

# Features and Development of China's Highway Investment Policy

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## ABSTRACT

The purpose of this paper is to propose suggestions on how to effectively solve the problems of insufficient financing funds in highway development, and how to make full use of the national highway investment policy in guiding funds allocation. It analyzes the interactive relationship between the growth of highway investment and the development of highway construction. With in-depth studies on the differences of highway investment policy in different stages, this paper explores the features of the vehicle purchase tax subsidy, including its regional support policy, directional support policy and its subsidy standards. In addition, the paper also evaluates effects of the investment policy in terms of boosting national economic growth and promoting coordinated regional development. In conclusion, the paper sums up best practices in the implementation of the highway investment policy, namely keeping the investment scale to meet the requirements of highway development, issuing differentiated policies in different stages and for different fields, exploring more flexible and diverse investment methods to provide solid support, and innovating the management modes in accordance with the reform on the division of power and responsibilities of the government, which helps to improve the effectiveness and the efficiency of the utility of funds.

**Keywords:** highway construction, investment policy, vehicle purchase tax subsidy, policy evaluation.

## 1. INTRODUCTION

China has witnessed dramatic changes in highway construction in the past decades, which benefits greatly from the way of scientific planning and the policy to guarantee stable funds. Although tasks and challenges faced in each stage are different, true progress has taken place even with limited financial resources, mostly through continuously adjusting and improving financial policies, properly addressing prominent problems and vigorously undertaking important assignments. Entering into a new era, new challenges appeared in the process of highway development, including how to satisfy the requirements of reforms and development, how to cater to needs of transport industry seeking for large-scaled financial support, how to properly allocate limited financial resources, how to make full use of the national investment to guarantee stable funds, and etc. For previous studies, we found that most of their analysis focused on the investment policy in specific fields, such as expressway construction and ordinary road construction. For example, Feng LI and Xiaobo LIU analyzed the investment policy of ordinary road

construction and maintenance in China, and proposed policy framework tailored for application in future time. Weiping ZHANG and Guopei YOU studied the construction and loan management policies of the rural roads invested by the national government. Other studies were on policies at the provincial level. Ying ZHANG collected data of 17 cities and prefectures in Hubei Province, and explored the proper demarcation of investment policies for ordinary road construction and maintenance in Hubei Province. Besides, we also found some studies on investment and financing policies of future road development. For instance, Xingbo XU and Fangjun HU put forward a new policy proposal under the framework of public finance, that is, to establish a debt-balanced fund for highway construction. Taking into account the above-mentioned studies, this paper focuses on national investment policy for highway construction. It also explores policy development and its features in different stages. Implementation effects of the policy are also analyzed, based on which we put forward proposals on how to improve policy framework in future development.

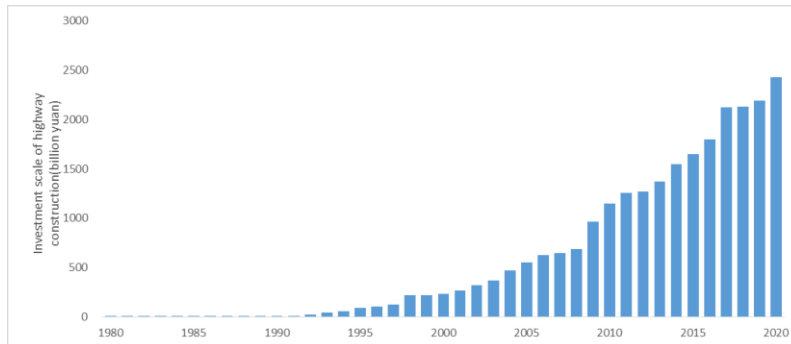
## **2. HIGHWAY INVESTMENT SCALE AND FUND SOURCE**

### **2.1. INVESTMENT SCALE**

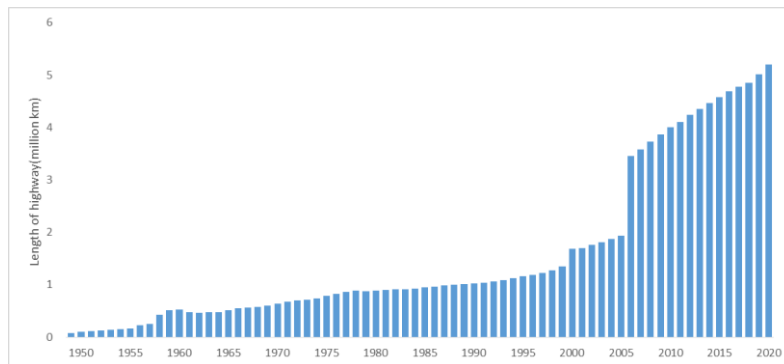
From the beginning of the founding of the People’s Republic of China to the reform and opening up, the investment scale of highway construction in China was very limited. The total investment was only 576 million RMB in 1978. Since 1998, it has entered into a rapid development phase. Highway construction has experienced two stages of high-speed development. One is in 1998 under the background of the Asian financial crisis. The scale of transport investment reached 200 billion RMB, while the investment plan that year was just 120 billion RMB. The construction speed jumped to a new level. The other is the period after 2008. In order to cope with the financial crisis and to implement the national strategy of "promoting domestic demand and maintaining growth", the pace of highway construction has been further accelerated. In 2010, investment in highway construction exceeded 1 trillion RMB. In 2015 and 2020, the figure reached 1.65 trillion RMB and 2.58 trillion RMB respectively (Figure 1). The average annual investment rate in highway construction reached

12% from 1998 to 2008, 9% from 2009 to 2015, and 8% from 2016 to 2020.

