Consumers' Perspectives on European Cars

1.4.5.1 German Cars

In the eyes of Chinese consumers, European cars, particularly those from Germany, have always been synonymous with quality and luxury. German manufacturers such as Volkswagen, Mercedes-Benz, BMW and Audi have a long-standing presence in China and a strong brand image that is deeply rooted in the hearts of the people. When it comes to

German cars, consumers often think of exquisite craftsmanship, high-quality materials, and a rigorous approach to car manufacturing. Volkswagen entered the Chinese market nearly 40 years ago and has become renowned for its "sturdiness and durability". From the old Jetta to the current Lavida and Passat, the brand has consistently delivered a solid and reliable impression. Mercedes-Benz and BMW have taken this a step further, equating German cars with 'luxury' — whether it's the classic three-pointed star or the blue and white emblem, both are regarded as status symbols. In terms of consumer perception, it can be said that German cars have successfully created a golden signboard of 'excellent quality and high grade'. In Figure 30, Authoritative surveys confirm this: 83% of respondents worldwide have a positive view of European brands, ranking them among the best in various countries. 'The image of European car companies is positive in the minds of 80% of consumers', showing their good reputation. Although there are slight differences between countries, consumers in China, the United States and Japan generally have a positive view of European brands, although they are somewhat reserved due to factors such as domestic industrial competition. In the 2024 China Quality Association satisfaction survey, German joint venture brands achieved an average user satisfaction score of 81, ranking first overall. This once again proves that Chinese consumers generally believe that German cars lead the way in terms of quality.

From a consumer psychology perspective, social status recognition is one of the main reasons why German luxury cars are so popular in China. For many Chinese consumers, owning a Mercedes-Benz or BMW is not just a way to get from A to B, but also a symbol of identity and success. Many people associate driving a Mercedes-Benz or BMW with having a successful career and exceptional worth. Driven by this 'face culture', consumers are willing to pay for the iconic car logo, even if German luxury cars are expensive. Through years of marketing and word-of-mouth management, German brands have also successfully positioned themselves as symbols of a high-quality lifestyle. When consumers purchase a Mercedes-Benz S-Class or a BMW 7 Series, they are buying more than just a car; they are buying the social recognition and pride that comes with it. Brand loyalty is also particularly prevalent among German car owners. For example, an Audi owner may upgrade within the Audi brand, progressing from an A4 to an A6 and then an A8. Similarly, when BMW owners change cars, they are likely to choose new BMW models. This loyalty is based on continued trust in the quality of the brand, and also on brand culture that fits consumers' personal tastes. Many German luxury car owners regard their vehicles as part of their identity and form an emotional connection with the brand, making them difficult to poach. This differs somewhat from the loyalty associated with Japanese brands: Japanese brands rely on 'worry-free and practical' features to retain users, whereas German luxury brands rely on a 'sense of identity and brand belonging' to retain customers.

German brands are not only successful in the luxury sector, but also have a strong reputation in the affordable joint venture car market. Volkswagen, for example, is known as a "magic car" in China. For decades, sales of Volkswagen models such as the Jetta, Santana, Lavida and Bora have boomed, thanks to their reputation for consistent quality. Many consumers' first car is a Volkswagen, and the reason is simple: 'I believe in

Volkswagen's quality.' Despite disturbances such as the Volkswagen DSG gearbox recall incident, the brand quickly took measures such as an extended warranty and improvements to restore its reputation, and overall trust in the Volkswagen brand was not fatally affected. This demonstrates that German brands enjoy a high level of trust among consumers, and that the occasional problem will not easily shake this foundation. Chinese consumers also have a saying: 'Toyota in the world, Volkswagen in China', meaning that Toyota is the world leader in sales, while Volkswagen dominates the Chinese market. This reflects the fact that, in the eyes of the Chinese people, Volkswagen is a brand that is as reliable as Toyota, a phenomenon that is unique to the Chinese market. In the used car market, German joint venture models such as Volkswagen also retain their value well, reflecting the market's recognition of their durability. For instance, a five-year-old Passat can still fetch a good price because buyers believe that 'German cars are built to last'. This has strengthened the cycle of consumer confidence in the quality of German cars: large number of cars → widespread word-of-mouth → new users can buy with confidence. However, as Chinese brands rise and new forces enter the automotive industry, German brands are beginning to face new challenges. Some young consumers are losing interest in traditional German models with conservative styling, instead pursuing the intelligent experience of electric vehicles. Nevertheless, it is foreseeable that German brands, with their strong reputation for quality, will continue to set the standard by which Chinese consumers judge the quality of cars.

1.4.5.2 Other European Cars (French and Italian Cars)

French cars were once popular with some Chinese consumers thanks to their romantic and fashionable designs. However, French brands' development in China can be described as a case of high hopes followed by disappointment. In recent years, quality and service issues have damaged their reputation and caused their market share to plummet. From the late 1990s to the early 2000s, models such as the Shenlong Fukang and the Peugeot 307 gained a reputation in the Chinese market thanks to their avant-garde appearance and high-quality chassis. At that time, consumers felt that French cars had solid chassis and flexible handling, and were very 'French romantic' compared to the Santana and Jetta, which were more typical of the period. However, as competition intensified, the inherent shortcomings of French cars gradually became apparent: Firstly, they do not fully understand the needs of Chinese consumers and their car design concepts are often considered 'wild and unrealistic' and out of touch with reality. For example, Dongfeng Citroën once launched a C3-XR crossover car that mixed sedan and SUV elements and its strange shape made it difficult for consumers to accept. Some media outlets commented that the cars were "too individual", had "anti-human" designs, were of average quality and poor value for money, all of which dissuaded Chinese consumers, reflecting the negative impression of French cars held by many consumers. Peugeot and Citroën once won niche fans with their unique designs, but their reputation for quality failed to keep up. Coupled with the dominance of German and Japanese brands, French cars were almost marginalised.

Italian brands have a weaker presence in the Chinese market. Fiat entered China twice and withdrew twice; the most recent withdrawal was in 2018. In 2017, the sales volume of the

Fiat brand in China was only 3,714 units, which was bleak. Reasons for this include insufficient product competitiveness, low brand awareness and a weak after-sales network. Although Italian brands such as Alfa Romeo are renowned for their performance, they lack a foundation in China and have minimal sales. Mainstream Italian brands are essentially absent from the Chinese market. Consumers do not have a clear impression of them because they are almost invisible on the market. The only brands that represent Italian cars are in the luxury supercar sector: Ferrari, Lamborghini and Maserati. While these brands are beyond the budget of most consumers, their exceptional performance and luxurious positioning have earned them a special place in people's hearts. China's wealthy individuals and car enthusiasts hold Ferrari and Lamborghini in high regard, believing that they embody the pinnacle of automotive craftsmanship and passion. Some young car enthusiasts regard owning a Ferrari sports car as the ultimate dream and believe that Italians have a unique talent for manufacturing sports cars. This success in the high-end sector gives Italian brands a place in the public consciousness. In summary, Chinese consumers have a polarised view of Italian cars: ordinary brands are barely noticed and cannot be evaluated, while luxury supercars are seen as toys at the top of the pyramid.

Conclusion of Literature review

This literature review shows that product quality is one of the most important factors influencing Chinese consumers' decisions to purchase a car. While the quality of Chinese domestic brands has improved significantly in recent years, closing the gap with international brands, whether this progress can be sustained in the short term depends on current quality improvement efforts.

Shortcomings in quality can be overcome, but this requires joint efforts from manufacturers, industries, and policymakers to improve quality comprehensively at all levels. This requires substantial investment and long-term commitment; otherwise, it will be more challenging and expensive to rebuild the quality image in the future. Manufacturers must choose between continuing to prioritise short-term sales and profits, which sacrifices quality investment to a certain extent, or temporarily slowing down revenue growth to lay the foundation for a lasting quality reputation.

Product quality is directly related to consumer safety and user satisfaction. Although consumers have many choices, including internationally renowned brands and emerging new energy models, they still face similar quality issues because any automotive product must be reliable and durable. Some quality risks are not obvious at the time of purchase. For example, issues relating to the durability of electric vehicle batteries and service guarantees often only become apparent later, and the challenges they present are no less significant than those of traditional fuel vehicles. Chinese consumers' understanding of 'quality' is influenced by policy guidance and cultural background. On the one hand, it includes hard indicators such as the performance and safety of the car itself. On the other hand, it involves soft values such as brand reputation, cost of use, and face. Further investigations and research based on this understanding are therefore necessary to gain a deeper understanding of the actual impact of product quality factors on Chinese consumers'

car purchase decisions.

2. Survey

2.1 Data Collection

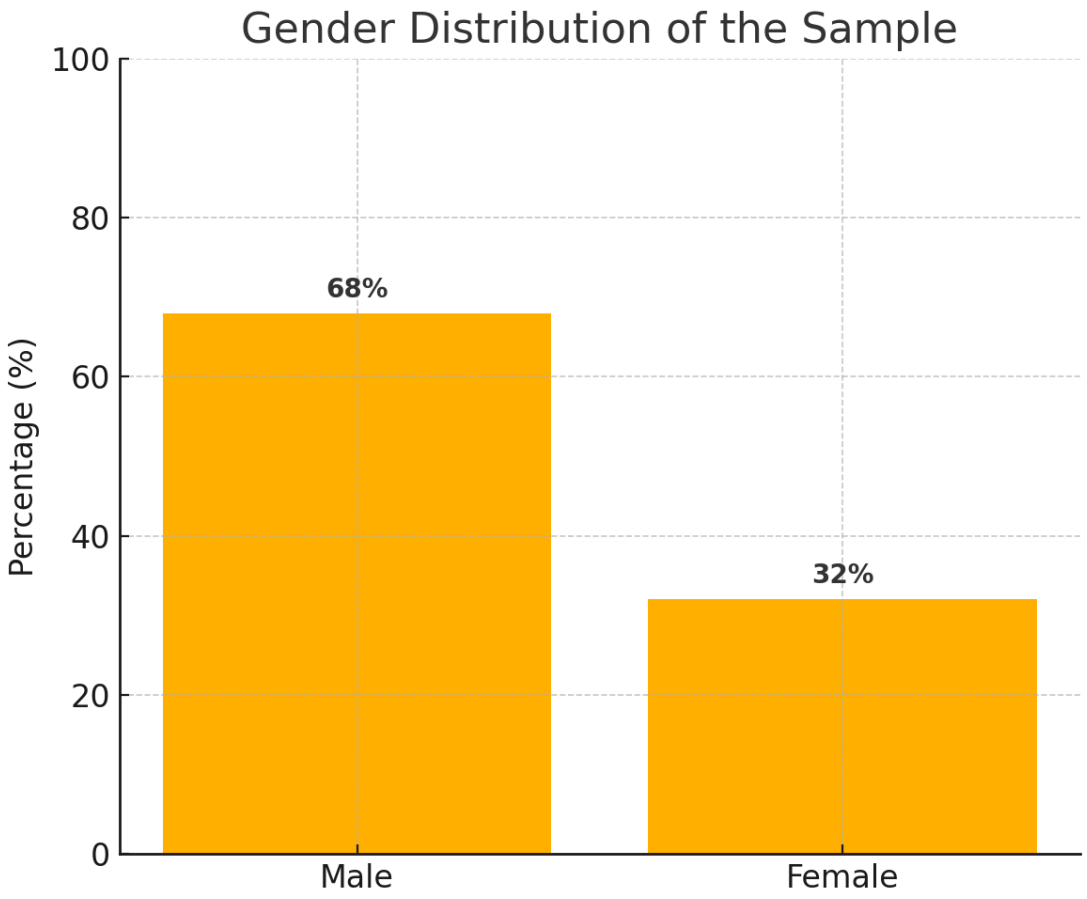
Data for this study were collected using a questionnaire survey. The 24-question survey was designed to assess the perceptions and preferences of Chinese consumers regarding product quality dimensions during the car-buying process. It included questions on the degree of preference for car brands from different countries (e.g. China, Japan, Germany and the United States), the importance attached to factors such as performance, safety, durability, exterior design and brand reputation during the car-buying process, how car information is obtained, and the basic demographic characteristics of the respondents (e.g. gender, age, income, occupation and education level).

The questionnaire used a 5-point Likert scale for quantitative evaluation. For example, when evaluating the importance of car-buying factors, 1 means 'very unimportant' and 5 means 'very important'. This method helps quantify the factors influencing consumer preferences and verifies subsequent hypotheses.

