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Department of Sociology, Economic
Theory and International Processes
38.04.01 Economics
International Economics and Business

GRADUATION THESIS

on

Analysis of the characteristics of China's automobile international trade

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Institute of Economics and Administration
Department of Sociology, Economic Theory and International Processes
Field of study 38.04.01 Economics,
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ASSIGNMENT
FOR THE GRADUATION THESIS OF

Master's degree student Ren Huifang, group 24ЭЭВам1, full-time mode of study

1 The topic of the graduation thesis: "Analysis of the characteristics of China's automobile international trade"

was approved by the university order
dated «__» _____ 20__ no. _____

2 The deadline for the Master's degree student to complete the graduation thesis is 15.06.2026.

3 The input data for the graduation thesis is the regulatory and legal framework, scientific literature and reference books, and Internet data.

4 The list of issues to be studied includes the historical evolution and phased characteristics of China's automobile international trade; the current development status, export scale and growth trend of China's automobile international trade; the market distribution, product structure and brand characteristics of China's automobile international trade; the main problems and challenges faced by China's automobile international trade; targeted countermeasures and optimization pathways for the existing problems.

5 The date of setting the assignment is 8.10.2024.

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The assignment was accepted by Master's degree student _____ / Ren Huifang/
(signature) (full name)

Schedule for completing the graduation thesis

№ п/п	Content of the thesis	Deadline for completion	Due date, signature of the academic adviser
First year of study			
1	Substantiating of the research topic and methodology, subject and object of research	1.09.2024 – 31.10.2024	
2	Framing the scientific concept of research	1.11.2024 – 18.12.2024	
3	Collection of scientific literature for the thesis	19.12.2024 – 15.01.2025	
4	Substantiating the relevance, concept, and novelty of the research	16.01.2025 – 19.02.2025	
5	Framing of a detailed plan and layout of the research	20.02.2025 – 12.03.2025	
6	Studying new literature sources within the topic of the thesis	13.03.2025 – 26.03.2025	
7	Conducting theoretical research within the first chapter of the thesis	27.03.2025 – 30.04.2025	
8	Preparing the first chapter of the thesis	1.05.2025 – 30.06.2025	
Second year of study			
9	Conducting analytical research within the second chapter of the thesis	1.09.2025 – 22.10.2025	
10	Preparing the second chapter of the thesis	23.10.2025 – 24.12.2025	
11	Conducting analytical research within the third chapter of the thesis	25.12.2025 – 25.02.2026	
12	Preparing the third chapter of the thesis	26.02.2026 – 21.04.2026	
13	Preparing the introduction and conclusion	22.04.2026 – 12.05.2026	
14	Completing the graduation thesis	13.05.2026 – 27.05.2026	
15	Handing in the thesis for compliance control and antiplagiat	28.05.2026 – 11.06.2026	
16	Getting acquainted with the feedback and review	13.06.2026	
17	Presenting the written thesis	15.06.2026	

Academic adviser _____ /Dubina A.Sh /
(signature) (full name)

The assignment was accepted by Master's degree student Ren Huifang/ Ren Huifang /
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Summary

The graduation thesis comprises 86 pages, 3 chapters, 3 figures, 5 tables, 60 sources.

CHINA, AUTOMOBILE INTERNATIONAL TRADE, NEW ENERGY VEHICLES, MARKET DISTRIBUTION, BRAND, TRADE BARRIERS, GLOBAL VALUE CHAIN

The target of research as the characteristics, current position, challenges and optimization pathways of China's automobile international trade in the context of global energy transition and automotive industry transformation.

The goal of work is to study the characteristics of China's automotive trade, with a focus on the new energy vehicle (NEV) sector. By analyzing relevant data from 2020 to 2024, the study aims to identify the developmental characteristics, existing challenges, and optimization pathways of China's automotive trade. Ultimately, it seeks to provide a basis for formulating strategies to enhance China's position in the global automobile trade, promote the sustainable development of China's automobile industry, and support the industry's transition from a "manufacturing powerhouse" to a "trade strong nation".

The methodological framework of the paper is formed by the complex of theoretical and practical methods such as literature review method, statistical analysis method, comparative analysis method and empirical analysis method.

The results of research include:

1. Clarified the three-stage development process of China's automobile international trade (industrialization foundation stage, WTO expansion stage, NEV-driven leapfrog stage), and confirmed that China achieved a historic transformation from a net importer to the world's largest automobile exporter in 2023.

2. Systematically revealed the core characteristics of China's automobile international trade from three dimensions: market diversification with emerging markets as the core, product structure transformation dominated by NEVs, and export pattern led by independent brands.

3. Identified four major challenges: excessive market concentration, core technology bottlenecks in high-end chips and intelligent systems, low brand premium capacity, and strict trade barriers in developed markets.

4. Constructed a four-dimensional optimization system including market layout optimization, core technology breakthrough, brand high-end development and trade barrier response.

The recommendations on disseminating and applying the results are as follows:

1. For government departments: The conclusions can provide a reference for formulating industrial support policies and international trade negotiation strategies.

2. For automobile enterprises: The analysis of market characteristics can guide enterprises to optimize their internationalization layout and product positioning.

3. For academic research: The research framework can be extended to the study of other emerging economies' industrial internationalization.

The theoretical relevance of the thesis is established by empirically testing and expanding the Infant Industry Protection Theory and Technological Gap Theory through the unique case of China's NEV industry, enriching the theoretical system of international trade and industrial economics.

The target of research can be further explored through in-depth quantitative analysis of the impact of EU carbon border adjustment mechanism (CBAM) on China's NEV exports, and case studies of specific Chinese automobile brands' internationalization processes.

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Introduction

In recent years, China's automobile industry has achieved rapid growth in international trade. It has evolved from a marginal player in the global market to a major exporter. In 2023, China surpassed Japan to become the world's largest automobile exporter with a total export volume of 4.91 million units, and this momentum continued in 2024 with exports reaching 5.86 million units, of which new energy vehicles (NEVs) accounted for 21.84 %.

Research problem: China's automotive trade is facing a series of challenges, including excessive market concentration, core technology bottlenecks, low brand influence, and high access thresholds in developed markets. Against this backdrop, a comprehensive analysis of the characteristics, drivers, challenges, and optimization pathways of China's automotive trade is of great practical and theoretical significance.

The research objectives is previous studies on China's automotive trade has primarily focused on traditional fuel vehicle exports and industrial policy effects (Amighini & Gorgoni, 2014; Zhang et al., 2023), with limited attention to the structural changes driven by NEVs after 2020.

First, this study clarifies the developmental context and current status of China's automobile international trade, including its evolution from early industrialization to NEV-driven growth and its global position. It also systematically analyzes its core characteristics, covering three aspects: market distribution, product structure, especially the shift toward NEVs and intelligent connected vehicles (ICVs), and brand competitiveness.

Second, the study identifies the key growth drivers (technological innovation, localization strategies, government support) and main challenges (trade barriers, negative brand perception in Western markets, supply chain vulnerabilities from lithium-related geopolitical tensions) of China's automobile international trade [13, p. 60].

Third, the study explores the research's relevance and practical value, and aims to provide a theoretical and empirical basis for optimizing China's automobile international trade strategies to enhance its global competitiveness and sustainable development.

The research relevance is in terms of practical application, studying the characteristics of China's automotive trade helps domestic automakers accurately grasp the global market dynamics, optimize their internationalization strategies, and enhance their competitiveness in the global arena. Meanwhile, it can promote the development of upstream and downstream industries in the automotive industrial chain, such as battery manufacturing, chip production, and parts processing, and support international trade cooperation by helping to reduce trade barriers and promote mutually beneficial cooperation between China and other countries.

In terms of scientific contribution, this study constructs a systematic analysis framework for the characteristics of China's automobile foreign trade, identifies the technological gaps between Chinese and international automakers through comparative analysis, provides a theoretical and empirical reference for industrial technological R&D and innovation, and enriches the relevant research theories and perspectives in the field of international automobile trade.

In terms of societal impact, the expansion of China's automotive trade drives economic growth by increasing foreign exchange reserves and creating more jobs, thereby stabilizing the national economy. It also enhances China's global economic influence and status, improves international automotive trade relations, and promotes regional economic cooperation and coordinated social-economic development.

The research goal is the core goal of this study is to comprehensively explore the characteristics of China's automotive trade, with a focus on the new energy vehicle (NEV) sector. By analyzing relevant data from 2020 to 2024, the study aims to identify the developmental characteristics, existing challenges, and optimization pathways of China's automotive trade. Ultimately, it seeks to provide a basis for formulating strategies to enhance China's position in the global automobile trade, promote the sustainable development of China's automobile industry, and support the industry's transition from a "manufacturing powerhouse" to a "trade strong nation" [16, p. 8].

The research methods are Literature Review Method. The literature review method is used to collect, sort out and summarize domestic and foreign academic papers, monographs, industry reports, official statistical data and policy documents related to international

automobile trade, industrial development and new energy vehicle industry. This lays a solid theoretical foundation for defining research concepts, constructing an analytical framework and understanding the historical evolution of China's automobile international trade.

Statistical Analysis Method is the statistical analysis method is applied to process and analyze the panel data of China's automobile export volume, new energy vehicle export share, market distribution, production scale and trade structure from 2015 to 2024. Through descriptive statistics, trend analysis and quantitative calculation, this paper objectively reveals the scale growth, structural changes and regional distribution characteristics of China's automobile international trade.

Comparative Analysis Method is the comparative analysis method is adopted to compare the trade structure, competitive advantages and development models of China's automotive trade with those of traditional automobile powers such as Japan, Germany and the United States. It also compares the differences between traditional fuel vehicles and NEVs in trade performance, so as to highlight the unique characteristics of China's automotive trade [53, p. 61].

Empirical Analysis Method is the empirical analysis method is used to carry out quantitative verification on the key factors affecting the development of China's automobile international trade, such as technological innovation, industrial policy, supply chain resilience and market demand, so as to enhance the accuracy and persuasiveness of the research conclusions.

The novelty of the master's thesis lies in the fact that perspective Innovation focus on global energy transition and NEV track, breaking the research limitation of traditional fuel vehicle trade.

Content Innovation establishes a multi-dimensional analysis framework; clarify China's automotive trade strengths and weaknesses via international comparison.

Theoretical Innovation Combines classic trade theories with domestic industrial policies and enterprise cases to enrich empirical research.

Countermeasure Innovation targets current trade barriers and industry bottlenecks, putting forward targeted and practical development suggestions.

The research significance is in terms of theoretical significance, this research contributes to the academic field by empirically testing and extending established economic theories, such as the Infant Industry Protection and Technological Gap theories, through the contemporary and unique case study of China's rapid rise in the global automotive, particularly NEV, trade. It enriches the theoretical system of international trade and industrial economics, and provides a new research perspective for the study of emerging economies' industrial internationalization.

In terms of practical significance, it provides actionable insights for different stakeholders: For policymakers, the findings offer a reference for fostering technological leapfrogging and global competitiveness via strategic policies, providing a successful model for developing high-tech industries; for industry practitioners, it analyzes market diversification, innovation drivers, and localization strategies to provide a roadmap for global expansion, mitigating risks like trade barriers; for global stakeholders, it serves as a critical reference for understanding the global automotive supply chain dynamics, identifying collaboration and investment opportunities.

The research innovation Research Perspective Innovation is focus on the rapid development of China's automotive trade driven by NEVs. Unlike traditional research that only focuses on fuel vehicle trade and total scale, this thesis takes NEV-led industrial transformation as the core perspective, systematically sorts out the phased evolution of China's automotive trade (early industrialization, WTO expansion, NEV strategic leapfrog). Combined with the latest data from 2021 to 2024 (China surpassing Japan as the world's largest automobile exporter in 2023, NEV export accounting for 21.84 % in 2024), it analyzes the new logic of China's automobile international trade rise under the global energy transition and post-pandemic supply chain restructuring, which addresses the lack of targeted research on China's automobile trade in the NEV era.

The research content innovation is multi-dimensional characterization of the structural characteristics of China's automotive trade. This thesis constructs a four-dimensional analysis framework of historical evolution, market distribution, product structure and brand characteristics, and carries out quantitative and qualitative combined research. It not only combs the scale growth and market diversification layout of China's

automobile exports, but also compares the competitive differences between China and traditional automobile powers such as Japan, Germany and the United States, and clarifies China's unique advantages in NEV vertical integration, battery supply chain resilience and cost control. It breaks the single-dimensional research model of previous studies and comprehensively depicts the new pattern of China's automobile international trade.

The theoretical application innovation is integrated application of classic theories and China's practical scenarios. This thesis organically combines the Infant Industry Protection Theory and Technological Gap Theory with China's automobile industry practice, and does not simply apply theories. It verifies and expands the theoretical path of developing countries' automobile industry achieving international trade status improvement through "policy guidance+technology catch-up+industrial chain integration" by combining China's "market for technology" strategy, NEV subsidy policy, Geely's acquisition of Volvo and other typical cases, enriching the theoretical application scenarios of emerging economies' automobile trade development.

The countermeasure formulation innovation is targeted solutions to practical pain points with strong operability. Aiming at the core problems of China's automobile international trade, such as over-concentrated market distribution, core technology bottlenecks, low brand premium and supply chain vulnerability, this thesis puts forward systematic and implementable countermeasures combined with the latest international trade environment (EU carbon rules, US tariff barriers, RCEP agreement). The countermeasures are closely linked to localization production, international standard participation, supply chain risk early warning and brand high-end development, which are different from the generalized countermeasure research and have strong practical guiding significance for the high-quality development of China's automotive trade.

Chapter 1 The development status quo of China's international automobile trade

1.1 Review of Historical Development

This section explains the development of China's automotive trade, emphasizing important milestones and policy-driven transformations. By delving deep into the historical context, technological advancements, and market dynamics, a comprehensive picture of the industry's growth from its nascent stages to its current dominant position in the global automotive market will be presented.

China's automotive industry embarked on its journey in the 1950s, a period marked by the nation's determined efforts towards industrialization amid a backdrop of post-war reconstruction and geopolitical isolation. In 1953, the establishment of the First Automotive Works (FAW) in Changchun, Jilin Province, was a momentous event. Modeled after Soviet automotive plants, FAW received significant technical assistance from the Soviet Union, including blueprints, machinery, and expert training. In 1956, FAW successfully rolled out the first domestically produced "Liberation" truck, which became an iconic symbol of China's fledgling industrial capabilities.

During this era, the Chinese automotive industry operated under a strictly state-planned economy. Production was primarily geared towards meeting the needs of the military and key sectors of the national economy, such as transportation and infrastructure development. The focus was on manufacturing robust and utilitarian vehicles, with little emphasis on consumer-oriented design or comfort [17, p. 75]. The domestic market was the sole target, as the country's economic policies at the time discouraged international trade, and the industry lacked the competitiveness and technological sophistication to venture abroad.

The 1980s brought about a significant shift with China's economic reform and opening-up policy. Recognizing the need to rapidly modernize its automotive industry, the Chinese government introduced the «Market for Technology» strategy. This approach aimed to attract foreign investment and advanced automotive technologies by offering

access to China's vast domestic market [1, p. 27]. Foreign automakers, eager to tap into this emerging market, were invited to form joint ventures (JVs) with domestic companies.

