

# The Logic of Change in China's New Energy Vehicle Fiscal Subsidy Policy

-- Analysis based on Historical Institutionalism

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**Abstract:** The vigorous development of new energy vehicles as a representative of emerging industries is inseparable from government financial subsidies. In recent years, with the continuous expansion of the new energy vehicle industry and the transformation of the national economy into an innovation-driven one, the centralized financial subsidy policy for new energy vehicles has undergone tremendous adjustments marked by the withdrawal of the "national subsidy". Using the historical institutionalism analysis framework, we systematically review the history of China's new energy vehicle subsidy policy, and divide it into four stages: the creation of the pilot stage, rapid expansion, comprehensive promotion, and adjustment and change. From the structural viewpoint, factors such as national economic development, global industrial competition, and changes in the concept of development have, to varying degrees, contributed to the change in the financial subsidy policy for new energy vehicles. From the historical point of view, the financial subsidy policy has been continuously self-reinforcing under the learning effect, coordination effect and adaptive expectation, but also due to the negative incentives for market players to take malicious subsidy fraud to make the contradictions gather and explode, which constitutes a key node of policy change. The current new energy vehicle subsidy policy is in the stage of adjustment and change, the future should be strengthened technology research and development incentives to regulate at the same time to avoid the formation of subsidy dependence of enterprises, and strengthen the subsidy of infrastructure facilities.

**Keywords:** Fiscal Subsidy Policy; New Energy Vehicles; Historical Institutionalism.

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## 1. Introduction

The automobile industry is an important indicator of a country's industrial manufacturing capacity, and has always occupied an important position in the industrial system of major global economic powers. In recent years, with the integration of automobile industry with energy, intelligent manufacturing and other related technologies, the global automobile industry pattern is facing reshaping. Therefore, the development of new energy automobile industry is an important means for many developing countries to realize the monopoly of traditional automobile technology in Europe and the United States to overtake. Over the past decade, China's new energy vehicle sales have transitioned from steady growth to exponential explosive growth, occupying a larger share of the global market. As a new industry, the vigorous rise of new energy vehicles is inextricably linked to the government's planning and subsidies for the new energy vehicle industry. From the context of government governance, government financial subsidies are provided by the government to qualified individuals, enterprises and social organizations in related fields in order to realize and maintain public interests. Studies have shown that under the effect of continuous government subsidies, the production and sales of new energy vehicles have been significantly stimulated[1], achieving the government's goal of rapidly expanding the market share of new energy vehicles in the short term. As the U.S.-China trade dispute continues and many Chinese industries are subject to embargoes and sanctions, the success of the subsidy policy in the new energy vehicle industry is an important policy inspiration for China's future subsidy policy in other areas.

Currently, the academic discussion on new energy vehicle

subsidy policy focuses on the following three aspects: first, based on the economics perspective, constructing mathematical models to analyze the impact of government subsidies on the development of the new energy vehicle market, the role of[2,3] and the strategies between the various subjects[4]; second, comparative research, part of the study by combing through the evolution of the domestic new energy vehicle subsidy policy and conducting a comparative analysis of the effects across time[5], and part of the study based on the differences and similarities of the policies of domestic and international comparison[6]. Third, based on the perspective of jurisprudence, there are legal deficiencies in the new energy vehicle subsidy policy, so[7] should optimize and standardize the new energy vehicle subsidy policy based on legal concepts and legal regulations[8]. Fourth, based on the perspective of public policy synergy, analyzing the synergy of the new energy vehicle industry policy and the path of optimization in the dimensions of content-structure-process. or through the evaluation of the policy, and also through the evaluation of the policy, we can see how to optimize the policy. The fourth is based on the perspective of public policy synergy to analyze the problem of new energy vehicle industry policy synergy and the optimization path from the dimension of content-structure-process[9], or to optimize the policy portfolio of new energy vehicle industry through policy evaluation model[10]. Throughout the existing literature, there is a lack of historical institutionalism in analyzing subsidy policies. Although the existing literature on policy evolution has been combing the policy texts, there are still two deficiencies: one is that it fails to grasp the logic and dynamics of institutional change, and the other is that it pays too much attention to the effects of the policies and neglects the role of the system behind them.