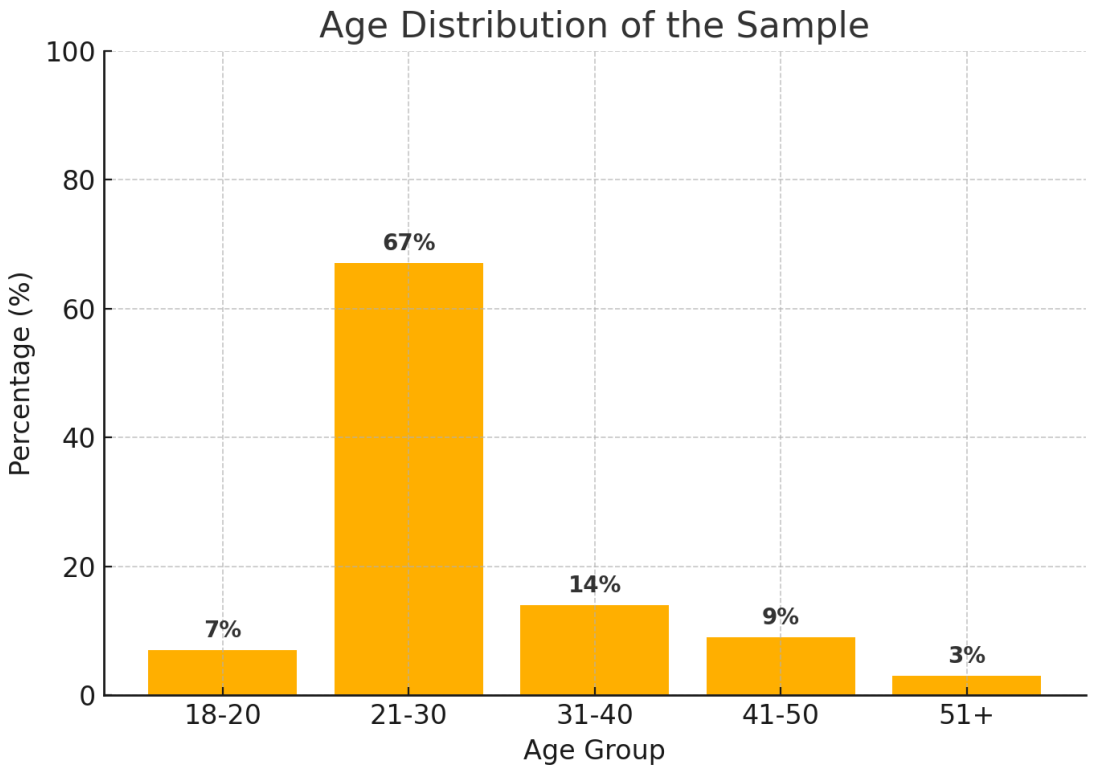
The questionnaire was distributed online via the Questionnaire Star platform and was widely disseminated through major social channels, such as WeChat and QQ groups. The survey subjects were college students, social practitioners and ordinary residents from various cities. Ultimately, 102 valid questionnaires were collected. The data obtained from the survey were entered, sorted, and analysed uniformly using IBM SPSS Statistics software. (Please refer to the Appendix for the detailed questionnaire.)

2.2 Data Analysis

The sample comprises 69 males (68%) and 33 females (32%). The ratio of males to females is generally about half and half, but this may be due to the randomness of the sample.

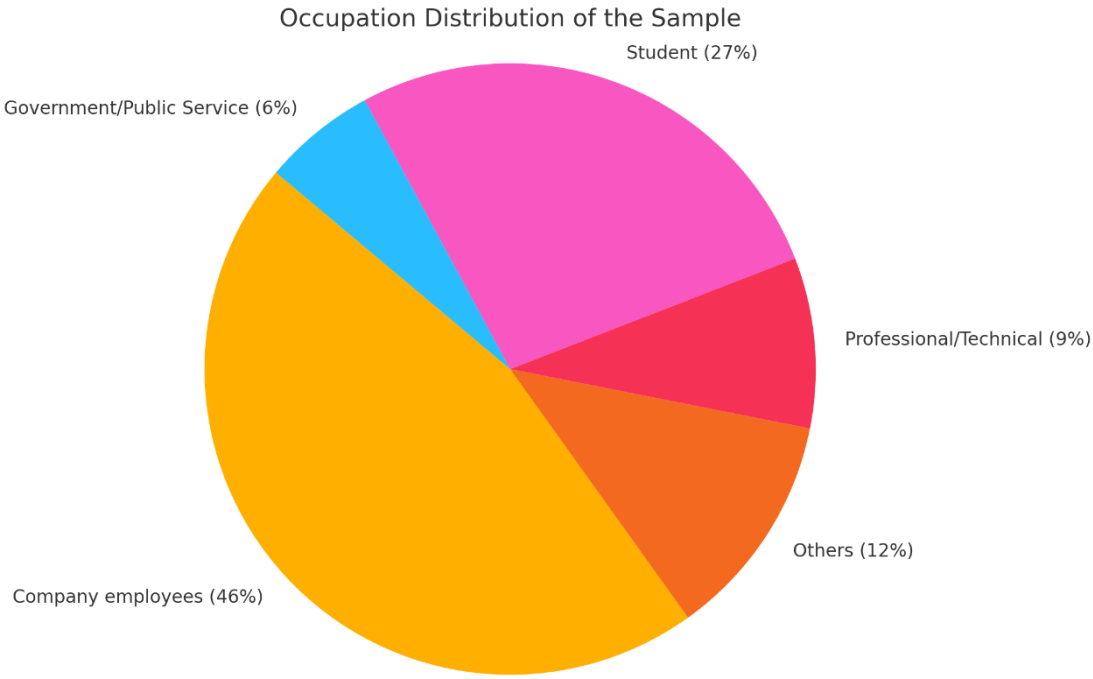


The average age of the sample is 30 years old. 67% of the sample are aged between 21 and 30, 14% are aged between 31 and 40, 9% are aged between 41 and 50, 3% are aged over 51, and 7% are aged between 18 and 20. Overall, the sample is dominated by young people.

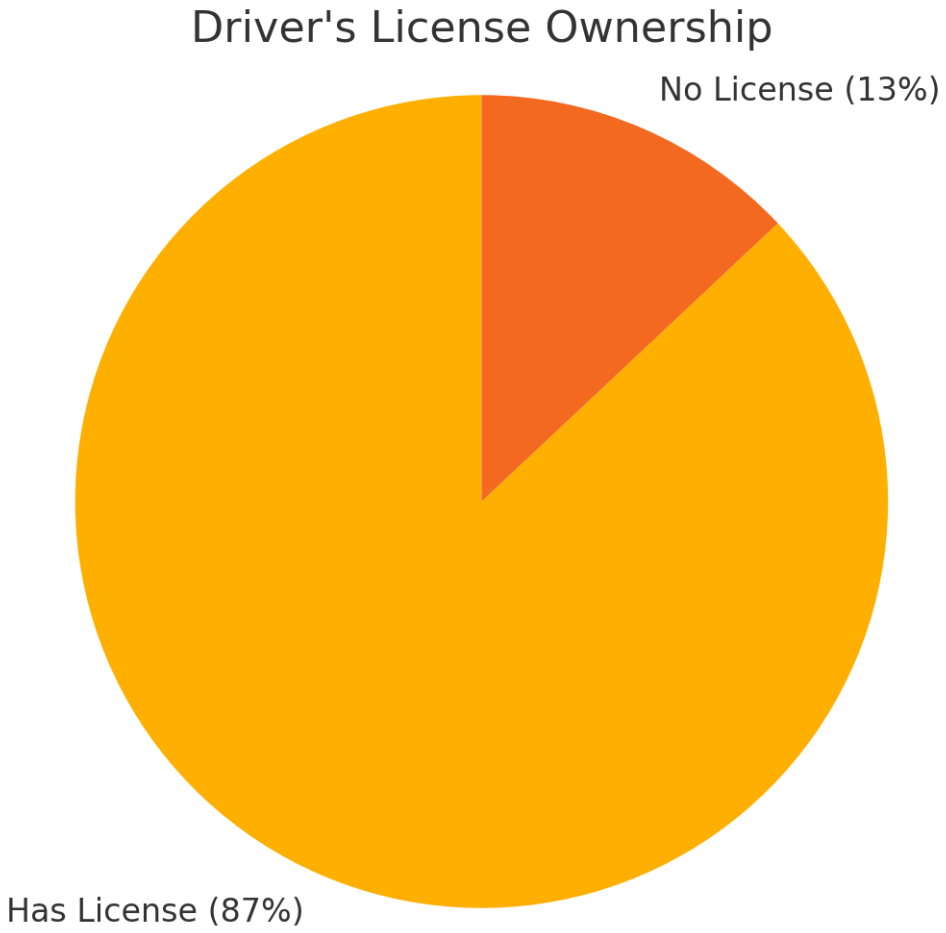


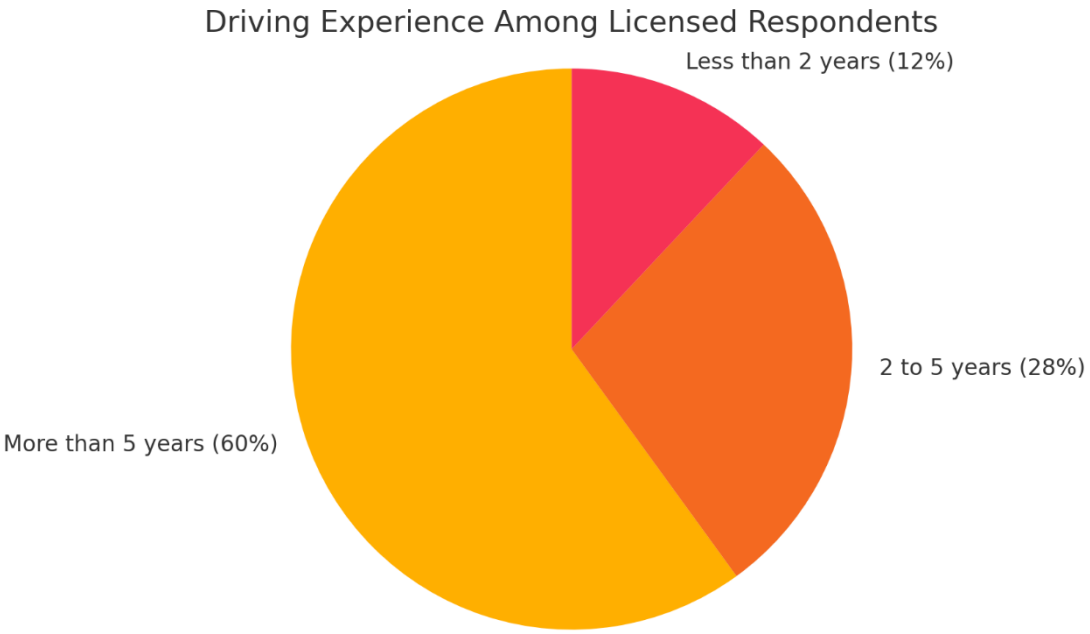
Geographically, the samples mainly come from Chengdu, Sichuan (including Chengdu city), accounting for about 40% of the samples, followed by Beijing, Guangdong, Shanghai, Zhejiang and other places, with a relatively wide geographical distribution.

In terms of occupation, 46% were company employees, followed by 27% students, 12% were in other occupations, 9% were professionals/educators, and 6% were government employees.

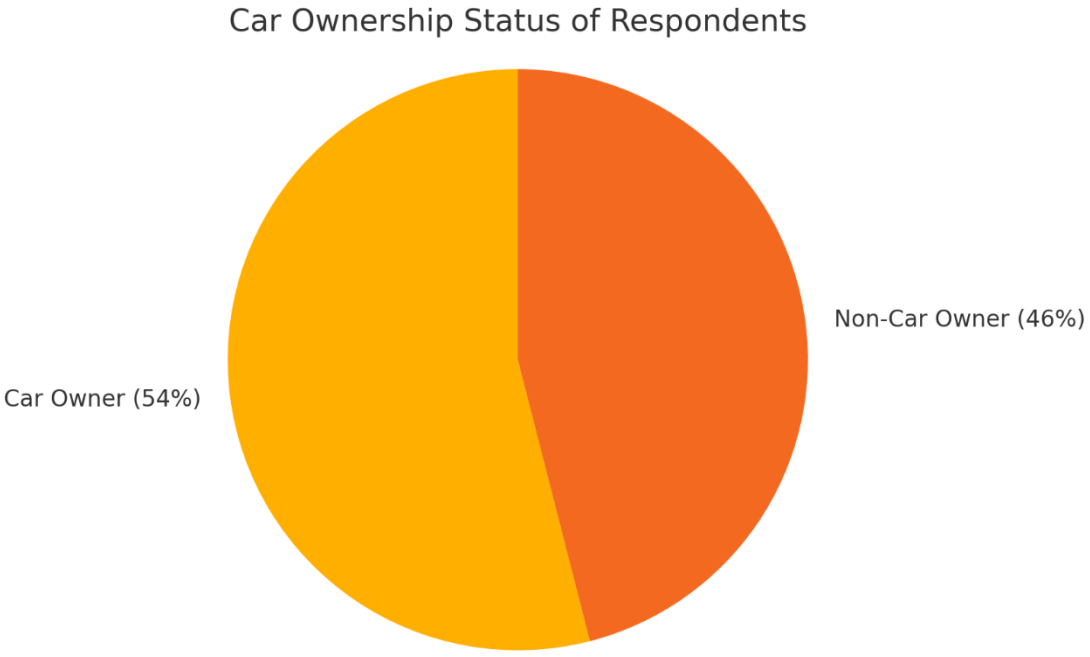


Of the respondents, 87.3% hold a driving licence. Of these, around 59% have over five years' driving experience, 28% have two to five years' experience, and 12% have less than two years' experience. This indicates that this group has extensive driving experience and can therefore evaluate and compare the quality of automotive products more reliably. This provides an effective basis for the subsequent analysis of product quality perception.