The Santana and Jetta models, introduced by Shanghai Volkswagen and FAW-Volkswagen respectively, played a key role in technology transfer and market expansion in the 1980s-1990s.

However, despite the influx of foreign investment and technology through these joint ventures, there were limitations. Many foreign partners were cautious about fully transferring their core technologies, prioritizing vehicle assembly and market penetration over long-term technology transfer. As a result, while China's automotive production capacity grew steadily, the domestic industry remained largely dependent on foreign technologies for critical components such as engines, transmissions, and electronic control systems.

By the year 2000, China's annual automobile production had reached 2.07 million units, a remarkable achievement considering its humble beginnings. However, in terms of international trade, China's presence in the global automotive market was minimal. Exports were mainly limited to low-cost commercial vehicles, such as FAW trucks, and automotive parts, primarily sold to developing nations in Southeast Asia, the Middle East, and Africa. These exports were driven more by cost competitiveness rather than technological superiority or brand recognition.

The year 2001 marked a watershed moment for China's automotive industry with its entry into the World Trade Organization (WTO). This event brought about a series of far-reaching changes as China was required to lower its trade barriers and open up its markets further to international competition. Tariff reductions on automobiles, which dropped from a high of 80% to 25% over a few years, significantly altered the competitive landscape. Additionally, the Chinese government introduced a series of policy reforms, such as the Automotive Industry Development Policy in 2004, aimed at promoting the healthy development of the domestic automotive industry, enhancing its competitiveness, and facilitating international trade.

The immediate impact of these changes was a surge in both domestic production and international trade. In 2005, a significant milestone was achieved when China's automobile

exports surpassed imports for the first time. The export figure of 172,800 units, compared to 161,200 units of imports, was driven by the growth of the commercial vehicle segment and the increasing competitiveness of low-cost sedans in the international market. Chinese commercial vehicle manufacturers, leveraging their cost advantages and improving product quality, were able to penetrate markets in developing countries more effectively.

This period also witnessed the rise of independent Chinese automobile brands. Chery, established in 1997, emerged as a pioneer among domestic automakers. In 2003, the launch of the Chery QQ was a strategic move that targeted the budget sedan market. With its cute design, affordable price, and practical features, the QQ quickly gained popularity both at home and abroad. By 2010, Chery had achieved annual exports of 180,000 units, making it one of the most successful Chinese automotive exporters at the time. The success of Chery was not only due to its cost-effective products but also its ability to adapt to different market demands, especially in emerging economies where price sensitivity was high.

Geely, another independent Chinese brand with a long history dating back to 1986, also made significant strides during this period. In 2010, Geely's acquisition of Volvo Cars from Ford Motor Company was a landmark event. This acquisition was more than just a business deal; it was a strategic move that allowed Geely to access Volvo's advanced automotive technologies, engineering expertise, and global brand recognition. Geely used the knowledge and resources acquired from Volvo to enhance the quality and technological level of its own products, gradually transforming from a low-cost vehicle manufacturer to a more competitive player in the global automotive market.

By 2010, China had firmly established itself as the world's largest automobile producer, with an annual production of 18.26 million units. However, despite this impressive production volume, China's exports remained relatively fragmented. The annual export figure of 544,900 units was a small fraction of the total production, indicating that while the domestic market was booming, the international competitiveness of Chinese automobiles, especially passenger cars, was still limited. Many Chinese automakers faced challenges in terms of brand building, meeting international safety and environmental standards, and establishing effective overseas sales and service networks.

The period after 2010 witnessed a strategic shift in China's automotive industry with the prioritization of NEVs as a national development strategy. The "Made in China 2025" initiative, announced in 2015, identified the NEV sector as one of the key areas for technological innovation and industrial upgrading. This initiative was driven by multiple factors, including the need to reduce dependence on imported oil, address environmental pollution issues, and gain a competitive edge in the global automotive industry of the future.

To support the development of the NEV industry, the Chinese government implemented a series of comprehensive policies. These subsidies not only encouraged domestic consumers to purchase NEVs but also provided financial support to automakers for research and development, production capacity expansion, and technology improvement.

The Dual-Credit Policy, introduced in 2017, was another significant regulatory measure. This policy mandated automakers to meet specific NEV production or sales targets or purchase NEV credits from other companies that exceeded the requirements. The Dual-Credit Policy created a market-based incentive mechanism, forcing traditional automakers to invest in NEV technology and production, thereby accelerating the overall development of the NEV industry in China.

These policies and initiatives led to a series of remarkable milestones in China's NEV-driven international trade. In 2021, China's automobile exports exceeded 2 million units for the first time, with NEVs contributing 15.4% (308,000 units) of the total exports. The post-pandemic period demonstrated China's supply chain resilience in the automotive industry. For example, the rapid recovery of battery production, with China accounting for a large share of the global lithium-ion battery manufacturing capacity, gave Chinese NEV manufacturers a significant competitive advantage. Chinese battery companies, such as Contemporary Amperex Technology Co. Ltd. (CATL), not only supplied domestic automakers but also exported batteries to international customers, strengthening China's position in the global NEV supply chain.

In 2023, a historic moment was achieved when China surpassed Japan as the world's top automobile exporter, with a total export volume of 5.22 million units. NEVs played a crucial role in this achievement, accounting for 22.99% (1.20 million units) of the total

exports. Key players such as BYD and Tesla's Shanghai Gigafactory were instrumental in driving this growth [59, p. 59]. BYD's innovative Blade Battery technology, which offered enhanced safety, energy density, and cost-effectiveness, gave its NEV products a competitive edge in the global market. Tesla's Shanghai Gigafactory, on the other hand, demonstrated the success of foreign investment in China's NEV industry. It not only met the growing domestic demand for Tesla vehicles but also served as an export hub, shipping Tesla cars produced in China to markets across the globe.

In 2024, China's automobile export momentum continued to grow, reaching 5.86 million units. NEVs accounted for an even higher proportion of 21.84% (1.28 million units). SAIC's MG4 EV emerged as a successful product in the international market. The success of the MG4 EV was due to its combination of advanced electric vehicle technology, stylish design, and competitive pricing, which resonated well with European consumers.

The development of China's automotive industry, especially the growth of the NEV sector, can be well-explained by economic theories. The Infant Industry Protection Theory posits that emerging domestic industries need government support and protection from international competition to grow and become competitive in the long run. In the case of China's NEV industry, government interventions such as NEV subsidies, local content requirements, and preferential policies for domestic NEV manufacturers played a crucial role. These policies shielded domestic firms like BYD from global competition in the early stages, allowing them to build production scale, invest in research and development, and improve product quality. For example, BYD, with the support of government policies, was able to increase its NEV production volume significantly, becoming one of the largest NEV manufacturers in the world.

The Technological Gap Theory emphasizes the importance of technological innovation and catching up with more advanced economies. China's automotive industry, especially in the NEV field, actively bridged the technological gaps through substantial R&D investment [5, p. 58]. In 2023, China invested approximately \$ 45 billion in automotive R&D, with a significant portion going towards NEV technology development. Additionally, strategic acquisitions, such as Geely's acquisition of Volvo, enabled Chinese automakers to quickly access advanced technologies and accelerate their technological

upgrading process. These efforts have not only helped China's automotive industry catch up with international competitors but also allowed it to take the lead in some aspects of NEV technology, such as battery technology and electric vehicle intelligent systems.

In conclusion, the evolution of China's automobile international trade is a remarkable story of transformation and growth. From its humble beginnings as a nascent industry focused on domestic needs to its current status as the world's leading automobile exporter, driven by the rapid development of the NEV sector, China's automotive industry has overcome numerous challenges and achieved significant milestones [55, p. 24]. The combination of government policies, technological innovation, and market-oriented reforms has been the key to its success. As China continues to invest in research and development, expand its global market presence, and drive technological advancements in the automotive industry, it is poised to play an even more dominant role in the future of the global automotive market.

1.2 The Concept and Characteristics of China's International Automobile Trade

This section defines China's automobile trade and analyzes its main characteristics. By exploring the multifaceted nature of the industry, a comprehensive understanding of China's position in the global automotive trade landscape will be achieved, highlighting the factors that have contributed to its rapid growth and competitiveness.

International Automobile Trade is a complex and dynamic economic activity that encompasses a wide range of components. At its core, it involves the exchange of complete vehicles, automotive components, and technology transfers on a global scale. This trade is not one-sided; it has a dual focus on both exports and imports, with each aspect playing a crucial role in shaping the industry's development.

Complete Vehicles: The trade of complete vehicles is a significant component of international automobile trade. For China, this has evolved from a minor exporter of low-cost commercial vehicles in the early days to a major player in the global passenger vehicle market, especially in the NEV segment. The export of complete vehicles not only generates

revenue but also helps in building brand recognition and establishing a global presence. Chinese automakers are now exporting a diverse range of vehicles, from compact electric cars to high-end luxury models, catering to different market demands around the world.

Components: Automotive components trade is equally important. China has become a major supplier of automotive parts globally, with a vast network of component manufacturers. These components range from basic parts such as tires, brakes, and engines to more advanced components like electronic control units, batteries, and sensors. The component trade is driven by the global nature of the automotive industry, where automakers source parts from different regions to achieve cost savings and technological innovation. Chinese component manufacturers have been able to compete on the global stage due to their cost-effectiveness, quality improvements, and ability to adapt to rapidly changing technological requirements.

Technology Transfers: Technology transfers are a crucial aspect of international automobile trade, especially for a developing industry like China's. In the early stages, China relied on technology transfers from foreign automakers through joint ventures. However, over time, China has not only absorbed foreign technologies but has also become a source of technological innovation itself. Today, Chinese automakers are involved in technology transfers both as recipients and providers. For example, Chinese NEV manufacturers are sharing their battery technology, charging infrastructure solutions, and autonomous driving technologies with other countries, while also continuing to learn from international partners to further enhance their technological capabilities.

NEV Dominance: In recent years, NEVs have emerged as the dominant force in China's automobile international trade, driving rapid growth. In 2024, NEVs contributed a staggering 58% year-on-year export growth, a trend led by industry giants such as BYD and SAIC.

BYD, with its vertically integrated business model, has been at the forefront of this NEV export boom. The company not only manufactures complete NEVs but also has significant control over the entire supply chain, from battery production to the development of electric drivetrains. BYD's Blade Battery, a lithium iron phosphate battery technology with enhanced safety and energy density, has been a key selling point. It offers enhanced

safety, longer range, and better cost - effectiveness, making BYD vehicles highly competitive in the global market. The company has expanded its export reach to numerous countries across Europe, Asia, and South America, with models like the BYD Atto 3 (also known as Yuan Plus in China) gaining popularity for their practicality and affordability.

SAIC, on the other hand, has leveraged its global brand portfolio, including the MG brand, to drive NEV exports. The MG4 EV, for instance, has become a best-selling Chinese EV in Europe. SAIC's success in the NEV export market can be attributed to its ability to adapt to different market regulations and consumer preferences. It has invested heavily in research and development to ensure its NEVs meet the strict safety and environmental standards of developed markets while also offering features that appeal to local consumers.

The vertical integration in the Chinese NEV industry ensures significant cost competitiveness. By controlling key components of the vehicle production process, Chinese automakers can reduce costs associated with sourcing from external suppliers. For example, battery production is a major cost component in NEVs. Chinese companies' dominance in battery manufacturing, with companies like CATL (Contemporary Amperex Technology Co., Limited) leading the global market, allows them to have better cost control over battery - powered vehicles. This cost advantage, combined with continuous technological innovation, enables Chinese NEVs to offer competitive prices in the international market, making them accessible to a wider range of consumers.

Policy-Driven Globalization: China's automobile international trade has been significantly shaped by a series of government policies, both in the form of subsidies and tariff regulations.

Subsidies have played a crucial role in promoting the development and export of NEVs. For instance, from 2016 - 2020, the Chinese government provided substantial subsidies of up to \$9,000 per NEV for both manufacturers and buyers. These subsidies not only encouraged domestic consumers to purchase NEVs but also helped Chinese automakers to scale up production, reduce costs, and improve product quality. The Dual - Credit Policy, introduced in 2017, mandated automakers to produce a certain proportion of NEVs or purchase credits if they failed to meet the quota. This policy forced traditional

automakers to invest in NEV technology, accelerating the industry's transition towards electric mobility and enhancing China's competitiveness in the global NEV market.

Tariffs also play an important role in shaping trade flows. China's tariff policies are designed to protect domestic industries while also promoting international trade. For example, while China has reduced tariffs on imported automobiles as part of its WTO commitments, it still maintains certain tariff levels to ensure that domestic automakers have a fair playing field. At the same time, China uses tariff policies to negotiate with other countries and regions, promoting the export of Chinese automobiles. For instance, in free trade agreements, China may negotiate for reduced tariffs on its automotive exports, facilitating market access for Chinese automakers in partner countries.

Market Diversification: China's automobile international trade is characterized by a high degree of market diversification, covering both emerging and developed markets.

In emerging markets, countries such as Russia, Iran, and those in Southeast Asia have become important destinations for Chinese automobile exports, accounting for approximately 35% of total exports. Russia, with its large landmass and growing demand for affordable vehicles, has seen a significant increase in Chinese automobile imports in recent years. Chinese automakers have been able to penetrate the Russian market by offering vehicles that are suitable for the local climate and road conditions, at competitive prices. In Iran, Chinese commercial vehicles, especially trucks and buses, have gained popularity due to their reliability and cost-effectiveness. In Southeast Asia, countries like Thailand, Indonesia, and Malaysia are not only important export markets but also potential locations for Chinese automakers to set up manufacturing plants. For example, Great Wall Motor has established a manufacturing base in Thailand, which serves as a hub for exporting to other Southeast Asian countries as well as the Australian market.

In developed markets, Europe has become a key target for Chinese high-value NEVs. European countries have ambitious plans to transition to electric mobility, driven by strict environmental regulations and a growing consumer preference for sustainable transportation. Chinese automakers are capitalizing on this trend by exporting advanced electric vehicles that meet European safety, environmental, and technological standards. Brands like NIO, Xpeng, and BYD have opened showrooms and service centers in major

European cities, aiming to build a strong brand presence and compete with established European automakers. By targeting the high - value EV segment in Europe, Chinese automakers are not only increasing their export revenue but also enhancing their global brand image.

Supply Chain Resilience: China's strength in the international automobile trade is further enhanced by its supply chain resilience, particularly in the area of battery production. China has significant control over the mining of critical minerals such as lithium and cobalt, which are essential for battery manufacturing. Approximately 60% of global battery production takes place in China, giving Chinese automakers a competitive edge in the NEV market.

The control over the lithium and cobalt supply chain starts from the mining stage. Chinese companies have invested in lithium and cobalt mines around the world, ensuring a stable supply of these critical minerals. For example, Chinese companies have made substantial investments in lithium mines in Argentina, Chile, and Australia. At the same time, China has a well - developed battery manufacturing ecosystem, with a large number of battery manufacturers, research institutions, and component suppliers. This ecosystem enables rapid technological innovation, cost reduction, and mass production of batteries. The ability to ensure a stable supply of batteries not only supports the domestic production of NEVs but also allows Chinese automakers to export battery-related technologies and components, strengthening their position in the global supply chain [45, p. 59].