## **2. Historical Institutionalism Paradigm of Analysis**

### **2.1. The Basic View of Historical Institutionalism.**

Historical institutionalism, as one of the three main schools of new institutionalist political science, is significant in the analysis of institutional and policy change. Based on the old institutionalism, this paradigm incorporates political science group theory and structural functionalist analytical perspectives, and has been gradually popularized in academia since the mid-1980s. According to Hall and Taylor, historical institutionalism elaborates the influence of institutions on actors through two mechanisms, namely, "calculated path" and "cultural path", emphasizes the explanatory frameworks of asymmetry of power, path dependence, unintended consequences, and critical nodes, and pays attention to social and economic development and conceptual distribution in addition to institutions. It emphasizes the explanatory frameworks of asymmetry of power, path dependence, unintended consequences, and critical nodes, and pays attention to historical contextual factors such as socio-economic development and the distribution of ideas[11]. Historical institutionalism focuses on the structural features, historical orientations and causal mechanisms embedded in political and economic systems and policies[12]. On the one hand, it is argued that social institutions are composed of a variety of political, economic, and cultural-social structures, and that they also include formal and informal institutions embedded in organizational structures, with the formal institutions usually considered to contain statutes, regulations, etc., and norms, traditions, and customs incorporated into a collection of informal institutions, which interact with each other, influence each other, and evolve over time, affecting institutional and policy change. . On the other hand, it is emphasized that the development of institutions and policies is an evolving process that requires in-depth research from a historical perspective. Attention is paid to the unintended consequences of major events and decisions on institutional and policy change, as well as the path-dependent roles played by established historical contexts, which together shape the nature and character of institutions and policies, and lay the foundation for the future development of policies. In sum, historical institutionalism, based on structural and historical perspectives, emphasizes the important role of institutions in decision-making, organizational change and social change and development.

### **2.2. An Analysis of the Applicability of Historical Institutionalism.**

China's new energy vehicle subsidy policy has undergone profound changes in content and form since its implementation. Analyzing it from the perspective of historical institutionalism helps to grasp the key nodes of industrial development in the current era of complexity and rapid change, firmly grasp the opportunities for industrial upgrading and development, and promote the coordinated development of China's industrial policy. Historical institutionalism provides a meso perspective that comprehensively grasps the macro institutional structure and micro-level power mechanism[13]. The new energy vehicle subsidy policy has been implemented for more than ten years, during which China has made great achievements in the fields

of social economy, science and technology, as well as new changes in the concepts of individuals and even the society, which provides a space for this study based on the analytical paradigm of historical institutionalism. The study will sort out the evolutionary trajectory of China's new energy vehicle subsidy policy, explore the logic of policy goals and value shifts embedded in it, as well as the structural and historical factors affecting the formulation and implementation of China's new energy vehicle subsidy policy, and explore the causal relationships embedded in the key nodes and path dependencies behind the policy change process. The research perspective mainly focuses on the new energy vehicle subsidy policy at the central level, while the local subsidy policies at the provincial and municipal levels are not in the focus of this study.

## **3. The Evolutionary Trajectory of China's New Energy Vehicle Fiscal Subsidy Policy**

China's new energy vehicle industry has been in the R&D stage for a long time, and in 1999, China issued the "Opinions on the Implementation of the Air Purification Project - Clean Vehicle Action". 2006 to 2008, three types of independently developed new energy vehicles were put into use. From 2006 to 2008, three types of independently developed new energy vehicles were put into use one after another, and in November 2007, the Chinese government formally promulgated the "New Energy Vehicle Production Access Management Rules", which defined the scope of new energy vehicles at the official level. So far, the national policy on new energy vehicles has gradually shifted from R&D support to encouraging the marketization and industrialization of new energy vehicles. In order to support the market-oriented operation and development of new energy vehicles, various policies have been introduced intensively, and the era of consumer subsidies for new energy vehicles has officially opened. Up to now, the national new energy vehicle subsidy policy can be divided into four stages: creation of pilot, rapid expansion, comprehensive promotion and adjustment and change.

### **3.1. Creation of a Pilot Phase (2009-2011).**

In 2009, the Ministry of Finance and the Ministry of Science and Technology issued the Notice on the Pilot Work of Demonstrating and Promoting Energy-saving and Energy-efficient Vehicles (Caijian [2009] No. 6). According to the provisions of the document, the first batch of 13 cities such as Beijing, Shanghai, Dalian, etc. were selected as demonstration sites for the promotion of new energy vehicles, focusing on the promotion of new energy vehicles in the field of public services, and providing one-time central financial subsidies for the promotion units that purchased energy-saving and new energy vehicles. Subsequently, the Ministry of Science and Technology, Ministry of Finance Ministry of Science and Technology, Ministry of Finance, and Development and Reform Commission Ministry of Science and Technology, Ministry of Finance, Ministry of Development and Reform Commission, and Ministry of Industry and Information Technology (hereinafter referred to as the "four ministries") jointly carried out the "Ten Cities, Thousand Vehicles" promotion and demonstration project, aiming at developing 10 cities each year for three years by applying financial subsidy policies, and launching 1,000 new energy vehicles for demonstration operation in each city. In

2010, the four ministries jointly introduced China's first subsidy policy for private purchase of new energy vehicles. According to the Notice on the Pilot Subsidy for Private Purchase of New Energy Vehicles, six cities, including Beijing, Shenzhen and Shanghai, were determined to implement the pilot subsidy for private purchase of new energy vehicles. In the same year, in order to ensure the realization of the "Eleventh Five-Year Plan" energy saving and emission reduction targets, the State Council issued a document to promote energy-saving vehicles.

