

The Impact of Government Policies and Price Changes on Tesla's Performance in Chinese Electric Vehicle Market

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Abstract. China has already become one of the world's largest electric vehicle (EV) markets. This brings not only opportunities but also huge pressure for Tesla. Government policies and frequent price changes have become critical factors influencing Tesla's performance in the Chinese market. This research discusses how government policies and price movements affect Tesla's sales, market position, profitability, and long-term competitiveness in the Chinese market, using literature analysis, case analysis, and content analysis. It aims to examine the history of Chinese EV development, Tesla's localization and pricing strategies, and the changing environment of the Chinese EV market. The research indicates that government subsidies, tax incentives, infrastructure development and support for local manufacturing promote the expansion of the EV market and help Tesla reduce production costs through localization, thereby improving its productivity and cost efficiency. At the same time, price cuts could augment affordability and stimulate consumer demand; however, frequent price movements also reduce profit margins and intensify competition among domestic EV companies. The connection between policies and pricing strategies is close, because local production and policies can provide more flexibility for Tesla. The study suggests that Tesla's long-term competitiveness in the Chinese market depends on a balance between price competitiveness, cost control, localization, technological development, and adaptation to changes in government policies.

Keywords: Tesla, Electric Vehicles, Government Policy, Pricing Strategy, Chinese Market

1. Introduction

China has already become one of the world's most significant EV markets. The rapid expansion of the market depends on the increase in consumer demand, refinement of technology and support from government policies. In particular, a series of subsidy policies have been implemented in China to strengthen the development of new energy vehicles (NEVs), influencing both domestic and foreign producers [1]. With the expansion of the market, Tesla has been an indispensable participant in the Chinese EV market. The establishment of Gigafactory Shanghai further improves Tesla's ability to produce locally and reduce its reliance on imported cars [2].

Government policy and pricing strategy are two essential conditions that impact Tesla's performance in the Chinese market. Government subsidies, tax incentives, infrastructures and industrial policies can affect EV purchasing and manufacturing costs. While, increasingly intense

competition in the Chinese market triggers pricing strategies to become an important competitive tool. In order to face the constantly changing market environment and competitive pressures, Tesla has cut the price of major models such as Model 3 and Model Y [3]. Although reducing price can increase affordability and stimulate the quantity demanded, it may also lead to lower profit margins and intensify the price war.

Existing studies have examined government incentives, EV demand, price competition, supply chains, and localization. However, few researchers discuss how government policies and pricing decisions together affect Tesla's market performance in China. Therefore, this study aims to answer the following question: How do government policies and price changes affect Tesla's performance in China's electric vehicle market? Literature analysis, case analysis, and content analysis are used to explore Tesla's market position, profitability, sales and long-term competitiveness.

2. Literature review and theoretical foundation

2.1. Government policy and the EV market

The Chinese market promotes EV market development through government subsidies, tax incentives and industrial policies, which remarkably influence the production and pricing strategies of firms. Purchase subsidies and tax exemptions can reduce consumer's purchasing costs and encourage EV adoption [4]. In addition, the Dual Credit Policy and the development of charging infrastructure have cultivated the expansion of production and created a more favorable environment for industrial development [5]. These policies not only influenced consumer demand, but also manufacturers' production and pricing decisions. Tesla also benefited from this environment through localization in China. It has built a local production base in Shanghai, which diminished transportation and import-related costs and also enabled Tesla to fully utilize local Chinese suppliers [2]. Hence, Chinese EV policies have impacted Tesla through both market expansion and localization, providing a strategic foundation for its pricing strategies in China.

2.2. Tesla's pricing strategy and price elasticity

Tesla's price strategy has shifted from premium positioning to a more flexible and competition-oriented approach. In the early stage, Tesla adopted a premium pricing strategy to attract consumers who valued advanced technology, product design and brand image. As more and more EV companies entered the market, Tesla gradually decreased prices to attract diverse consumers and increase its market share [6]. Model 3 and Model Y are particularly important in this transition, and the price adjustments were used to respond to increasingly pervasive competition and market changes [3]. Price elasticity also helps to explain the effect of these price movements on consumer demand. As Tesla entered the market, consumers became more price-sensitive, especially in the Chinese market where there are a series of substitutes [6]. Price has therefore become a critical competitive tool for Tesla.