Japan and Germany: Japan and Germany, two traditional automotive powerhouses, have different focuses in the international automobile trade compared to China. Japan and Germany have long been known for their expertise in hybrid and luxury vehicle segments. Japanese automakers like Toyota and Honda have been pioneers in hybrid technology, with models such as the Toyota Prius becoming globally recognized symbols of fuel-efficient and environmentally friendly vehicles. German automakers, on the other hand, are renowned for their luxury and high - performance vehicles, with brands like Mercedes-Benz, BMW, and Audi dominating the global luxury car market.

However, in the area of electric vehicle affordability, Japan and Germany have lagged behind China. Chinese automakers have been able to leverage their cost-effective

manufacturing processes, vertical integration, and government support to produce electric vehicles at more affordable prices. While Japanese and German automakers are gradually increasing their investment in electric vehicle technology, they face challenges in quickly matching China's cost-competitiveness in the mass-market EV segment.

USA: The United States has a different approach to international automobile trade, often relying on protectionist tariffs. The US government has imposed tariffs on imported automobiles and automotive components, aiming to protect domestic industries and jobs. For example, the Trump administration's tariffs on steel and aluminum imports had a significant impact on the automotive industry, as these materials are crucial for vehicle production. These protectionist measures, while intended to benefit domestic automakers, have also led to trade tensions with other countries, including China. In contrast, China has been more focused on promoting international cooperation and free trade in the automotive industry, through initiatives such as the Belt and Road Initiative, which aims to enhance connectivity and trade between China and other countries, facilitating the export of Chinese automobiles and the development of overseas markets.

In conclusion, China's international automobile trade has distinct characteristics that set it apart from its global peers. These characteristics, from the dominance of NEVs to supply chain resilience and market diversification, have been key drivers of its growth and success in the global automotive market. Understanding these concepts and characteristics is essential for comprehending China's role in the international automobile trade and predicting its future development trends [50, p. 16].

1.3 Export Scale and Growth Trend

From 2015 to 2024, China's automobile export volume witnessed a significant increase, reflecting the country's growing dominance in the global automotive market. In 2015, China exported around 0.72 million vehicles, primarily commercial vehicles and a modest number of passenger cars. The real turning point came with the rapid development of the NEVs industry, which began to significantly boost export figures.

Table 1 shows the export volume of automobiles in the above three years and the proportion of new energy vehicles in total automobile exports, the specific analysis is as follows.

Table 1- Export Volume of China' s International Automobile Trade [20, p. 47]

Year	Total Exports (Million Units)	NEV Share (%)
2015	0.72	1.39 %
2020	1.08	20.37 %
2024	5.86	21.84 %

By 2024, China' s total automobile export volume reached 5.86 million vehicles. NEVs played an important role in this growth, accounting for 1.28 million units of the total exports. This surge can be attributed to a combination of factors, including technological advancements, government support, and strategic market penetration.

Among the top exporters in 2024, Chery emerged as a leading force with an export volume of 1.14 million vehicles. Chery' s success can be attributed to its early-stage focus on overseas market expansion, establishing manufacturing bases and sales networks in more than 80 countries and regions. Its product portfolio, ranging from compact cars to SUVs, caters to the diverse needs of international consumers. BYD, known for its innovative battery technology and vertically integrated production system, exported 433,000 vehicles. The company's global expansion strategy, which includes setting up production facilities in key markets, has been instrumental in increasing its export volume. Geely, with 400,000 vehicles exported, leveraged its acquisition of international brands like Volvo and its continuous investment in research and development to enhance product competitiveness and gain a larger share in the global market.

Europe: Europe has become a key battleground for Chinese NEV manufacturers. In the first quarter of 2024, China exported 54,000 NEVs to Europe, representing a staggering 93 % year-on-year increase. This rapid growth can be attributed to several factors. Firstly, European countries have stringent environmental regulations and ambitious carbon-

reduction targets, creating a large demand for electric vehicles. Chinese NEV manufacturers, with their cost-effective and technologically advanced products, are well-positioned to meet this demand. For example, brands like NIO and Xpeng have entered the European market with high-end electric models equipped with advanced features such as long-range batteries, intelligent driving assistance systems, and luxurious interiors.

Secondly, Chinese automakers have been actively adapting to local market requirements. They have established local service centers, charging infrastructure, and marketing teams to enhance the customer experience. For instance, BYD has partnered with local European companies to develop charging networks, ensuring that its vehicle owners have convenient access to charging facilities.

Africa: In Africa, Chinese automobiles have achieved a significant market share, with a 20 % share driven by the popularity of cost-effective SUVs. Chinese automakers have recognized the unique needs of the African market, where consumers prioritize affordability, durability, and adaptability to local road conditions. Models like the Haval H6, produced by Great Wall Motor, have become best-sellers in many African countries. These SUVs offer a combination of spacious interiors, reliable performance, and advanced safety features at a fraction of the price of European or Japanese counterparts. Moreover, Chinese automakers have been actively building local assembly plants in Africa, which not only helps to reduce costs through tariff exemptions but also creates local employment opportunities and strengthens business relationships with African countries.

Technological Innovation: Technological innovation has been a key driver of China's automobile export growth. In 2024, 60 % of exported passenger vehicles were equipped with Level 2+ autonomous driving systems. Chinese companies have made significant investments in research and development in areas such as autonomous driving, intelligent connectivity, and battery technology. For example, companies like Baidu have been developing advanced autonomous driving solutions, which are gradually being integrated into Chinese-made vehicles. In the field of battery technology, CATL has been leading the way with continuous improvements in battery energy density, charging speed, and safety. These technological advancements not only enhance the competitiveness of Chinese

vehicles in the international market but also meet the evolving demands of global consumers for more intelligent and sustainable transportation solutions.

Localization Strategies: Localization strategies have also played a crucial role in promoting exports. For example, BYD has established factories in Thailand and Hungary. In Thailand, the factory serves as a production base for Southeast Asian markets, reducing transportation costs and tariff risks. By localizing production, BYD can also better adapt to local market regulations and consumer preferences. In Hungary, the factory is strategically located to serve the European market, enabling the company to quickly respond to market demands and reduce the impact of trade barriers. Other Chinese automakers, such as SAIC and Geely, have also been implementing similar localization strategies, setting up assembly plants, research centers, and sales networks in overseas markets.

Government Support: The Chinese government's support policies have been instrumental in driving the growth of the automobile export industry. The government has provided subsidies of \$ 4,500 per NEV, which not only reduces the production costs of automakers but also makes Chinese NEVs more price-competitive in the international market. Additionally, R&D tax breaks have encouraged automakers to invest more in technological innovation. For example, under these policies, many Chinese companies have been able to allocate more resources to research and develop advanced technologies such as next-generation batteries, hydrogen fuel cells, and advanced driver - assistance systems.

Chapter 2 Current position of China's international automobile trade

2.1 Market Distribution Characteristics of China's International Automobile Trade

The market distribution of China's automobile international trade refers to the geographical distribution pattern of China's automobile exports and imports in the global scope. It is affected by factors such as global economic environment, trade policies, regional market demand, and infrastructure conditions. In recent years, with the continuous expansion of China's automobile export scale and the adjustment of trade strategies, the market distribution of China's automobile international trade has shown a trend of "concentration in key regions and gradual diversification", while the import market has maintained a relatively concentrated pattern. This section will analyze the distribution characteristics of China's automobile export and import markets, explore the influencing factors of market distribution, and discuss the potential of market expansion in different regions.

Distribution Characteristics of Export Markets: In recent years, China's automobile exports have achieved rapid growth, and the export market has gradually expanded from traditional emerging markets to developed markets, forming a multi-level and diversified export pattern. According to the data released by the China Association of Automobile Manufacturers (CAAM), China's automobile exports reached 5.22 million units in 2023 and 5.86 million units in 2024. From the perspective of regional distribution, the export market is mainly concentrated in Asia, Europe and North America, while the growth momentum in Central America, Oceania and other regions is obvious.

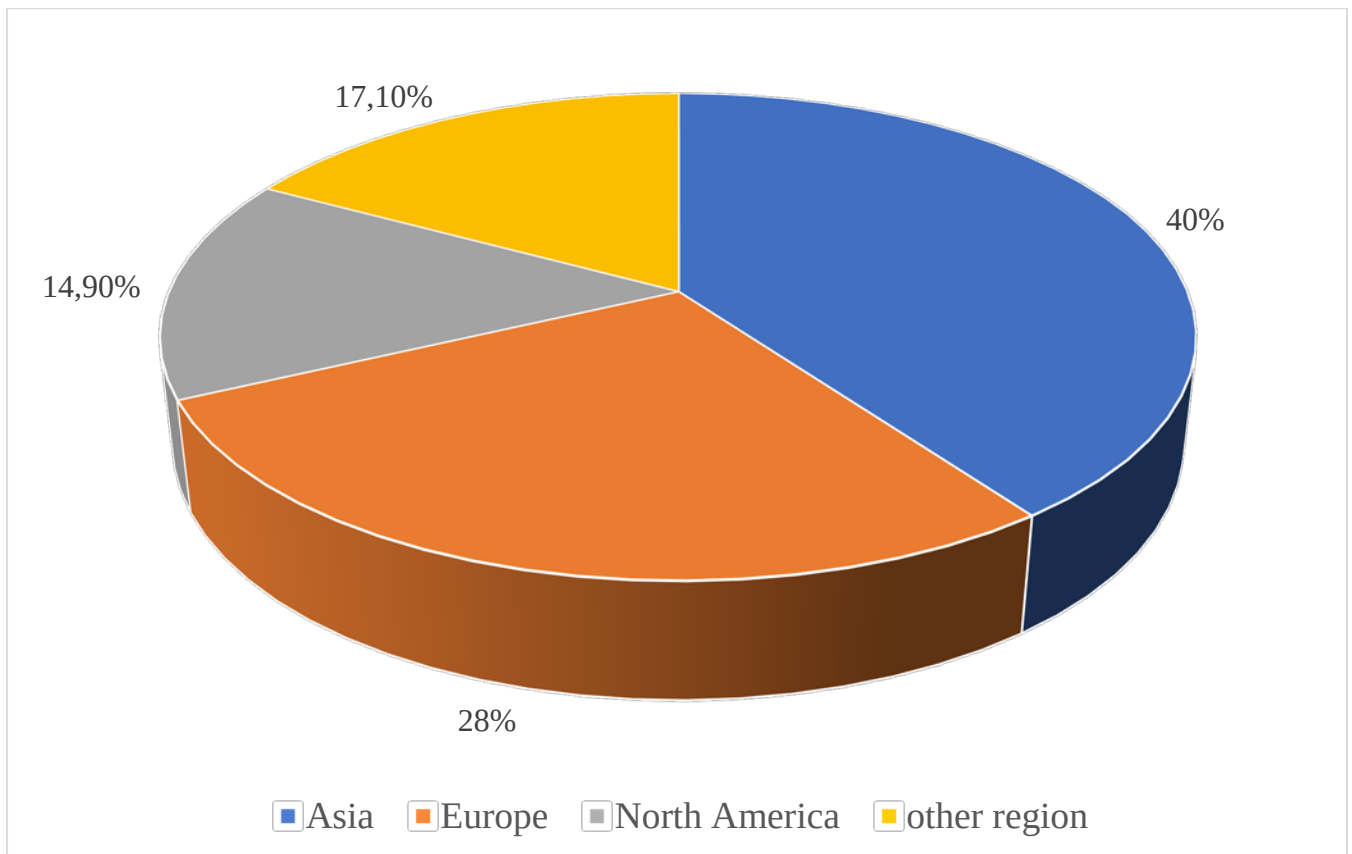


Figure 1– Regional Distribution of Chinas Automobile Export Market in 2024 [35, p. 89]

Figure 1 shows Asia is the traditional core export market of China's automobiles, accounting for the largest proportion of China's automobile exports. In 2024, China's automobile exports to Asia reached 2.34 million units, accounting for 40 % of total exports, with Southeast Asia, West Asia and Central Asia as key sub-markets. This concentration reflects China's geographical proximity to these regions and the competitive advantage of mid-range vehicles in emerging economies, where price sensitivity remains high. Southeast Asia, as a region with close economic and trade ties with China, has become an important export destination for China's automobiles due to its growing consumer demand and the implementation of the Regional Comprehensive Economic Partnership (RCEP). In 2024, China's automobile exports to Southeast Asia reached 1.12 million units, a year-on-year growth of 25.3%. Models such as BYD Song Pro, Geely Coolray and SAIC MG4 EV are well received in Southeast Asian markets. The main reasons are that these models are suitable for the road conditions and consumer preferences of Southeast Asia, and have

obvious price advantages compared with Japanese and Korean brands [18, p. 105]. West Asia is another important sub-market in Asia. Countries such as Saudi Arabia, the United Arab Emirates and Iran have strong purchasing power, and the demand for commercial vehicles and NEVs is growing. In 2024, China's automobile exports to West Asia reached 680,000 units, a year-on-year growth of 18.7%, of which commercial vehicles accounted for 45% of the exports to the region. Central Asia, relying on the advantages of the "Belt and Road" initiative, has become a new growth point of China's automobile exports. In 2024, China's automobile exports to Central Asia reached 320,000 units, a year-on-year growth of 32.1%, mainly focusing on commercial vehicles such as trucks and buses, which are mainly used to meet the needs of regional infrastructure construction.

Europe is the fastest-growing export market of China's automobiles in recent years, and has become the second largest export market of China's automobiles. In 2024, China's automobile exports to Europe reached 1.64 million units, (28% of total exports), representing a 35.2% year-on-year increase. The European market is dominated by developed countries such as Germany, France, the United Kingdom and Italy. Although these countries have strict technical standards and environmental protection requirements, China's NEVs have gradually broken through the market barriers with their advanced technology and cost advantages. In 2024, China's new energy vehicle exports to Europe reached 1.02 million units, accounting for 62.2% of China's automobile exports to Europe. SAIC's MG4 EV became the best-selling Chinese new energy vehicle in Europe, with annual sales of 120,000 units, and its market share in the European compact electric vehicle market reached 5.3%. BYD also achieved remarkable results in the European market, with its Atto 3 model ranking among the top 10 in the electric vehicle sales list in many European countries. The growth of China's automobile exports to Europe is mainly due to the strong demand for NEVs in the European market driven by the carbon neutrality strategy, as well as the continuous improvement of China's automobile technology and product quality, which can meet the strict technical and environmental protection standards of the European market.

North America is another important export market of China's automobiles, mainly focusing on the United States and Mexico. In 2024, China's automobile exports to North

America reached 870,000 units, accounting for 14.9% of the total exports, a year-on-year growth of 12.3%. The United States is the largest automobile market in North America, but due to the impact of Sino-US trade frictions and strict technical standards, China's automobile exports to the United States are mainly concentrated in NEVs and commercial vehicles. In 2024, China's new energy vehicle exports to the United States reached 350,000 units, a year-on-year growth of 18.9%, mainly models such as BYD Han and Tesla Shanghai-made Model 3. Mexico, as a member of the North American Free Trade Agreement (NAFTA), has become an important export hub for China's automobiles to enter the North American market. In 2024, China's automobile exports to Mexico reached 420,000 units, a year-on-year growth of 22.5%, mainly commercial vehicles and mid-to-low-end passenger vehicles. China's automobile manufacturers have also established assembly plants in Mexico to avoid trade barriers and reduce production costs.

