Green Drive: Economic Effects of NEV-Supporting Policies

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Abstract. After the torch was extinguished at the Beijing Winter Olympics, the unforeseen outbreak returned to mainland China. With Shanghai as its focal point in March, China's economy has withstood the harsh winter this spring. To reach the aim of China's GDP growth by 5.5 percent in 2022, the Chinese government recently launched several policies to support the development of the new energy vehicle (NEV) industry on May 31st, 2022, i.e. The Subtraction of Partial Vehicles' Purchase Tax (China's State Taxation Administration (CSTA), 2022) and the Notice on Carrying Out the 2022 New Energy Vehicle Going to the Countryside (China's Ministry of Finance, 2022). In the following section, I will discuss the short run and long run effects of the policies on NEVs.

Keywords: New Energy Vehicle; Economic Effect; Green Drive.

1. Short Run Effect

1.1 Stimulating Car Sales

The central part of these policies is the car purchase tax subtraction. According to CSTA (2022), the purchase tax on a car worth 300,000 yuan can reduce by up to 15,000 yuan. Furthermore, in response to this policy, automobile manufacturers displayed increased excitement and enthusiasm. Three leading Chinese carmakers quickly launched promotional policies and exempted all purchase taxes by subsidizing 5% of the purchase tax by the enterprise less than 30 minutes after the policy was released (Sina Financial News, 2022). The aroma of gunpowder became overpowering in the market battle. According to game theory, as they cut prices, other competitors will follow suit. Indeed, international auto giants operating in China, such as Audi, Toyota, and Ford, followed and began the price war (The Paper, 2022).

With the help of stimulus, Auto production and sales exhibited remarkable recovery growth (Song Yan, 2022). According to the latest statistics from the China Association of Automobile Manufacturers (CAAM) (2022), in June, the production and sales of NEVs, such as BYD, amounted to 2.661 million and 2.6 million, respectively, representing a 1.2-fold increase year on year and a 21.6-percentage market share. Currently, NEV sales have made up 39.8% of Chinese brand passenger car sales. NEV sales are anticipated to reach 5.5 million units this year, representing a year-on-year rise of more than 56%. Additionally, China has become the world's largest exporter of NEVs in 2021 (CAAM, 2022).as show in fig.1

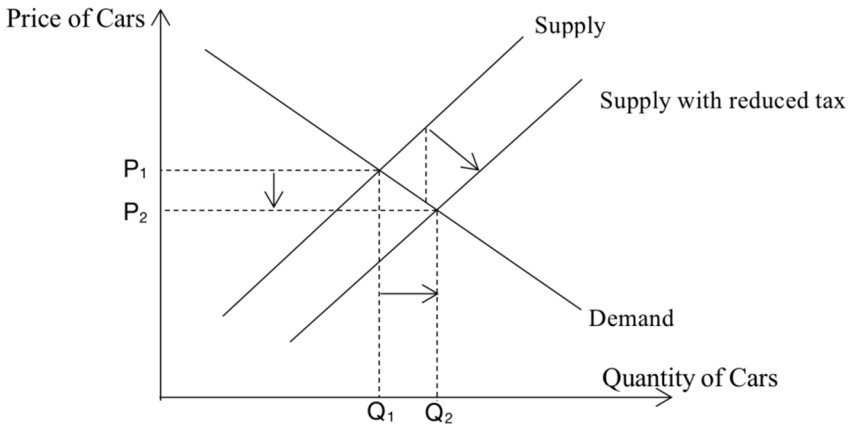


Figure 1. Car market with reduced tax

Car purchase tax subtraction increases the supply of cars on the market, accompanied by an increase in quantity and a decrease in price.

1.2 Contributing to Annual Growth Goal

Consumption is one of the GDP's "three engines" (Chen Wan, 2022). China has become the world's second-largest consumer market, with consumption accounting for more than half of GDP in 2020 (Fu Zengkai et al., 2022). In fact, since 2021, the proportion of car consumption to overall consumption has been substantial. The vice-minister of commerce, Sheng Qiuping (2022), asserted that retail sales of automobile products in China hit 4.4 trillion-yuan, accounting for 9.9 percent of total retail sales of consumer goods. This is an essential support for the consumer market, not to mention the contributions of the car-driven industry chain. Besides, consumer adoption of emerging vehicle technologies has significantly improved, as evidenced by the explosive sales of NEVs, which total 3.52 million vehicles. (iiMedia report, 2022). The foregoing reforms can boost consumption and help China reach its second-half economic growth target. as show in fig.2.

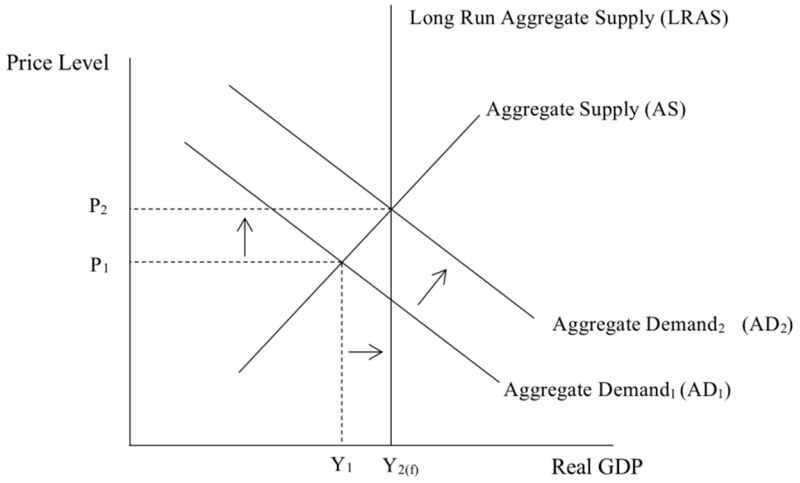


Figure 2. AD/AS diagram of Chinese economy

The reduction of the car purchase tax helped restore the AD right shift, reducing the recessionary gap Y1Y2(f).

