

Research on the Impact of Government Subsidies on the Development Abilities of EV Enterprises--Taking NIO as an Example

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Abstract. Facilitating the development of EV is a way to alleviate the pressure on energy and environment in our country, it is also the necessary requirement to promote the economic growth of our country, the government subsidies play an important part in the process of promoting the development of EV. This article takes the EV enterprise NIO as an example, through the analysis of the financial performance, innovation ability and market competitiveness of NIO, combined with the change of China's subsidy policy, to explore the impact of China's government subsidies on the development ability of new EV enterprises. The research finds that government subsidies have a relatively large positive impact on the development ability of EV enterprises, mainly through promoting the development of automobile enterprises in terms of profitability and growth ability. At the same time, it brings potential negative effects, such as excessive reliance on government subsidies by automobile enterprises. The conclusion of this study has certain practical significance in the context of the decline of new energy subsidies, and provides certain help for car companies to make better use of subsidies and avoid or reduce the negative effects.

Keywords: Government subsidies; EV enterprises; Enterprise development ability.

1. Introduction

The automobile industry is an important part of China's industrial system and an important pillar of China's national economy. According to an annual report by CAAM. In 2023, the total retail sales of automobiles reached 4,861.4 billion CNY, an increase of 5.9%, accounting for 10.3% of the total retail sales of consumer goods. However, at the same time, with the rapid development of human society, environmental problems and energy shortage caused by various reasons have become increasingly prominent, so China has focused on accelerating the cultivation and development of energy-saving vehicles and EVs since the beginning of this century, which can effectively alleviate the energy shortage and environmental pressure which China is now facing. To promote the sustainable development of the automobile industry, and in the meantime to accelerate the transformation and upgrading of the automobile industry; Fostering new economic growth points; developing new quality productive forces. It can also be seen as Chinese government's attempt to maximize social welfare. In order to support and promote the EV industry, China has issued a variety of stimulus policies, an important one of which is the financial subsidy for the EV industry, including the promotion subsidy policy for EVs, giving tax incentives to EVs, raising funds to support the development of EVs through multiple channels, improving the financial service system for them, etc. China has invested a lot in the field of EV subsidies, according to statistics, China have invested more than 231 billion US dollars in subsidies since 2009, in 15 years' time [1]. These subsidies cover the entire EV industry chain, including dozens of EV enterprises, and obviously it is of the great importance for the development of China's EV industry, but it also brings disadvantages while bringing advantages, and how will these advantages and disadvantages affect the financial condition, innovation ability, market competitiveness and other issues of EV enterprises have also been studied at home and abroad. As for the financial condition, one view holds that government subsidies can significantly reduce the manufacturing cost of EVs, thus gaining an advantage in competition with traditional vehicles [2]. Government subsidies can also optimize the financial data of enterprises and promote the increase of short-term financial performance, but excessive dependence will also lead to

the decline of long-term financial performance [3]. As for innovation ability, government subsidies can significantly improve the innovation ability of enterprises, but excessive subsidies will inhibit the improvement of innovation ability of enterprises [4]. For market competitiveness, the discount and value brought by government subsidies in the purchase of EVs significantly increase the probability of purchase, and it is increasing positively with the increase of policy value [5]. Meanwhile, the improvement of market competitiveness of EVs is also due to the rise in fuel prices and the construction of basic charging facilities. The effect of financial incentives is not as great as expected[6].

Therefore, this paper takes NIO as an example to explore the impact of government subsidies on the specific financial data and performance of EV enterprises. Through this study, we can understand the development status of NIO with the advantages and disadvantages brought by government subsidies, and at the same time provide reference and basis for enterprises to make use of government subsidies.

2. NIO and government subsidy policy of EV enterprises

2.1. NIO

NIO was established in November 2014, went public on the New York Stock Exchange in the United States on September 12, 2018, and went public on the Hong Kong Stock Exchange on March 10, 2022. After its establishment, NIO developed smoothly. On April 6, 2016, it reached a strategic cooperation of 10 billion CNY with JAC Group, and invested in the production of batteries in Nanjing in the same year. In two years it released a number of models, and listed in the United States in 2018, it also reached cooperation with a number of enterprises in the following several years. The first few years after the establishment of NIO is also the years which china's EV subsidies are relatively strong, and after NIO took shape, it encountered a decline in subsidies, but even during the decline of subsidies, NIO can still obtain a considerable number of various forms of subsidies from the government, such as on September 29, 2024, NIO announced a 3.3 billion CNY investment from its strategic investors to NIO China. These strategic investors generally carry the shadows of local governments. These subsidies on corporate financing and purchase tax deduction with other policies have had a significant impact on NIO's operating performance. The current market value of NIO is 9.419 billion US dollars, and the models sold mainly focus on the high-end EV market, but the current operating condition is not good.