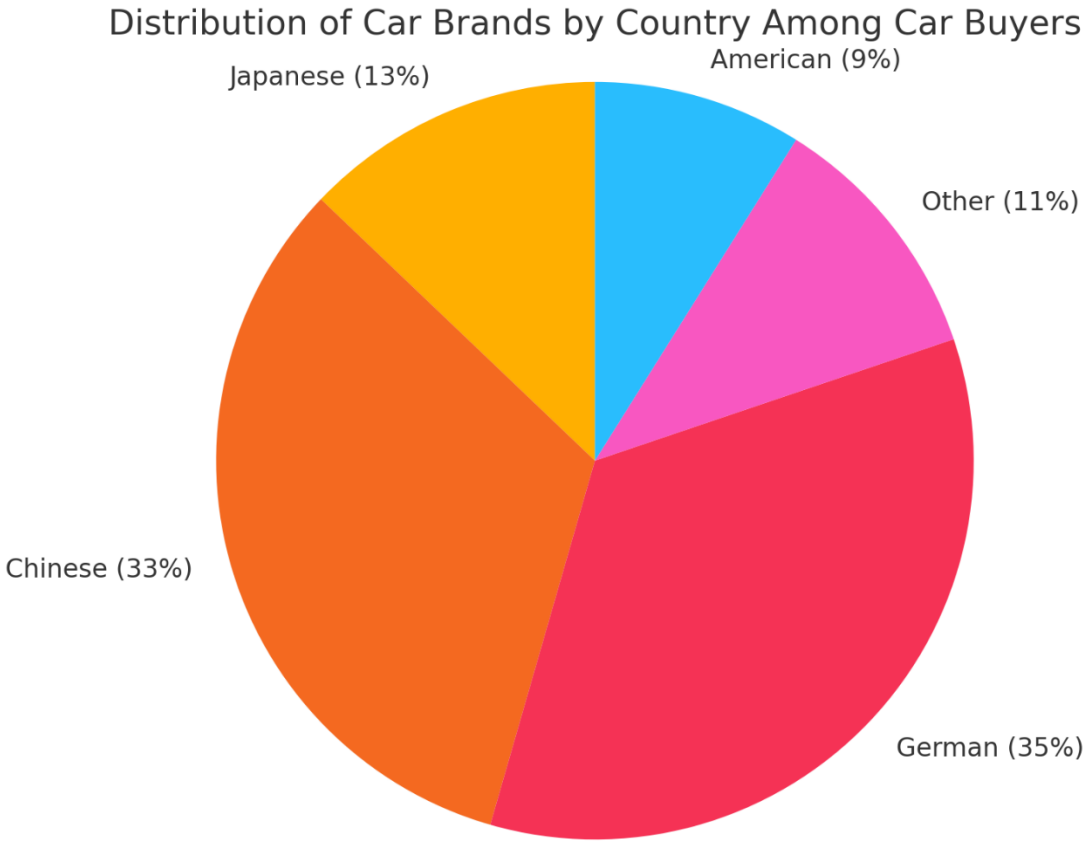


In addition, 55 respondents, accounting for 54%, already have a car; 47 respondents, accounting for 46%, do not have a car yet.

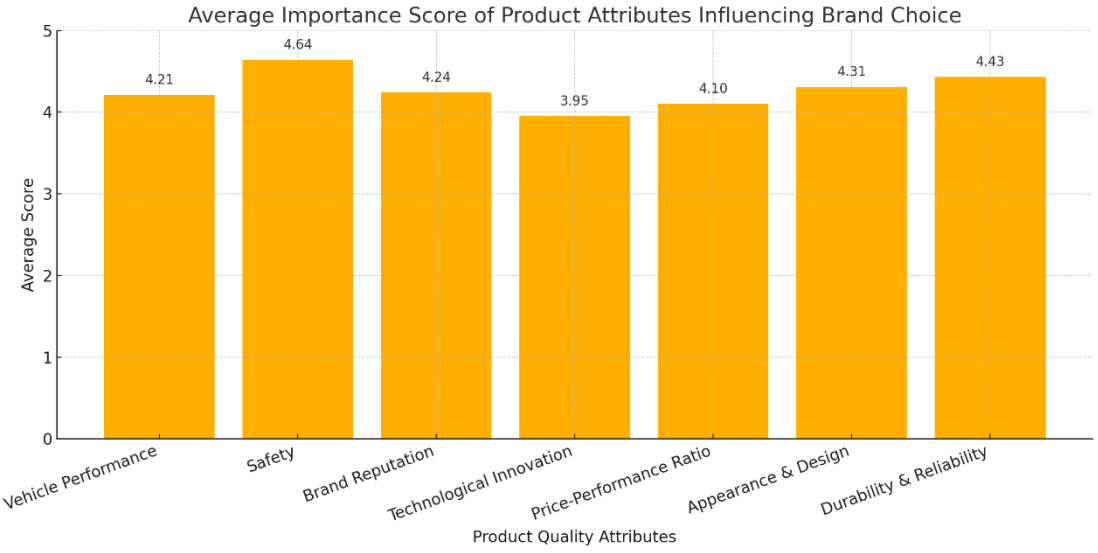


Those who have already purchased cars own a variety of brands, including joint ventures or imports such as Volkswagen, Toyota, BMW, Mercedes-Benz and Audi, as well as local Chinese brands such as BYD, Geely, Great Wall and Nio. Data shows that German brands account for the largest proportion (35%), followed by Chinese brands (33%). Japanese brands account for 13%, American brands for 9%, and brands from other countries, such as Swedish Volvo and French Citroën, for 11%. This is consistent with the literature review's view that foreign brands, especially German ones, have long dominated the Chinese

automobile market.

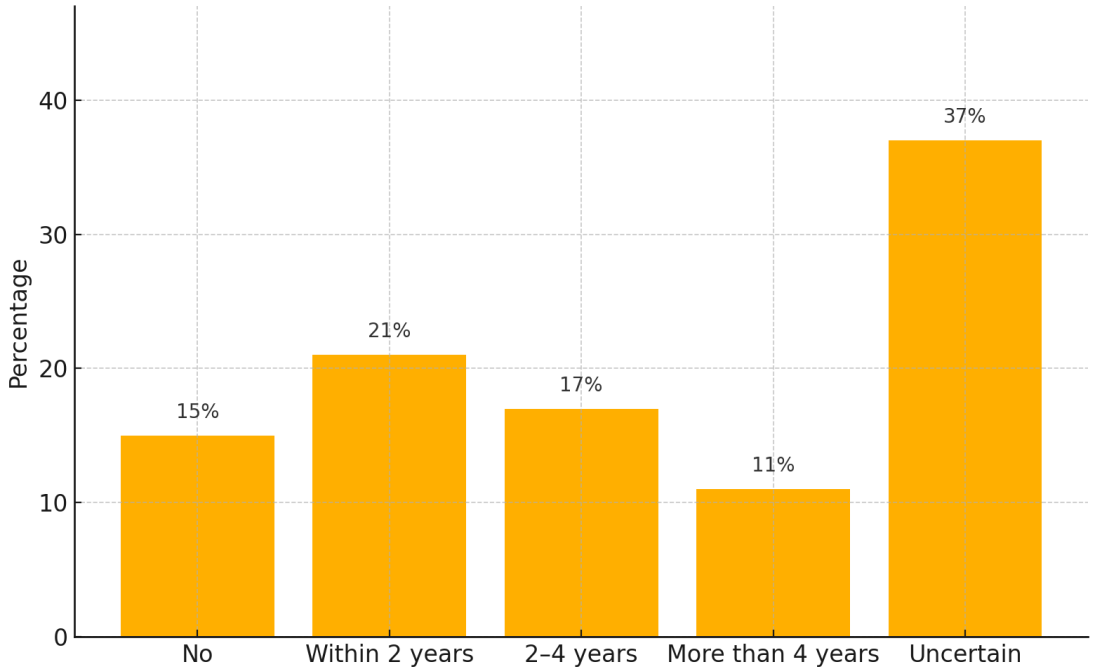


The main factors that influenced their decision to buy this car were safety, durability and reliability, which scored 4.64, 4.4 and 4.4, respectively. Technological innovation and appearance design were slightly lower, but still highly valued.

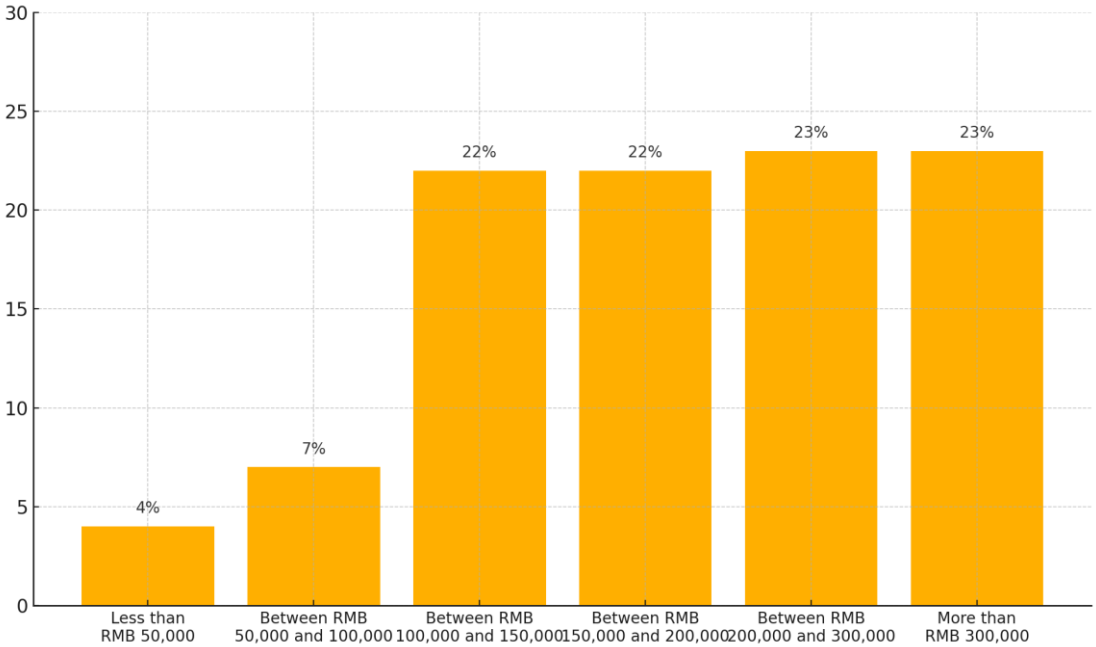


When it came to future car purchase plans, 48% of respondents said they had definite plans: 21% intended to buy a car within two years, 17% within two to four years, and 11% after four years. Another 37% were unsure and would decide based on circumstances,

while 15% had no plans to buy a car, preferring public transport. The data shows that there is relatively strong potential demand for car purchases among the sample group, but a considerable proportion of people are either waiting or have no current plans.

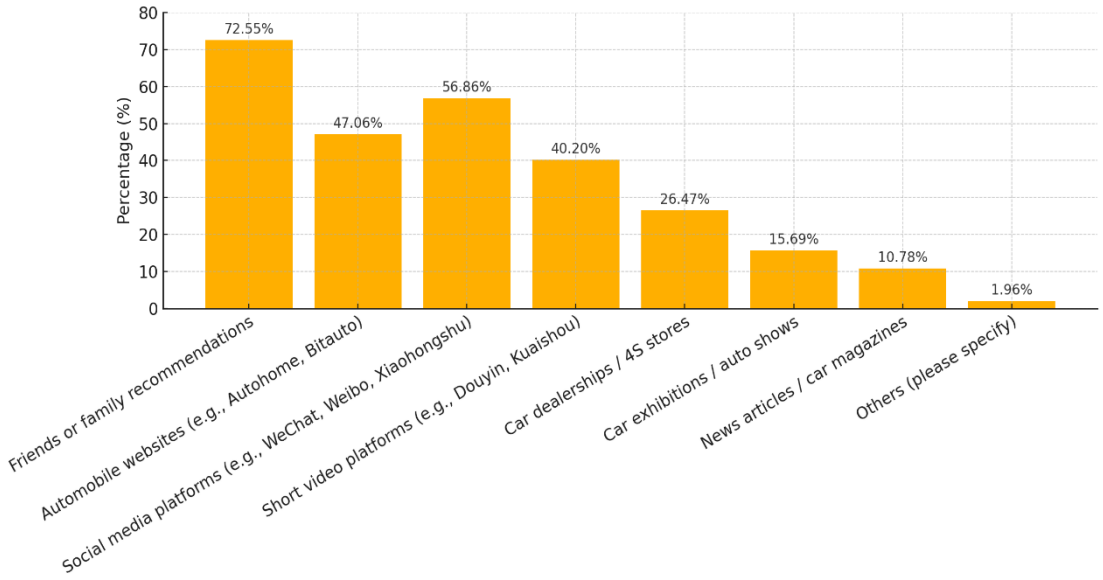


In addition, 22% of respondents are willing to spend between 100,000 and 150,000 yuan; 22% between 150,000 and 200,000 yuan; 23% between 200,000 and 300,000 yuan; and 23% more than 300,000 yuan. Only 11% are willing to spend less than 100,000 yuan. This suggests that the average consumer car purchase budget is currently higher, with most people looking to spend between 100,000 and 300,000 yuan.



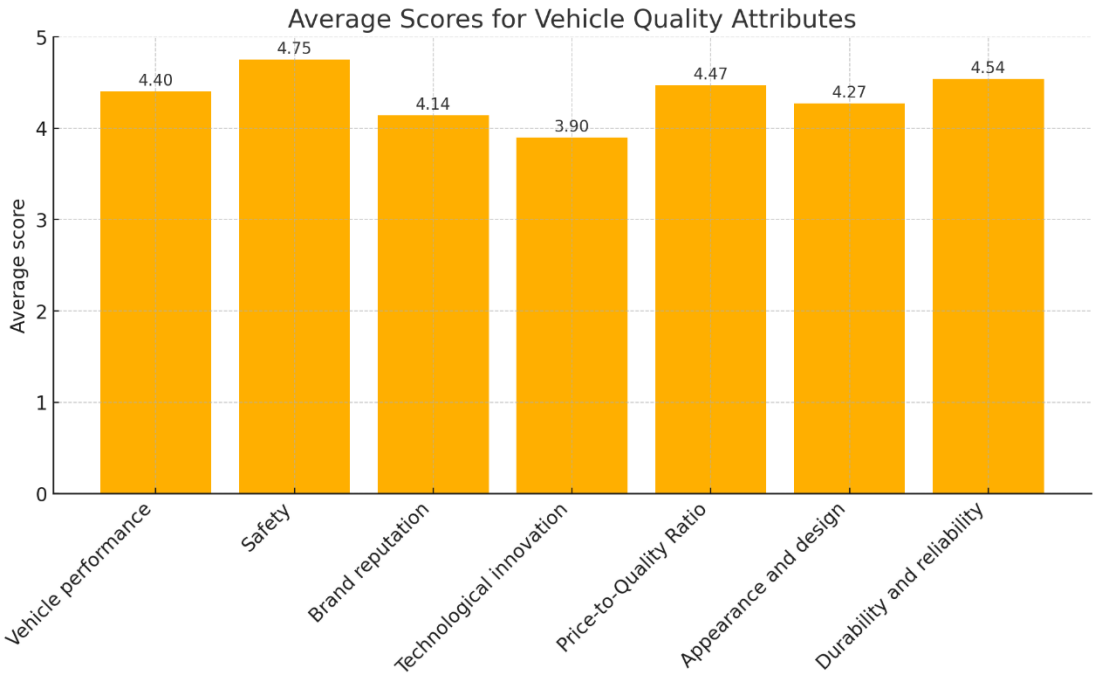
The survey also explored the main channels through which consumers obtain automobile

information. The results showed that the top two were recommendations from relatives and friends (chosen by around 72.5% of respondents) and social platforms such as WeChat and Xiaohongshu (chosen by around 56.9%). This indicates that word-of-mouth communication and social media are the most important ways for consumers to obtain information about cars. Automobile vertical websites (such as Autohome and Bitauto, chosen by around 47.1%) and short video platforms (such as Douyin and Kuaishou, chosen by around 40.2%) followed closely behind. In contrast, traditional physical channels such as 4S stores/offline dealers (26.5%), automobile exhibitions (15.7%), and news media such as television and newspapers (10.8%) were chosen less frequently. Today, consumers rely more on emerging internet media to obtain information, reflecting the digital transformation of information channels. However, regardless of how the media changes, consumers still place great importance on direct word-of-mouth recommendations from relatives and friends, as was particularly evident in this survey.



