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The Influence of Tax Incentive Policy on the Development of Alternative Fuel Vehicle Enterprises—Taking Chinese Companies as an Example

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Abstract. In the process of promoting the development of China's alternative fuel vehicle industry, the government has issued preferential tax policies that are beneficial to its industrial development, and actively guided its industrialization process. The purpose of this paper is to research and analyze the preferential tax policy of the alternative fuel vehicle industry, optimize the allocation of resources, and promote the rapid realization of energy saving, emission reduction and environmental protection. This paper adopts the case analysis method, selects X, a listed company of alternative fuel vehicles in China, as a case, and analyzes the company's development in the past ten years, including its operation, financial situation, and tax burden. The research hypothesis is that preferential tax policies have a positive effect on the development of Alternative Fuel Vehicle enterprises. Through financial indicators and tax burden, the impact of tax preferential policies on X is analyzed, and the current problems are pointed out. Research has confirmed that preferential tax policies have a certain role in promoting the profitability of enterprises, but enterprises are too dependent on policies, and there are problems such as poor policy effects and weak pertinence.

Keywords. Tax incentive policy, the alternative fuel vehicle, tax burden, profitability

1. Introduction

With the rapid development of the automobile industry, environmental and energy problems are becoming more and more serious. China's dependence on imports of oil and natural gas has increased year by year, and has risen to 73% and 43% in 2020. At the same time, automobiles are the main contributor to the total pollutant emissions [1]. The emergence of alternative fuel vehicles can make a significant contribution to solving resource and environmental protection problems, and the government has also actively launched various preferential policies to support it. This paper adopts the case analysis method and selects X, a listed company of alternative fuel vehicles in China, as a case to

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analyze the impact of preferential tax policies on the tax burden of alternative fuel vehicle enterprises, and analyzes the problems and solutions faced by enterprises.

The purpose of this paper is to research and analyze the preferential tax policies of the alternative fuel vehicle industry, on the basis of theoretical and practical analysis, to propose tax preferential policies that are in line with China's actual conditions, optimize the allocation of resources in the development of the alternative fuel vehicle industry, and promote the gradual formation of Industrial chain, and promote the rapid realization of energy saving, emission reduction and environmental protection.

Based on a microscopic perspective, this paper selects X as a representative case to more intuitively analyze the impact of tax policies on the development of alternative fuel vehicle enterprises. At the same time, this paper combines the latest tax policy, observes the effect of policy implementation in time, and provides a basis for the improvement of subsequent policies.

This research is conducive to the rational planning and use of national taxes, and to improve the use efficiency of national taxes, so as to better play the incentive role of policies, promote the faster and better development of China's alternative fuel vehicle industry, and enhance the competitiveness of China's international automobile industry.

Leontyeva confirmed that the tax incentive policy, as one of the effective tools for the government to carry out macro-control, plays an important role in guiding the development of the industry. From the perspective of the alternative fuel vehicle industry, as an emerging industry supported by the state, tax incentive policies can reduce corporate tax costs, increase corporate disposable cash flow, and promote the development of alternative fuel vehicles [2,3].

Mayburov believes that the government has a positive role in promoting the development of alternative fuel vehicle enterprises through fiscal and taxation support. The current preferential fiscal and taxation policies are not completely reasonable. To further promote the development of alternative fuel vehicles, the government must continue to introduce more targeted and effective fiscal subsidies and preferential taxation policies, and improve the structure of fiscal and taxation policies [4-6].

Through cost-benefit analysis, Yan Shiyu [7], Urwah Khan et al. [8] concluded that tax incentives can help electric vehicles reduce production costs, increase product sales, and improve the environment at the same time.

Most scholars believe that preferential tax policies can promote the development of alternative fuel vehicles; giving alternative fuel vehicle companies and consumers tax incentives, or increasing the rate of fuel tax to increase the cost of using oil. This can not only promote the development of alternative fuel vehicles, but also play a role in energy conservation and environmental protection [9-11].