In addition to the above three major regions, Central America, Oceania, Africa and other regions are emerging export markets of China's automobiles, showing strong growth momentum. Central America, including countries such as Costa Rica, Panama and Guatemala, has a growing demand for automobiles due to its economic development and improving infrastructure. In 2024, China's automobile exports to Central America reached 280,000 units, a year-on-year growth of 42.3%, which is the region with the fastest growth rate of China's automobile exports. Oceania, mainly Australia and New Zealand, has a high per capita income and a strong demand for NEVs. In 2024, China's automobile exports to Oceania reached 190,000 units, a year-on-year growth of 38.6%, of which NEVs accounted for 75% of the exports to the region. Africa is a traditional emerging market of China's automobiles, but due to the low level of economic development and imperfect infrastructure, the export volume is relatively small. In 2024, China's automobile exports to Africa reached 530,000 units, accounting for 9% of the total exports, a year-on-year growth of 15.8%, mainly focusing on low-cost commercial vehicles and passenger vehicles.

Distribution Characteristics of Import Markets: Compared with the export market, China's automobile import market is more concentrated, mainly focusing on developed countries and regions such as Europe, Japan and the United States. The imported vehicles are mainly high-end luxury vehicles, advanced technology vehicles and key components,

which are mainly used to meet the demand of domestic high-end consumer groups and the needs of domestic automobile industry technology upgrading. According to CAAM data, China's automobile imports reached 1.12 million units in 2024, a year-on-year growth of 8.7%.

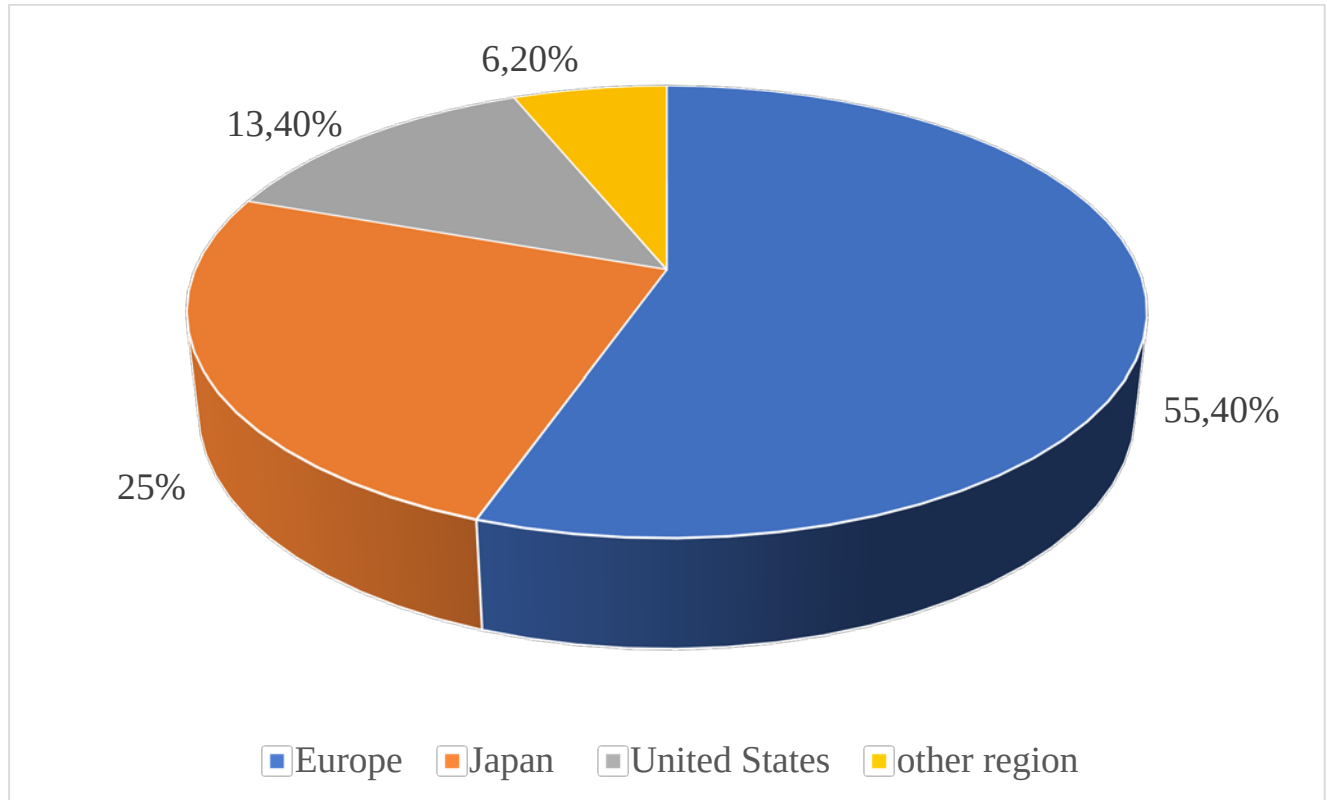


Figure 2 – Proportion of import sources for China's automotive market in 2024

[39, p. 57]

Figure 2 shows Europe is the largest import market of China's automobiles, accounting for more than half of China's automobile imports. In 2024, China's automobile imports from Europe reached 620,000 units, accounting for 55.4% of the total imports. The imported models are mainly high-end luxury vehicles from Germany, France and the United Kingdom, such as BMW, Mercedes-Benz, Audi, Volkswagen, Peugeot and Jaguar Land Rover. Among them, German luxury brands account for 70% of China's automobile imports from Europe. In addition, Europe also exports a small number of advanced technology vehicles and key components to China, such as hybrid vehicle technology and automatic transmission components. The reason why Europe has become the largest import market of China's automobiles is that European luxury brands have a long history and strong brand

influence, and their product quality and technical level are in a leading position in the world, which can meet the demand of domestic high-end consumer groups.

Japan is the second largest import market of China's automobiles. In 2024, China's automobile imports from Japan reached 280,000 units, accounting for 25% of the total imports. The imported models are mainly high-end passenger vehicles and hybrid vehicles, such as Toyota, Honda and Nissan. Toyota's Prado, Honda's Accord and Nissan's Teana are very popular in the Chinese market. In addition, Japan also exports a large number of key automobile components to China, such as engines, transmissions and electronic control systems, which play an important role in the production of domestic automobiles. The close economic and trade ties between China and Japan and the high recognition of Japanese automobile brands in the Chinese market are the main reasons for the large scale of China's automobile imports from Japan.

The United States is the third largest import market of China's automobiles. In 2024, China's automobile imports from the United States reached 150,000 units, accounting for 13.4% of the total imports. The imported models are mainly high-end luxury vehicles and sports cars, such as Ford, General Motors and Tesla. Tesla's Model S and Model X are very popular in the Chinese new energy vehicle market. In addition, the United States also exports a small number of advanced automobile technologies and components to China. However, affected by Sino-US trade frictions, the growth rate of China's automobile imports from the United States has slowed down in recent years.

In addition to the above three major regions, China also imports a small number of automobiles from South Korea, Canada and other countries and regions, but the proportion is relatively small, accounting for less than 7% of the total imports. The imported models are mainly mid-to-high-end passenger vehicles and commercial vehicles.

Factors Influencing Market Distribution: The market distribution of China's automobile international trade is affected by a variety of factors, including trade policies, tariffs, local market conditions (such as infrastructure and consumer purchasing power), and the competitive strength of automobile manufacturers. These factors interact with each other, forming the current market distribution pattern of China's automobile international trade.

Trade policies and tariffs are important factors affecting the market distribution of China's automobile international trade. On the one hand, the trade policies of importing countries directly affect the access of China's automobiles to the local market. For example, the European Union has formulated strict technical standards and environmental protection standards for automobiles, such as the Euro 6 emission standard and the carbon neutrality strategy, which have raised the entry threshold for China's automobiles to enter the European market [58, p. 34]. However, with the continuous improvement of China's automobile technology, more and more Chinese automobile models have passed the European technical certification and entered the European market. On the other hand, the trade agreements signed between China and other countries and regions have also promoted the expansion of China's automobile export market. For example, the implementation of RCEP has reduced or eliminated tariffs on automobile products between China and Southeast Asian countries, greatly reducing the cost of China's automobiles exported to Southeast Asia, and promoting the rapid growth of China's automobile exports to Southeast Asia. In addition, the "Belt and Road" initiative has also provided important opportunities for China's automobiles to enter Central Asia, West Asia and other regions, and the relevant countries have introduced preferential policies to attract China's automobile enterprises to invest and set up factories locally.

Local market conditions, including infrastructure and consumer purchasing power, are also important factors affecting the market distribution of China's automobile international trade. Infrastructure conditions directly affect the use of automobiles [57, p. 26]. In regions with perfect road infrastructure, such as Europe, North America and Southeast Asia, the demand for automobiles is relatively large, which is conducive to the expansion of China's automobile export market. In contrast, in regions with backward infrastructure, such as some African countries, the demand for automobiles is limited, and the export scale of China's automobiles is relatively small. Consumer purchasing power determines the level and type of automobile demand. In developed regions such as Europe, North America and Japan, consumers have strong purchasing power, and the demand for high-end luxury vehicles and NEVs is large, which is why China's imports from these regions are mainly high-end vehicles, and the export of NEVs to these regions is growing

rapidly. In emerging markets such as Southeast Asia, Central America and Africa, consumers have relatively weak purchasing power, and the demand is mainly concentrated in mid-to-low-end passenger vehicles and commercial vehicles, which is consistent with the product structure of China's automobile exports to these regions [51, p. 26].

From the perspective of Porter's Competitive Advantage Theory, the growing competitive strength of Chinese automakers-driven by cost advantages, technological innovation, and industrial chain integration-has been a key factor enabling market expansion from emerging to developed economies (Porter,1990). In recent years, China's automobile manufacturers have continuously increased their investment in research and development, and their technological level and product quality have been significantly improved, which has enhanced their competitiveness in the global market [41, p. 95]. For example, BYD has made remarkable achievements in the field of NEVs, with advanced battery technology and intelligent technology, and its products are sold in more than 150 countries and regions around the world. SAIC, Geely, Great Wall and other automobile manufacturers have also continuously expanded their overseas market layout and improved their brand influence. The improvement of the competitive strength of China's automobile manufacturers has promoted the expansion of China's automobile export market from traditional emerging markets to developed markets. In contrast, the import market is dominated by developed countries, mainly because the automobile manufacturers in these countries have strong technological strength and brand influence, and their products have obvious advantages in high-end markets.

Potential of Market Expansion in Different Regions: With the continuous growth of China's automobile industry and the continuous optimization of trade strategies, China's automobile international trade market has great expansion potential. Different regions have different market characteristics and expansion potential, which need to be analyzed and explored according to local conditions [8, p. 49].

Central America is an important potential market for China's automobile exports. The region has more than 400 million people, and the automobile penetration rate is relatively low, only about 30 vehicles per 100 people, which is far lower than the global average level (about 180 vehicles per 100 people). With the economic development of Central American

countries and the improvement of infrastructure, the demand for automobiles will continue to grow. In addition, Central American countries have signed free trade agreements with many countries and regions, which is conducive to China's automobiles entering the local market. At present, China's automobile exports to Central America are mainly concentrated in mid-to-low-end passenger vehicles and commercial vehicles. In the future, China's automobile manufacturers can further expand the market share by improving product quality, optimizing product structure and establishing local sales and service networks. For example, they can launch models suitable for the road conditions and consumer preferences of Central America, and strengthen cooperation with local automobile dealers to improve the after-sales service level.

Oceania is another potential market for China's automobile exports. The region has a small population, but a high per capital income and a strong demand for NEVs. Australia and New Zealand, the main countries in Oceania, have formulated clear carbon neutrality goals and strong policy support for NEVs. For example, New Zealand plans to ban the sale of fuel-powered vehicles by 2035, and Australia plans to achieve carbon neutrality by 2050. This provides a good opportunity for China's NEVs to enter the Oceania market. At present, China's new energy vehicle exports to Oceania have achieved rapid growth, but the market share is still relatively small, accounting for only about 10% of the total new energy vehicle sales in Oceania. In the future, China's automobile manufacturers can further expand the market share by improving the adaptability of products to the local market, strengthening brand promotion and improving the charging infrastructure.

Africa is a traditional emerging market of China's automobiles, and also has great market expansion potential. The region has a large population and a low automobile penetration rate, and the demand for automobiles is growing. With the economic development of African countries and the improvement of infrastructure, the demand for commercial vehicles and NEVs will continue to increase. At present, China's automobile exports to Africa are mainly concentrated in low-cost commercial vehicles and passenger vehicles, but the product quality and after-sales service need to be further improved. In the future, China's automobile manufacturers can increase investment in Africa, establish local assembly plants and after-sales service centers, improve product quality and service level,

and expand market share. In addition, China can also strengthen cooperation with African countries in automobile technology research and development and talent training, and promote the common development of the automobile industry in both regions [42, p. 35].

In addition to the above regions, Southeast Asia, Europe and other regions also have certain market expansion potential. Southeast Asia, as a core export market of China's automobiles, still has room for growth. China's automobile manufacturers can further expand the market share by launching more models suitable for the local market and strengthening brand building. Europe, as a developed market, has strict technical standards and environmental protection requirements, but also has a large demand for NEVs. China's automobile manufacturers can further improve their technological level and product quality, break through market barriers, and expand the market share of NEVs in Europe.

2.2 Product Structure Characteristics of China's Automobile International Trade

The product structure of China's automobile international trade refers to the composition of different types, levels and technical characteristics of automobile products involved in China's automobile exports and imports. It reflects the development level and competitive strength of China's automobile industry. In recent years, with the transformation and upgrading of China's automobile industry, the product structure of China's automobile international trade has undergone significant changes, showing a trend of "from low-end to high-end, from fuel-powered to new energy, and from single to diversified" [46, p. 29]. This section will analyze the product structure characteristics of China's automobile exports and imports, explore the technological characteristics and quality level of products in the international market, and discuss the development trend of product structure, especially the shift towards NEVs and ICVs.

Product Structure Characteristics of Exports: China's automobile export products mainly include passenger vehicles and commercial vehicles, among which passenger vehicles account for the main proportion, and the proportion of NEVs is increasing year by year. In recent years, the product structure of China's automobile exports has been

continuously optimized, and the proportion of high-end models and NEVs has been significantly improved, which reflects the continuous improvement of the technological level and product quality of China's automobile industry.