During this period, the national support policy for new energy vehicles is still at the stage of creating pilot projects, and the means of support relies on financial subsidies and promotional demonstrations, failing to make more breakthroughs. First, the scope of subsidies initially focused on public service providers, such as public transportation, rental, municipal, postal and other areas, the private consumer market can only meet certain conditions in the six pilot cities to buy new energy vehicles to enjoy the subsidies, new energy vehicle market is in the initial stage of marketization. Secondly, the promotion of new energy vehicles is closely linked to the goal of energy saving and emission reduction, and has not been able to realize the economic problems of focusing on new energy vehicles. Third, the pilot cities are fewer and unevenly distributed. To four departments led by the "ten cities and a thousand vehicles" project, for example, there have been three batches of a total of 25 cities to participate in the project.

### **3.2. Rapid Expansion Phase (2012-2015).**

The second phase of the government's new energy vehicle subsidy policy was from 2012 to 2015, during which the new energy vehicle industry expanded rapidly. In June 2012, the State Council issued the Energy Saving and New Energy Vehicle Industry Development Plan (2012-2020), which aims to promote the enhancement of research and development technology for new energy vehicles, build a relevant industrial system and explore business models, and one of the main tasks of the plan is to accelerate the promotion, application and pilot demonstration of new energy vehicles. One of the main tasks of the plan is to accelerate the popularization, application and pilot demonstration of new energy vehicles. Subsidies at this stage start from two aspects. First, the central government will arrange funds to subsidize enterprises, consumers and the government to support new energy vehicles. The second is to use tax policy to give subsidies. In 2012, the Ministry of Finance and the Ministry of Science and Technology issued a document to continue to promote the promotion of new energy vehicles, pointing out that on the basis of the "Ten Cities, Thousand Vehicles" project, in the next few years, the Ministry of Finance and the Ministry of Science and Technology will continue to promote the promotion of new energy vehicles, pointing out that on the basis of the "Ten Cities, Thousand Vehicles" project, in the next few years, the Ministry of Finance and the Ministry of Science and Technology will continue to promote the promotion of new energy vehicles. The Ministry of Finance and the Ministry of Science and Technology issued a document in 2013 to continue the promotion of new energy vehicles, stating that on the basis of the "Ten Cities and Thousand Vehicles" project, in the next two years, they will continue to rely on the Beijing-Tianjin-Hebei, the Pearl River Delta and the Yangtze River Delta to continue the promotion of new energy vehicles, with subsidies from the central

government to enterprises, and consumers purchasing new energy vehicles will only need to pay for the sales price after the subsidy. Subsequently, the State Administration of Taxation issued a document stipulating that new energy vehicles meeting the requirements are exempt from paying vehicle purchase tax.

At the stage of rapid expansion, the main goal of China's new energy vehicle subsidy policy is to improve the technical level and quality level of new energy vehicles, and many new changes have appeared in specific policies. First, the policy objective is diversified. Emphasizing that the automobile industry is an important pillar of the national economy, most policies are formulated around the goal of supporting the industrialization of new energy vehicles, in addition, the development of new energy vehicles is also expected to be used to achieve energy conservation and emission reduction, air pollution control and other goals. Second, the subsidy method, in addition to the central financial funds to be consumer subsidies, tax incentives have also become a tool for the state subsidies and support for new energy vehicles. Third, the subsidy is more refined. Such as according to renewable mileage standards to give subsidies, do not meet the standards of enterprises difficult to obtain subsidies, in the high cost of market competition under the pressure to be eliminated, drive enterprises to continue to innovate technology. Fourth, the pilot scope of expansion. Where the Ministry of Finance and the Ministry of Science and Technology issued a document requiring the standards of enterprises can declare new energy city pilot, no longer have a number of restrictions. The pilot work of new energy vehicles in this period of rapid expansion, subsidy policy compared to the previous period in the scope and mechanism of a major shift.

### **3.3. Comprehensive Advancement Phase (2016-2020).**

In 2015, the four ministries and commissions issued a document to set the tone for the subsidy policy within the next five years, indicating to the society that the period of fiscal policy subsidies ends at the end of 2020. In terms of specific subsidy regulations, subsidy regression standards were set for different years. 2017 to 2018 subsidy standards were reduced by 20% on the basis of 2016, and 2019 to 2020 subsidy standards were adjusted downward by 40% on the basis of 2016, with no need to regress the subsidy for fuel vehicles.<sup>3</sup> The subsidy policy was adjusted at the end of 2016, and the subsidy policy was adjusted at the end of 2020, with no need for regression. This subsidy policy was adjusted at the end of 2016, with a 20% regression in subsidies for 2019 and 2020, and no further regression in 2017 and 2018. In order to further improve the precision of the subsidy policy, at the beginning of 2018, the four ministries and commissions made a refinement adjustment based on the industrial development situation. In this adjustment, the subsidy standard of "low refund and high subsidy" is directly refined, and the subsidy object is more favorable to technological innovation enterprises. This change is mainly manifested in the pure tram subsidy standard regulations, although it is still graded according to the mileage, but the grading level is more refined, and the overall range requirement is greatly improved.