2.2. Government subsidy policy towards EV enterprises

Since the subsidy began in 2009, China's EV subsidy policy had changed many times, and the EV subsidy policy changes are shown in Table 1 below. It can be informed that China's new energy subsidies during 2009 to 2016 were at a gradually rising stage, but after 2016, China began to gradually reduce subsidies for EVs and related projects. Especially after 2021, the subsidies went through further decline. Government subsidies can directly affect the financial condition and operating performance of enterprises, involving multiple links [3].

Combined with the trend of China's government subsidies for EVs, this paper takes NIO as an example to study the impact of government subsidies on NIO's profitability, growth, research and development ability and market competitiveness.

Table 1. China's EV subsidy policy

Time	Policy	Content	Number
2009.01	Notice on carrying out the work of Demonstration and Promotion of energy-saving and new energy vehicles	New energy vehicles are being piloted in several cities, including Beijing, with a push to promote their use in the public service sector first.	MOF [2009] No.6
2011.11	Notice on Further Improving Energy Saving and New Energy Vehicle Demonstration and Promotion Pilot Work	A number of favorable measures for EVs were put forward, and the construction of infrastructures such as charging facilities was vigorously promoted	MOF (2011) No.149
2014.07	Guidelines of The General Office of the State Council on Accelerating the Promotion and application of New EVs	Increase subsidies for the operation of new energy buses, and exempt vehicle purchase tax for specific models from September 2014 to December 31, 2017	The General Office of the State Council (2014) No.35
2016.12	The adjustment of the financial subsidy policy on the EV's promotion application by four departments' notice	Government adjusted subsidies for all kinds of EVs, Subsidies for all types of EVs were reduced	MOF [2016] No.958
2019.03	Notice on further completing financial subsidy for the promotion of EVs	Lower the subsidies for three EV kinds	MOF [2019] No.138
2021.12	Notice on financial subsidy policy for promotion and application of EVs in 2022	The subsidy standard for 2022 will be reduced by 30%. The purchase subsidies for EVs will be terminated on December 31,2022	MOF [2021] No.466

3. Analysis of the impact of government subsidies on NIO's financial performance

3.1. Impact on the profitability of NIO

Profitability mainly refers to the company's ability to generate revenue relative to its revenues, expenses and other costs, indicating the company's ability to convert its resources into profits. By inquiring the financial data of NIO, it can be informed that since its IPO in 2018, NIO's net profit rates on sales have all been negative, which is -194.68% in the 2018 annual report, -144.36% in the 2019 annual report, -32.62% in the 2020 annual report, -11.12% in the 2021 annual report, -29.30% in the 2022 annual report. And -37.25% in the 2023 annual report, as shown in Table 2 below.

Table 2 Financial data of NIO

	2023-12-31	2022-12-31	2021-12-31	2020-12-31	2019-12-31	2018-12-31
income (billion)	55.62	49.27	36.14	16.26	7.825	4.951
Income growth	12.89%	36.34%	122.27%	107.77%	58.04%	
Gross profit (billion)	3.052	5.144	6.821	1.873	-1.19	-255.9
Net profit ratio on sales	-37.25%	-29.30%	-11.12%	-32.62%	-144.36%	-194.68%

It can be informed that NIO has not been able to make profits from vehicle sales and other businesses since its IPO. On the contrary, it has been experiencing heavy losses. However, in contrast to the loss in sales, NIO's annual revenue has been positive since its IPO, showing a gradual upward trend. Its revenue has increased from 4.951 billion CNY in 2018 to 55.62 billion CNY in 2023, among which government subsidies account for a considerable part. Specifically, in 2020, The government put 7 billion CNY into NIO [7], while the annual income of NIO was only 16.22 billion yuan that year, which shows that government subsidies have a significant impact on the profitability of NIO. As a technology-dependent new energy enterprise, NIO needs a lot of resources in the early stage. At

the beginning of its establishment, NIO relied on government subsidies to overcome this difficult period. At the same time, government subsidies also helped NIO expand its production and sales volume [3], from 11,348 cars in 2018 to 160,038 cars in 2023. In 2024, the sales volume of 128,100 cars was completed in 8 months. In the face of its net sales profit, NIO's main response is to exert scale effect by expanding production, and realize the net sales profit by reducing the vehicle cost as much as possible, while the government subsidies are helping them do this. From this it can be informed that government subsidies can significantly improve the profitability of enterprises, and for enterprises like NIO that suffer losses from sales, they can even help enterprises turn losses into profits and hide the real business conditions of enterprises. But at the same time, government subsidies will make enterprises have a strong dependence[8].