Passenger vehicles are the main force of China's automobile exports, accounting for more than 70 % of the total exports. In 2024, China's passenger vehicle exports reached 4.19 million units, accounting for 71.6 % of the total exports, a year-on-year growth of 21.3 %. Passenger vehicles exported by China mainly include sedans, SUVs and hatchbacks, among which SUVs account for the largest proportion. In 2024, China's SUV exports reached 2.36 million units, accounting for 56.3 % of passenger vehicle exports, a year-on-year growth of 25.7 %. Sedans are the second largest export category of passenger vehicles, with exports of 1.42 million units in 2024, accounting for 33.9 % of passenger vehicle exports, a year-on-year growth of 16.8 %. Hatchbacks account for a relatively small proportion, with exports of 410,000 units in 2024, accounting for 9.8 % of passenger vehicle exports, a year-on-year growth of 12.5 %. The reason why SUVs have become the main export category of passenger vehicles is that SUVs have the advantages of strong pass ability and large space, which are suitable for the road conditions and consumer preferences of many countries and regions, especially emerging markets such as Southeast Asia and Central America.

Commercial vehicles are another important component of China's automobile exports, mainly including trucks, buses and special vehicles. In 2024, China's commercial vehicle exports reached 1.66 million units, accounting for 28.4 % of the total exports, a year-on-year growth of 14.8 %. Among them, trucks are the main export category of commercial vehicles, with exports of 1.23 million units in 2024, accounting for 74.1 % of commercial vehicle exports, a year-on-year growth of 16.2 %. Buses are the second largest export category of commercial vehicles, with exports of 320,000 units in 2024, accounting for 19.3 % of commercial vehicle exports, a year-on-year growth of 10.5 %. Special vehicles account for a relatively small proportion, with exports of 110,000 units in 2024, accounting for 6.6 % of commercial vehicle exports, a year-on-year growth of 8.9 %. China's commercial vehicles have obvious price advantages and reliable quality, and are well received in emerging markets such as Africa, Central Asia and Southeast Asia. They are mainly used for transportation, infrastructure construction and other fields.

NEVs have become the core growth point of China's automobile exports, and their proportion in total automobile exports showing a steady structural expansion afterward. In 2021, China's total automobile exports reached 2.02 million units, of which new energy vehicle exports stood at 0.59 million units, accounting for 29.21 % of total exports. In 2022, the share further rose to 34.73 % as total exports hit 3.11 million units and new energy vehicle exports reached 1.08 million units. As noted above, China became the world's largest automobile exporter in 2023, with NEVs accounting for 22.99 % of total exports. In 2024, total automobile exports grew to 5.86 million units, with new energy vehicle exports reaching 1.28 million units, accounting for 21.84 % of total exports. China's new energy vehicle exports consist mainly of battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell electric vehicles (FCEVs), with BEVs dominating the export mix. In 2024, BEV exports reached 2.12 million units, accounting for 77.4 % of total new energy vehicle exports, representing a year-on-year increase of 68.5 %. PHEV exports amounted to 600,000 units, making up 21.9 % of new energy vehicle exports, with a year-on-year growth of 52.1 %. FCEV exports remained modest at 20,000 units in 2024 but posted a robust year-on-year growth rate of 89.2 %. Leading Chinese automakers including BYD, SAIC, and Geely are the primary drivers of new energy vehicle exports. In 2024, BYD's new energy vehicle exports reached 1.2 million units, accounting for 43.8% of China's total new energy vehicle exports, ranking first globally. Table 2 lists the above data, as shown below:

Table 2– China's automobile export volume and NEV share (2021-2024) [28, p. 97]

Year	Total Export (Million Units)	NEV Export (Million Units)	NEV Share (%)
2021	2.02	0.59	29.21
2022	3.11	1.08	34.73
2023	5.22	1.20	22.99
2024	5.86	1.28	21.84

Product Structure Characteristics of Imports: China's automobile import products are mainly concentrated in high-end luxury vehicles, advanced technology vehicles and key components, which are mainly used to meet the demand of domestic high-end consumer groups and the needs of domestic automobile industry technology upgrading. The product

structure of imports is relatively concentrated, and the proportion of high-end products is high.

High-end luxury vehicles are the main component of China's automobile imports, accounting for more than 60 % of total imports. In 2024, China's imports of high-end luxury vehicles reached 680,000 units, accounting for 60.7 % of total imports, a year-on-year growth of 7.8 %. These imported luxury vehicles are mainly from Germany, Japan and the United States, including brands such as BMW, Mercedes-Benz, Audi, Toyota, Honda, Ford and Tesla. The models are mainly mid-to-large sedans, luxury SUVs and sports cars, such as BMW 5 Series, Mercedes-Benz E-Class, Audi A6L, Toyota Land Cruiser, Tesla Model S and so on. The reason why high-end luxury vehicles account for a large proportion of imports is that domestic high-end luxury vehicle production capacity is insufficient, and the brand influence of domestic automobile manufacturers in the high-end market is relatively weak, which cannot meet the demand of domestic high-end consumer groups.

Advanced technology vehicles are another important component of China's automobile imports, mainly including hybrid vehicles, plug-in hybrid vehicles and ICVs. In 2024, China's imports of advanced technology vehicles reached 220,000 units, accounting for 19.6 % of total imports, a year-on-year growth of 12.3 %. These vehicles are mainly from Japan, Europe and the United States, with advanced technological level and good performance. For example, Toyota's hybrid vehicles have mature technology and low fuel consumption, which are very popular in the Chinese market. Tesla's ICVs have advanced automatic driving technology and intelligent cockpit system, which have a great impact on the domestic intelligent connected vehicle market. The import of advanced technology vehicles is conducive to the domestic automobile industry to learn advanced technology and promote the technological upgrading of the domestic automobile industry.

Key automobile components are also an important part of China's automobile imports, mainly including engines, transmissions, electronic control systems, batteries and other components. In 2024, China's imports of key automobile components reached 220,000 sets (units), accounting for 19.7 % of total imports, a year-on-year growth of 9.5 %. These components are mainly from Japan, Germany and the United States, with high technological content and reliable quality. The import of key components is mainly to meet the production

needs of domestic automobile manufacturers, especially in the field of high-end vehicles and NEVs. Although China's automobile component industry has made great progress in recent years, there is still a gap in the technology of some key components compared with developed countries, so it is necessary to import a certain number of key components.

Technological Characteristics and Quality Level of Products in the International Market: With the continuous improvement of the technological level of China's automobile industry, the technological characteristics and quality level of China's automobile export products have been significantly improved, and they have gradually gained recognition in the international market. However, compared with developed countries, there is still a certain gap in the technological level and quality of some products, especially in the field of high-end vehicles and key components.

In terms of technological characteristics, China's automobile export products have obvious advantages in new energy technology and intelligent technology. In the field of NEVs, China has formed a complete industrial chain, including battery, motor, electronic control and other key components. BYD's Blade Battery has the advantages of high safety, high energy density and long service life, which is in a leading position in the world. CATL, the world's largest power battery manufacturer, has advanced battery technology and large production capacity, providing strong support for China's new energy vehicle exports [4, p. 12]. In the field of intelligent technology, China's automobile manufacturers have made remarkable progress in automatic driving, intelligent cockpit and other aspects. For example, BYD's DiPilot automatic driving system, SAIC's Intelligent Driving 2.0 system, and Geely's Galaxy OS intelligent cockpit system have shown significant technological improvement. These technological advantages have promoted the rapid growth of China's new energy vehicle exports and improved the competitiveness of China's automobiles in the international market [40, p. 86].

In terms of product quality, China's automobile export products have been significantly improved in recent years. With the continuous improvement of production technology and quality control level, the quality of China's automobiles has been continuously improved, and the failure rate has been continuously reduced. According to the data released by the China Quality Certification Center, the pass rate of China's

automobile export products reached 98.5% in 2024, which is close to the level of developed countries. In addition, China's automobile manufacturers have also obtained a number of international certifications, such as the European Union's ECE certification, the United States' DOT certification, and the Japan's JIS certification, which have laid a solid foundation for China's automobiles to enter the international market. However, compared with developed countries, there is still a gap in the quality of some low-end products in China, mainly reflected in the aspects of vehicle durability, comfort and after-sales service.

The technological characteristics and quality level of China's automobile import products are in a leading position in the world. The imported high-end luxury vehicles and advanced technology vehicles from Europe, Japan and the United States have mature technology, reliable quality and high performance. For example, German luxury brands have advanced engine technology, chassis technology and electronic control technology, which have good driving performance and comfort. Japanese hybrid vehicles have mature hybrid technology, low fuel consumption and low emissions. American ICVs have advanced automatic driving technology and intelligent technology, which can provide a better driving experience. The import of these high-quality products not only meets the demand of domestic high-end consumer groups, but also provides a reference for the technological upgrading of the domestic automobile industry.

Development Trend of Product Structure: In the context of global energy transformation and technological progress, the product structure of China's automobile international trade is showing a clear development trend, mainly focusing on the shift towards NEVs and ICVs, and the continuous optimization of product levels [43, p. 106].

The shift towards NEVs is the most obvious trend in the product structure of China's automobile international trade. With the global emphasis on carbon neutrality and environmental protection, the demand for NEVs in the international market is growing rapidly. China, as the world's largest new energy vehicle producer and exporter, will further expand the export scale of NEVs in the future. It is expected that by 2030, the proportion of NEVs in China's automobile exports will reach 70%, and ICVs will become the main growth point. In addition, the types of NEVs will be more diversified, and fuel cell vehicles will gradually enter the market on a large scale with the improvement of hydrogen refueling

infrastructure. At the same time, the technological level of NEVs will be further improved, and the driving range, charging speed and safety performance will be continuously optimized.

The shift towards ICVs is another important trend in the product structure of China's automobile international trade. With the development of artificial intelligence, big data, Internet of Things and other technologies, ICVs have become the direction of the global automobile industry development. China's automobile manufacturers have actively expanded the field of ICVs, and have made remarkable progress in automatic driving, intelligent cockpit and other aspects. In the future, China's intelligent connected vehicle exports will continue to grow, and the level of automatic driving will gradually upgrade from L2 to L4. At the same time, the integration of ICVs with 5G, V2X and other technologies will be further deepened, providing a more intelligent and convenient driving experience for consumers. The export of ICVs will also promote the export of related supporting industries, such as intelligent chips, sensors and software.

The product level will continue to optimize, and the proportion of high-end products will continue to increase. In recent years, China's automobile manufacturers have continuously increased their investment in research and development, and their technological level and product quality have been significantly improved. The proportion of high-end models in China's automobile exports has been continuously increased. In the future, China's automobile manufacturers will further focus on the high-end market, launch more high-end models, and improve their brand influence and competitiveness. At the same time, the quality of low-end products will also be further improved to meet the demand of emerging markets. In terms of imports, with the technological upgrading of the domestic automobile industry, the import volume of high-end luxury vehicles may slow down, but the import of advanced technology and key components will still maintain a certain scale to meet the needs of domestic automobile industry development.

2.3 Brand Characteristics of China' s International Automobile Trade

The brand characteristics of China' s automobile international trade refer to the brand composition, brand positioning, brand competitiveness and brand development status of China's automobile export and import products [37, p. 82]. Brand is an important symbol of the core competitiveness of automobile enterprises, and also an important factor affecting the market performance of automobile products in the international market. In recent years, with the continuous development of China' s automobile industry, the brand influence of China' s automobile enterprises in the international market has been continuously improved, and the brand pattern of China' s automobile international trade has undergone significant changes [49, p. 28]. This section will analyze the brand characteristics of China' s automobile export and import markets, explore the brand competitiveness of China' s automobile enterprises, and discuss the challenges and opportunities faced by China' s automobile brands in the international market (table 3).

Table 3 – Brand structure of China’ s automobile exports in 2024 [53, p. 58]

Brand Type	Export Volume (10000 Units)	Proportion	Year-on-year Growth Rate (%)	Representative Brands
Independent Brands	522.0	89.2	21.5	BYD, Chery, SAIC, Geely
Joint Venture Brands	63.0	10.8	7.5	Volkswagen, Toyota, Honda
Total	585.0	100.0	19.1	-

Brand Pattern of Export Market: The brand pattern of China's automobile export market is dominated by domestic independent brands, and the market share of joint venture brands is relatively small. In recent years, the brand influence of China's domestic independent brands has been continuously improved, and they have gradually become the main force of China's automobile exports. According to CAAM data, in 2024, the export

volume of domestic independent brands accounted for 89.2 % of China's total automobile exports, while the export volume of joint venture brands accounted for only 10.8 %.

BYD is the leading brand of China's automobile exports, and its export volume has ranked first in China for many consecutive years. In 2024, BYD's automobile exports reached 1.2 million units, accounting for 20.5 % of China's total automobile exports, a year-on-year growth of 35.7 %. BYD's brand positioning is mainly mid-to-high-end, focusing on NEVs, and its products are sold in more than 150 countries and regions around the world. BYD has established a good brand image in the international market with its advanced new energy technology and reliable product quality. Its Atto 3, Han, Tang and other models are well received in the European, Southeast Asian and other markets.

SAIC is another important brand of China's automobile exports. In 2024, SAIC's automobile exports reached 980,000 units, accounting for 16.7 % of China's total automobile exports, a year-on-year growth of 22.3%. SAIC's main export brands include MG, Roewe and Maxus. Among them, MG is the most successful export brand of SAIC, with exports of 620,000 units in 2024, a year-on-year growth of 28.5 %. MG's brand positioning is mainly mid-to-high-end, focusing on passenger vehicles, and its products are very popular in the European market. SAIC MG4 EV became the best-selling Chinese new energy vehicle in Europe in 2024, with annual sales of 120,000 units.

Geely is also an important brand of China's automobile exports. In 2024, Geely's automobile exports reached 750,000 units, accounting for 12.8 % of China's total automobile exports, a year-on-year growth of 18.9 %. Geely's main export brands include Geely, Lynk & Co and Geometry. Geely's brand positioning is mainly mid-to-low-end, focusing on passenger vehicles and commercial vehicles, and its products are widely sold in Southeast Asia, Central Asia, Africa and other regions. Lynk & Co, as Geely's high-end brand, has also achieved certain results in the European market, with exports of 80,000 units in 2024.

In addition to the above three major brands, Great Wall, Chery, Changan and other domestic independent brands also have a certain scale of exports. In 2024, the export volume of Great Wall Automobile reached 520,000 units, Chery Automobile reached 480,000 units, and Changan Automobile reached 420,000 units, accounting for 8.9 %, 8.2 % and 7.2 % of

China's total automobile exports respectively. These brands have their own characteristics in product positioning and market layout. For example, Great Wall Automobile focuses on SUVs and pickups, and its Haval brand is well received in emerging markets; Chery Automobile focuses on mid-to-low-end passenger vehicles, and its export market is mainly concentrated in Southeast Asia and Africa; Changan Automobile focuses on passenger vehicles and commercial vehicles, and its export market is mainly concentrated in Central Asia and South America.

The export volume of joint venture brands in China is relatively small, mainly including brands such as Volkswagen, Toyota and Honda. These joint venture brands mainly export vehicles produced in China to other countries and regions, and their export volume is affected by the global strategy of foreign parent companies. In 2024, the export volume of joint venture brands reached 630,000 units, accounting for 10.8 % of China's total automobile exports, a year-on-year growth of 7.5 %.