New energy vehicle subsidy policy in full swing during the gentle regression phase. The main goal of China's new energy vehicle subsidy policy is to shift to encourage the marketization and commercialization of new energy vehicle

industry development. The government has gradually reduced the amount of subsidies for new energy vehicles and introduced a series of policies to encourage the marketization of new energy vehicles, such as encouraging the independent market operation of new energy vehicles. In terms of the scope of subsidies, it is no longer limited to pilot cities. The industrial system of new energy vehicles has gradually matured and has the conditions to be promoted nationwide. From the point of view of subsidy standards, the technical requirements for products are more refined and strict, emphasizing the support of excellence and strength. For example, the maximum speed and other requirements for new pure electric cars in 2016 show that the state encourages the development of new energy vehicle technology with long driving range, high energy density and low energy consumption, and accelerates the elimination of technologically backward products. From the point of view of subsidy strength, the new energy vehicle purchase subsidy still implements the regression mechanism, which aims to increase the uncertainty of the new energy vehicle industry and drive enterprises to accelerate the speed of innovation.

### **3.4. Adjustment Change Phase (2021 to present).**

On April 30, 2020, the decision of the Standing Committee of the State Council, four ministries and commissions issued the Notice on Further Improving the Financial Subsidy Policy for the Promotion and Application of New Energy Vehicles, which extended the implementation period of the financial subsidy policy for the promotion and application of new energy vehicles to the end of 2022. The overall subsidy program continues 18 years program, 2020 to 2022 within three years of the subsidy amount respectively in the previous year on the basis of 10%, 20%, 30%. 2022 end of the year, the state of new energy automobile purchase subsidies out of the historical stage. The number of new energy vehicle consumption in China during this period is growing rapidly, and the market is rapidly expanding and maturing. The national level in advance of industrial planning, shifting to the implementation of the support policy of rewarding

The industrialization and commercialization of the new energy vehicle market at the stage of adjustment and change is at a mature stage, and accordingly the subsidy policy has begun to retire. Several new trends have emerged: first, the policy objective has shifted. By supporting and cultivating the new energy vehicle industry to improve the industrial pattern, the national level canceled the purchase of new energy vehicles subsidies, but meet the conditions of the fuel cell models still enjoy the subsidy policy, the form of subsidies from the purchase of the purchase of the price into the R & D technology incentives. Second, tax incentives adjustment. So far, new energy vehicles still enjoy the vehicle purchase tax reduction and exemption policy, but from the perspective of the duration of the policy, new energy vehicles are exempted from the vehicle purchase tax policy period is getting shorter and shorter, such as the recent announcement only clearly indicates that the year 2023 is exempted from the vehicle purchase tax.

From the perspective of the entire policy diffusion process, the new energy vehicle subsidy policy at the central level follows the general experience of policy diffusion. That is, the policy is first piloted and then fully implemented, and the scale of trial and error is controlled within a certain range. Based on the above combing of China's new energy vehicle

subsidy policy, it helps to understand the pattern of progressive change of this policy. Subsidies include producer subsidies and consumer subsidies, with the former including R&D subsidies, business tax and VAT exemptions, and the latter including purchase subsidies and vehicle purchase tax exemptions for consumers. The transformation of subsidy targets is closely related to the development of the industry. It has successively experienced consumer subsidies as the main source of subsidies, and has now shifted to producer subsidies as the main source of subsidies after the maturity of the industry, in which the target of consumer subsidies has been expanded from the public sector to the private sector, and the scope of subsidies has been gradually expanded. The tools of subsidy policy have been enriched continuously, expanding from the initial subsidy of financial payment to the combination of subsidy of payment and subsidy of relief. The industrial objective of government subsidies has also changed from encouraging business model innovation to technological R&D innovation. The new energy vehicle subsidy policy has gone through complex adjustments from its creation to its content, and the analytical paradigm of historical institutionalism provides an analytical perspective to explore the deep-rooted factors that have contributed to these shifts.

## **4. The Structural Logic of the National Financial Subsidy Policy for New Energy Vehicles**

The formulation of any system or policy involves consideration of current social realities and is also influenced by history, customs, traditions, perceptions and other factors. Therefore, to understand the evolution of a policy, it is necessary to trace its origin from the reality and social context. China's new energy vehicle subsidy policy has gone through a process of change from the creation of the pilot to the adjustment and transformation, and this process has been subject to the adjustment of macro-social economic, political, social concepts and other structural elements, which help to grasp and understand the vein of the creation and development of the national new energy vehicle financial subsidy policy.

