

The Development Status and Countermeasures of China's Auto Industry Clusters

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Abstract

The automobile industry is an essential pillar of the national economy. The automobile industry is a crucial intersection of new technologies, models, and business formats. The industry has a long industrial chain, high correlation, comprehensive employment, and significant scale benefits. Features have gradually become an essential aspect of regional competition. With the rapid development of the automobile industry and the steady improvement of the quality level, the industrial spatial layout has gradually gathered. China's automobile industry has formed six representative clusters, among which the automobile cities have become the backbone of the industrial clusters. With the acceleration of the era of new energy vehicles, the distribution of new energy vehicle companies has shown a new pattern of concentration in Jiangsu, Zhejiang, Shanghai, Anhui, and Guangdong.

Keywords

Automobile Industry; Industrial Cluster; The Development Proposal.

1. Overview of the Development of the Six Major Automobile Industry Clusters

The trend of clustering development of China's automobile industry is undeniable, and the development of the automobile industry in different regions has different characteristics. The production layout of China's automobile industry conforms to the distribution characteristics of the Heihe-Tengchong Line. Automobile production is concentrated in the eastern region, and the domestic western region has less automobile industry layout. The overall Chinese automobile industry presents The Yangtze River Delta region, Northeast China, the Area of the middle of Yangtze River, the Area of Beijing ferry look forward to, The Pearl River Delta region, and Chongqing of Sichuan six significant automobile industry clusters distribution pattern, the spatial agglomeration effect is prominent. From the perspective of automobile enterprises, the industrial cluster of The Yangtze River Delta region is centered on SAIC, covering automobile enterprises such as SAIC Volkswagen Automotive Co., Ltd., Shanghai General Motors, SAIC Motor, etc. In recent years, Tesla, Li Auto, and other automobile enterprises have also been introduced. Inc, NIO, and other crucial new energy vehicle companies. The Northeast China industrial cluster is the birthplace of China's auto industry, with auto companies such as China Automobile and BMW Brilliance (Auto) as the core. Hubei Province is the central industrial cluster in the Area in the middle of the Yangtze River, and the leading automobile enterprise is Dongfeng Motor Corporation. The area of Beijing ferry looks forward to the industrial cluster. Major automobile companies include Beijing Automobile Works, China Automobile, and Great Wall Motor Company Limited. The Pearl River Delta region industrial cluster includes Guangdong Province, which has the most prominent automobile production in China, and the central automobile enterprises include Guangzhou Automobile Group and build your dreams.

The prominent automobile companies in the Chongqing of Sichuan industrial cluster include Changan Automobile and FAW-Volkswagen.

1.1. The Yangtze River Delta Region Automobile Industry Cluster

The Yangtze River Delta region automobile industry cluster includes four provinces and cities, including Shanghai, Jiangsu, Zhejiang, and Anhui, with 61 vehicle companies and 5,849 auto parts companies above designated size, gathering more than 100 annual industrial output value of more than 10 billion yuan industrial park, among the 30 cities in the cluster, more than 14 cities have obtained or planned new energy vehicle projects, involving more than 20 new energy vehicle projects, the cumulative planned production capacity exceeds 3 million vehicles, and the cumulative planned investment more than 100 billion yuan. The new energy vehicle industry has deployed The Yangtze River Delta region one after another and has formed a linkage model with Shanghai as the center and manufacturing bases in Jiangsu, Zhejiang, and Anhui.

1.2. Northeast China Auto Industry Cluster

The Northeast China auto industry cluster includes Jilin Province, Liaoning Province, and Three Heilongjiang Province, which gathers 20 vehicle companies and 846 auto parts companies above the designated size. In the traditional automobile industry field, Northeast China has a solid foundation for equipment manufacturing, strong supporting capabilities for parts and components, and a complete automobile industry system. Due to the constraints of resources and climate environment, compared with the rapidly developing traditional automobile industry, Northeast China's industry's development of the clustered new energy vehicle industry is relatively slower than the overall national speed. The automobile industry has become the most extensive industrial system in Jilin Province, accounting for more than half of the province's total industrial output value. With the approval of Changchun City, China, the pilot city for the application of a new energy vehicle battery swap mode, and the official start of construction of the FAW Audi company's PPE project, Jilin Province Automobile Industry, The pace of industrial transformation and upgrading will be further accelerated.

1.3. The Area in the Middle of the Yangtze River Automobile Industry Cluster

The Area in the middle of the Yangtze River automobile industry cluster includes Hubei Province, Hunan Province, and Jiangxi Province and gathers 53 vehicle enterprises and 2,346 auto parts enterprises above the designated size. The strength of the automobile industry in Hubei Province, marked by the corridor of "Wuhan City, Xiaogan City, Suizhou City, Xiangyang City, and Shiyan City," has increased significantly. Production base. The cultivation of new kinetic energy of intelligent networked vehicles in Hunan Province has taken shape, and the China Intelligent Connected Vehicles (Changsha City) test area and Hunan Province (Changsha City) China-level vehicle network pilot area have been established. Changsha City has become the first "Smart City Foundation" batch in China. A pilot city for the coordinated development of facilities and intelligent connected vehicles. The automotive electronics industry in Jiangxi Province is developing rapidly. It is planned to build "One scroll of two wings" automotive electronics with Nanchang, Ji'an, and Ganzhou as the central axis and Yichun, Xinyu, Pingxiang, Shangrao, and Fuzhou as the two wings. Industrial Distribution.