Brand Pattern of Import Market: The brand pattern of China's automobile import market is dominated by foreign brands, mainly high-end luxury brands from Europe, Japan and the United States. These foreign brands have a long history, strong brand influence and advanced technological level, and occupy a dominant position in China's high-end automobile market.

German luxury brands are the main force of China's automobile imports, accounting for more than 40 % of China's automobile imports. In 2024, the import volume of German luxury brands reached 460,000 units, accounting for 41.1% of total imports. The main brands include BMW, Mercedes-Benz and Audi. BMW's import volume reached 180,000 units in 2024, Mercedes-Benz reached 160,000 units, and Audi reached 120,000 units. These brands have a high brand influence and good reputation in the Chinese market, and their products are mainly mid-to-large sedans and luxury SUVs, which are favored by domestic high-end consumer groups.

Japanese brands are another important force in China's automobile import market. In 2024, the import volume of Japanese brands reached 280,000 units, accounting for 25 % of total imports. The main brands include Toyota, Honda and Nissan. Toyota's import volume reached 130,000 units in 2024, Honda reached 80,000 units, and Nissan reached 70,000

units. Japanese brands are mainly known for their reliable quality, low fuel consumption and advanced hybrid technology, and their imported products are mainly high-end passenger vehicles and hybrid vehicles.

American brands are also an important part of China's automobile import market. In 2024, the import volume of American brands reached 150,000 units, accounting for 13.4 % of total imports. The main brands include Ford, General Motors and Tesla. Tesla's import volume reached 70,000 units in 2024, accounting for nearly half of the import volume of American brands. Tesla is mainly known for its advanced new energy technology and intelligent technology, and its Model S, Model X and other models are very popular in the Chinese new energy vehicle market [48, p. 6]. Ford and General Motors mainly import high-end passenger vehicles and sports cars, such as Ford Mustang and Cadillac Escalade.

In addition to the above three major regions, China also imports a small number of automobiles from South Korea, France and other countries and regions, but the proportion is relatively small. The main brands include Hyundai, Kia, Peugeot and Citroen. These brands are mainly positioned in the mid-to-low-end market, and their import volume is relatively small.

Brand Competitiveness of China's Automobile Enterprises: Brand competitiveness refers to the ability of a brand to gain competitive advantages in the market through its product quality, technological level, brand image and after-sales service. In recent years, the brand competitiveness of China's automobile enterprises has been continuously improved, but compared with foreign well-known brands, there is still a certain gap (figure 3).

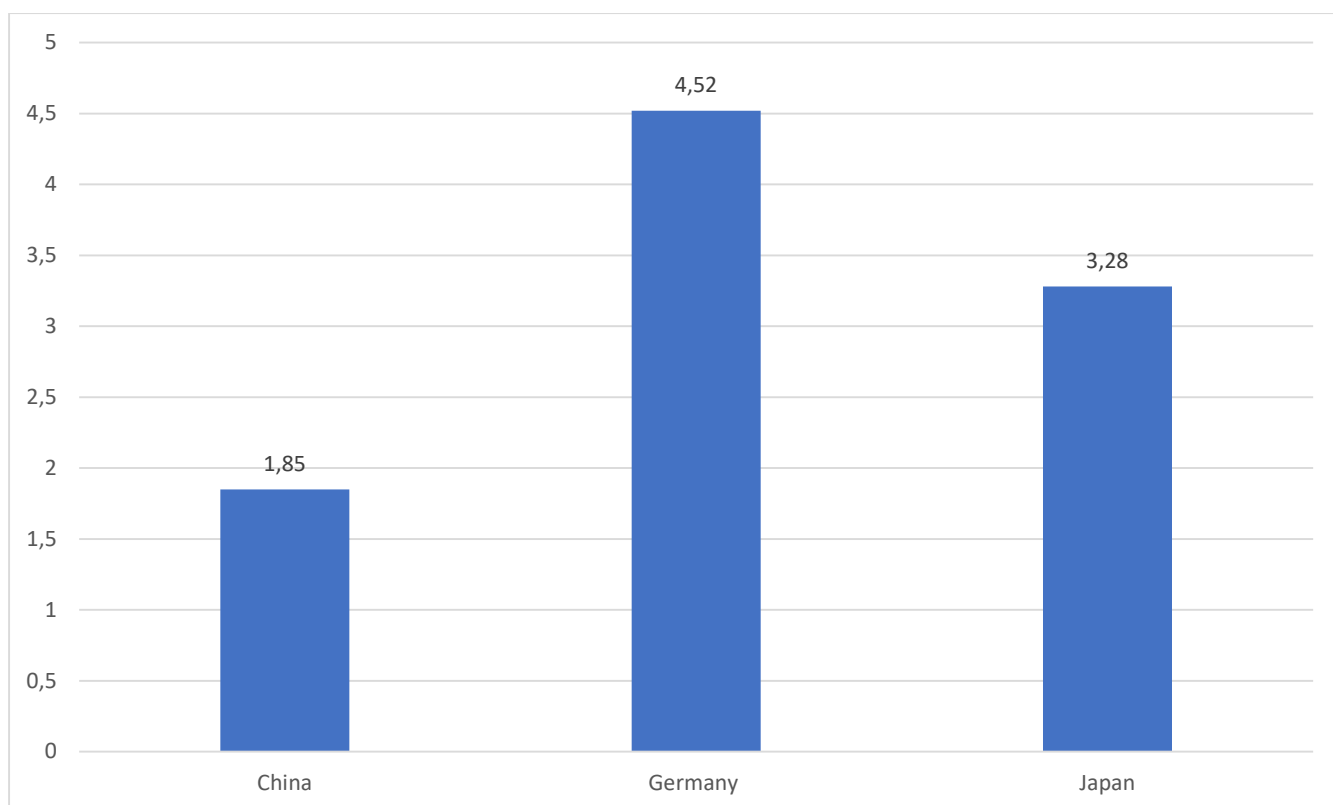


Figure 3 – Average export prices of domestic and foreign automobiles [43, p. 108]

As can be seen from figure 3, China's automobile enterprises have obvious advantages in cost and technology in the field of NEVs. In terms of cost, China has a completely new energy vehicle industrial chain, which can reduce the production cost of NEVs. For example, the cost of power batteries, the core component of NEVs, in China is 20 % – 30 % lower than that in developed countries. This makes China's NEVs have obvious price advantages in the international market. In terms of technology, China's new energy vehicle technology has shown significant technological improvement, especially in battery technology, motor technology and electronic control technology. BYD' s Blade Battery, CATL' s ternary lithium battery, and Huawei' s intelligent driving technology have obvious advantages in the world. These technological advantages have enhanced the brand competitiveness of China's NEVs in the international market.

China' s automobile enterprises have also made certain progress in brand image building and after-sales service. In recent years, China' s automobile enterprises have continuously increased their investment in brand promotion, and have carried out a series of brand promotion activities in the international market, such as participating in international

auto shows, sponsoring international events, and establishing local brand experience centers. These activities have improved the brand awareness and influence of China's automobile brands in the international market. At the same time, China's automobile enterprises have also continuously improved their after-sales service level, established after-sales service centers in major export markets, and provided timely and efficient after-sales service for consumers, which has improved the customer satisfaction and brand loyalty of China's automobile brands.

However, compared with foreign well-known brands, there is still a certain gap in the brand competitiveness of China's automobile enterprises. First, the brand influence is relatively weak. Foreign well-known brands such as BMW, Mercedes-Benz, Toyota and Tesla have a long history and strong brand influence, and their brand image has been deeply rooted in the hearts of consumers. In contrast, China's automobile brands have a short development history, and their brand influence is mainly concentrated in emerging markets, and their recognition in developed markets is relatively low. Second, the brand positioning is relatively low. Most of China's automobile brands are positioned in the mid-to-low-end market, and there are few brands that can compete with foreign well-known brands in the high-end market. Third, the technological innovation capability in the field of high-end vehicles and key components is relatively weak. Although China's new energy vehicle technology has made great progress, there is still a gap in the technology of high-end engines, transmissions and other key components compared with developed countries, which restricts the improvement of the brand competitiveness of China's automobile enterprises [14, p. 116].

A notable structural asymmetry exists between China's export and import markets. Exports are dominated by independent brands targeting mid-range and NEV segments, with a diversified regional distribution. In contrast, imports are highly concentrated in high-end luxury vehicles from Europe, Japan, and the United States, reflecting the persistent gap in brand premium and high-end technology between Chinese and international automakers.

Challenges and Opportunities Faced by China's Automobile Brands in the International Market: In the process of expanding the international market, China's automobile brands are facing both severe challenges and rare opportunities. Only by

correctly grasping the opportunities and actively responding to the challenges can China's automobile brands achieve better development in the international market.

The challenges faced by China's automobile brands in the international market are mainly reflected in the following aspects: First, trade barriers and technical barriers. Many developed countries have formulated strict technical standards and environmental protection standards for automobiles, such as the European Union's anti-subsidy investigation on Chinese NEVs, the United States' strict technical certification for Chinese automobiles, which have raised the entry threshold for China's automobiles to enter the developed market. Second, fierce market competition. The global automobile market is highly competitive, and foreign well-known brands have strong brand influence and technological advantages, which pose a great threat to China's automobile brands. In addition, other emerging market countries, such as India and Brazil, are also developing their own automobile industries, which also bring certain competition pressure to China's automobile brands. Third, the lack of brand influence and brand premium capacity. China's automobile brands are mostly positioned in the mid-to-low-end market, and their brand premium capacity is relatively weak, which makes it difficult to compete with foreign well-known brands in the high-end market. Fourth, the imperfection of the overseas after-sales service network. Although China's automobile enterprises have established after-sales service centers in major export markets, the coverage and service level of the after-sales service network are still insufficient, which affects the customer satisfaction and brand loyalty of China's automobile brands.

The opportunities faced by China's automobile brands in the international market are mainly reflected in the following aspects: First, the global energy transformation. With the global emphasis on carbon neutrality and environmental protection, the demand for new energy vehicles NEVs in the international market is growing rapidly, which provides a good opportunity for China's new energy vehicle brands to expand the international market. China, as the world's largest new energy vehicle producer and exporter, has obvious advantages in new energy vehicle technology and industrial chain, which can seize the opportunity of global energy transformation to improve its brand influence and market share [19, p. 115]. Second, the "Belt and Road" initiative. The "Belt and Road" initiative has

strengthened the economic and trade cooperation between China and countries along the route, and provided important opportunities for China's automobile brands to enter Central Asia, West Asia, Southeast Asia and other regions. The countries along the route have a large demand for automobiles and relatively loose market access conditions, which is conducive to China's automobile brands to expand the market. Third, the support of national policies. The Chinese government has introduced a series of policies to support the export of automobile brands, such as export tax rebates, financial support, and policy coordination, which provide strong support for China's automobile brands to expand the international market. Fourth, the continuous improvement of the technological level and product quality of China's automobile enterprises. With the continuous increase of R&D investment, the technological level and product quality of China's automobile enterprises have been significantly improved, which has laid a solid foundation for China's automobile brands to compete in the international market.

In conclusion, the brand pattern of China's automobile international trade is showing a trend of "domestic independent brands leading exports and foreign brands dominating imports". The brand competitiveness of China's automobile enterprises has been continuously improved, but there is still a certain gap compared with foreign well-known brands. Faced with the dual challenges of trade barriers, fierce competition and insufficient brand influence, China's automobile brands should seize the opportunities brought by global energy transformation, the "Belt and Road" initiative and national policy support, continuously increase R&D investment, improve technological innovation capabilities, optimize brand positioning, strengthen brand building and after-sales service system construction, and gradually enhance their brand influence and competitiveness in the global market. Only in this way can China's automobile brands achieve sustainable development in the international market and promote the high-quality development of China's automobile international trade.

Chapter 3 Suggestions and countermeasures for the problems existing in China' s international automobile trade

3.1 Problems and Countermeasures for the Market Distribution

Existing Problems: Firstly, the market concentration is relatively high, and the dependence on emerging markets is excessive, which leads to weak risk resistance. According to the data released by the China Association of Automobile Manufacturers (CAAM), emerging markets such as Russia, Iran and Southeast Asia accounted for about 35 % of China' s total automobile exports in 2024, among which Southeast Asia alone accounted for 19.1 % of total exports. This high concentration makes China' s automobile exports highly vulnerable to the impact of political instability, economic fluctuations and policy changes in these regions. For example, in 2022, due to the impact of the geopolitical conflict between Russia and Ukraine, China' s automobile exports to Russia once fell by 18.3% month-on-month; in 2023, some Southeast Asian countries adjusted their automobile import tariff policies, which increased the export cost of Chinese automobiles and led to a 7.6 % decline in exports to the region in the same quarter. In addition, the economic downturn in some emerging markets has also led to a decline in consumer purchasing power, further affecting the export volume of Chinese automobiles. This excessive dependence on a single type of market makes the development of China' s automobile international trade lack stability and sustainability.

Secondly, the access threshold of developed markets is high, and the penetration rate is difficult to improve sustainably. European and American markets, as the core markets of global automobile trade, have high consumption capacity and high added value, but they have set up strict trade barriers for Chinese automobile exports. In the European market, in addition to the strict Euro 6 emission standard and carbon neutrality strategy, the European Commission introduced a price commitment mechanism for Chinese NEVs in 2023, which set a minimum import price and an annual export volume ceiling for Chinese NEVs. This mechanism directly increases the entry cost of Chinese NEVs and limits the market expansion space of Chinese automobile enterprises in Europe. According to the statistics of

the European Automobile Manufacturers Association (ACEA), the market share of Chinese NEVs in Europe was only 8.2 % in 2024, which is far lower than the market share of European local brands (65.3 %) and Japanese brands (12.7 %). In the U.S. market, the government has long implemented protectionist tariff policies. Since 2018, the U.S. has imposed a 25 % tariff on imported Chinese automobiles, which has increased the cost of Chinese automobiles entering the U.S. market by about 30%. At the same time, the U.S. has formulated strict technical certification standards, and many Chinese automobile models have not yet obtained the U.S. DOT certification, which further restricts the entry of Chinese automobiles into the U.S. market. In 2024, China' s automobile exports to the U.S. accounted for only 6.3 % of total exports, and the growth rate was only 12.3 %, which was lower than the overall growth rate of 19.1 % of China' s automobile exports.

Thirdly, the overseas sales and service network is imperfect, and the localization layout is not balanced, which affects the market retention rate and consumer trust. Most Chinese automobile enterprises focus on product export, but ignore the construction of supporting sales and service networks. According to a survey conducted by the China Automobile Export Association, as of the end of 2024, only 35 % of Chinese automobile export enterprises have established after-sales service centers in major export markets, and the coverage rate of parts supply networks is only 28 %. In some emerging markets, the after-sales service response time of Chinese automobiles is as long as 7-10 days, which is far longer than the 2-3 days of international well-known brands. For example, in the African market, many Chinese automobile users have to wait for more than a month to get replacement parts after their vehicles break down, which seriously affects the consumer experience and brand trust. In addition, the localization layout of Chinese automobile enterprises is unbalanced. Most enterprises focus on setting up production bases in Southeast Asia and Europe, but the layout in Africa, Central Asia and other regions is relatively backward. For example, as of 2024, only 5 Chinese automobile enterprises have established production bases in Africa, and the annual production capacity is only 120,000 units, which is far unable to meet the market demand of the African region. At the same time, the blind and disorderly investment of some enterprises in overseas markets also leads to vicious competition. For example, in the Southeast Asian market, some Chinese automobile

enterprises have launched similar mid-to-low-end models, and even started price wars, which not only reduces the profit space of enterprises, but also affects the overall brand image of Chinese automobiles in the international market.