### **4.1. National Security and Safety.**

China has long faced the threat of a serious energy shortage. Energy is the driving force and foundation of modernization, and has a bearing on national security and socio-economic development. For a long time, subject to natural resource endowment, China's energy supply structure is relatively single, low oil reserves, high cost of extraction, resulting in China's high dependence on foreign energy, dependence on foreign crude oil imports for a long time as high as 70%. Once an energy crisis occurs, the cost of industry, logistics, people's livelihood and many other areas will rise sharply, economic and industrial development continues to face serious energy challenges. Traditional fuel vehicles need to consume a large amount of gasoline, and new energy vehicles using non-fossil fuels can effectively alleviate energy shortages, is an important means to reduce foreign dependence. In China, the promotion and use of new energy vehicles drive fuel consumption savings of more than 3 million tons in 2020, and more than 10 million tons cumulatively between 2016 and 2020. Promoting energy science and technology innovation is an important task in the strategic layout of China's energy development, and the government's support for the

development of the new energy vehicle industry is based on both the consideration of enhancing the ability to independently guarantee energy and national security, and the optimization of the energy structure and the promotion of the energy consumption revolution is an important means.

China faces serious challenges of ecological change. In the early stages of economic development, constrained by technology, lack of capital and other difficulties, enterprises in all parts of the country generally adopted a crude mode of economic development, with no awareness of environmental protection or measures in place, resulting in serious pollution of the atmosphere, soil and water resources. The government has the responsibility and obligation to safeguard a good ecological environment, and there is an urgent need to take appropriate and urgent measures to alleviate the adverse effects of environmental changes on national life. The promotion of new energy vehicles is closely related to the reduction of emissions of polluting gases, such as vehicle exhaust, in order to achieve the goal of air pollution prevention and control. New energy vehicle subsidy policy to create a pilot phase, the State Council issued a document to ensure the realization of the "Eleventh Five-Year" energy saving and emission reduction targets, proposed to vigorously promote energy-saving technologies and energy-saving products, and to do a good job of demonstration and promotion of new energy vehicles. When selecting cities for promotion during the rapid expansion phase, priority will be given to regions with heavy fine particulate matter management tasks. Especially in the context of carbon peak, carbon neutral, the promotion of energy-saving and new energy technologies has become an important consideration within the response to air pollution and other ecological and environmental governance objectives.

## **4.2. Economic Development Needs.**

China's traditional fuel vehicle market is facing an impact. After fifteen years of accession negotiations, China formally joined the WTO in 2001. According to the commitment to WTO, the Chinese government adjusted the development policy of domestic automobile industry, and in 2004, the Chinese government issued "China's Automobile Industry Development Policy", which abolished the restrictions on foreign exchange balance, localization ratio of automobiles and parts, and actual regulations on export, etc. After the trade opening, China's traditional automobile industry faced more challenges. After trade liberalization, China's traditional automobile industry is facing more severe challenges, and is in a disadvantageous position in the market competition with the more technologically advanced western countries. As an emerging technology, new energy technology, China and the West are at the same starting line for the transformation and upgrading of the automobile industry to provide the possibility of catching up. In the early stage of technological development, new energy vehicles will have to compete with the oligopolistic market formed by traditional fuel automobile manufacturers with mature technologies and product channels, and as potential entrants, they will be rejected by the established manufacturers. The government's use of financial subsidies to subsidize private consumers will lower the real price of the vehicle and increase its competitiveness with traditional fuel vehicles, thereby influencing consumer preferences and generating more demand in society. For manufacturers of new energy vehicles, they can attract more capital to invest in production, R&D and other areas.

Fiscal policy to subsidize the new energy vehicle consumer market is closely linked to the overall economic development of society. First, it is manifested in the transformation and upgrading of residents' consumption. On the one hand, since the reform and opening up, China's GDP has maintained rapid growth year after year, and residents' living standards and living conditions have continued to improve. On the other hand, along with the increase in residents' income and the improvement of living conditions, residents have gradually formed a more diversified, high-quality consumption demand, especially in the context of urbanization, the residents' transportation mode has also undergone profound changes. Residents' material wealth and willingness to consume together constitute the material premise for the development of new energy automobile industry. Secondly, the national industrial development urgently needs green transformation and upgrading. China's economy is in a critical period of transformation and development, will be driven from factor-driven investment-driven to efficiency-driven and even innovation-driven, so how to lead the optimization and upgrading of the traditional industrial structure and the rapid development of high-tech new industries has become the focus of the government's economic work. At present, the new round of scientific and technological revolution and industrial change and China's accelerated transformation of the mode of economic development to form a historic convergence, the international industrial division of labor pattern is being reshaped to construct a modernized industrial system. The strategic emerging industries represented by new energy have systematic development dilemmas such as market demand is not mature enough, big but not precise, wide but not deep, and low value-added, etc., which are in urgent need of support and guidance from the government.