2. Methods

The research of this paper on the development of X's alternative fuel vehicle is not only theoretical research, but also should effectively apply the theoretical research results to enterprise practice, based on the in-depth discussion of practical problems, and try to solve. Based on the collection of X's financial reports from 2012 to 2021, this paper uses the external characteristics of transportation, the scientific development concept, and the idea of sustainable development as a guide to study the preferential tax policies related to alternative fuel vehicle. The research methods are as follows:

Literature research method. Analyzes and collects domestic and foreign information about alternative fuel vehicle development strategies, provides indispensable materials and theoretical basis, and these literatures play a very important role in the basic framework of this paper.

Case study method. Select an alternative fuel vehicle enterprise for case analysis, and put forward tax preferential policy suggestions to promote industrial development. Case studies provide a variety of verifiable data from direct or indirect observations of individual entities, which can be further embedded in clear messages ending with derivatives [12].

This paper analyzes from the two directions of profitability and tax burden. The calculation formula is as follows:

VAT burden rate = (VAT payable - VAT refund) / current business income

Corporate Income Tax Burden = Corporate Income Tax Fee / Total Profit × 100%

3. Results and Discussion

X Co., Ltd., mainly engaged in automobile business including alternative fuel vehicle, traditional fuel vehicle, rechargeable battery and photovoltaic business. In 2021, the revenue was approximately RMB 216,142 million, a year-on-year increase of 38.02%, of which the revenue of automobiles, automobile-related products and other products business was approximately RMB 112,489 million, a year-on-year increase of 33.93%. X has an irreplaceable representative position in China's alternative fuel vehicle market. This paper analyzes the impact of tax policies on X from the perspectives of profitability and tax burden. The paper selects the data disclosed in X's corporate financial reports from 2012 to 2021, because the alternative fuel vehicle industry in China has gradually developed since 2012. Before that, the scale was relatively small, so it is not considered. From 2012 to now, it covers the main process of the development of China's alternative fuel vehicle industry.

Profitability represents the ability of a company to make a profit. From an enterprise's point of view, the most direct purpose of enterprise development is to maximize profits while maintaining stable operation of the enterprise [13]. The ability of an enterprise to obtain income is an important criterion for measuring the soundness of an enterprise's financial status.

This paper selects four indicators: gross profit margin, return on equity, Ratio of profits to cost and expense, and Earnings per share to analyze the impact of preferential tax policies on X's profitability, so as to judge the company's core competitiveness and potential development prospects.

It can be seen from Figure 1 that between 2012 and 2021, X's gross profit margin, return on equity, profit margin on costs and expenses, and earnings per share have basically fluctuated in the same direction. In the past ten years, X's profitability has fluctuated greatly. From 2014 to 2016, it showed an upward trend. After reaching the peak in 2016, it began to decline. From 2017 to 2018, it showed a downward trend. It rebounded in 2019 and slightly decreased in 2021, but the overall profitability increased. In 2012, China's overall economic environment was poor, the economic development was slow, and the traditional automobile consumption market was not optimistic. Therefore, the sales volume of X in 2012 was small. After 2012, the government began to issue a series of policy measures to vigorously support the development of the alternative fuel vehicle industry, which made X company progress in the development,

production and sales of alternative fuel vehicles. In 2015-2016, X's profitability has improved significantly, but with the tightening of tax policies in 2016, X is facing greater market risks. Although it actively deploys strategic plans, it is still affected to a certain extent. X has always attached great importance to the alternative fuel vehicle business segment and has increased investment in improving technology over the past few years, so even in the face of the pressure of the epidemic, its profitability can still be maintained at an ideal level.

The tax cost is usually included in the operating cost, and the tax burden reflects the proportion of the tax actually borne by the enterprise in the daily business activities to the operating income. The level of the tax burden will directly reflect whether the tax cost borne by the enterprise is suitable for the production and development of the enterprise. The tax burden level of the taxpayer or tax object is mainly reflected by the tax burden rate, which is also an important basis for formulating and improving tax policies [14].