China has a large number of new energy enterprises like NIO, Xiaomi, BAIC Blue Valley, Xiaopeng and other enterprises that are losing money or making little profit [9]. Even China's leading EV enterprise BYD's profit ability is difficult to compete with the mainstream international enterprises. However, through government subsidies, many enterprises show vitality that does not belong to their own level. The average price of NIO is 330000 CNY, with a net loss of -175000 CNY, there have other enterprises share the same situation with NIO, hoping to turn the tides by using the scale benefit. Therefore, our government's subsidies have also helped boost the overall production and sales of EVs in China, with sales reaching 1.7 million cars globally in September, of which 1.1 million were from China. In China, nearly 50% of new car sales in the past few months have been for EVs, significantly increasing their market share and easing the operational and profitability crises faced by many new energy car manufacturers. This effective policy for consumer demand has expedited the evolution of the electric vehicle industry[10].

3.2. Impact on the growth ability of NIO

Many government subsidies often enter the enterprise directly in the form of financial support, which can significantly reduce the operating cost of the enterprise, improve the profitability of the enterprise and promote the high-quality development of the enterprise. At the same time, government subsidies and policy support can also promote the confidence of other investors, make enterprise financing more convenient, and thus promote the development of enterprises. Therefore, subsidies from the government obviously play an important role in the rapid development of NIO. According to the annual report published by NIO, the revenue growth rate of NIO has been considerable since its IPO in 2018, reaching 107.77% and 122.27% respectively in 2020 and 2021. Meanwhile, its own revenue has also increased from 4.951 billion CNY in 2018 to 36.14 billion CNY in 2021. However, 2020 and 2021 are in the declining period of EV subsidies in China, as shown in Table 1. In 2020, only new energy vehicles with a pure electric mileage of more than 300 kilometers can be subsidized, and the subsidy standard has been reduced from 18,000 CNY in 2019 to 16,200 CNY, and the subsidy has been further reduced to 13,000 yuan in 2021. The rapid decline of subsidies after 2019 and the new COVID-19 epidemic have caused a serious blow to EV enterprises. The growth rate of operating income of the entire industry is negative in 2019 and 2020[11], but NIO does not seem to be affected too much.

There are two main reasons. The first is because NIO was officially listed in 2018, It had a small scale. During the period of rapid development from 2019 to 2021, NIO launched new models one after another, which alleviated its impact to a certain extent. The more important second point is that NIO has been focusing on the high-end market since its inception, and most of its models have a pure electric driving range of more than 600 kilometers, which has not been affected by the tightening of subsidy policies, and quite the opposite, because of the prospect of its products it won the favor of local governments [12]. In 2019, it received an investment worth 10 billion CNY from Beijing Yizhuang International Investment and Development Co.LTD. In February 2020, it reached a cooperation with Hefei City and started the EC6 mass production project, with a total investment of 102 billion CNY. In July, NIO carried out a strategic cooperation with six banks including China Construction Bank Anhui Branch, with a total credit of 10.4 billion CNY from the six banks. It can

be seen from the above data that government subsidies play an important role in the development of NIO, but excessive dependence on government subsidies will also bring considerable negative effects. NIO is not affected by the tightening of subsidies due to the hard strength of its products, but many EV companies are sensitive to policy changes and are seriously affected when subsidies decline.

4. Analysis of the impact of government subsidies on NIO's innovation capability

Government subsidies also have an impact on many non-financial data of NIO. For example, NIO's R&D capability. As a EV company focusing on the high-end market, R&D ability has always been an important part of NIO, which can not only promote technological innovation, improve product competitiveness and market share, but also reduce production costs and enhance brand value. Government subsidies provide enterprises with additional financial support. And in recent years, the improvement of subsidies for EV technology requirements also encourages enterprises to increase their research and development investment[13]. The figure 1 is made using the data in NIO's annual report.

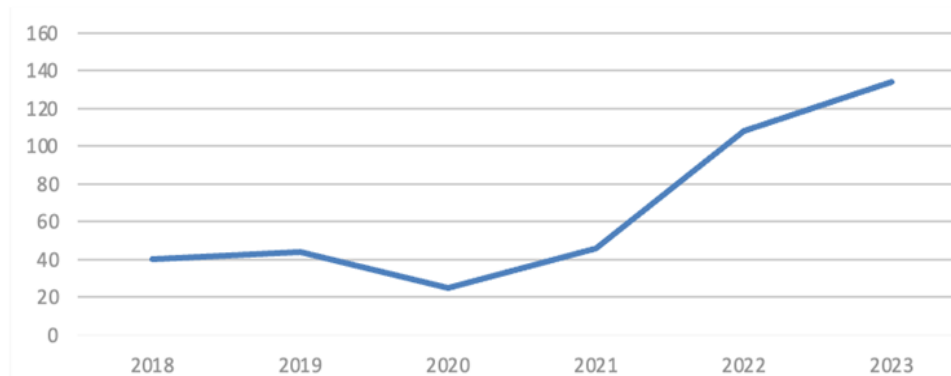


Figure. 1 R&D expenditure of NIO (Unit: Hundred million CNY)