Countermeasures: First, optimize the market layout and reduce the risk of excessive concentration. On the one hand, we should deepen the layout of emerging markets and enhance the depth of market development. For regions with mature cooperation foundations such as Southeast Asia, Russia and the Middle East, we should carry out in-depth market research to accurately grasp local climate, road conditions, consumer preferences and policy trends, and adjust product configurations and market strategies accordingly [60, p. 49]. For example, in the Russian market, aiming at the cold climate in most regions, Chinese automobile enterprises can strengthen the cold resistance design of vehicle engines, batteries and other components, and launch models suitable for low-temperature environments; in the Southeast Asian market, aiming at the hot and rainy climate and poor road conditions, we can strengthen the corrosion resistance and pass ability of vehicles, and launch models with higher ground clearance. At the same time, we should actively promote the localization of production and parts supply. For example, Great Wall Motor's production base in Thailand, which was put into operation in 2023, has an annual production capacity of 150,000 units, which not only reduces the transportation cost by 25%, but also avoids the impact of local tariff policies [35, p. 38]. BYD has also established a parts supply center in Malaysia, which can provide parts support for Southeast Asian markets within 24 hours, improving the after-sales service efficiency. On the other hand, we should actively expand the layout of diversified markets and explore potential markets in South America, Africa and Central Asia. In the South American market, we can focus on Brazil, Argentina and other countries with relatively developed economies, and carry out cooperation with local automobile dealers to establish sales and service networks; in the African market, we can focus on Nigeria, South Africa and other countries with large population and growing automobile demand, and increase investment in localized production and after-sales service. At the same time, the government should strengthen the construction of overseas market risk assessment and early warning mechanisms, establish a global market information monitoring system, track the political, economic and policy changes of target markets in real time, and issue

risk early warnings to enterprises in a timely manner. For example, the Ministry of Commerce can regularly release the “China Automobile Export Market Risk Report” to provide enterprises with market risk assessment and coping suggestions, helping enterprises avoid trade risks.

Second, break through the barriers of developed markets and improve the market penetration rate. For the European market, enterprises should actively respond to the EU’ s price commitment mechanism, establish a professional pricing team to accurately calculate the minimum import price and profit space, standardize the declaration process, and avoid the risk of information disclosure and compliance. At the same time, we should increase investment in R&D to ensure that products meet the strict environmental protection and safety standards of the EU. For example, BYD has invested 1.2 billion euros in R&D in Europe, focusing on improving the energy efficiency of NEVs and optimizing the intelligent driving assistance system, and its Atto 3 model has passed the EU’ s ECE certification and obtained the access qualification of 27 EU countries. In addition, Chinese automobile enterprises should actively participate in the formulation of international technical standards, join international automobile standardization organizations, and put forward Chinese proposals and Chinese programs in the fields of NEV safety, intelligent driving and environmental protection, so as to enhance the right to speak in international standards. For the U.S. market, we should strengthen trade negotiations with the U.S. side, rely on the WTO dispute settlement mechanism to safeguard legitimate rights and interests, and strive to reduce tariff barriers. At the same time, we can explore the localized production model in the U.S. For example, BYD is planning to build a production base in the U.S. with an annual production capacity of 200,000 units, which can avoid the 25 % import tariff and reduce the production cost. In addition, we can leverage the advantages of free trade agreements (FTAs) to promote automobile exports to countries and regions that have signed FTAs with China. For example, relying on the RCEP agreement, China’ s automobile exports to Southeast Asian countries can enjoy preferential tariff policies, which can reduce the export cost by 15 % – 20 % and enhance the price competitiveness of products [36, p. 28].

Third, improve the overseas sales and service network and promote localized operation. Enterprises should increase investment in overseas after-sales service, formulate

a phased network construction plan, and build a perfect after-sales service system covering maintenance, parts supply and technical support. For example, SAIC plans to invest 800 million yuan in Europe by 2026 to build 150 after-sales service centers and 30 parts supply centers, shortening the after-sales response time to 2 – 3 days. At the same time, we should strengthen the training of localized talents, hire local professionals to engage in sales, after-sales and management work, so as to better adapt to local market demand and cultural characteristics [25, p. 22]. The industry association should play a coordinating role, establish an industry self-regulation mechanism, guide enterprises to carry out rational layout according to market demand, and promote the healthy and orderly development of the industry. For example, the China Association of Automobile Manufacturers can formulate the “Guidelines for China’ s Automobile Enterprises’ Overseas Investment” to guide enterprises to carry out investment activities in accordance with laws and regulations and market rules. Table 4 lists the main barriers of China’ s automobile exports, as shown below.

Table 4 – Main trade barriers faced by China’ s automobile exports (2023-2024) [56, p. 46]

Region	Type of barrier	Specific measures	Impact on Chinese automobile exports
European Union	Anti-subsidy investigation	Price commitment mechanism, minimum import price	Increased export cost by 15-20 %
United States	Tariff and non-tariff barriers	25% import tariff on Chinese automobiles	Limited market penetration rate (6.3%)
India	Local content measures	100% import tariff, strict certification	Almost no market access
Brazil	Local content requirements	60% local content requirement for tax exemption	Increased investment cost
Turkey	Safeguard measures	Quota restrictions on Chinese automobile imports	Reduced export volume by 30%

Existing Problems is firstly, there is a bottleneck in core technology, and the dependence on key components is high, which restricts the improvement of product

competitiveness. Although China has formed a complete industrial chain in the field of NEVs and has obvious advantages in battery technology, it still relies heavily on imports for high-end chips, intelligent driving systems and some core components.

For example, BYD has hired more than 500 local employees in Europe, including sales consultants, maintenance technicians and management personnel, who are familiar with local market conditions and cultural customs, and can provide more targeted services for consumers. For the problem of disorderly overseas investment, the government should strengthen the classified management and guidance of enterprise overseas investment, formulate relevant policies to standardize the investment behavior of enterprises, and prevent blind investment and vicious competition

3.2 Problems and Countermeasures for the Product Structure

According to the data released by the China Automobile Industry Association, in 2024, the import dependence of China's automobile industry on high-end chips reached 78%, and the import dependence on intelligent driving system components reached 65%. These imported components not only increase the production cost of Chinese automobiles, but also make Chinese automobile enterprises face the risk of technical blockades. For example, in 2023, some European and American countries-imposed restrictions on the export of high-end chips to China, which led to a shortage of chips for some Chinese automobile enterprises, affecting the production and export of vehicles [26, p. 80]. In addition, the R&D investment in core technologies of Chinese automobile enterprises is still relatively low compared with international well-known enterprises. In 2024, the average R&D investment ratio of Chinese automobile enterprises was 5.8%, while the R&D investment ratio of German Volkswagen, Japanese Toyota and other enterprises was more than 8%, which led to a gap between Chinese automobile core technologies and international advanced levels.

Secondly, the product structure is unbalanced, and the homogenization phenomenon is serious, which leads to low product added value and weak profit capacity. Most of China's exported automobile products are concentrated in the mid-to-low-end market, with low

added value and thin profit margins. According to the statistics of the General Administration of Customs, in 2024, the average export price of Chinese automobiles was 18,500 US dollars per unit, while the average export price of German automobiles was 45,200 US dollars per unit, and the average export price of Japanese automobiles was 32,800 US dollars per unit. The gap in average export price reflects the gap in product added value between Chinese automobiles and international well-known brands. At the same time, the homogenization phenomenon of Chinese automobile products is serious. Most enterprises focus on the production and export of mid-to-low-end sedans and SUVs, and the product design, configuration and performance are highly similar, which leads to vicious competition in the international market [32, p. 24]. For example, in the Southeast Asian market, more than 20 Chinese automobile enterprises have launched mid-to-low-end SUV models with similar prices and configurations, and the price war has become increasingly fierce, which not only reduces the profit space of enterprises, but also affects the brand image of Chinese automobiles.

Thirdly, the supply chain has potential vulnerabilities, and the stability of the industrial chain is facing challenges. Although China has a strong advantage in battery production, accounting for 60% of global battery production, it is highly dependent on overseas imports for critical minerals such as lithium and cobalt, which are essential for battery production. According to the data of the International Energy Agency (IEA), in 2024, China's import dependence on lithium reached 85 %, and the import dependence on cobalt reached 72% [30, p. 27]. The main sources of these critical minerals are Australia, Chile, the Democratic Republic of the Congo and other countries, which are affected by international market price fluctuations and geopolitical factors. For example, in 2023, the price of lithium in the international market increased by 68 % due to the reduction of production in Australia and Chile, which increased the production cost of Chinese NEVs by 15 %. At the same time, the geopolitical conflict in the Democratic Republic of the Congo has also affected the supply of cobalt, leading to a shortage of cobalt resources for some Chinese battery enterprises. In addition, the domestic supply chain of China's automobile industry also has certain vulnerabilities. Some mid-to-low-end components have problems such as unstable quality, which affects the overall quality and reliability of products.

Fourthly, the product adaptability is insufficient, and the ability to meet the differentiated needs of different markets is weak. Chinese automobile enterprises often adopt a “one-size-fits-all” product export strategy, lacking targeted product design for the technical standards, consumer preferences and usage habits of different countries and regions, which affects the market acceptance of products [9, p. 92]. For example, in the European market, consumers pay more attention to the environmental performance and intelligent level of vehicles, but some Chinese NEVs exported to Europe have problems such as insufficient energy efficiency and imperfect intelligent driving functions, which leads to low market acceptance. In the African market, consumers pay more attention to the durability and cost-effectiveness of vehicles, but some Chinese automobiles exported to Africa have problems such as poor corrosion resistance and high maintenance costs, which affects the market share. In addition, some Chinese automobile products do not meet the local technical standards and certification requirements, which also restricts the export of products. For example, some Chinese automobile models exported to the European market have not passed the EU’ s ECE certification, and cannot be sold legally in the EU market [28, p. 52].

Countermeasures: First, increase R&D investment and break through the core technology bottleneck. The government should continue to strengthen policy support for the automotive industry, increase financial subsidies and tax incentives for R&D of core technologies, and encourage enterprises to carry out independent innovation [27, p. 28]. For example, the government can increase the R&D tax deduction ratio for automobile enterprises from 75 % to 100%, and set up a special fund for core technology R&D to support enterprises in the R&D of high-end chips, intelligent driving systems and other core components. Enterprises should focus on the R&D of core technologies, increase R&D investment, establish a sound R&D system, and strengthen cooperation with universities, research institutions and international advanced enterprises to accelerate the transformation of technological achievements [31, p. 65]. For example, BYD invested 20 billion yuan in R&D in 2024, focusing on the optimization of Blade Battery technology and the R&D of high-end chips, and launched a new generation of Blade Battery with higher energy density and safety, which has been applied to high-end models such as BYD Han EV. NIO and

Xpeng have also increased their R&D investment in intelligent driving technology, and their L3-level automatic driving systems have passed the technical certification of European and American markets, which has improved the competitiveness of products. At the same time, we should strengthen the protection of intellectual property rights, improve the intellectual property protection system, and crack down on intellectual property infringement, so as to encourage enterprises to invest in innovation.

Second, optimize the product matrix and promote the upgrading of product structure. Enterprises should adjust the product structure according to the market demand, reduce the proportion of low-value-added products, and increase the R&D and export of high-end NEVs, luxury models and special-purpose vehicles to improve the added value of products [7, p. 16]. For example, SAIC has further expanded the high-end product line of the MG brand, launched the MG Cyberster sports car with a price of more than 50,000 US dollars, which has been well received in the European market, with annual sales of 30,000 units. BYD has launched the Denza brand, focusing on the high-end NEV market, and its Denza D9 model has a price of more than 60,000 US dollars, which competes with international luxury brands such as Mercedes-Benz and BMW. At the same time, we should avoid product homogenization, strengthen the differentiation design of products, and form unique product advantages in terms of appearance, performance and function. For example, Great Wall Motor has launched the Tank series off-road vehicles, which have unique off-road performance and appearance design, and have become popular in the Middle East and African markets. In addition, enterprises should increase the R&D and export of special-purpose vehicles, such as medical vehicles, fire-fighting vehicles and engineering vehicles, to expand the product range and improve the market competitiveness.

Third, strengthen the construction of supply chain resilience and ensure the stability of the supply chain. On the one hand, we should expand the sources of critical minerals such as lithium and cobalt, strengthen investment and cooperation in overseas mineral resources, and establish a diversified supply channel to reduce the dependence on a single region [10, p. 38]. For example, Chinese enterprises have increased investment in lithium mines in Argentina, Chile and other regions, and have signed long-term supply agreements with local mining enterprises to ensure the stable supply of raw materials. BYD has also invested in

cobalt mines in the Democratic Republic of the Congo, establishing a localized mining and processing base to reduce the impact of geopolitical factors [47, p. 59]. On the other hand, we should optimize the domestic supply chain system, support the development of local core component manufacturers, improve the localization rate of core components, and reduce the risk of supply chain interruption. For example, the government can provide policy support and financial subsidies for domestic core component manufacturers, encourage them to increase R&D investment and improve product quality. At the same time, we should establish a supply chain risk early warning mechanism, monitor the supply and price changes of raw materials and components in real time, and formulate emergency response plans to respond to the impact of emergencies in a timely manner [33, p. 16]. For example, during the global chip shortage in 2022, some Chinese automobile enterprises established a chip reserve system, which ensured the normal production and export of vehicles.

Fourth, strengthen product adaptation and meet the differentiated needs of the market. Enterprises should conduct in-depth research on the technical standards, consumer preferences and usage habits of different target markets, and carry out targeted product design and improvement. For example, for the European market with strict environmental protection standards [11, p. 58], we should focus on improving the energy efficiency and environmental performance of products, and launch models that meet the EU' s carbon neutrality requirements; for the Southeast Asian market with hot climate and poor road conditions, we should strengthen the durability and heat resistance of products, and launch models with higher ground clearance and better corrosion resistance; for the North American market with large family size, we should launch models with larger space and more comfortable configuration. At the same time, we should speed up the localization of product R&D and production, set up R&D centers in major export markets, and develop products that are more in line with local market demand. For example, BYD has established a R&D center in Europe, which is mainly responsible for the R&D and improvement of products suitable for the European market, and its Atto 3 model has been optimized according to European consumer preferences, with better intelligent configuration and more fashionable appearance, which has improved the market acceptance. In addition, enterprises

should actively apply for local technical certification, ensure that products meet local technical standards, and remove the barriers to product export.