1.4. Area of Beijing Ferry Looks Forward to the Automobile Industry Cluster

The area of Beijing ferry looks forward to the automobile industry cluster, including Beijing, Tianjin, and Hebei provinces and cities, gathering 52 vehicle companies and 1,178 auto parts companies above the designated size. The intelligent networked vehicle industry has been included in the vital support of the four major "Beijing Intelligent Manufacturing" advantageous industries. Based on the excellent foundation of the automobile manufacturing industry, Beijing

plans to build an intelligently networked vehicle industry cluster, focusing on cultivating and building the Zhongguancun Autonomous Driving Innovation Demonstration Zone. Wait. Tianjin's auto industry has continuously improved the auto industry system around the fields of vehicle manufacturing, new energy core components, and automotive electronics and continued to strengthen the leading role of FAW-TOYOTA, FAW-Volkswagen, Haval, and other vehicle companies. Hebei Province has formed 11 industrial clusters, including Baoding Great Wall Motors, Zhuozhou Songlindian Industrial Zone Parts, and Dingxing Automobile and Parts Aggregation Area, and plans to build 8 automotive industry chains in Baoding, Dingzhou, Cangzhou, etc. clusters.

1.5. The Pearl River Delta Region Automobile Industry Cluster

The Pearl River Delta automobile industry cluster includes Guangdong Province and Guangxi Zhuang Autonomous Region and gathers 28 vehicle companies and 1,275 auto parts companies above the designated size. With the development of independent brands such as build your dreams and trump chia and the gradual development of new energy vehicle manufacturers such as XPENG, Danza, and NIO, Guangdong Province has formed a diversified auto industry pattern of Japanese-made series cars, European and American series cars and self-owned brands. The automobile industry of Guangxi Zhuang Autonomous Region is mainly concentrated in Liuzhou, Nanning, and other places, and a new energy vehicle R&D and production pattern has been initially formed with Shanghai General Motors Wuling, Brief of Dongfeng Liuzhou Motor co., Ltd. and other enterprises.

1.6. Chongqing of Sichuan Automobile Industry Cluster

The Chongqing of Sichuan automobile industry cluster includes two provinces and cities in Chongqing and Sichuan Province and gathers 45 vehicle enterprises and 1,398 auto parts enterprises above the designated size. In 2021, Chongqing of Sichuan Automobile Industry Cluster issued the "Chongqing of Sichuan Automobile Industry Chain Supply Chain Collaborative Work Plan" and "Cheng-Yu Region Shuangcheng Economic Circle Automobile Industry High-quality Collaborative Development Implementation Plan," focusing on building a West- Chongqing Economic Hallway, Cheng-Yu Electric Corridor and Cheng-Yu Zhixing Corridor will strengthen the efficient coordination of the industrial chain and supply chain of the two places, and promote the coordinated and high-quality development of the automobile industry in Chongqing of Sichuan.

2. There are Problems

2.1. Overheating of Investment in the Automobile Industry

Driven by a new round of global technological revolution and industrial transformation, China's auto industry is accelerating its transformation to electrification, intelligence, and networking. There has been a boom in investment in auto industry projects in many places, and auto companies have accelerated their deployment of the auto industry in China. While the ecosystem has become more mature and perfect, China's auto industry has expanded its production capacity. Relevant data shows that, at present, enterprises with production qualifications are expected to have tens of millions of vehicles under construction and put into production, most of which are new energy vehicles.

2.2. The Capacity Utilization Rate of the Automobile Industry is Low

While the concentration of China's auto industry has increased, the utilization of production capacity has shown a development trend in which the strong are getting more robust, and the weak are getting weaker. The production capacity in the areas where the profitable industries are concentrated is facing insufficient production capacity, but there are also many idle

production capacities in many places. According to data from the China Association of Automobile Manufacturers, among the 98 automobile manufacturers in 2021, more than 50 enterprises will produce less than 1,000 vehicles per month, of which nearly 20 are in a state of shutdown, producing 0 vehicles per month. According to data from the International Automobile Manufacturers Association (OICA), in 2020, the production capacity of Chinese auto factories (light vehicles) was 48.0493 million units, with a capacity utilization rate of 52%, far lower than 75% in South Korea, 73% in the United States, 68% in Japan, and 62% in Europe. % capacity utilization rate and overcapacity are relatively severe.

2.3. The Development of the Vehicle and Parts Industry is Not Coordinated

The auto parts industry is the premise and foundation to support the sustainable and stable development of the auto industry. Almost every major innovation in auto technology comes from the innovation of parts. Some local governments and capital investment hotspots in some auto industry clusters are too concentrated on vehicle projects, and the investment in parts and components is relatively lacking, making it difficult to show the combined force of whole and retail development. Among the six major automobile industry clusters, The Yangtze River Delta region industry cluster has the most significant ratio of the number of parts and components companies to the vehicle output, reaching 11.2. The Area in the middle of the Yangtze River industry cluster is 8.06. The Chengdu-Chongqing industry cluster is 6.24, the Area of Beijing ferry look forward to, The Pearl River Delta region, Northeast China industrial clusters are less than 3.