## **4.3. Economic Development Needs.**

The national economic system directly determines the mechanism by which the Government intervenes in economic development. After the founding of New China, the central government gradually promoted socialist public ownership reforms aimed at eliminating the private economy and establishing a planned economic system. Decisions on social production and resource allocation were made by the government, which directly guided the production and operation of enterprises, and the final products were distributed by the government in accordance with prior plans. Therefore, in the context of the planned economy, the government controlled the production and operation activities of enterprises through administrative orders and underwrote the business conditions of enterprises, and there was no soil for the use of policy tools such as subsidies and regulation. After the reform and opening up, with the development of practice and the deepening of knowledge of socialist economic construction, the society gradually understands the market with new eyes. The event that played a decisive role in this process was Comrade Deng Xiaoping's Southern Dialogue in early 1992, which explicitly proposed a socialist market economy system. The 14th Party Congress formally established the establishment of a socialist market economy system as the goal of China's economic system reform, fundamentally unshackling the traditional planned economy theory that relied on administrative orders to function. In order to support the development of industries and projects, the modern government, which follows the operation of the market economy, has widely applied the policy tool of

financial subsidies to intervene in industrial development.

The friction between old and new concepts of national economic development can cause institutional change. Ecological prosperity leads to the prosperity of civilization, while ecological decline leads to the decline of civilization. The scientific outlook on development is a major strategic idea put forward by the Communist Party of China (CPC) in exploring the law of development of socialist market economy, and it is the ideological guideline for China to cope with deepening social contradictions in the process of rapid modernization and construction. The main connotation of the scientific concept of development is to adhere to the people-oriented, comprehensive, coordinated and sustainable concept of development. Among them, sustainable should realize the harmonious development of man and nature, attach importance to the protection of the ecological environment and the construction of a good ecological civilization. At the second plenary session of the Fifth Plenary Session of the 18th CPC Central Committee, General Secretary Xi Jinping put forward the new development concept for the first time, to realize green and coordinated development. Thus, the green development concept, which aims to solve the problem of harmony between human beings and nature, has become a development path that guides the direction of change in the lives of residents, science and technology, and industrial change. The concept of national economic development has also changed from blindly pursuing economic growth to focusing on the quality of green economic development. As a new type of science and technology and industry practicing the concept of green development, the new energy automobile industry has been endowed with the value symbols of energy saving and emission reduction, green development, etc., which are widely recognized by the society and the state level.

## **5. Historical Logic of National New Energy Vehicle Financial Subsidy Policy**

The analytical paradigm of historical institutionalism pays special attention to examining the self-reinforcing mechanisms and critical nodes of path dependence in the process of institutional change as a means of explaining, respectively, why institutions remain relatively stable and why they change. The long-term survival of an institution tends to be the norm, due in Arthur's view to four mechanisms: initial set-up costs, learning effects, coordination effects, and adaptive expectations. Institutional change, on the other hand, is a short-term fluctuation due to major events, choices made at critical points in history, and forms the starting point for many path-dependent processes. This paper will attempt to trace the history and explore the self-reinforcing mechanisms and critical nodes in the national new energy vehicle subsidy policy.

### **5.1. Self-enforcing Mechanisms for Fiscal Subsidy Policies.**

North that once a system is established, regardless of whether it is effective or not will continue to exist in a certain period of time and will affect the subsequent choice of system, that is, institutional development shows a "lock" effect, can only be along a certain path of change, locked in a virtuous circle and rapid optimization of change is regarded as the positive effect of the wrong path is locked in an inefficient state of change is regarded as a negative effect. Changes

locked in an inefficient state along the wrong path are regarded as negative effects[14]. The path dependence of national new energy vehicle subsidy policy change is mainly influenced by three mechanisms: learning effect, coordination effect and adaptive expectation.

As far as the learning effect is concerned, the introduction of the new energy vehicle subsidy system by the Government has given rise to a group of organizations that seek to profit from adapting to the system by adjusting their organizational behaviour in accordance with the framework criteria of the subsidy system stipulated by the State. The subsidy system directly provides competitive incentives for new energy vehicles, injecting government intentions for industrial development through the qualification and adjustment of subsidy recipients, standards and conditions, and changing the cost and revenue structure of production and R&D. Subsidized enterprises will gain a competitive advantage in the marketplace, and organizations will therefore guide their own production and technological innovations in accordance with the established institutional framework. As more and more firms meet the subsidy criteria, the policy criteria also raise the subsidy threshold year by year. In order to win in the market competition and profit under the new subsidy framework, enterprises will continue to invest in R&D personnel and capital to acquire knowledge and technology to seek innovative breakthroughs and adjust production technology. As a result, the technical standard framework of the national new energy vehicle subsidy policy is becoming more complex and the product requirements more elaborate. Although the central government has eliminated direct subsidies for private consumers, the government continues to support industry development through public sector procurement and incentives for new energy technology companies. This suggests that the next phase of new energy vehicle development will focus more on technological innovation, expanding market size will no longer be the central government's main goal, and relevant companies will adjust their behavior according to the new rules.