2.3. Research gap

Existing studies examine government policy, price competition, supply chains, and EV demand, but fewer scholars analyze how those factors jointly affect Tesla's performance in the Chinese market. The above studies have offered some support for the individual factor but have not explained how policy changes and price adjustments work together in a highly competitive EV market. Tesla's

development in China has also been in close cooperation with supply-chain localization and government institutions, particularly in the construction of the Gigafactory Shanghai base [7]. Therefore, the above factors will be combined to examine their combined effect on Tesla's market performance in China. This study connects the policy environment with Tesla's pricing strategy to investigate how both affect sales, market share, profitability and long-term competitiveness in China.

3. Institutional background and market evolution

3.1. Evolution of China's NEV policy support

China's New Energy Vehicle (NEV) policies have moved from direct-purchase subsidies to tax incentives and other industrial regulations and infrastructure construction. In the early days of the market, direct-purchase subsidies helped reduce the actual cost for consumers and promoted the spread of new energy vehicles (EVs) [4]. As the market has gradually developed, so too has policy support. China has gradually reduced direct-purchase subsidies and, finally, abolished them at the national level; however, industrial development is still supported by tax incentives, infrastructure fees, regulatory measures, and the Dual Credit Policy [5]. At the end of the national purchase subsidy period, there was a change in the policy environment, and EV enterprises were under greater cost pressure and needed to improve technology and market competitiveness [3]. As a result of the policy change, Tesla needed to increase its pricing and localization efforts to meet consumer demand without the support of government subsidies.

3.2. Shanghai Gigafactory and local production capability

The Shanghai Gigafactory significantly increased Tesla's local production capability and reduced production, transportation, and supply-chain costs. As Tesla's first manufacturing base outside the United States, the Shanghai Gigafactory enables Tesla to produce cars directly in China, thereby reducing its reliance on imported vehicles [2]. Localization reduced transportation and import-related costs, and has prompted Tesla to source more from Chinese suppliers [2]. The establishment of the Gigafactory also involved cooperation between Tesla, Chinese government agencies, and local supply chains [7]. These connections have nurtured Tesla's localization process and helped it further develop a more efficient production and supply chain with greater flexibility.

3.3. Competition intensifies

As Chinese new energy vehicle enterprises have developed at an increasing rate, BYD has posed some pressure on Tesla in China. BYD is now one of the leading domestic competitors to Tesla and covers all price ranges [3]. At the same time, Chinese EV enterprises have increased their competitiveness and gradually reduced the advantages of Tesla in battery technology, economies of scale and localized supply chains [8]. The price war in the EV industry has intensified recently, and after Tesla reduced prices at the start of 2023, other auto companies have also begun to lower their prices [9]. The entry of BYD has increased competition for Tesla in China by adding a domestic company. Therefore, Tesla is under increasing pressure in China and must choose between a low-price competition strategy or a high-profit, long-term market-positioning strategy.

4. Impact of government subsidies and policies on Tesla

4.1. Consumer purchase costs

Government subsidies and tax deductions will reduce the net cost for consumers of electric vehicles and thus increase demand. Government incentives improve the affordability of EVs; otherwise, without tax exemptions, they would be less economically feasible for consumers [4]. Subsidies in China have lowered the initial purchase price and increased consumer demand [1]. Although these policies do not specifically target Tesla, it will still be affected by them, and a lower effective purchase cost will help promote the development of all-electric vehicles. As electric vehicles become more affordable than traditional cars, more people will be willing to purchase them, and thus the number of Tesla owners will increase. In short, the government's support will increase the demand for electric vehicles among consumers and thus help Tesla achieve better results under the government's plan.

4.2. Tesla localization and cost structure

Support for local manufacturing and the development of the EV industry by the Chinese government have helped reduce Tesla's operating costs in China. Policy support for the local production and development of infrastructure and industry has created a favorable environment for Tesla's localization strategy. It also increased the proportion of local suppliers and promoted domestic production to reduce logistics costs and shorten the supply chain [2]. Government institutions have also provided support for the connection between the network of Tesla's Shanghai Gigafactory and the local industrial system [7]. These cost advantages are necessary to provide more options for adjusting car prices without having to import cars. Therefore, localization is needed to support the government's assistance and flexible pricing for Tesla in China.

4.3. Policy uncertainty

Alterations in government support and tighter EV policies will increase operating uncertainty for Tesla in China. Climate and industrial policies have changed the macro-market environment for the EV industry to some extent [4]. Incentive policies from the government and trade policies are also changing, as is the intensity of price competition among auto companies [4]. As direct subsidies are reduced, EV manufacturers need to rely more on production efficiency, technological development, and cost competitiveness [3]. For Tesla, these changes will affect its future pricing strategies. Tesla's long-term performance will depend on the changing policy environment.