When asked how important various factors were when buying a car, the sample population gave high ratings to each car quality attribute, with an average score of around 4 points or above indicating that these factors are generally considered relatively important. The average score for the safety dimension was the highest at 4.75, indicating that car safety is regarded as the most important factor by the vast majority of consumers. Next came durability and reliability (4.54) and cost-effectiveness (4.47), reflecting the fact that consumers also attach great importance to vehicle durability and reliability, and to achieving a good balance between price and value. Vehicle performance (4.40) and appearance and design (4.27) were rated second and third respectively. Brand reputation (4.14) and technological innovation (3.90) received relatively lower average scores, but still higher than the median value of 3 points. This indicates that, although consumers pay less attention to these two factors, they are still considered relatively important overall. In summary, respondents prioritise the fundamental attributes of a car, such as safety, protection and durability, and also consider the price to be reasonable; in contrast, brand awareness and new technology are not considered to be as important. Additionally, a

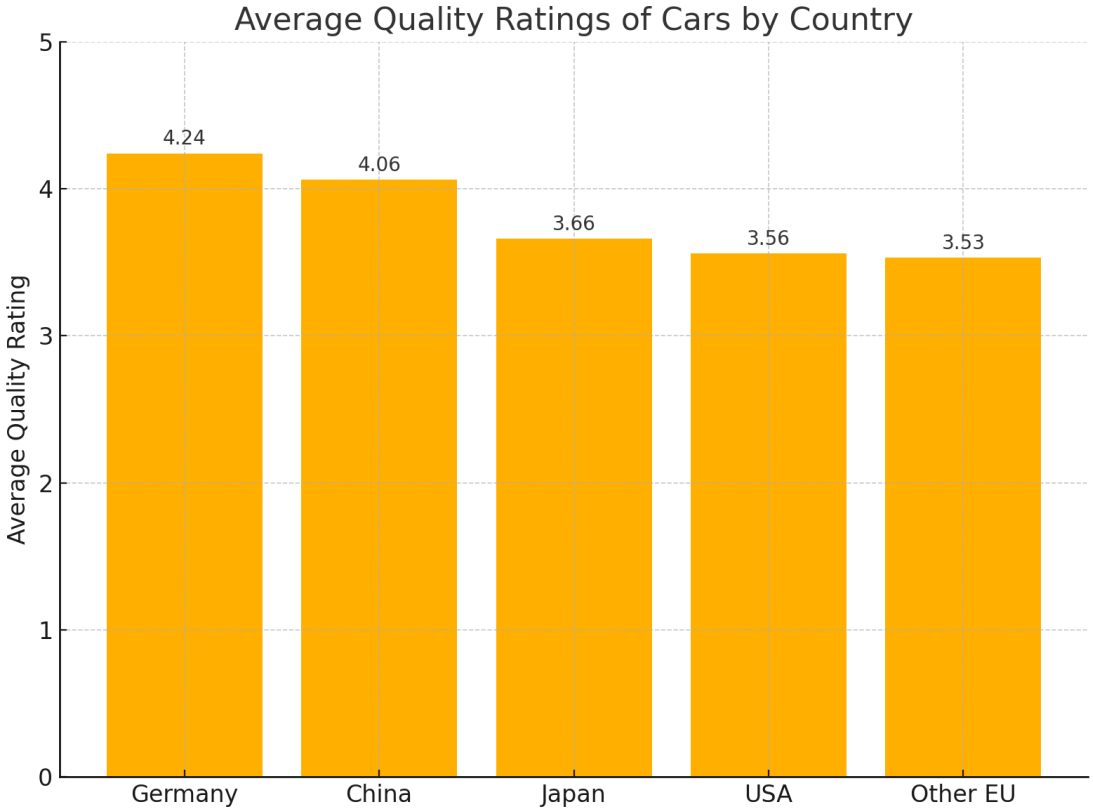
logical test was conducted to determine the most important factors for future car purchases. The most frequently selected factor was 'safety', which further verifies its core position in current consumers' car-purchasing decisions.



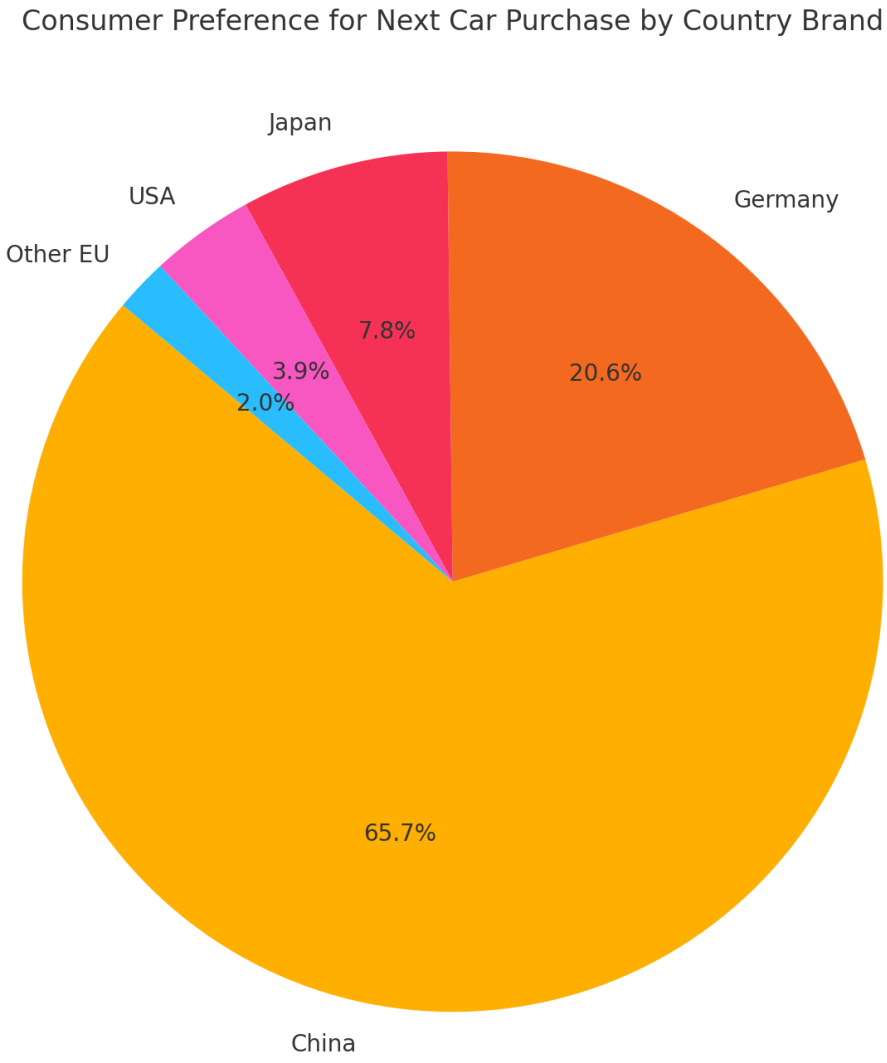
project	Number of times selected	percentage（%）
Vehicle performance	62	60.78%
Safety	73	71.57%
Brand reputation	26	25.49%
Technological innovation	13	12.75%
Price-to-Quality Ratio	44	43.14%
Appearance and design	35	34.31%
Durability and reliability	27	26.47%

The survey asked respondents to evaluate the overall quality of cars from several major car-producing countries (China, Japan, the United States, Germany and other EU countries) on a scale of 1–5. The results showed that German cars scored the highest with an average of 4.24 points. Chinese cars scored an average of 4.06 points, followed by Japanese and American cars with 3.66 and 3.56 points respectively. Cars from other EU countries, such as France and Italy, scored the lowest with an average of 3.53 points. According to respondents, German cars are the best quality, with Chinese cars close behind. In contrast, cars from Japan, the United States and other EU countries were rated

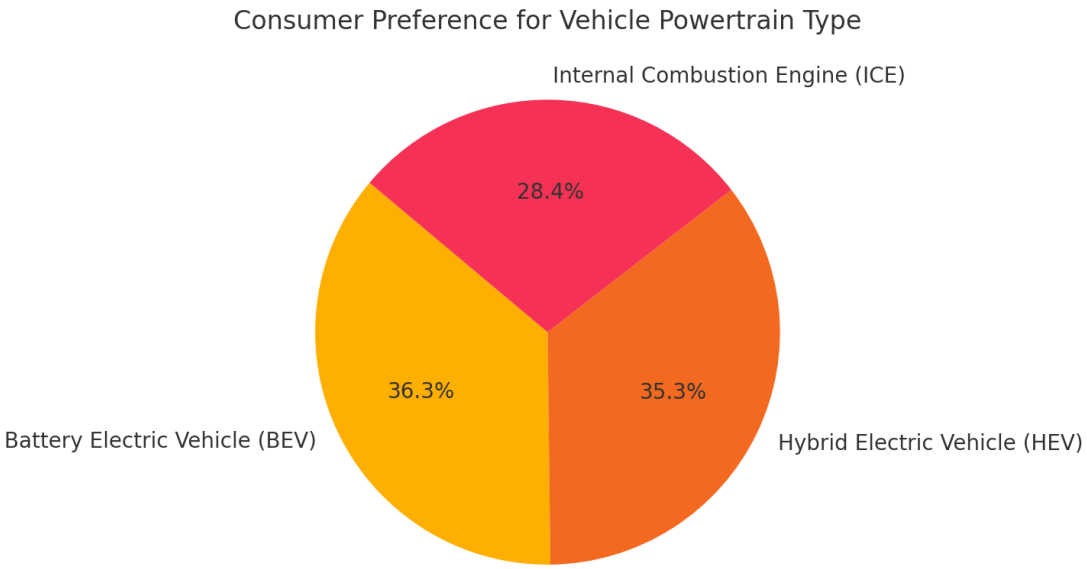
slightly lower. This survey shows that the quality of Chinese brands is close to that of Germany, indicating a significant improvement in the perception of local car brands compared to the past.



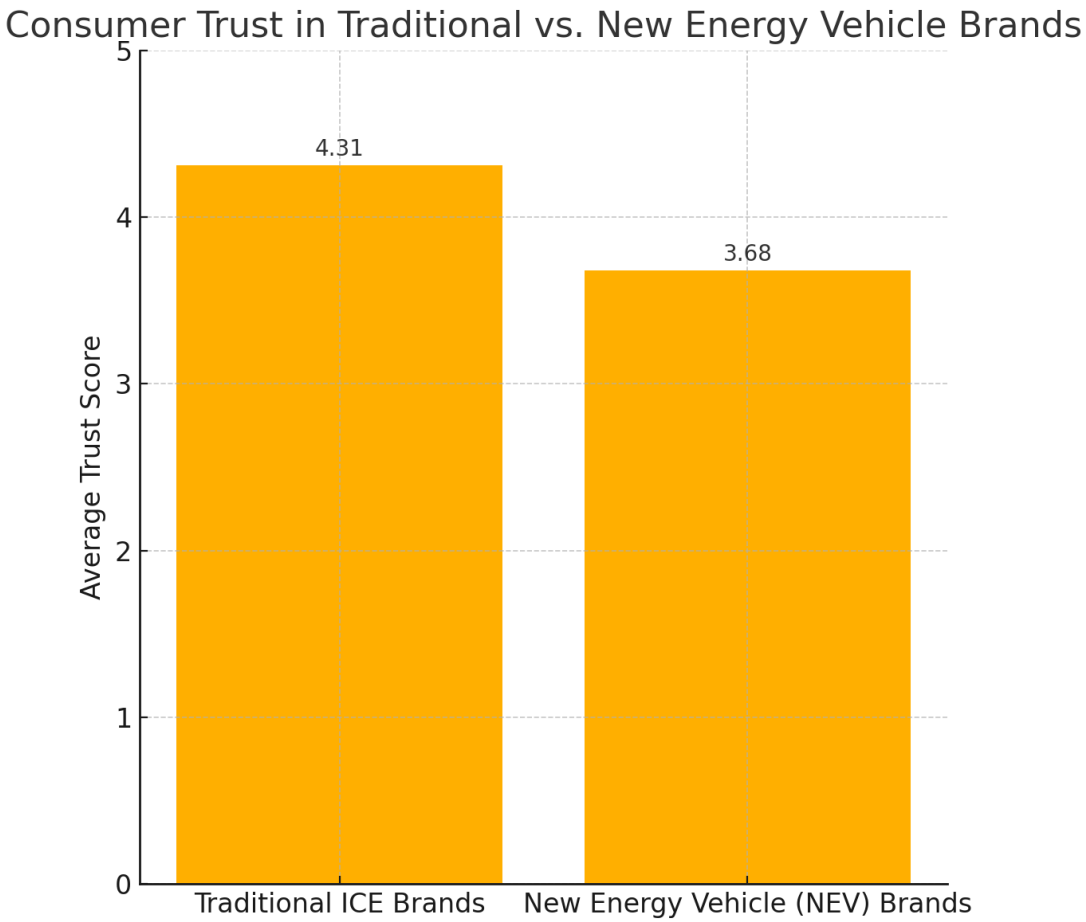
When it came to choosing a specific brand, respondents were asked, 'Which brand (country category) are you most likely to consider for your next car?' The results showed a clear local preference: 65.7% of respondents preferred Chinese brands, which is significantly higher than the proportion who chose other brands: 20.6% German, 7.8% Japanese, 3.9% American and 2.0% other EU. Nearly two-thirds of respondents intend to buy a Chinese brand for their next car, while around a fifth prefer German brands. The proportion of those who prefer Japanese, American or other EU brands is relatively small. These results reflect a significant increase in preference for Chinese local brands.