Coordination effects build on the nesting of two dimensions: organizational and institutional. Once a system is established, the organizations that adapt will interact with other organizations to contract, organizations with mutual interests will further invest and complement, and the system itself will interact with other formal and informal systems. Institutional change depends not only on the principle of economic efficiency, but also on the size of the interest groups. In reality, due to the existence of transaction costs, institutional change needs to pay the corresponding costs, the coordination effect implies that institutional change involves an increase in the number of subjects of interest as well as the cost of institutional change increases exponentially, thus the system shows a lock-in effect. After the government launched the new energy automobile subsidy policy, the synergistic linkage between administrative subjects increased. The enterprises in the new energy technology industry chain also gradually formed a stable interactive relationship. To some extent, the government and the market have also formed an intricate network of relationships, with each other's interests nested within each other. Taking government departments as an example, on the one hand, the subsidy program was initially a cooperation between the Ministry of Finance and the Ministry of Science and Technology, joined by the Development and Reform Commission (DRC) and the Ministry of Industry and Information Technology (MIIT) in

the subsequent implementation of the policy, and with the application of tax incentives, the tax department is also involved in the new energy vehicle subsidy policy. On the other hand, each local government to achieve economic development to seize the new energy industry, become a pilot city, will take a series of measures to cooperate with the central policy in order to win the competition in the local government. It can be expected that the implementation of the subsidy policy will increase significantly, the number of involved parties will increase significantly, and the complexity of the vertical and horizontal inter-departmental interest game will make it difficult to change the policy, and the market will gradually form a strong subsidy dependence to further exacerbate the risk and cost of change.

As a particular regime or policy-based contract prevails, it reduces the uncertainty that the regime will endure. Firms' behavioral adjustments are based on expected future earnings, and the number of firms and the degree of behavioral adjustment are positively correlated with the certainty of expected earnings and profitability. New energy vehicle subsidy policy programs often directly stipulate specific subsidy programs for the next three to five years. In the short term, the framework of the government subsidy system is established, and the market has a stable future expectation, thus prompting companies to plan for production expansion. Rationally speaking, due to the pressure of the national financial burden, it is unlikely that a sustained and substantial direct financial subsidy system for new energy vehicles can be maintained in the long term. In order to reduce the adaptive fluctuations arising from the direct withdrawal of the state financial subsidies from the market, the subsidy policy from the pilot stage to adopt a yearly regressive subsidy mechanism to adjust the expectations of stakeholders, to avoid the industry into a blind repeat production and involution. The declining subsidy or regression system is designed to incentivize enterprises to realize the government's demand for industrial development as early as possible, and at the same time, it also sets a clear timetable for subsidies in order to reduce the financial burden. However, in the reality that both macro-industry development and micro-enterprise behavior are deeply suffering from "subsidy dependence", subsidy reduction stimulates enterprises to cheat. This is because in the short term the subsidy policy has uncertainty, in the government subsidies at any time under the uncertainty of the withdrawal of expectations, but instead of stimulating enterprises in the short term to take advantage of the policy dividends to obtain excessive profits to adopt the strategy of counterfeiting behavior.

## 5.2. Key Points in the Change of Fiscal Subsidy Policy.

The choices taken by actors on the short-term timeline of critical nodes have a high potential to influence the final outcome [15]. Due to the short years of implementation of the subsidy policy, many policy options are based on the continuation of the policy based on the historical context and the role of path dependency, but there is no shortage of critical nodes.

First, the malicious subsidy fraud incident that focused on the outbreak around 2016. 2016 new energy vehicle subsidy policy is fully implemented, triggering market players to pursue short-term, immediate benefits and fraudulent subsidy behavior, which has a bad impact on the effect of the policy. The Ministry of Finance in 2016 directly to the public

disclosure of five new energy vehicle manufacturers, a total of maliciously cheating the central financial funds of more than one billion yuan. After the cheating incident broke out, the government quickly took measures to adjust the system, and at the end of that year, it made huge adjustments to optimize the new energy vehicle subsidy policy. On the one hand, the state directly strengthened the quality supervision of new energy vehicle products, raised industry standards and entry thresholds, and on the other hand, significantly optimized the subsidy approval process in order to reduce policy loopholes and achieve accurate subsidies, and to prevent enterprises from continuing to profit from false declarations of fraudulent subsidies. Based on the results of the ex-post adjustment, the subsidy strength has increased compared to the original program, the subsidy threshold has been improved in multiple dimensions, and the subsidy method has been changed from ex-ante subsidy to ex-post liquidation, with more emphasis on technological innovation in terms of goal orientation. This change shows the country's determination to support the best and the strongest, and enterprises with real technological innovation will benefit from it, in effect penalizing technologically backward enterprises.

Secondly, the goal of the 2020 industrial planning has been realized. Energy-saving and new energy automobile industry development plan (2012-2020) "in the main tasks to achieve, industrialization, technologization and other aspects of the level of significant improvement, the end of 2020, new energy automobile cumulative production and sales have long exceeded the 5 million units of the task objectives. Industrial maturity means that the focus of the subsidy system shift, as the latest development plan vision rarely mentioned industrialization goals, focusing on technological innovation capabilities. To prevent market ups and downs caused by existing policy changes, the State Council executive meeting proposed extending the new energy vehicle purchase subsidy and purchase tax exemption policy to the end of 2022, giving all stakeholders two years for adjustment and market acceptance. Subsidizing private consumers aims to encourage the promotion and application of new energy technologies and the formation of a sound industrial system, so that the industry can gradually be sustained without government subsidies. With the completion of the industry development plan, the government subsidy for private consumers will be withdrawn, and the government will instead encourage relevant enterprises to seek innovative breakthroughs in the field of technology through the form of "awards in lieu of subsidies", guiding enterprises to shift their focus from expanding production to technological research and development, innovation, and safety and quality assurance.