It is clear that NIO's R&D expenditures are enormous, which is obviously a necessary requirement for NIO's products to target the high-end market for EVs. NIO's net sales margin was not optimistic from 2018 to 2020 years, and its income was not high. NIO was able to maintain high R&D expenditures only by relying on government subsidies. This also laid the foundation for NIO to enter the high-end market. It can be informed that government subsidies have a huge positive impact on NIO's R&D capabilities and on the entire Chinese EV industry. Government financial subsidies have obvious positive incentive effect, and the effect of direct financial subsidies is usually better than other conveniences such as tax incentives[14]. Government subsidies have successfully stimulated innovation and competition among Chinese EV companies, making China's EV technology leading the world. This has also created a solid foundation for the successful export of Chinese EVs.

5. Analysis of the impact of government subsidies on NIO's market competitiveness

Government subsidies have an impact on NIO's market competitiveness. With the support of government subsidies, NIO's car sales have risen rapidly, successfully alleviating the problem of its high manufacture cost. It has helped NIO lower its prices and promote its production and sales. At the same time, the government's subsidy support for NIO also indicates the government's recognition and encouragement of NIO's own capabilities. Such support can also be transformed into profitable business opportunities. After receiving strong support from local governments, NIO also received support from banks and other strategic investors. These subsidies helped NIO expand its market share. NIO's market share in China's new energy vehicle companies is not outstanding, which is obviously related to its high-end pure electric development path. NIO's competitiveness in the high-end pure

electric market (with a price of over 300,000 CNY) cannot be underestimated. In January to October 2023, NIO's market share reached 60.6%, close to 60% for the whole year of 2023, and in the first half of 2024, NIO sold more than 80,000 vehicles, accounting for more than 30% of the high-end pure electric market, far exceeding the sales of Porsche, BMW, Audi, and Mercedes. Government subsidy can enhance the recognition and confidence of consumer and investor, therefore enhance the enterprise's market competitiveness. The high penetration rate of EVs in the Chinese market can also be considered as the promoting effect of government subsidies.

6. Conclusion

This research, taking NIO as a case study, found that government subsidies have a significant positive impact on the performance of EV companies, but their effect is diminishing as the industry and market continue to develop, and their negative effects are beginning to emerge. As for NIO, government subsidies clearly strengthened its development capabilities, but also brought a series of problems.

Government subsidies can significantly improve NIO's financial performance. In terms of profitability, government subsidies successfully improved NIO's profitability, helping it make up the deficits and get surpluses, masking its actual situation. At the same time, in terms of growth, government subsidies provided NIO with stable cash flow to promote its production and expansion, laying a foundation for its subsequent development. Overall, government subsidies can directly affect NIO's financial data, masking its difficulties and problems. Therefore, in the long term, excessive reliance on subsidies will seriously affect NIO's subsequent development.

The government subsidy also has a considerable positive impact on NIO's non-financial performance such as innovation ability and market competitiveness. NIO uses the subsidy to expand its R&D investment, thereby expanding its advantage in the high-end pure electric field and increasing its sales volume in the new energy market, thus enhancing its market competitiveness.

Through the analysis of NIO's data, it can be concluded that the assistance provided by government subsidies to the company's development capabilities cannot be maintained in the long term after its abscission. Under the background of the gradual reduction of China's EV subsidies, it is obviously unwise for car manufacturers to rely excessively on government subsidies. Meanwhile, subsidies are bringing more and more negative effects, such as China's fiscal subsidy giving China's EVs an unequal advantage in exporting to the domestic auto industry of the exporting country, which has led many countries to start taking high tariffs to counter it, restricting China's EV exports, such as the 35% tariff in the EU or the possible 200% tariff in the US. These measures are likely to slow down the development of new technologies, increase the cost of structural transformation on the supply side, and reduce consumers' overall willingness to consume new EVs [15]. With the development of the EV market, the impact of market factors on EV enterprises has gradually exceeded the impact of government factors, the endogenous power of the EV enterprises has become more important [16]. Therefore, NIO should strengthen cost control, reduce losses on sales, avoid problems such as a broken capital chain after the subsidy continues to decline, and at the same time, enhance the utilization rate of subsidies and adjust its development strategy to focus on the high-end pure electric market, build its own brand, and enhance its ability to respond to policy changes.

NIO's financial reports do not fully disclose the specific amounts of government subsidies, so the majority of the data on NIO's government subsidies used in this paper came from media reports in specific years and other operating income disclosed in NIO's financial reports. In NIO's annual report, it admitted that its other operating income contains government subsidies, but the specific proportion was not disclosed. Further analysis can be conducted after the complete disclosure on the amount of government subsidies in NIO's financial report in the future.

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