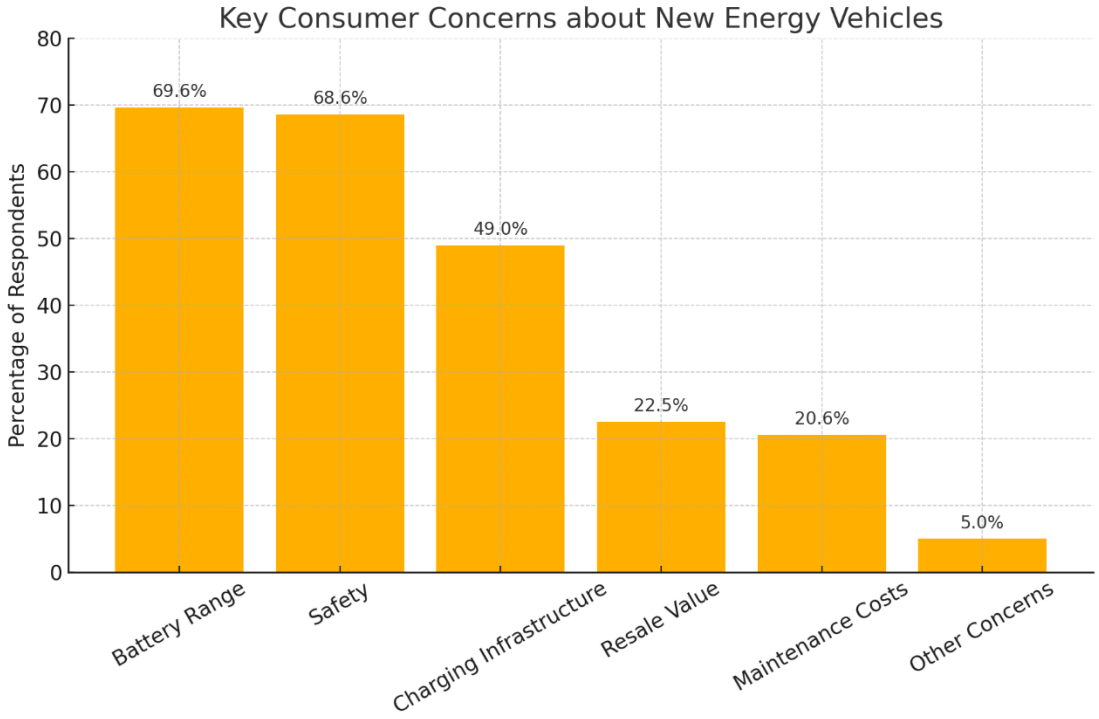
The survey asked respondents about their preferred type of vehicle: fuel, hybrid or pure electric. The results showed that 36.3% of respondents preferred pure electric vehicles, 35.3% preferred hybrid vehicles and 28.4% preferred traditional fuel vehicles. While consumers generally accept new energy vehicles, around 30% are still more willing to buy traditional fuel vehicles, suggesting that there will still be demand for them in the foreseeable future.



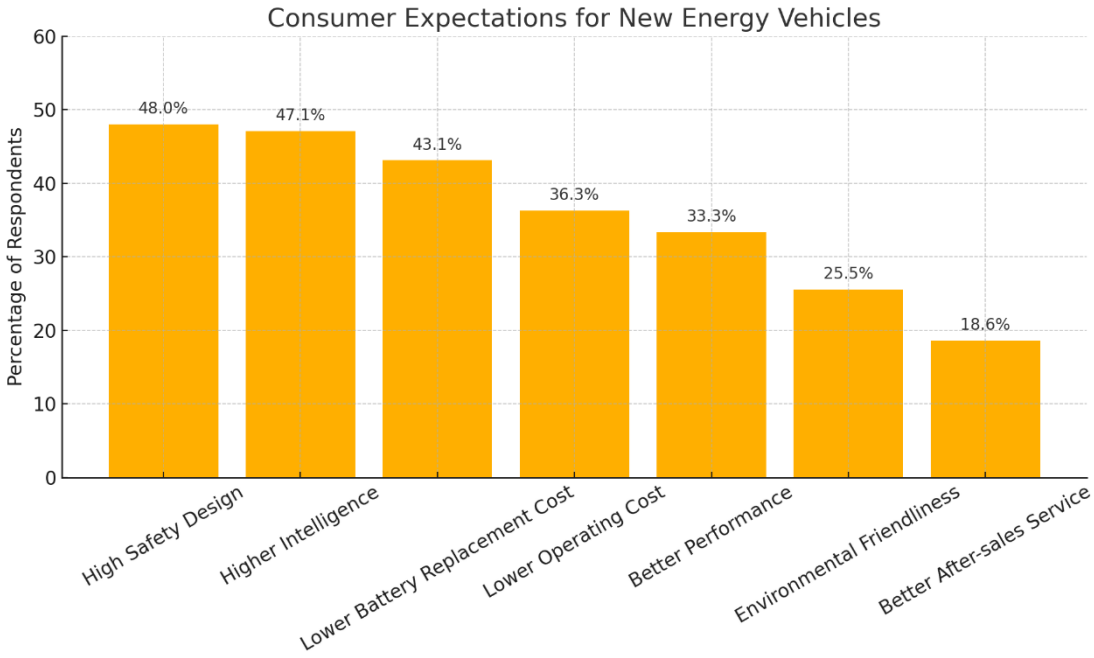
Further investigation revealed differences in consumer trust in traditional and new energy vehicle brands. Respondents were asked to score their level of trust in these two types of brand on a scale of 1–5, with an average score of 4.31 for traditional fuel vehicle brands and 3.68 for new energy vehicle brands. Clearly, consumers still trust traditional car brands more and have slightly less trust in emerging new energy vehicle brands.



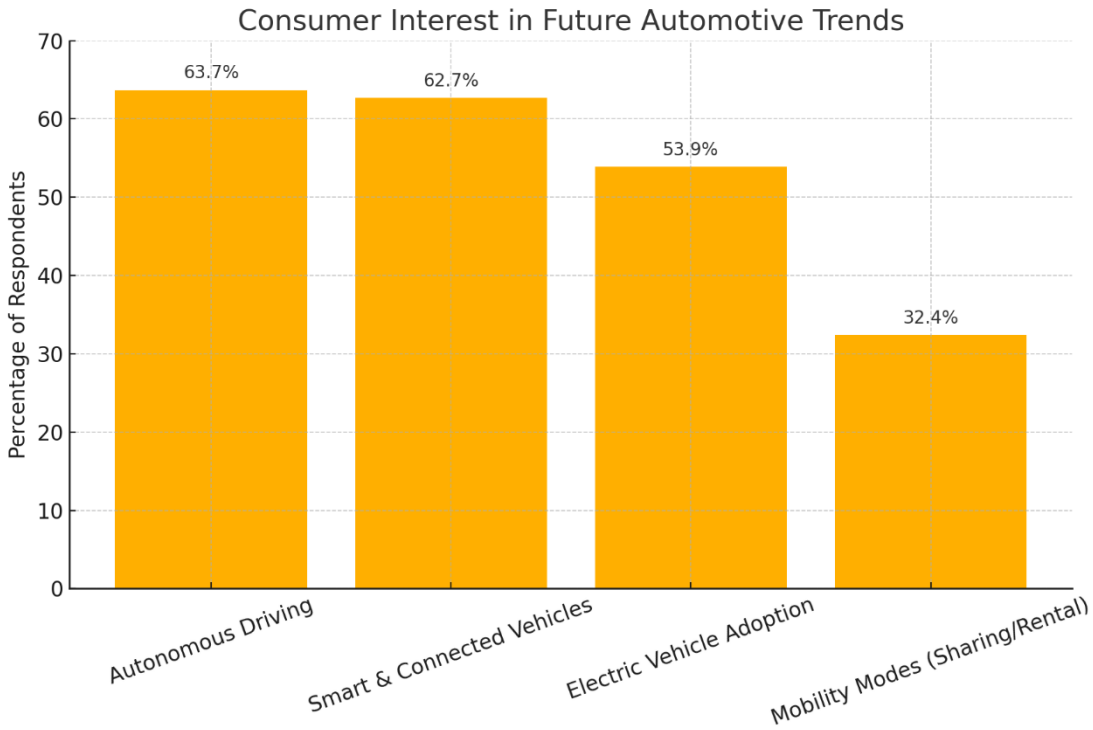
Consumers' main concerns about new energy vehicles can be grouped into three categories. The first category is battery life: 69.6% of respondents cited this as a concern. The second category is vehicle safety: 68.6% of respondents cited concerns about safety technology and accident risks. The third category is the lack of charging facilities: 49.0% of respondents cited this as a concern, reflecting issues with public charging piles and other supporting facilities. Additionally, 22.5% of respondents are concerned about the low resale value of new energy vehicles, 20.6% are concerned about high maintenance costs, and a few have other concerns.



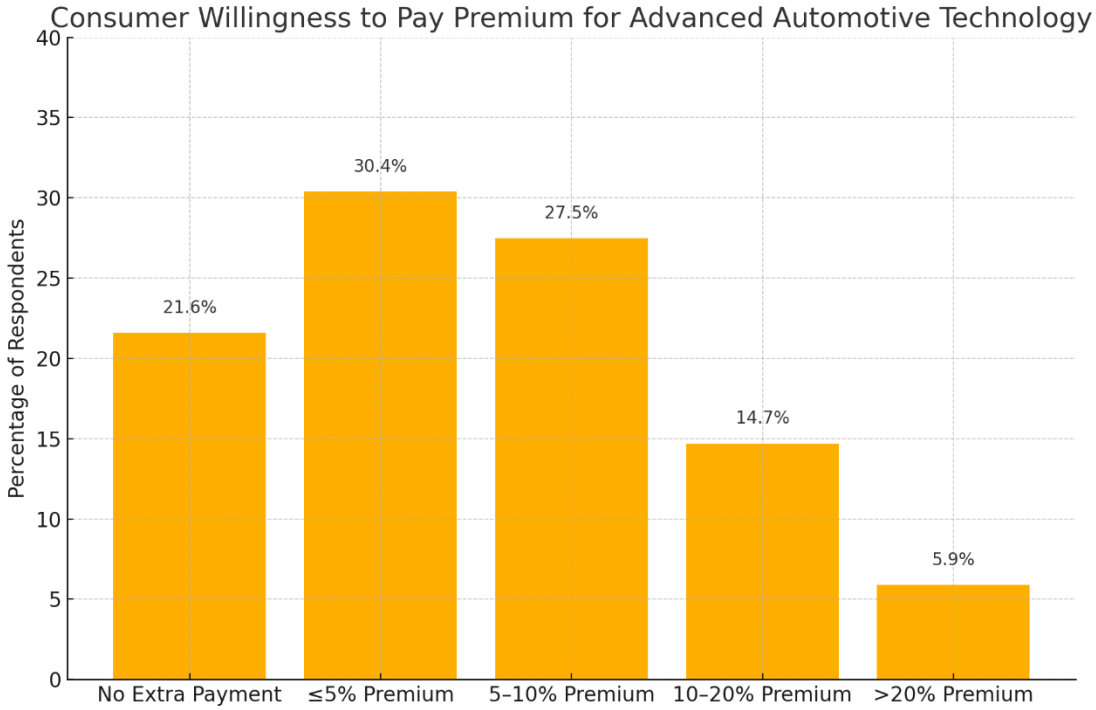
In response to these obstacles, consumers' expectations for new energy vehicles also reflect them. The first is 'high safety design', with nearly half of respondents (48%) regarding it as their main expectation. This shows that improving the safety performance of new energy vehicles is important for winning over consumers. The second is 'higher intelligence', with 47.1% choosing it. This shows that consumers hope new energy vehicles will make significant progress in smart connectivity and autonomous driving.At the same time, 43.1% of respondents expect reduced battery replacement costs, 36.3% expect lower operating costs (e.g. charging and maintenance costs), and 33.3% hope for higher performance. Additionally, 25.5% clearly stated environmental protection performance as one of their expectations, while 18.6% expect more convenient after-sales service. Overall, consumers are motivated to buy new energy vehicles by their intelligent technology and long-term economic benefits, but manufacturers must first ensure that the vehicles are safe and address the issues of mileage and cost.



The respondents showed great interest in the future development of the automobile market. The three trends that concerned them the most were the development of autonomous driving technology (63.7% of respondents were concerned about this), smart cars and car networking technology (62.7% were concerned about this) and the popularisation of electric vehicles (53.9% were concerned about this). Additionally, 32.4% of respondents expressed concern about changes in travel modes, such as car-sharing and rental services. Clearly, consumers are highly concerned about future trends in intelligent, connected and electrified cars, particularly autonomous driving and intelligent connected technology. This suggests that progress in these fields will significantly impact consumers' car-buying decisions and how they use cars in the future.