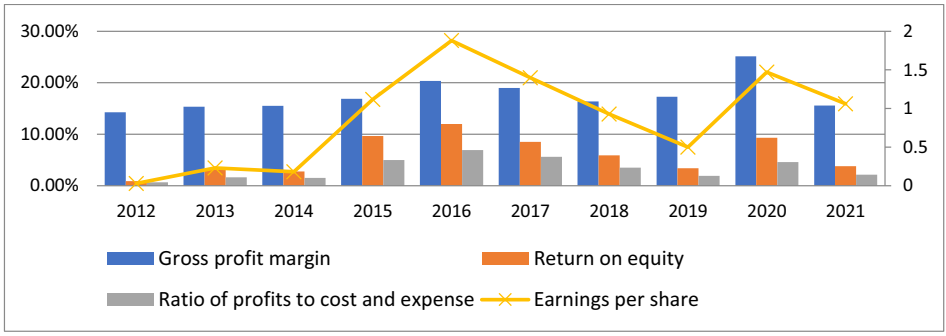

Figure 1. Changes in X's Profitability from 2012 to 2021.

Considering the availability of data, this paper selects the data in X's publicly released financial statements, and uses the effective tax rate method to assess the tax burden level of the company. Since VAT and corporate income tax account for a large proportion of China's total corporate tax burden, this paper does not consider other remaining taxes.

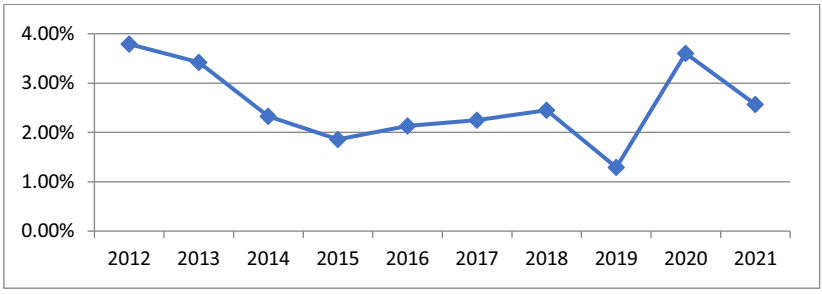

Figure 2. Changes in X's VAT burden rate from 2012 to 2021

In Figure 2, the change of X's VAT burden rate from 2012 to 2021 shows a trend of first decreasing and then increasing. It was 3.79% in 2012, dropped to 1.86% in 2015, and the VAT burden rate increased year by year in 2016, 2017 and 2018. In 2019, affected by industry and policy changes and rising R&D expenses, it fell to 1.29%, and

it rebounded in 2020. In 2121, it was reduced to 2.57% due to the increase in raw material and commodity prices. As a member of the capital-intensive and technology-intensive alternative fuel vehicle industry, X needs to pay VAT in both domestically produced and imported vehicles, and the value-added tax involves a huge amount. Therefore, the government's changes in the value-added tax policy will it has a significant impact on X's tax burden.

From 2014 to 2015, the government adopted encouraging policies to stimulate the overall development of the alternative fuel vehicle industry through policies. In 2015, X's main business income rose rapidly, and the value-added tax was reduced. Therefore, in 2015, X's VAT burden rate down from 2014. After that, X made a decision to increase the introduction of fixed assets and increase the deduction of input tax. However, the government stipulated that starting from May 2016, the real estate construction in progress of the enterprise should be deducted according to a certain proportion for two years. The reduction in the deduction is equivalent to an increase in the amount of VAT, so X's VAT burden began to rise in the three years from 2016 to 2018, and in 2018 it was even slightly higher than the level in 2014. From 2019 to 2021, China's economy is facing the triple pressure of demand contraction, supply shock, and weakening expectations, plus uncertain factors such as the spread of the epidemic, high fluctuations in international commodity prices, and geopolitical conflicts, resulting in fluctuations. Only by reasonably grasping the start and completion time of the inter-period fixed asset construction in progress can an enterprise reasonably avoid the increase of the tax amount under the background of the implementation of the policy of deducting the input tax in years.