2. Long Run Effect

2.1 Achieving Economies of Scale

NEV penetration reached 21.8 percent (Wang Yiping, 2022). With strong penetration, NEV manufacturers might expand and gain internal economies of scale. Larger companies can take advantage of more efficient equipment. Take a Giga Press die-casting machine used at Shanghai Tesla industry as an example. This machine has significantly improved manufacturing efficiency and helped Tesla produce 470,000 cars last year, accounting for half of its global sales. This type of machine, however, is costly and indivisible. As a result, when the overall industry order volume is large enough due to favorable policies, more automobile firms can gain higher production efficiency by purchasing such machines and therefore cut costs (Peter McGuthrie, 2021).

External economies of scale will be accomplished as the industry as a whole expands. Various automakers can benefit from the active industry-support policies of various local governments. In the Yangtze River Delta, with Shanghai as the center, the automobile industrial park gathers multiple upstream and downstream suppliers and service providers, effectively reducing the cost of automobile

research and development, production, transportation, and coverage of charging facilities (Zhou Rui & Gong Wen, 2022).

2.2 Transforming Economic Growth Pattern

Facing pressure to convert China's economic growth from the real estate market cooldown, the auto industry's expansion has high prospects. Following the central government's policy of "housing, not speculation" (Zhou Fang&Chang Zhifang, 2022). According to China Index Academy (2022), the average cumulative sales volume of the top 100 housing enterprises was 35.64 billion yuan from January to June 2022, down 48.6 percent year on year. In this case, China urgently requires new economic growth. In the future, the NEV industry growth will benefit hundreds of sectors and boost technological innovation. Ultimately, it will drive potential growth. Thus, as in Japan and Germany, the NEV industry in China was viewed as crucial (Masaaki Kuboniwa, 2009). as show in fig.3

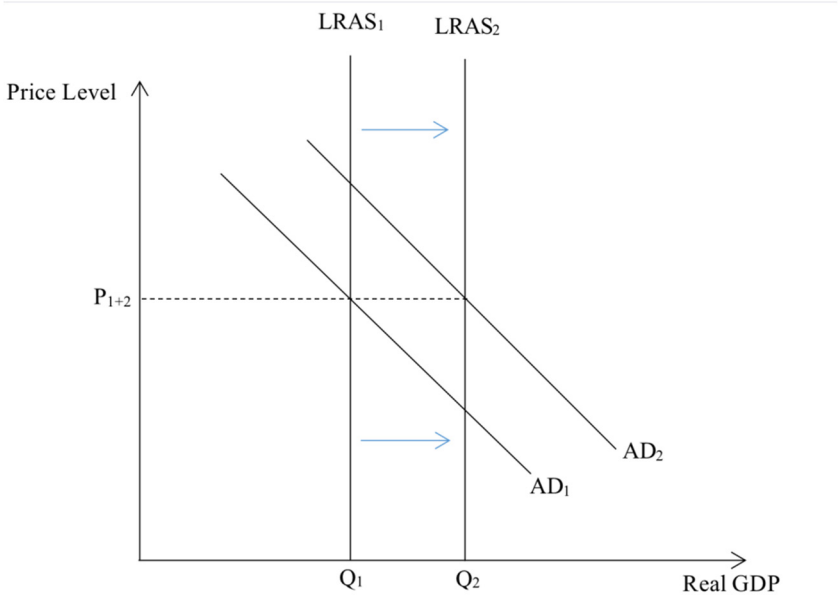


Figure 3. AD/AS Model of Chinese Economy

The NEV industry, as an important way of supply-side structural reform, it will promote the rightward shift of the LRAS curve and drive potential growth.

2.3 Enhancing International Competitiveness

The industry-support initiatives in this paper will strengthen China's NEV industry's long-term international competitiveness. The Chinese government's NEV policy encourages people to purchase NEVs, expanding NEV manufacture alongside other related industries such as battery and charging piles. The popularity of charging stations in China reflects the growth of the NEV market. China boasts the world's greatest network of charging stations. By September 2021, the national charging infrastructure grew by 56.8% annually to 2.223 million units (Wang, Yang, 2021). Such a scale expansion for NEVs could bring more spaces for technological upgrades. According to the Foresight Industrial Research Institute research (2021), CATL, a world-renowned power battery company, handles 32.6 percent of the global market. It has recently developed new technologies such as cell-to-pack (CTP) (Fichtner, M., 2022). Similar innovations abound.

To sum up, we have reasons to believe that China's recently launched series of supportive policies for NEV will have a huge micro and macro impact in the short and long term, triggering a new competitive pattern in the global NEV industry.

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