Finally, consumers' willingness to pay for new technologies and the better performance of future cars varies. The survey shows that more than half of respondents would pay a premium for advanced technical performance. 30.4% can accept a price increase of less than 5%, 27.5% can accept an increase of 5–10%, 14.7% are willing to pay 10–20% more and 5.9% are willing to pay over 20% more. Conversely, around 21.6% of respondents clearly stated that they were unwilling to pay more for better technology, hoping that the benefits of new technology would not be offset by price increases. Overall, almost 80% of respondents were willing to pay more, but most were limited to a premium of less than 10%. Only a small number were willing to significantly increase their budgets. This suggests that, while consumers are optimistic about the value of new technologies, they remain sensitive to prices and expect technological progress to be balanced with cost control.



Reliability Analysis

To test the internal consistency of the product quality emphasis items, this study conducted a reliability analysis of seven Likert-scoring items: vehicle performance, safety, cost-effectiveness, technological innovation, appearance design, durability, and brand reputation. Cronbach's α coefficient was used to evaluate the reliability of the scale. It is generally believed that the α coefficient should be between 0 and 1, with a higher value indicating better internal consistency. The commonly used judgement criteria are as follows: $\alpha \geq 0.9$ indicates excellent reliability; $0.8 \leq \alpha < 0.9$ is good; $0.7 \leq \alpha < 0.8$ is acceptable; and less than 0.6 indicates poor reliability. For exploratory research into a questionnaire, a scale is considered to have basic reliability if α reaches 0.7 or above. The results of the SPSS reliability analysis showed that the Cronbach's α coefficient of the scale was 0.707, indicating basic internal consistency and suitability for subsequent structural analysis and regression modelling.

Cross-analysis

This questionnaire survey found that, of the various product quality attributes, 'safety' was considered the most important, with an average rating of 4.75, showing that consumers prioritise safety when making car purchase decisions. This suggests that consumers' emphasis on safety may affect their tendency to select certain brands to a certain extent. To further explore the impact of this factor on brand preference, this paper divides the sample into 'high evaluation' and 'low evaluation' groups based on their 'safety' dimension score on the Likert scale. A cross-analysis is then conducted between the degree of safety emphasis

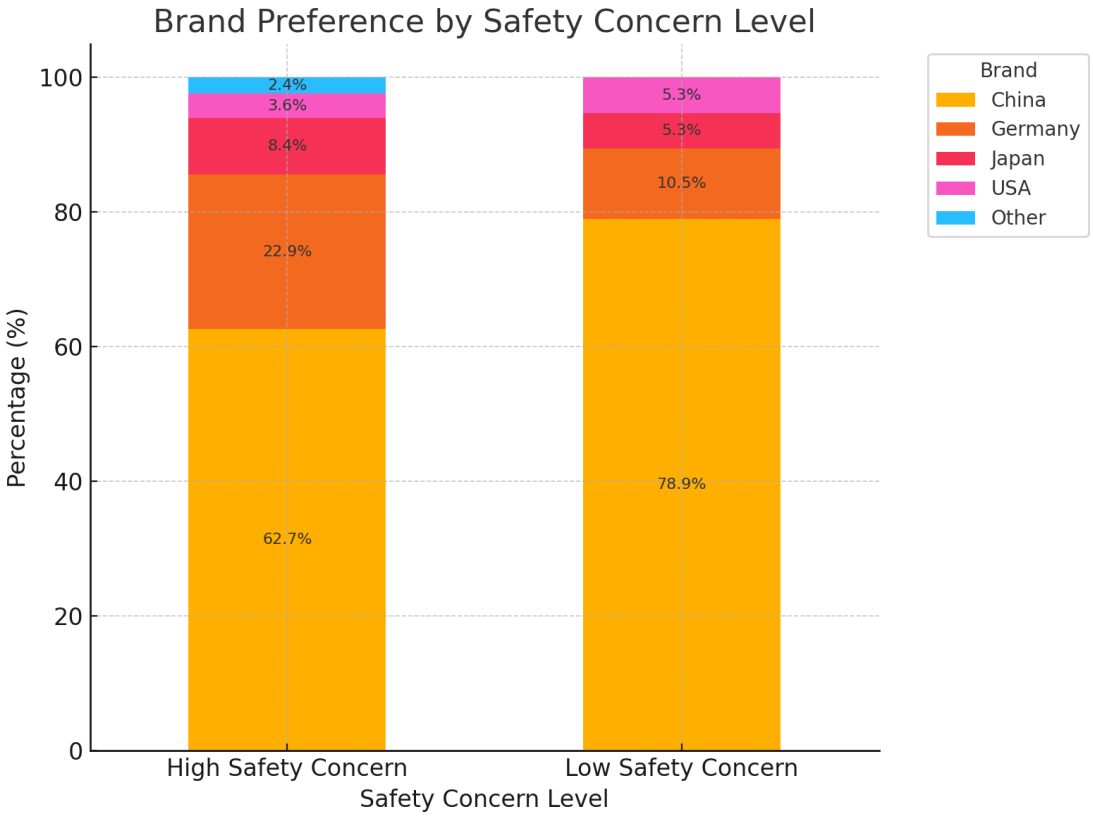
and brand country preference.

This section categorises consumers' emphasis on automobile 'safety' as either high or low to determine whether attention to safety will affect brand country preference. The safety evaluation in the questionnaire uses a 5-point Likert scale. The average safety importance score for the entire sample is about 4.75 points, and the samples are classified as either "high safety evaluation group" or "low safety evaluation group" based on whether they score 5 points or below 5 points (i.e. 1–4 points). According to this classification, there are 83 people in the high evaluation group and 19 people in the low evaluation group. Table shows the cross-distribution of brand and country preferences in the two groups.

Safety evaluation group	**Chinese brand**	**German brand**	**Japan brand**	**America brand**	**Others**
Low safety rating group	15 (78.9%)	2 (10.5%)	1 (5.3%)	1 (5.3%)	0 (0.0%)
High safety rating group	52 (62.7%)	19 (22.9%)	7 (8.4%)	3 (3.6%)	2 (2.4%)

As can be seen from the table, the difference in brand preference distribution between the two consumer groups is not as extreme as that of the budget group. Among those with high safety ratings, 62.7% choose domestic brands, which is lower than the 78.9% who have low safety ratings. Correspondingly, 22.9% of those with high ratings choose German brands, which is higher than the 10.5% in the low rating group. This shows that, among consumers who value automobile safety, the proportion who consider foreign brands, such as German brands, has increased slightly, while the proportion who consider domestic brands has decreased. However, these differences did not reach statistical significance. The Pearson chi-square test output is $p < 0.05$, indicating significant differences and a statistical association between the variables. However, $p \geq 0.05$ indicates no significant association between the variables and the test failed to reach significance. The Pearson chi-square test results show $p = 0.638$ and indicate that the correlation between high and low safety ratings and brand preferences is not significant. This suggests that whether or not safety is valued is not the decisive factor in differences in consumer brand preferences by country.

The figure shows the percentage of brands in the high (right) and low (left) safety evaluation groups. The overall distribution patterns of the two groups are similar, with domestic brands occupying the largest share in both. German brands have a slightly higher proportion in the high evaluation group, while domestic brands have a higher proportion in the low evaluation group. However, this difference is not significant. This suggests that, regardless of how much consumers value safety, domestic brands remain the primary consideration for most people and that the impact of safety concerns on brand country preferences is relatively limited.



The above cross-analysis shows that consumers' preference for an automobile brand's country of origin is not determined by a single factor, but is affected by multiple variables, demonstrating a certain degree of complexity and diversity. These findings suggest the need for further exploration of the correlations between various influencing factors from an overall perspective, with the aim of identifying the key variables that significantly impact brand preference through regression modelling.

First, a Pearson correlation coefficient analysis was conducted to examine the relationship between the seven core dimensions of product quality (vehicle performance, safety, brand reputation, technological innovation, cost-effectiveness, appearance and design, and durability and reliability) and respondents' overall perception of brand quality from various countries (China, Japan, Germany, the United States and other European countries).

Quality Dimension	**China**	**German**	**Japan**	**America**	**Other EU country**
Vehicle performance	0.23*	0.10	0.18	0.08	0.05
Safety	0.18	0.03	0.09	0.11	0.13

Quality Dimension	China	German	Japan	America	Other EU country
Brand reputation	0.09	0.21*	0.28**	0.30**	0.28**
Technological innovation	0.30**	0.09	0.18	0.15	0.20*
Price-to-Quality Ratio	0.20*	-0.06	0.25*	0.14	0.06
Appearance and design	0.19	0.18	0.15	0.17	0.22*
Durability and reliability	0.09	0.15	0.23*	0.22*	0.21*

Note: The correlation coefficient is Pearson r. A single asterisk (*) indicates that the correlation is significant at the 0.05 level ($p<0.05$), and a double asterisk (**) indicates that the correlation is significant at the 0.01 level ($p<0.01$).

Overall, the correlation coefficients between each quality dimension and each country's overall brand quality score are mostly positive, with no significant negative correlations. Specifically:

Vehicle performance: There is a significant positive correlation with the quality score of Chinese brands ($r = 0.23$, $p < 0.05$), but not with the brand scores of other countries.

Safety: The correlation coefficients with the quality scores of brands in various countries have not reached a significant level; in other words, there is no obvious linear correlation between the importance of safety and the quality score of any country's brand.

Brand reputation: It is significantly and positively correlated with the quality scores of brands in Japan, the United States, and other EU countries ($r \approx 0.28–0.30$, $p < 0.01$). It is also positively correlated with German brands ($r = 0.21$, $p < 0.05$), but not with Chinese brands.

Technological innovation: There is a significant positive correlation with the quality scores of Chinese brands ($r = 0.30$, $p < 0.01$) and brands from other EU countries ($r = 0.20$, $p < 0.05$). There is no significant correlation with the quality scores of German, Japanese and American brands.

Price/performance ratio: It is significantly positively correlated with the quality scores of Chinese ($r = 0.20$, $p < 0.05$) and Japanese ($r = 0.25$, $p < 0.05$) brands, but not with brands

from other countries (the correlation coefficient with German brands is -0.06, which is negatively correlated but not significant).

Appearance design: It is only significantly positively correlated with the quality scores of brands from other EU countries ($r = 0.22$, $p < 0.05$) and is not significantly correlated with Chinese, German, Japanese or American brands.

Durability and reliability: It is significantly positively correlated with the quality scores of brands in Japan ($r=0.23$, $p<0.05$), the United States ($r=0.22$, $p<0.05$) and other EU countries ($r=0.21$, $p<0.05$), but not significantly correlated with the scores of brands in China and Germany.

When consumers place greater importance on certain quality factors, they tend to give car brands in a particular country higher overall quality ratings. However, this overall rating incorporates multiple dimensions and may hide differences in how well certain brands fit specific dimensions. To further clarify whether consumers are more inclined to give a brand a higher rating on a specific dimension when they attach importance to it, I conducted a correlation analysis of 'the scores of each brand on the seven dimensions' and 'the degree of importance consumers attach to each dimension', item by item. This allows us to judge more accurately whether a brand's performance on a certain dimension truly satisfies the consumer group that attaches importance to it.

Quality Dimension	**China brand**	**Japan brand**	**America brand**	**German brand**	**France/Italy brand**
Vehicle performance	0.42***	0.21*	0.08	0.17	0.12
Safety	0.11	0.06	0.10	0.21*	0.16
Brand reputation	0.32**	0.12	0.22*	0.13	0.26**
Technological innovation	0.38***	0.15	0.10	0.23*	0.09
Price-to-Quality Ratio	0.30**	0.07	0.31**	0.32**	0.16
Appearance and design	0.40***	0.21*	0.25*	0.31**	0.16

Quality Dimension	China brand	Japan brand	America brand	German brand	France/Italy brand
Durability and reliability	0.24*	0.32**	0.19	0.40***	0.23*

Note: The correlation coefficient is Pearson r. In the table, "" indicates that the correlation coefficient is significant at the 0.05 level ($p < 0.05$), "" indicates that it is significant at the 0.01 level ($p < 0.01$), and "" indicates that it is significant at the 0.001 level ($p < 0.001$). *

Overall, there is a positive correlation between the importance of each dimension and the evaluation of national brands on that dimension. In other words, the more important a quality factor is to consumers, the higher the score they tend to give to brands that perform well in that area. However, the degree of correlation varies significantly between different brands in each dimension, indicating that brands from different countries vary in their ability to meet the specific quality factors that consumers care about.

For Chinese local brands, the importance of almost all quality dimensions is positively correlated with their corresponding performance scores. Many of these correlations are significant, showing that Chinese brands have been able to meet the expectations of consumers who value these aspects. The correlation coefficient of 'vehicle performance' is the highest ($r = 0.42$, $p < 0.001$), indicating a strong positive correlation. This suggests that consumers who prioritise vehicle power and performance tend to rate the performance of Chinese brands more highly. This suggests that Chinese automakers have recently made significant improvements to engine performance and powertrains, winning recognition from performance-oriented consumers. Similarly, the correlation of the "appearance design" dimension is also very high ($r = 0.40$, $p < 0.001$), indicating that consumers who value styling design tend to be satisfied with the design of Chinese brands. This suggests that Chinese brands have invested more in fashionable styling and innovation, successfully attracting car buyers who value appearance. The correlation coefficient of the 'technological innovation' dimension is 0.38 ($p < 0.001$) and is also significantly positive, suggesting that consumers who value new automotive technologies and high-tech configurations have a more positive view of Chinese brands' performance in terms of smart connectivity and electrification. Additionally, the correlation coefficient of the "brand reputation" dimension is 0.32 ($p < 0.01$), suggesting that consumers who prioritise brand awareness and reputation have a relatively positive impression of Chinese auto brands. This may be related to the improvement in the overall image and quality of Chinese brands in recent years, which has gradually changed perceptions and encouraged those who care about brand reputation to recognise local brands. The correlation coefficient of the "cost-effectiveness" dimension is 0.30 ($p < 0.01$), indicating that consumers who value the price-performance ratio generally evaluate Chinese brands as more cost-effective. This is unsurprising given that Chinese brands have long been known for their affordable prices and generous specifications, meeting the expectations of budget-conscious car buyers. The

correlation coefficient of the 'durability and reliability' dimension is 0.24 ($p < 0.05$). Although this is moderately low, it is still significantly positive, meaning consumers who care about durability give Chinese cars slightly higher durability ratings. This suggests that Chinese brands have made some progress in durability and reliability, but their appeal to consumers who value durability is not very strong compared with other dimensions. Finally, it is worth noting that 'safety' is the only dimension for which the correlation of Chinese brands is not significant ($r = 0.11$, $p > 0.2$). This means that, regardless of how much consumers value car safety, there is no significant difference in their ratings of the safety performance of Chinese brands.