The amount of corporate income tax and the total profit can usually be expressed as a linear relationship, and the specific situation of the linear relationship is largely affected by the income tax policy.

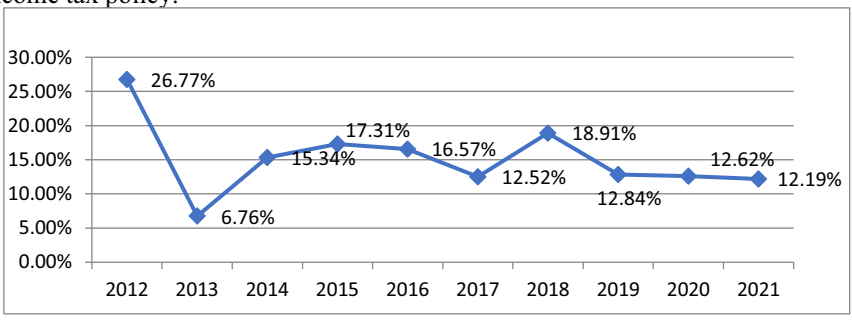

Figure 3. Changes in X's Corporate Income Tax Burden from 2012 to 2021.

From Figure 3, it can be found that X's income tax rate in 2012 was relatively high. Due to the decline in total profits for the year, the income tax expenses continued to increase from 2013 to 2015, and the income tax expenses increased by 390% from 2014 to 2015. From 2015 to 2016, the corporate income tax expense increased by 65%, mainly due to the sharp increase in the total profit in these two years, of which the total profit in 2016, was the highest. In 2018, the corporate income tax rate increased significantly compared with 2017. In addition to the decrease in total profits, it was also because the deferred income tax expenses in 2018 were much lower than in 2017. From 2014 to 2018, X's total profit fluctuated unstable, fluctuating within a certain range, with the highest profit in 2016 and the lowest profit in 2014.

This is due to the slowdown of China's economic growth in 2014 and the great downward pressure on the economy, X adjusted the company's various businesses, and actively responded to the situation of increasing downward pressure. In 2016, the policy of tightening financial subsidies for alternative fuel vehicles was introduced for the first time, and the policy was further tightened in the following years, which had an impact on the total profit of the company. From 2019 to 2021, due to the epidemic, the income tax liability ratio is basically the same. In 2020, due to policy support, the profit is the highest at 6,882,587,000 yuan. Changes in X's corporate income tax expenses and total profits in ten years also show that the company's profits and tax burdens are affected by national policies and national macroeconomic development.

As for emerging industries, the state's macro-control directly affects their development. In order to alleviate environmental pollution, greenhouse effect, noise pollution and exhaust emissions, etc., the state has continuously issued policies to support the development of new energy vehicles.

At present, China's tax policies for the alternative fuel vehicle industry are relatively active, aiming to support the development of enterprises in the industry. However, through the case study of X, we can find some problems in the implementation of policies:

X relies too heavily on preferential fiscal and taxation policies. Once the government subsidy policy is tightened, the profit of the year will also decrease, affecting profitability; In terms of tax policy, X's alternative fuel vehicle is mostly applicable to general tax policies, which are some preferential policies for reducing or exempting vehicle and vessel tax and vehicle and vessel purchase tax. However, there are no targeted preferential policies for corporate income tax and value-added tax, which have a greater impact on enterprises. As far as tax rates are concerned, it is not found that policy changes in recent years have benefited enterprises significantly, and there is a lack of support-oriented and long-term mechanisms. The overall tax burden of alternative fuel vehicle enterprises is heavier.

Based on the specific circumstances of the case and the overall development status of alternative fuel vehicles, this paper analyzes X's own development and the tax preferential system, and puts forward specific suggestions.