5. Impact of price changes on Tesla's market performance

5.1. Price cuts, sales, and consumer demand

Tesla's price reduction can improve price affordability and stimulate consumer demand and sales in the short term. Between 2022 and 2024, Tesla repeatedly reduced prices of the Model 3 and Model Y to respond to the increasingly potent competition in the Chinese market [3]. Lower prices made more price-sensitive consumers start to consider buying Tesla, which expanded Tesla's potential consumer base. Price competition has already been a significant feature of the Chinese EV market, since manufacturers compete for market shares through price movements [4]. From an economic perspective, the efficacy of price cuts derives partially from the price elasticity of demand. When

demand is relatively elastic, a given percentage decrease in price may induce a larger percentage increase in demand. Tesla, therefore, can use price cuts to stimulate short-term sales and enhance competitiveness, especially in situations where consumers have many alternative EV models to choose from.

To further examine the relationship between Tesla's pricing decisions and market demand, comparing the changes in vehicle prices and sales is an effective way. As shown in Table 1, the relationship between prices and sales provides a more direct observation of whether lower prices are related to stronger consumer demand. However, sales changes are also influenced by competition, seasonal demand, and other market conditions. Thus, price elasticity of demand can be used as an external standard to evaluate consumers' responses to Tesla's price movements.

The price elasticity of demand is calculated as follows:

$$E_d = \frac{\frac{Q_2 - Q_1}{(Q_1 + Q_2)/2}}{\frac{P_2 - P_1}{(P_2 + P_1)/2}} \quad (1)$$

Table 1. Tesla vehicle prices, retail sales, and estimated price elasticity in China, [10-14]

Model	Period	Initial Price P_1	New Price P_2	Initial Sales Q_1	New Sales Q_2	E_d
Model Y	Jan. 2023 Price cut	¥288,900	¥259,900	29,387	14,184	6.60
Model 3	Jan. 2023 Price cut	¥265,900	¥229,900	12,539	12,659	-0.06 6
Model Y	May 2023 Price increase	¥261,900	¥263,900	26,760	31,054	19.53

Note: April 2023 Model Y sales were calculated as $31,054 / 1.1605 \approx 26,760$ based on the reported May sales and month-over-month growth rate [14].

As shown in Table 1, the extent of price elasticity of demand for different Tesla models varies considerably. For example, in January 2023, price cuts resulted in an elasticity of 6.60 for Model Y, and Model 3's was lower. The above estimates should be treated cautiously because other factors, such as the delivery cycle, seasonal demand and market competition, will also affect them. Tesla's Shanghai Gigafactory generally exports in the first half of each quarter and supplies the domestic market in the second half of each quarter. Therefore, the company's monthly sales will likely be irregular. As a result, the existence of some unusually large positive elasticity estimates in a particular period do not necessarily mean that the demand curve is an upward-sloping line. Thus, the price changes at Tesla are due to new car delivery schedules, seasonal demand and market competition. Based on the above analysis, Tesla's short-term performance in China cannot be fully attributed to price adjustments.

5.2. Effects of price reductions on profit margins and brand value

Although lowering the price may increase sales, frequent price reductions can substantially decrease profit margins. Tesla will lower the price of its cars to make them more affordable and popular, but it will also reduce the profit margin per car. Due to the cumulative effect of price wars, Tesla's gross margin has also fallen; thus, a lower price results in lower profit per vehicle [9]. From an economic standpoint, only if the increase in sales could cover the lower profit per vehicle would the price reduction be economically feasible. Frequent price changes may also alter consumer expectations; that is, consumers who are hoping for a lower price reduction will delay their purchase decision and wait to see if the price drops further, thus creating a "wait-and-see" phenomenon [9]. Frequent price cuts may damage the high-end brand image of the current Tesla cars. Tesla should balance the demand for a short-term profit margin with the requirement to build a long-term brand, thus reducing the frequency of price cuts.

5.3. Price war and competitive transmission effect

In addition to changes in consumer behaviour, Tesla has also lowered its prices and is thus putting pressure on other EV companies; otherwise, they would lose some of the customers who have been considering buying cars from these other companies. Tesla reduced prices in China, but it also lowered them in other major markets, and worries spread across the EV industry about a price war [15]. Therefore, other companies such as BYD will likely also reduce prices or add other benefits to stimulate consumer demand and expand their market share [4]. The same competitive transmission effect will also be harmful to the Chinese market. For example, the rapid development of the domestic EV company BYD has increased the competitive pressure on Tesla and is now one of the main reasons why Tesla has had to lower its prices [3]. Therefore, Tesla's price reduction will likely cause a corresponding drop in prices for other companies and so on. This competitive transmission effect is beneficial for consumers, but it can also bring pressure on industry profitability when manufacturers repeatedly cut prices to maintain consumers and market shares.