Of the examined dimensions, the most significant positive correlation between Japanese car brands and consumers' priorities is with regard to 'durability and reliability' ($r = 0.32$, $p < 0.01$). In other words, consumers who pay more attention to the durability and reliability of vehicles tend to rate Japanese cars as more reliable. This is consistent with the market perception that Japanese cars are renowned for their reliability and durability: buyers who prioritise long-term vehicle quality and low failure rates typically recognise the performance of Japanese brands in this regard. Additionally, the dimensions of 'vehicle performance' and 'exterior design' show a slight positive correlation with Japanese brand ratings (both correlation coefficients are about 0.21, $p < 0.05$). This suggests that consumers who prioritise power performance give Japanese cars slightly higher performance ratings, and those who prioritise beautiful design give Japanese cars slightly higher appearance ratings. However, these correlations are relatively weak, indicating that, although Japanese brands have certain advantages in terms of power and design, these are not their most prominent features, and only certain groups who care about these aspects recognise them. Other dimensions, such as 'safety' ($r = 0.06$), 'brand reputation' ($r = 0.12$), 'technological innovation' ($r = 0.15$), and 'cost-effectiveness' ($r = 0.07$), show no significant correlation with Japanese brand ratings. This suggests that consumers focusing on safety or technological innovation do not significantly alter their evaluation of Japanese cars in these areas based on their level of importance attached to these factors. One possible explanation is that the safety performance and fuel economy of Japanese cars are widely considered acceptable, but lack outstanding features, or that the overall reputation of Japanese brands is high and stable. Therefore, regardless of whether consumers attach particular importance to brand reputation, their evaluation of Japanese car brands is similar. Overall, these results suggest that consumers' expectations of Japanese brands are most consistently met by their reliable and durable quality. This is also the main reason why many rational consumers choose Japanese cars. In secondary areas such as design and power performance, although Japanese cars have a certain reputation, it is not strong enough to attract consumers who focus on these aspects.

Of the correlation coefficients between the various dimensions of American car brands, the most significant is "price/performance" ($r = 0.31$, $p < 0.01$). This indicates that consumers who value the price/performance ratio the most tend to rate American brands higher in this respect. This suggests that American cars offer good value for money to some consumers, probably because they often have larger bodies, higher specifications or more competitive

prices in the same class, thus appealing to cost-conscious car buyers. The correlation coefficient of the 'appearance design' dimension is 0.25 ($p < 0.05$), which is also significant. This indicates that consumers who prioritise styling and design tend to rate the design of American cars more highly. American car brands' designs often emphasise power and American style. This unique style appeals to those who prefer rugged and fashionable designs and therefore receives a higher evaluation from this group. The correlation coefficient of 'brand reputation' is 0.22 ($p < 0.05$), also showing a significant positive correlation. This indicates that consumers who care about brand awareness or image have a more positive impression of American cars. Some consumers may identify with the historical heritage or brand positioning of American car brands, such as Ford and GM. American cars have a certain appeal for car buyers who value brand culture. In contrast, the correlation between the dimensions of 'vehicle performance' ($r = 0.08$) and 'safety' ($r = 0.10$) is low and not significant. This indicates that consumers who prioritise power performance or safety technology do not recognise American cars' performance in these two areas. American cars are not the first choice for performance-oriented consumers in terms of power performance (probably because the high-performance image is mainly associated with German or performance car brands), nor do they have outstanding safety features that would appeal to safety-conscious consumers. The correlation coefficient for the 'durability and reliability' dimension is 0.19, which is slightly below the significance level ($p \approx 0.055$). This suggests that consumers who value durability have a slightly more positive perception of the reliability of American cars, but this is not significant. This may reflect the fact that American cars have an average reputation for reliability: consumers who prioritise reliability do not obviously prefer or reject American cars. Overall, American brands tend to meet the needs of some consumers in terms of cost-effectiveness and appearance. They also have a certain degree of recognition in terms of brand image. However, they lack significant appeal to consumers who are picky about performance, safety, reliability, and other hard indicators. This is also consistent with the fact that only a few respondents to the survey (about four people, accounting for less than five per cent) said they would consider buying an American car next time — the main selling points of American cars are large space and high configuration, and they are not the first choice for people who prioritise performance or extreme safety.

The performance of German car brands on various quality factors is generally highly correlated with the importance that consumers attach to these factors, reflecting the fact that German cars meet the expectations of consumers who prioritise these aspects in multiple key dimensions. The highest correlation coefficient is for 'Durability and Reliability', at 0.40 ($p < 0.001$), the highest among all brands in this category. This shows that consumers who prioritise vehicle reliability tend to rate German cars as significantly more reliable. German cars have always been renowned for their excellent craftsmanship and durability, and this is a quality that consumers who pursue long-term value deeply trust: most survey respondents who value durability recognise the excellent performance of German brands in this regard. The correlation coefficient for the 'value for money' dimension is 0.32 ($p < 0.01$), which is a surprisingly strong positive correlation. This suggests that consumers who prioritise value for money also consider German cars to offer

good value for money. Although German cars are usually more expensive, people who value good value for money may appreciate the high quality and consider it worthwhile to spend more to buy German cars, which is why they give them good reviews in this regard. The correlation coefficient for 'appearance design' is 0.31 ($p < 0.01$), indicating that consumers who appreciate beauty recognise the design of German cars highly. The design of German models tends to be calm, classic and advanced, attracting users who pay attention to design. In their view, the appearance of German cars aligns with their aesthetic expectations. The dimension of 'safety' also has a significant positive correlation ($r = 0.21$, $p < 0.05$): consumers who value safety are more inclined to think that German cars are safer. This may be due to German brands' good reputation for safety technology (e.g. body structure and safety features), which makes safety-conscious car buyers trust their safety performance more. The correlation coefficient for 'technological innovation' is 0.23 ($p < 0.05$), also reaching a significant level. Consumers who value new automotive technologies evaluate the innovative performance of German cars more highly, indicating that technology enthusiasts recognise the leading position of German manufacturers in technical fields such as power and driving assistance. It is worth mentioning that, although the correlation coefficient for the 'brand reputation' dimension of German cars is only 0.13 and not significant, this does not mean that brand reputation is unimportant. This may be because the good reputation of German cars is widely recognised by almost everyone. Regardless of whether they value brand reputation, most people recognise that German brands are of excellent quality. Therefore, in this dimension, people who place different levels of importance on brand reputation give high scores to German brands, and there is no significant difference in the scores. Overall, German brands consistently meet consumer expectations in almost all key quality attributes, especially reliability, and also perform well in terms of safety, design and technology. This all-round positive performance makes German cars attractive to consumers with all kinds of needs. It is therefore not surprising that a significant proportion of respondents to the survey (around 20%) said that they would consider a German brand for their next car purchase — the qualities they value are precisely the qualities for which German cars are renowned.

For other EU brands, such as French and Italian ones, the correlation between the importance of each dimension and performance score is generally weak. Only a few dimensions show a significant positive correlation. In the "brand reputation" dimension, however, the correlation coefficient is 0.26 ($p < 0.01$), indicating a significant positive correlation. This indicates that consumers who prioritise brand image and reputation tend to have a higher impression of French and Italian cars. One possible explanation is that those considering buying French or Italian cars tend to be a niche group with a unique preference for brand tone and design culture. They value the unique history and style of these brands, such as the romantic design of French cars or the sports car pedigree of Italian cars. Therefore, when they value brand reputation, they give such brands relatively high evaluations. The correlation coefficient for the 'durability and reliability' dimension is 0.23 ($p < 0.05$), also indicating a significant positive correlation. This suggests that consumers who prioritise vehicle durability give French and Italian brands slightly higher reliability ratings. This is somewhat unexpected, given that French and Italian cars are not

traditionally known for their reliability. However, this correlation may be due to the fact that only a small number of consumers with a positive impression of these brands would consider buying them, and they are willing to believe that models have improved in terms of reliability. For example, the two respondents who said they would consider French or Italian brands next time may have been attracted by these brands' improved quality stability in recent years. In addition, the correlation coefficients of the other dimensions, such as performance (r = 0.12), safety (r = 0.16), technology (r = 0.09), cost-effectiveness (r = 0.16) and appearance design (r = 0.16), are small and have not reached a significant level. This suggests that, for most consumers, paying attention to factors such as power, safety, new technology or price will not make them more optimistic about French/Italian brands' performance in these areas. In general, French/Italian brands do not have a prominent enough performance dimension to win unanimous favour among people with specific preferences, and the correlation coefficients of their positively correlated dimensions (brand image and durability) are only medium. This is consistent with the fact that, in the survey, only a very small number of respondents (less than 2%) considered buying French/Italian brands next time. These brands currently attract a small number of consumers with specific preferences and have no obvious advantages for the general public. Therefore, people who pay attention to mainstream quality factors do not evaluate them more highly.

In summary, the respondents' preference for Chinese brands (nearly two-thirds) is consistent with their high degree of alignment with consumers' concerns regarding performance, design and cost-effectiveness. German brands attracted around 20% of consumers thanks to their reputation for reliability, safety and design. Japanese brands are chosen by consumers who prioritise durability, while American and French brands mainly attract niche groups who prefer their specific characteristics, such as styling and brand history.

Although correlation analysis reveals the degree to which quality dimensions match brand evaluation, it is still impossible to determine whether these factors actually influence consumers' brand selection behaviour. The next step is therefore to use a multi-logistic regression model to analyse which brands consumers are most likely to consider next time they buy a car, in order to empirically test the influence of each quality perception factor. In the regression analysis, we set 'Chinese brands' as the benchmark category.

Independent Variable	B (Japan vs China)	P (Japan vs China)	OR (Japan vs China)	95% CI (Japan vs China)	B (Germany vs China)	p Germany vs China	OR_ Germany vs China	95% CI (Germany vs China)

Vehicle performance importance rating	2.428	0.089	11.333	(0.691, 185.752)	-0.776	0.1	0.46	(0.183, 1.159)
Technological innovation importance score	-0.303	0.712	0.739	(0.148, 3.689)	0.554	0.142	1.741	(0.831, 3.647)
Chinese Brand Safety Evaluation	-0.459	0.735	0.632	(0.044, 9.052)	0.492	0.362	1.635	(0.568, 4.704)
Chinese Brands Brand Reputation Evaluation	-0.639	0.551	0.528	(0.065, 4.306)	0.452	0.334	1.571	(0.628, 3.929)
Evaluation of durability and reliability of Chinese brands	-0.656	0.598	0.519	(0.045, 5.946)	0.333	0.593	1.394	(0.412, 4.725)
Japanese brand durability and reliability evaluation	2.956	0.031	19.227	(1.307, 282.840)	0.092	0.742	1.096	(0.635, 1.893)
German Brand Design Evaluation	-2.297	0.066	0.101	(0.009, 1.164)	-0.402	0.408	0.669	(0.258, 1.734)

Evaluation of German Brand Technology Innovation	-0.789	0.533	0.454	(0.038, 5.435)	-0.725	0.155	0.484	(0.178, 1.314)

Note: The benchmark category is "Chinese brand". The coefficients marked with asterisks in the table have reached the significance level ($p<0.05$), and the coefficients marked with swords are marginally significant ($p<0.1$). OR is the odds ratio, which reflects the change in the probability ratio of the comparison group choosing a brand from a certain country for every unit increase in the independent variable; 95% CI is the 95% confidence interval of OR.

Japanese brands: Compared with Chinese brands, the main factor influencing consumers' choice of Japanese brands is their perception of the durability and reliability of Japanese cars. The coefficient B = 2.956 (p = 0.031) and the odds ratio (OR) = 19.23 indicate that, when consumers' evaluation of Japanese car durability increases by 1 point, the probability of choosing a Japanese brand is approximately 19.2 times higher than choosing a Chinese brand. This suggests that consumers are more inclined to consider Japanese brands for their next car if they perceive Japanese cars to be 'unbreakable' (reliable and durable). Additionally, the evaluation of the appearance design of German brands has a marginally significant negative effect on the choice of Japanese brands (B = -2.297, p = 0.066). In other words, consumers who appreciate the design of German cars are less likely to choose Japanese brands and more likely to consider Chinese brands or other options. This may reflect the fact that consumers who prefer the design style of German cars are relatively unattracted to Japanese cars. Another trend close to significance is the importance score for vehicle performance (B = 2.428, p = 0.089): the more important performance is, the more consumers seem to prefer Japanese brands relative to Chinese brands. Although this is somewhat unexpected, it suggests that, when German brands are discounted, some consumers who prioritise power performance are more inclined to choose Japanese car brands over Chinese ones.