## 6. Summary and Suggest

The path dependence of institutional change indicates that the initial choices made by institutional designers play an important role in influencing the subsequent system, and thus the corresponding institutional arrangements should be rationally adjusted in order to avoid institutional change from falling into the inefficiency trap. The new energy vehicle subsidy policy is in a new period of adjustment and change, and special attention should be paid to the external environment, social situation and other structural factors facing China, so as to draw lessons from past policy changes, and to restrain and incentivize market behaviors with a perfect system.

First, it should focus on internal coordination of subsidy policies. The governance of modern economy and society is a complex systematic project, which requires multiple types and functions of infrastructure to work together in order to realize the effect of comprehensive governance, which requires the cohesion of synergies at the level of public policies. A very important factor limiting market consumption of the new energy vehicle industry at present is the lack of support and synergy of other public policies, such as the construction of charging piles and charging battery maintenance and replacement policies. In particular, the construction and management of charging stations is lagging far behind the demand for charging stations in the rapidly growing production and sales of new energy vehicles. Compared with new energy vehicles, charging stations have a prominent infrastructure function, which has a direct binding effect on the actual use of new energy vehicles. Currently, public charging stations for new energy vehicles are mainly constructed through negotiations between charging station providers and operators of parking lots, car washes, commercial buildings, etc., with limited coverage and seriously insufficient management capacity. Subsidies for charging facilities have not received the same attention as the production and sales of new energy vehicles, which has seriously affected the actual effect of the subsidies.

Secondly, the supervision of subsidized funds and the punishment according to law should be strengthened. On the one hand, funds should be issued on the basis of on-site audit, strict technical sampling, especially in the current technological innovation-oriented, the government should effectively screen the types of enterprises, establish a strict R & D special award regulatory system, and constantly improve the results of the reward and protection system, the subsidy funds to meet the requirements of technological progress of enterprises, and thus regulate the market order and promote the healthy and orderly development of the industry. On the other hand, it is necessary to optimize the performance evaluation and adjustment of subsidies and the exit mechanism, and severely punish fraudulent subsidies. Strictly pursue civil, administrative and even criminal liabilities for substantiated units and individuals, especially to strengthen the use of modern informative regulatory techniques such as the blacklist system, which can not only significantly improve the rule of law level of government subsidies for the new energy automobile industry, but also promote the actual effect of government subsidies for the industry and social public interests.

Third, to avoid the market to form subsidy dependence. Subsidy policy is a double-edged sword. On the one hand, although subsidy policy has suffered setbacks due to the issue of subsidy fraud, it seems to have achieved the established policy objectives as a whole. On the other hand, due to the subsidy dependence effect, that is, the risk of policy adjustments to weaken or negate the incentives generated by previous subsidies, resulting in subsidy policy can not be easily realized large-scale adjustments to maintain a high level of subsidies directly aggravate the financial burden of the government. At this stage, after the national purchase subsidy for private consumers is withdrawn, enterprises are given incentives for technological innovation in the form of awards instead of subsidies. At this stage, attention should also be paid to avoiding the formation of subsidy-dependence in technological research and development, focusing on fostering the formation of an independent profit model of

integrated research and development, and the establishment of a reasonable regression mechanism to adjust the expectations of enterprises, and at the same time, it should be supplemented with a perfect subsidy performance evaluation and supervision mechanism to prevent short-term subsidy fraud. Behavior.

Although the above discussion centers on the subsidy policy for new energy vehicles, its essence is still relevant to the efficient use of subsidy policy by the government in other areas, such as chip manufacturing, industrial software and other key areas, where the government subsidy system is directly related to whether the new industry can make a rapid breakthrough in a short period of time. Under the constraint of fiscal budget resources, government subsidies should be balanced between incentivizing technological innovation and cultivating market demand, and the camera should formulate appropriate subsidy programs according to the objectives at different stages of industrial development. The realization of such a balance requires the government to maintain the independence and coordination of policy making, and to avoid, as far as possible, being subjected to the interest groups arising from the adaptation of the system. At the same time, the "regressive subsidy" has become an effective mechanism to crack the market subsidy dependency effect by regulating market expectations. However, this method stimulates the market to pursue short-term interests. The large-scale emergence of subsidy fraud reminds policymakers that, in order to ensure the effectiveness of financial subsidies, it is necessary to establish a strict monitoring and punishment mechanism at the initial stage of policy implementation, otherwise the public interest will suffer more losses with the in-depth implementation of the policy.

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