As far as X itself is concerned, it insists on R&D and innovation to help companies get rid of their dependence on policies and better resist the risks of changes in external factors such as policies and markets; at the same time, expand markets and sales, improve operating cash flow; improve production efficiency, thereby reducing alternative fuel vehicle prices and increasing consumer acceptance. In terms of optimizing the preferential tax policy for the alternative fuel vehicle industry, adjust the policy focus and strengthen the support for R&D and industry infrastructure; the relatively stable implementation of Backslide Mechanism reduces the possible negative impact on the industry; accelerate the establishment and improvement of related industry supporting policies, Strive for the common development of all industries

4. Conclusion

This paper uses the case analysis method, takes X, a representative listed alternative fuel vehicle company in China as a case, combined with its data in the past ten years to study the impact of the company's current tax incentives on the company's financial indicators and tax indicators. Research has confirmed that preferential tax policies have a certain

role in promoting corporate profits and reducing tax burdens, but companies are too dependent on policies, and there are problems such as poor policy implementation and poor targeting. It is recommended to strengthen the internal production and R&D of the enterprise, and adjust the focus of the policy to solve the problem. In order to alleviate energy and environmental problems by promoting the development of alternative fuel vehicle enterprises.

The promotion of the alternative fuel vehicle is still limited by many factors, such as the development level of the region and the availability of charging piles. Due to its short development time and incomplete relevant information, other relevant information will be collected in the future to conduct further research on it. This paper focuses on the analysis of the promotion effect on the alternative fuel vehicle from the perspective of tax incentive policies, and other types are less involved. Therefore, more comprehensive research will be conducted in the future.

Due to the emerging companies of alternative fuel vehicle data, the data collection is limited, resulting in insufficient research. While some results have been achieved, there is still a lot of work to be done.

References

[1] Ma J, Leontyeva YV, Domnikov AY. Analyze the impact of the transition from business tax to VAT on the tax burden of transport enterprises in various regions of China. Journal of Tax Reform. 2022;8 (2):199-211.

[2] Ma J, Leontyeva YV, Domnikov AY 2022 The Impact of China's Preferential Tax Policy on the Development of the Alternative Fuel Vehicle Industry. Journal of applied economic research, 21(2), 194-216.

[3] Leontev E, Leontyeva Y, Mayburov I. Analysis of capacity for implementation of TIF projects for electric transport development in Russian cities. International Journal of Energy Production and Management. 2021;6(4), 359-370.

[4] Mayburov I, Leontyeva Y. Fiscal instruments for regulating the sustainable development of urban transport systems in Russia. IOP Conference Series: Earth and Environmental Science. 2017;72 (012016):1-8.

[5] Ma J, Mayburov I. Using DID model to analyse the impact of vehicle purchase tax on the sales of alternative fuel vehicle. IOP Conf. Series: Earth and Environmental Science. 2021;849 (2021) 012006.

[6] Ma J, Mayburov I. Problems and prospects of China's transportation transition to sustainable development. 2021; chapter 4 p.1620-1629.

[7] Yan S. The economic and environmental impacts of tax incentives for battery electric vehicles in Europe Energy Policy. 2018; 123:53-63

[8] Khan U, Yamamoto T, Sato H. Consumer preferences for hydrogen fuel cell vehicles in Japan. Transportation Research Part D: Transport and Environment. 2020; 87, 102542.

[9] Wendler, Eugen 2014 Friedrich List (1789-1846): A visionary economist with social responsibility. Springer. pp. 12 and 135-137.

[10] Berliant M, Raa TT. A foundation of location theory: Consumer preferences and demand. Journal of Economic Theory. 1988 ;44 (2): 336.

[11] Hoffman B. Microeconomics with Calculus (2nd ed.). Addison Wesley. 1998; pp. 141-143.

[12] Ma J, Mayburov I. The impact of taxation policies on the research and development of alternative fuel vehicle companies - A case study of NIO Inc. IOP Conference Series: Earth and Environmental Science, 2022;958(1).

[13] D d'Andria, I. Savin. A win-win-win? Motivating innovation in a knowledge economy with tax incentives. Technological Forecasting and Social Change. 2018; 127: 38-56.

[14] Lapov D E, Mayburov I A. Modelling of a relative income tax bracket-based progression with the effect of a slower tax burden growth. Journal of Tax Reform, 2021;7(2), 160-172.