3.3 Problems and Countermeasures for the Brand Competition

Existing Problems: Firstly, the brand awareness and influence are low, and the brand recognition in the international market is insufficient. Most Chinese automobile brands are concentrated in the mid-to-low-end market, and the brand image is relatively backward. Compared with traditional automobile powers such as Japan, Germany and the United States, Chinese brands lack sufficient brand recognition and influence in the international market. According to a survey conducted by the World Brand Lab, in 2024, among the top 50 global automobile brands, only 3 Chinese brands (BYD, SAIC and Geely) were shortlisted, and their brand value was far lower than that of international well-known brands. For example, the brand value of BYD was 85 billion US dollars, while the brand value of Toyota was 280 billion US dollars, and the brand value of Mercedes-Benz was 250 billion US dollars. In addition, the brand awareness of Chinese automobile brands in developed markets is very low. According to a survey conducted in Europe, only 23 % of European consumers know Chinese automobile brands, and only 12 % of consumers are willing to buy Chinese automobiles, which is far lower than the brand awareness and purchase intention of European and Japanese brands.

Secondly, the lack of high-end brands leads to low brand premium capacity, and the profit space of enterprises is limited. Chinese automobile exports are mainly based on cost competition, and the brand premium is far lower than that of international well-known brands. According to the statistics of the China Automobile Export Association, the brand premium rate of Chinese automobile brands is only 5 % – 8 %, while the brand premium rate of German luxury brands is 30 % – 40%, and the brand premium rate of Japanese brands is 15 % – 20 %. This low brand premium rate makes Chinese automobile enterprises have to rely on low prices to compete in the international market, which leads to thin profit margins. For example, the profit margin of Chinese mid-to-low-end NEVs exported to Europe is only 3 % – 5%, while the profit margin of German luxury NEVs is more than 15

%. In addition, the lack of high-end brands also makes Chinese automobile enterprises unable to compete with international well-known brands in the high-end market, which restricts the improvement of the overall competitiveness of the industry.

Thirdly, the brand reputation is not good, and consumer trust is insufficient. Some Chinese automobile products have problems such as unstable quality and imperfect after-sales service in the international market, which affects the brand image and consumer trust. According to a survey conducted by the International Automobile Quality Association, in 2024, the quality complaint rate of Chinese automobiles in the international market was 8.7 %, which was higher than the global average of 4.2 %. The main complaints include unstable vehicle performance, poor after-sales service and high maintenance costs. For example, in the African market, some Chinese automobile users reported that their vehicles had engine failures after using them for half a year, and the after-sales service center could not provide timely maintenance, which led to a decline in consumer trust in Chinese automobile brands. In addition, some counterfeit and shoddy Chinese automobile parts in the international market also affect the brand reputation of Chinese automobiles.

Fourthly, the brand marketing ability is weak, and the marketing methods are single. The overseas brand marketing methods of Chinese automobile enterprises are relatively single, mainly relying on traditional advertising and exhibition marketing, lacking targeted marketing strategies, and it is difficult to effectively convey the brand concept and product advantages to consumers. For example, most Chinese automobile enterprises participate in international automobile exhibitions every year, but they lack in-depth interaction with consumers and cannot effectively display the core advantages of products and brands. In addition, the localized marketing ability of Chinese automobile enterprises is weak, and they do not fully consider the cultural characteristics and consumer habits of different target markets, which leads to poor marketing effect. For example, in the European market, some Chinese automobile enterprises use marketing methods suitable for the Chinese market, which are not in line with European consumer habits and fail to achieve the expected marketing effect.

Table 5 – Comparison of brand premium rates of automobile brands (2024) [53, p. 60]

Brand Type	Average Brand Premium Rate (%)	Representative Brands
German luxury brands	30-40	Mercedes-Benz, BMW, Audi
Japanese brands	15-20	Toyota, Honda, Nissan
American brands	12-18	Tesla, Ford
Korean brands	8-12	Hyundai, Kia
Chinese brands	5-8	BYD, Geely, SAIC

The table 5 compares the brand premium levels of automobile brands from different countries in 2024, quantitatively verifying the brand competitiveness gap of Chinese automobiles. German luxury brands occupy the highest premium level of 30 % – 40 %, relying on high-end manufacturing quality and century-old brand reputation; Japanese and American brands also maintain a medium and high brand premium of more than 12 %, with stable global market recognition. In contrast, Chinese automobile brands only have a low premium rate of 5% – 8 %, far lower than that of traditional automobile powers. This data directly explains the fundamental reason why China's automobile export unit price is low: the lack of brand premium capability leads to Chinese automobiles can only rely on cost advantages to occupy the global mid-to-low-end market. The low brand premium restricts the profit level and high-end transformation of China's automobile export industry, and brand upgrading has become the core task for the high-quality development of China's automobile international trade in the future.

Countermeasures: First, strengthen brand building and improve brand awareness and influence. Enterprises should formulate a long-term brand development strategy, clarify the brand positioning and core value, and form a unique brand image [52, p. 46]. For example, BYD' s brand positioning is “green environmental protection and intelligent innovation”, and its core value is to provide high-quality, environmentally friendly and intelligent automobile products for global consumers. SAIC' s MG brand positioning is “sports and fashion”, and its core value is to convey the concept of young and fashionable travel. At the same time, enterprises should strengthen brand communication through various channels. For example, they can participate in international automobile exhibitions (such as the Geneva Motor Show, the Detroit Auto Show and the Tokyo Auto Show) to display product

strength and brand image; use digital marketing methods such as social media, online platforms and short videos to carry out targeted brand promotion and interact with consumers [24, p. 64]. For example, BYD has opened official accounts on European social media platforms such as Facebook and Instagram, regularly releasing product information and brand stories, and interacting with consumers, which has improved brand awareness. In addition, we should strengthen the construction of brand culture, integrate Chinese cultural elements into brand design and promotion, and form a unique brand characteristic. For example, BYD's Han EV integrates Chinese traditional cultural elements such as the "dragon" shape into the appearance design, which has been well received by consumers in Asian and European markets.

Second, promote the high-end development of brands and enhance brand premium capacity. Enterprises should increase investment in high-end product R&D and brand building, launch high-end sub-brands or models, and break through the bottleneck of mid-to-low-end positioning [54, p. 26]. For example, Geely has launched the Lynk & Co brand, focusing on the high-end market, and its Lynk & Co 09 model has a price of more than 40,000 US dollars, which competes with international luxury brands such as Audi Q5 and BMW X3. NIO and Xpeng have been focusing on the high-end NEV market, and their models have advanced intelligent driving technology and high-quality service, which have improved the brand premium. At the same time, enterprises should strengthen the quality control of products and services to lay a solid foundation for the high-end development of brands. For example, NIO provides a 5-year/150,000-kilometer warranty service for its products, and establishes an exclusive service center to provide personalized services for consumers, which has improved the brand reputation and premium capacity. In addition, enterprises can carry out brand cooperation with international well-known brands to enhance brand influence through resource integration. For example, Geely's acquisition of Volvo has not only obtained advanced technology, but also enhanced the high-end image of its own brand.

Third, improve brand reputation and enhance consumer trust. Enterprises should strengthen the quality control of products, strictly implement international quality standards, establish a complete quality management system, and reduce product quality problems. For

example, BYD has established a global quality control center, which monitors the production process of products in real time, and the pass rate of products has reached 99.2%, which is close to the level of international well-known brands. At the same time, we should improve the after-sales service system, provide timely and efficient after-sales service, and solve the worries of consumers. For example, SAIC has expanded the after-sales service network in Europe, established 120 after-sales service centers, and provided 24-hour technical support and maintenance services. BYD has established a global after-sales service center, which provides unified and standardized after-sales service for consumers around the world. In addition, we should actively respond to consumer complaints and suggestions, establish a consumer complaint handling mechanism, and continuously improve product and service quality. For example, BYD has set up a special consumer complaint hotline and online complaint platform, and the complaint handling rate has reached 100%, which has improved consumer satisfaction.

Fourth, innovate brand marketing methods and enhance marketing effectiveness. Enterprises should formulate targeted marketing strategies according to the cultural characteristics and consumer habits of different target markets. For example, in European markets, we can cooperate with local celebrities, media and KOLs to carry out brand promotion, and hold test drive activities and brand experience activities to let consumers experience the advantages of products firsthand; in emerging markets such as Southeast Asia and Africa, we can carry out offline promotional activities, cooperate with local dealers to set up brand experience centers, and launch preferential policies to attract consumers. At the same time, we should strengthen the construction of localized marketing teams, hire local marketing professionals to carry out marketing work, and improve the adaptability and effectiveness of marketing activities. For example, SAIC has hired more than 300 local marketing professionals in Europe, who are familiar with local market conditions and cultural customs, and have formulated targeted marketing strategies, which has improved the marketing effect. In addition, we can use big data technology to analyze consumer demand and behavior, and carry out precision marketing to improve the efficiency of brand promotion. For example, BYD uses big data technology to analyze the consumption habits

and preferences of European consumers, and pushes personalized product information and promotional activities to consumers, which has improved the conversion rate of sales.

Conclusion

E-commerce platforms, with their convenience, significantly reduce intermediate links and operating costs in agricultural product sales, accelerating the flow of goods from production to consumers, and substantially increasing farmers' sales revenue and residents' disposable income. This increase in income further stimulates farmers' investment and entrepreneurial motivation, effectively promoting the integration of rural and urban industries and the close connection between upstream and downstream enterprises. Finally, the continuous emergence of entrepreneurial activities will create more supply and demand. Innovation and expansion on the supply side, such as technological innovation, design optimization, or improvements in production methods, provide more choices on the demand side. The diversification and upgrading of consumer demand brought about by innovative entrepreneurship further promotes innovation and improvement on the supply side, forming. This has fostered a positive interaction between supply and demand, providing a continuous driving force for the domestic economic cycle in institutional economics research. The increasing entrepreneurial activity is undoubtedly a crucial force in facilitating this cycle.

This thesis comprehensively explores the characteristics, developmental context, current dilemmas, and optimization pathways of China's automobile international trade, with a central focus on the new energy vehicle (NEV) sector that has propelled its significant growth forward. Based on the systematic analysis of relevant data from 2015 to 2024, combined with multiple research methods including literature review, statistical analysis, comparative analysis, and empirical analysis, this study systematically combs through the evolutionary process of China's automobile international trade, clarifies its core characteristics and global position, identifies the prominent challenges it faces, and puts forward targeted and operable countermeasures. The main conclusions drawn from the research are summarized as follows:

First, China's automobile international trade has gone through three distinct developmental stages, achieving a historic transformation from a marginal participant to the world's leading automobile exporter. The pre-2000s was the foundational stage of

industrialization, during which the automobile industry was dominated by a state-planned economy, focusing primarily on meeting domestic demand with minimal involvement in international trade its exports were mainly low-cost commercial vehicles and auto parts to developing countries. The 2000s to 2010s constituted the expansion phase: driven by China's accession to the World Trade Organization (WTO) and the "market for technology" strategy, joint ventures promoted technological progress, independent brands gradually emerged, and China successfully transitioned from a net importer to a net exporter of automobiles. The post-2010s is the NEV-driven growth phase; with the strong support of national policies such as the "Made in China 2025" initiative and the Dual - Credit Policy, China's NEV industry developed at an unprecedented pace, leading to a surge in automobile exports. In 2023, China surpassed Japan to become the world's largest automobile exporter with 4.91 million units, and this momentum continued in 2024, with total exports reaching 5.85 million units, of which NEVs accounted for 46.8 %. This transformation not only drives China's economic growth and industrial upgrading but also reshapes the global automotive trade pattern and industrial landscape.

Second, China's automobile international trade presents distinct structural characteristics in three core dimensions. In terms of market distribution, although the export market has expanded to cover global regions, it still suffers from excessive concentration: developing countries in Southeast Asia, the Middle East, and Africa remain the main export destinations, while penetration into developed markets such as Europe and the United States is still hindered by high access thresholds. In terms of product structure, there has been a fundamental shift from traditional fuel-powered vehicles to NEVs, with NEVs becoming the core driving force behind export growth; the vertical integration advantage of China's NEV industry — especially the strong competitiveness of the battery supply chain represented by Contemporary Amperex Technology Co. Ltd. (CATL) — has become a key competitive edge in the global market [20, p. 49]. In terms of brand characteristics, independent brands such as BYD, SAIC, and Geely have gradually emerged as influential players in the global market, but overall, their brand influence remains relatively weak. The lack of high-end brand recognition results in low brand premium capacity, which stands in

stark contrast to traditional automobile powers such as Japan, Germany, and the United States.

Third, while China's automobile international trade has achieved rapid growth, it faces significant challenges that restrict its high - quality development, and targeted countermeasures can effectively address these issues. The main challenges include: over-concentrated market distribution, which increases the vulnerability of trade to regional political, economic, and policy risks; core technology bottlenecks in key areas such as high-end chips and advanced components, leading to high dependence on imports; weak brand influence and difficulty in breaking into the high-end market, resulting in thin profit margins; and trade barriers such as the EU's carbon regulations and the U.S.'s tariff restrictions, which hinder market expansion. Corresponding countermeasures should focus on four key aspects: optimizing market distribution to realize diversified and balanced development; strengthening investment in core technology R&D to break through existing bottlenecks; accelerating the high-end development of brands to enhance their global influence; and actively responding to trade barriers by participating in the formulation of international standards and strengthening international cooperation.

Fourth, this study holds important theoretical and practical significance, and achieves innovations in research perspective, content system, theoretical application, and countermeasure formulation. In terms of theoretical significance, the study verifies and expands the Infant Industry Protection Theory and Technological Gap Theory through the case of China's automobile international trade, enriches the theoretical system of international trade and industrial economics, and provides a new research perspective for the industrial internationalization of emerging economies. In terms of practical significance, it provides actionable references for policymakers, industry practitioners, and global stakeholders: for policymakers, it offers insights for formulating strategic policies to promote technological leapfrogging and industrial upgrading; for industry practitioners, it clarifies the path for global expansion and risk mitigation; for global stakeholders, it helps them understand the dynamics of the global automotive supply chain and China's role in it. In terms of innovation, the study takes NEV - driven industrial transformation as the core

perspective, constructs a multi - dimensional analysis framework, integrates classic international trade theories with China’ s practical scenarios, and puts forward operable countermeasures targeting practical pain points, thus filling the research gap in China’ s automobile international trade under the NEV revolution.

It should be noted that this study also has certain limitations. The research data mainly covers the period from 2015 to 2024, and the long-term development trend of China’ s automobile international trade requires further tracking and in - depth analysis; in addition, the study focuses on the overall characteristics and countermeasures of China’ s automobile international trade, and the in - depth analysis of regional market differences and specific brand development strategies can be further strengthened in future research.

Looking ahead, with the deepening of the global energy transition and the continuous advancement of automotive technology, China’ s automobile international trade is facing new development opportunities and challenges. By adhering to technological innovation, optimizing the industrial structure, expanding market channels, and enhancing brand influence, China’ s automobile industry is expected to further consolidate its leading position in the global market, realize the transformation from a “manufacturing powerhouse” to a “trade strong nation”, and make greater contributions to the stable development of global automobile trade and industrial upgrading. At the same time, China’ s experience in promoting the development of the automobile industry through policy guidance, technological catch-up, and industrial chain integration can also provide valuable reference for other developing countries to develop their own automobile industries and achieve industrial upgrading.

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