2.4. The Stability of the Industrial Cluster Network Structure Needs to Be Improved

The cluster network is an extension of the core supply chain, and its network structure is built around the core supply chain. In order to ensure the sustainable development of the automotive cluster supply chain network, a stable network structure needs to be built. The automobile industry chain is mainly based on vehicle products, and the upstream and downstream industries cover many fields, divided into three significant links: production, circulation, and after-sales. The development level of each link will directly or indirectly affect the overall competitiveness of the automobile industry, especially the critical link development. The output value of some auto industry clusters is mainly dependent on the output of complete vehicles, and there is a lack of forward-looking and systematic layout at the front and back ends of the smile curve of the auto industry, resulting in an unreasonable industrial structure within the cluster, making it difficult to form an excellent industrial ecology.

3. Development Suggestions

3.1. Give Full Play to the Advantages of Regional Agglomeration and Coordinate the Development of Idle Production Capacity

Strictly follow the principle of China's policy of "regional agglomeration and enterprise concentration," promote the automobile industry to gather in regions with full utilization of production capacity and complete supporting systems, and cultivate many world advanced manufacturing clusters. Strictly implement the investment management regulations of the automobile industry, guide the development of the automobile industry, and rely on the existing production capacity to encourage traditional fuel automobile enterprises to actively adjust the product structure and increase investment in the Research and development of pure electric technology. Standardize the merger and reorganization of vehicle enterprises, vigorously promote the exit of backward enterprises and ineffective production capacity, and build an industrial structure with reasonable layout, orderly development, and efficient operation.

3.2. Focus on Difficulties and Blocking Points, and Stabilize and Smooth the Industrial Chain and Supply Chain

With the safety construction of the industrial chain and supply chain as the goal, clarify the development overview of the supporting system of the automobile industry in each province in the cluster, clarify the perfection of the supply chain in each sub-sector and the positioning and value of the entire industrial chain, and focus on the weak links in the industrial chain. Accurately implement technology and market trends. Strengthen investment project management, strictly control project quality, standardize industry access threshold, establish a government investment management system with scientific decision-making, strict procedures, standardized operation, and strict supervision, and build multiple supervision systems to ensure the smooth progress of investment projects.

3.3. Build a Public Service Platform and Create a Strong Magnetic Field for Talent Gathering

Drawing on the leading development experience of Shanghai Jiading International Automobile City, set up professional public service platforms such as "Auto City Development Management Co., Ltd." and employ professional market-oriented teams for operation and operation to achieve effective integration of government public resources and collaborative innovation of government, industry, academia, and Research. . Carry out the construction of public technical service platforms such as scientific research institutes, think tanks, etc., and provide automotive innovation in the aspects of vehicle development, product evaluation, standard formulation, testing and verification, expert consultation, policy interpretation, strategic planning, entrepreneurial training, financing needs, and market connection. Entrepreneurial talents provide comprehensive solutions. Accelerate the accumulation of innovation resources, incubate innovative enterprises, introduce and cultivate innovative talents, integrate innovation capital, and optimize the innovation environment.

3.4. Strengthen Industrial Collaboration and Form Horizontal Industrial Integration

Establish a complete and zero-part docking mechanism for the automotive industry in the region, and guide the vehicle and core parts companies, assembly systems, and secondary parts companies in the region around the three major areas of critical automotive parts, intelligent network connectivity, and essential parts of new energy vehicles. Form a collaborative innovation consortium to jointly implement the whole zero collaborative innovation project. Build a platform to release requirements for the simultaneous development of the Internet of the automotive industry and the complete vehicle and assembly systems, and promote innovation in the mode of integration between parts and components. Financial institutions are encouraged to innovate significant whole projects and zero collaborative innovation and guide social funds through industrial investment funds to promote the collaborative innovation of the whole and zero auto industry and the development of the core parts industry in various ways.

References

- [1] Wu Hong, He Yun, Zhang Xiaoli. Research status and research trend of collaborative innovation of new energy vehicle industry clusters. Science and Technology Vision, Vol. 05 (2022) No.03.
- [2] Wang Huiyan. Research the Development Status and Countermeasures of Guangdong Automobile Strategic Pillar Industry Cluster. Guangdong Econom, Vol. 02 (2021) No. 08.
- [3] Min Shan, Li Hongqing, Yang Fan, et al. Research the development status and countermeasures of China's auto industry clusters. Business Economics, Vol. 02 (2022) No. 04.

- [4] Gao Zhengkai, Xia Antao. Research on the development of automobile industry clusters based on the perspective of industry chain: Taking Hunan Province as an example. Green Science and Technology, Vol. 24 (2022) No. 4, p.4.
- [5] Luo Zhihua. Research the development status and countermeasures of China's new energy vehicle industry and technology. Automotive Practical Technology, Vol. 47 (2022) No. 5, p.5.