6. Interaction between government policy and pricing

6.1. Subsidy withdrawal and Tesla's price adjustments

The reduction of government subsidies raises consumers' effective purchase cost, and thus increases Tesla's incentive to maintain demand through reducing its own price. Government subsidies could enhance consumers' willingness to purchase EVs by reducing their financial burden. Liu and Wang argued that the effect of EV subsidies on consumer demand varies with the level of subsidies. Their results show that there is a most effective subsidy range rather than a simple linear relationship between subsidies and quantity demanded [16]. Consequently, manufacturers face more pressure when the government directly reduces support, as they need to sustain vehicle affordability through their own pricing decisions. This relationship is especially important for Tesla, because price has already become a strategic tool in the Chinese market. When direct purchase subsidies declined, Tesla adapted its localization to reduce production costs in order to adjust its prices and provide more flexibility. In this sense, government policies and Tesla's price strategies reinforce each other, since changes in government policies will affect actual consumer purchasing costs, while Tesla can maintain consumer demand through price movements to offset changes in affordability.

6.2. Policy support and cost advantages expand Tesla's pricing flexibility

Policy support, local manufacturing, and supply-chain localization jointly give Tesla greater flexibility in adjusting its prices. The policy environment affects not only consumer demand, but also Tesla's pricing strategies through the cost side of the market. This relationship can be explained by a simple profit function:

$$\Pi = (P - c)Q(P) \quad (2)$$

where π represents Tesla's profit, P represents the vehicle price, c represents the unit cost of production, and $Q(P)$ represents the quantity demanded at given price. This function shows that Tesla's pricing flexibility depends on not only consumer demands, but also its unit cost of production. Localization and supply-chain localization reduce c , so Tesla can lower P while maintaining a higher profit margin than otherwise. Tesla's Shanghai Gigafactory has increased its reliance on domestic suppliers and reduced transportation and other import expenses [2]. The lower costs are relatively advantageous for Tesla in a price war; thus, it will not have to reduce unit profits to some extent. Therefore, policy support for local production will indirectly raise Tesla's price by changing its cost structure. It can be seen that the government's policies have changed both the demand and cost sides of the market for Tesla in China, thus affecting its pricing strategy.

6.3. Joint effects on Tesla's long-term competitiveness

Under the new policies in China, Tesla will be more competitive in terms of cost and price. Policy support will increase the demand for new energy vehicles and improve the conditions for local production; thus, Tesla will adjust its price accordingly in the market. A reduction in production costs does not necessarily mean that the lower price will be maintained indefinitely. With the increase in competition, Tesla needs to decide how much of its cost advantage to use for price cuts and how much to keep to maintain high profits. With the rapid development of domestic EV companies, new technologies and diverse products are needed to keep up with the times [8]. Therefore, the long-term development of Tesla needs to balance price competitiveness, profitability, localization and technological innovation. Government policy and price changes should not be considered as separate factors; instead, changes in the policy environment will affect both consumer demand and Tesla's cost structure, thus changing the company's pricing decisions. In the long run, Tesla can use the advantages of local production to keep prices low and avoid continuous price cuts.

7. Conclusion

This study examines the impact of government policy and price changing on Tesla's performances in China's EV market. Based on the above analysis, the two factors are closely related rather than independent of each other. Government subsidies and tax deductions for electric vehicles will reduce the purchase cost for consumers. Support for local production and the local supply chain will reduce Tesla's operating expenses. Therefore, Tesla can adjust the price of the car according to changes in the market more flexibly. At the same time, the price reduction will increase accessibility and boost demand; however, the actual rise in monthly sales will be affected by delivery methods, competition and other market factors. Continuous price movement also may lead to lower profit margins, and slashing Tesla's long-term brand value.

With progressively intense competition from domestic EV producers, relying only on price reductions can not create sustainable competitive advantages for Tesla. Tesla needs to maintain a balance among the price competitiveness, cost control, localization, technological innovation, and product differentiation. The limitation of this study is only depending on the case data and secondary literature analysis, making it difficult to isolate the individual effects of government policy, pricing, competition, and other market factors. Further research could use more specific quantitative data to estimate these influences to provide a more precise evaluation results of Tesla's performance in China.

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