German brands: Compared with Chinese brands, the regression coefficient for choosing German brands does not reach the traditional level of significance in terms of quality dimensions. This suggests that, in this model, differences in evaluations such as vehicle performance, safety and brand reputation do not significantly impact the choice of German brands. This may be because most consumers recognise that German cars perform well in terms of safety, performance, etc., so whether or not they choose a German car, these dimensions are highly evaluated and the difference is not large. On the other hand, other factors not included in the model, such as price or purchase cost, may play an important role in choosing between Chinese and German brands. Notably, the coefficient for 'vehicle performance importance' in the model for choosing German brands is negative (B = -0.776, p = 0.100, not significant), indicating that consumers who prioritise performance are more

likely to choose Chinese brands over German ones. This counterintuitive result may be related to the rapid improvement in performance of some Chinese brands.

Chinese brands: As a reference group, they do not have a corresponding set of regression coefficients themselves. However, the results of other categories can be used to infer the factors that influence consumers' choice of Chinese brands. Generally speaking, consumers who rate foreign brands highly on key dimensions tend to switch to foreign brands instead of domestic ones. For instance, the above results demonstrate that consumers who believe Japanese cars are particularly durable are significantly less likely to choose Chinese brands (as they tend to opt for Japanese cars instead). Conversely, if consumers do not think that Japanese cars are particularly reliable, they are more likely to choose Chinese brands. Similarly, consumers who prioritise vehicle performance tend not to choose Chinese brands, instead turning to Japanese or German brands with stronger reputations for performance. This shows that, when domestic cars have a poor reputation for certain qualities, consumers who value these qualities highly or recognise the performance of foreign brands will still not consider Chinese brands. Interestingly, a high evaluation of German car design does not reduce consumers' tendency to choose Chinese brands. This is reflected in the comparison between Japan and China: people who rate German design highly are less likely to choose Japanese brands and may prefer Chinese brands instead. This suggests that, while some consumers appreciate the design of German cars, they prefer more cost-effective domestic cars due to factors such as price.

American and other EU brands: As only four people in the sample considered American brands, and only two considered other EU brands, the small number resulted in insufficient statistical power. The model failed to identify any significant influencing factors within either group. While this study cannot draw reliable conclusions from such a limited sample, it is clear that these consumers choose American or other European brands based on individual preferences, such as liking the brand image of American cars or the unique design of European niche cars.

Overall, this multi-logistic regression analysis reveals the mechanisms influencing consumers' country preferences when purchasing cars. Notably, the perception of Japanese cars as durable significantly increases the likelihood that consumers will choose Japanese brands. In contrast, the improved design of German cars causes consumers to avoid Japanese brands when choosing between Japanese and Chinese brands. In contrast, German brands' advantages have not transformed into a significant single decision factor, probably because these advantages are widely recognised. When it comes to competition between Chinese and foreign brands, consumers' perception of foreign brands' quality advantages still poses a challenge to domestic brands: if consumers firmly believe that a foreign brand is significantly better in terms of quality, they will still tend to choose foreign brands. Conversely, as the reputation of domestic brands improves in areas such as safety and durability, the perception gap will narrow and more consumers will consider and choose Chinese brands.

3. Conclusion and Recommendations

This study provides valuable insights into the car-buying preferences of Chinese consumers with regard to product quality. The survey results show that safety is the most important consideration, with an average rating of approximately 4.75/5. This is followed by durability and reliability, with an average rating of approximately 4.54/5, and cost-effectiveness, with an average rating of approximately 4.47/5. In contrast, brand reputation and technological innovation are relatively low priorities. Regarding brand origin, consumers clearly favour local brands: nearly two-thirds of respondents intend to purchase a Chinese brand for their next car, whereas only around one-fifth favour German brands. Despite this local preference, German cars are still perceived as the highest quality, with an average overall quality rating of around 4.24/5 (compared to 4.06 for Chinese brands). Information acquisition mainly occurs through digital and social channels. Respondents said that word of mouth and social media are their main sources of automotive information, far exceeding traditional media or visits to dealerships. In terms of powertrains, Chinese consumers show a strong interest in new energy vehicles (NEVs): 36.3% favour pure electric vehicles, while 35.3% favour hybrid vehicles. However, traditional fuel brands are still trusted more (an average of 4.31 compared to 3.68 for NEV brands). The main barriers to NEV adoption are range and safety, cited by 69.6% and 68.6% of respondents, respectively. Finally, although around 80% of consumers are willing to pay a premium for advanced technology, most would limit this to a modest amount (less than 10%), with around 22% being unwilling to pay extra at all. In summary, Chinese buyers prioritise basic performance and value-for-money features, favour domestic brands with these attributes and rely heavily on online and social media information. Even though they express enthusiasm for smarter and safer cars, they remain price-conscious. These empirical patterns suggest several explanatory conclusions. First, the rise of domestic brands may reflect growing perceptions of quality and national confidence. Chinese automakers have made tangible advances in areas such as powertrain performance, design, and new technologies, thereby closing the gap with traditional market leaders. Indeed, even safety-conscious buyers prefer local brands (more than 60% of buyers choose Chinese brands regardless of safety), suggesting that safety issues will not fundamentally alter national brand preferences. Secondly, people are turning to the internet and peer networks for information, meaning that marketing must adapt to this digital landscape. The relatively low reliance on television and newspapers suggests that car manufacturers should prioritise social media engagement and online communities, where potential buyers actively seek reviews and peer opinions. In essence, brands must meet customers where they are and use the channels they trust most, such as influencer endorsements and shareable content, to shape perceptions. Thirdly, the mixed attitudes towards NEVs suggest that consumers value the promise of electrification but want practical solutions. While nearly 48% of people expect EVs to have 'high safety design', persistent 'range anxiety' means that improved technical performance (longer range and better charging infrastructure) and safety assurance are key prerequisites for wider NEV adoption. Based on these insights, car manufacturers should consider the following strategic recommendations. Firstly, marketing communications should emphasise safety and durability as core selling points, as these are

the features that resonate most with Chinese buyers. Showcasing rigorous crash test results, long-term reliability guarantees, and advanced safety features will align with consumer priorities. Secondly, to build consumer confidence in NEV models, manufacturers must improve NEV range and safety design, as well as providing robust after-sales support. Improvements such as longer-range batteries, more crash-resistant battery enclosures, and expanded charging networks will directly address consumers' key concerns. Cultivating a reputation for service quality, such as offering warranties, roadside assistance and convenient maintenance, will further narrow the trust gap between NEVs and conventional vehicles. Finally, companies should leverage digital platforms and peer influence to enhance their brand image. As word of mouth and social media are the top sources of information, car manufacturers can run targeted online campaigns to engage with key opinion leaders and social influencers in the automotive industry and encourage customer reviews to generate positive word of mouth. This involves creating interactive online content, managing reputation on forums and short video channels, and sparking discussions in automotive groups. Aligning marketing strategies with the channels that consumers actually use enables companies to reach potential buyers more effectively. In summary, the data shows that Chinese consumers are increasingly favouring domestic brands that possess core product quality attributes, especially safety and value, while still being price sensitive. While consumers are placing greater importance on advanced technology and environmental performance, affordability and trust remain critical factors. Those automakers that can enhance the perceived safety, durability, and overall value of their vehicles and communicate these benefits via the internet and social networks have the potential to gain a competitive advantage in China's evolving market.

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Appendix

Survey Questionnaire
Hi, I'm a student in Politecnico di Torino and I'm making a thesis about customer behaviour on automobile selection and car quality factors. The goal of this study is to investigate which car brands Chinese consumers prefer when considering the quality of a car.

It'll only take a few minutes. Thank you in advance for your help.

Choose one answer to each question
About You
1. Are you?
□ Female □ Male
2. How old are you? _____ years old
3. Which city do you come from? _____
4. What is your current occupation?
□ Student
□ Government/Public Service
□ Professional/Technical
□ Company Employee
□ Others
5. Do you have a driving licence? □ Yes □ No
5a. If yes, how long have you been driving?
□ Less than two years □ Between two and five years □ More than five years
Car Quality and Brand Perception
6. Do you have a car? □ Yes □ No
If yes, what is your car brand and the price? _____
7. What factors influenced your choice of this brand?
(Rate each factor from 1 = Not important to 5 = Very important)
□ Vehicle performance: 1 2 3 4 5
□ Safety: 1 2 3 4 5
□ Brand reputation: 1 2 3 4 5
□ Technological innovation: 1 2 3 4 5
□ Price-to-Quality Ratio: 1 2 3 4 5
□ Appearance and design: 1 2 3 4 5
□ Durability and reliability: 1 2 3 4 5

8. How important are the following factors when buying a car? (1–5)
□ Vehicle performance: 1 2 3 4 5
□ Safety: 1 2 3 4 5
□ Brand reputation: 1 2 3 4 5
□ Technological innovation: 1 2 3 4 5
□ Price-to-Quality Ratio: 1 2 3 4 5
□ Appearance and design: 1 2 3 4 5
□ Durability and reliability: 1 2 3 4 5
9. How would you rate the overall quality of cars produced in the following countries? (1–5)
□ Chinese brands (e.g., BYD, Geely, Chery): 1 2 3 4 5
□ Japanese brands (e.g., Toyota, Honda, Nissan): 1 2 3 4 5
□ American brands (e.g., Ford, Tesla, Buick): 1 2 3 4 5
□ German brands (e.g., Volkswagen, BMW, Mercedes-Benz): 1 2 3 4 5
□ Other EU brands (e.g., Peugeot, Citroën, Fiat): 1 2 3 4 5
10. Please rate the performance of brands in each country on the following attributes (1–5).
Chinese brands (e.g., BYD, Geely, Chery)
- Vehicle performance: 1 2 3 4 5
- Safety: 1 2 3 4 5
- Brand reputation: 1 2 3 4 5
- Technological innovation: 1 2 3 4 5
- Price-to-Quality Ratio: 1 2 3 4 5
- Appearance and design: 1 2 3 4 5
- Durability and reliability: 1 2 3 4 5

Japanese brands (e.g., Toyota, Honda, Nissan)
- Vehicle performance: 1 2 3 4 5
- Safety: 1 2 3 4 5
- Brand reputation: 1 2 3 4 5
- Technological innovation: 1 2 3 4 5
- Price-to-Quality Ratio: 1 2 3 4 5
- Appearance and design: 1 2 3 4 5
- Durability and reliability: 1 2 3 4 5

American brands (e.g., Ford, Tesla, Buick)
- Vehicle performance: 1 2 3 4 5

12. Do you plan on buying a car?
□ No, I prefer to use public transport
□ Yes, within 2 years
□ Yes, within 4 years
□ Yes, in more than 4 years
13. Imagine you have to buy a car. What is your budget?
□ Less than RMB 50,000
□ Between RMB 50,000 and 100,000
□ Between RMB 100,000 and 150,000
□ Between RMB 150,000 and 200,000
□ Between RMB 200,000 and 300,000
□ More than RMB 300,000
14. What factors will be most important to you when buying a car in the future? (Multiple choice)
□ Vehicle performance
□ Safety
□ Brand reputation
□ Technological innovation
□ Price-to-Quality Ratio
□ Appearance and design
□ Durability and reliability
15. Which brand are you most likely to consider next time you buy a car?
□ Chinese brands (e.g., BYD, Geely, Chery)
□ Japanese brands (e.g., Toyota, Honda, Nissan)
□ American brands (e.g., Ford, Tesla, Buick)
□ German brands (e.g., Volkswagen, BMW, Mercedes-Benz)
□ Other EU brands (e.g., Peugeot, Citroën, Fiat)
16. What type of vehicle are you more inclined to purchase?
□ Fuel vehicle □ Hybrid vehicle □ Electric vehicle
17. What is your level of trust in traditional car brands and new energy vehicle brands? (1-5)
□ Traditional fuel car brands: 1 2 3 4 5
□ New energy vehicle brands: 1 2 3 4 5

18. What are your main concerns about new energy vehicles? (Multiple choice)
□ Insufficient charging facilities
□ Battery range
□ Safety
□ Resale value
□ Maintenance costs
□ Other (please specify)
19. What are your main expectations for new energy vehicles? (Multiple choice)
□ Lower operating costs
□ High level of intelligence
□ Environmental performance
□ High performance
□ Convenient after-sales service
□ Battery replacement cost
□ High safety design
20. Which trends in the future automotive market are you most interested in? (Multiple choice)
□ The proliferation of electric vehicles
□ The development of autonomous driving technology
□ Car sharing and rental services
□ Smart cars and vehicle networking technology
□ Other (please specify)
21. Would you be willing to pay more for better technologies?
□ No
□ Yes, 0–5% more
□ Yes, 5–10% more
□ Yes, 10–20% more
□ Yes, more than 20%

- Safety: 1 2 3 4 5
- Brand reputation: 1 2 3 4 5
- Technological innovation: 1 2 3 4 5
- Price-to-Quality Ratio: 1 2 3 4 5
- Appearance and design: 1 2 3 4 5
- Durability and reliability: 1 2 3 4 5

German brands (e.g., Volkswagen, BMW, Mercedes-Benz)
- Vehicle performance: 1 2 3 4 5
- Safety: 1 2 3 4 5
- Brand reputation: 1 2 3 4 5
- Technological innovation: 1 2 3 4 5
- Price-to-Quality Ratio: 1 2 3 4 5
- Appearance and design: 1 2 3 4 5
- Durability and reliability: 1 2 3 4 5

Other EU brands (e.g., Peugeot, Citroën, Fiat)
- Vehicle performance: 1 2 3 4 5
- Safety: 1 2 3 4 5
- Brand reputation: 1 2 3 4 5
- Technological innovation: 1 2 3 4 5
- Price-to-Quality Ratio: 1 2 3 4 5
- Appearance and design: 1 2 3 4 5
- Durability and reliability: 1 2 3 4 5

Future Choice

11. Where do you usually get information about cars? (Multiple choice)

□ Friends or family recommendations
□ Automobile websites (e.g., Autohome, Bitauto)
□ Social media platforms (e.g., WeChat, Weibo, Xiaohongshu)
□ Short video platforms (e.g., Douyin, Kuaishou)
□ Car dealerships / 4S stores
□ Car exhibitions / auto shows
□ News articles / car magazines
□ Others (please specify)