Unprecedented changes have taken place in highway development in China, which has witnessed three phases of development, namely the phase of development with bottlenecks, the phase of development when constraints were preliminary mitigated, and the phase of development when demands of social and economic development were basically satisfied. A highway network with expressways as framework, national and provincial roads as arteries and rural roads as basic structure has been built up. By the end of 2020, China had a total length of 5.2 million km of highways, ranking third in the world (Figure 2). With a length of 161,000 km, the expressway in China has connected 99 percent of cities with an urban population of over 200,000 and all the administrative regions at the prefecture level. 97.6 percent of towns and counties now have roads of Grade II or above. The total length of rural road reached to 4.38 million km. A high-qualified and well-operated highway network with wide coverage has taken shape. The growth of investment provided strong support to the unprecedented development of highway construction, which created the miracle of ‘Chinese speed’ in the history of transport.



**Figure 1** Investment scale of highway construction in China



**Figure 2** Length of highway in China since 1949

### **2.2. SOURCE OF CONSTRUCTION FUNDS**

The main sources of funds for highway construction can be divided into three categories: government funds, credit funds, and social capital. Government funds include state budgetary funds, vehicle purchase tax and

local government funds. Among them, vehicle purchase tax, as a national tax, is the most dominant source of funds, which has played a pivotal role in highway construction in China. The vehicle purchase tax is in accordance with the Basic Principles of the Taxation Law. It is collected from vehicles and used in highway

construction. Since imposed in 1984, the fees collected by vehicle purchase tax were over 3.6 trillion RMB. The vehicle purchase tax subsidy helps to guarantee the effective implementation of goals and tasks stipulated in all Five-Year Plans. Meanwhile, it also provides

guidance for the use of the funds and attracts social and financial capital into highway construction. After years of rapid growth, especially since the period of 13th Five-Year Plan, the growth rate of the vehicle purchase tax has slowed down.

**Table 1** Scale of vehicle purchase tax in each Five-Year Plan period

Stage	Vehicle Purchase Tax (billion)	Average Annual Growth Rate
The 11th Five-Year Plan	513.5	23%
The 12th Five-Year Plan	1254.7	13%
The 13th Five-Year Plan	1643.5	5%

### 3. DEVELOPMENT OF HIGHWAY INVESTMENT POLICY

The rapid development of highway transport in China largely rests on the continuous exploration and adjustment of investment policy in the changes of the times. The policy closely focuses on the highway development objectives and key tasks stipulated in each five-year stage. It also takes into account comprehensive factors, such as the investment and financing environment of highway construction, social investment enthusiasm and government financial resources, and etc. Besides, the scope, direction and priorities of the national investment in highway construction are also constantly adjusted and optimized.

During the 12th Five-Year Plan period, the national fiscal fund for highway construction was 1.26 trillion yuan, an increase of 140% compared with that in the 11th Five-Year Plan period. Among them, the vehicle purchase tax was 1.23 trillion yuan, accounting for 97.7% of the total, an increase of 160% compared with that in the 11th Five-Year Plan period. The scale of the vehicle purchase tax subsidy reached a new level, which effectively promoted the great-leap-forward development of highway construction. In terms of expenditure structure, with the adjustment of construction priorities, the focus of investment in the 12th Five-Year Plan period gradually went to national and provincial trunk roads. Investment for rural road development was also increased, while investment in expressway construction slightly decreased. During the 12th Five-Year Plan period, the funds of vehicle purchase tax used in expressways, ordinary national highways, ordinary provincial highways, rural road and other fields were 338.8 billion RMB, 271.5 billion RMB, 203.5 billion RMB, 316.9 billion RMB and 98 billion RMB respectively, accounting for 27%, 22%, 17%, 26% and 8% of the total.

The 13th Five-Year Plan period was a key period for China's transport development when different modes of transportation sped up in order to form an integrated network, and the construction of a comprehensive

transport system was pushed ahead in all-around way. The highway investment policy closely focused on the objectives and priorities stipulated in the 13th Highway Five-Year Plan, in order to optimize and innovate policies and ideas, refine policy design and differentiate fund arrangement. For expressways, the subsidy standard was greatly increased, and breakthrough achievements had been made in policies for expressway operated by enterprises with the mode of PPP. It also gave full play to the vitality of the market. For national and provincial trunk roads, based on the practice that the subsidy standards has been generally upgraded, differentiated supports were given to projects located in different regions or with different features, to guarantee funds for key routes. For rural roads, supports were strengthened through the way of "benefit to all and benefit to a group of people in need", to achieve the goal of targeted poverty alleviation. Thus the tasks of poverty alleviation in transport field could be realized on schedule, which greatly contributes to the process of building a moderately prosperous society.

During the 14th Five-Year Plan period, with adjustment and changes, highway investment policy pays more attention to the duties and responsibilities of governments, and gives more demonstration to national and industrial requirements in terms of investment direction. It becomes more inclusive in terms of policy design and with higher management level in terms of meeting the requirements of financial budget. For investment priorities, the subsidy has been reduced (by 20 ~ 30%) in areas with market-oriented financing capacity such as expressway, and give full play to the role of the market. In terms of subsidy methods, it is changed from the method based on the proportion of total investment to the method based on proportion of construction and installation expenses, which could stimulate the enthusiasm of local governments in controlling project costs. It also fully utilizes their advantages in land acquisition and demolition, as well as information management. The upper limit of new projects with PPP mode is the benchmark standard of the region, which could encourage local governments to invest differently according to the features of the project.

For ordinary national highways, the subsidy standard was significantly increased (by 50%), and the national investment support was strengthened in combination with the local financial capacity.

**4. FEATURES OF HIGHWAY INVESTMENT POLICY**

**4.1. FEATURES AND EFFECTS OF THE POLICY**

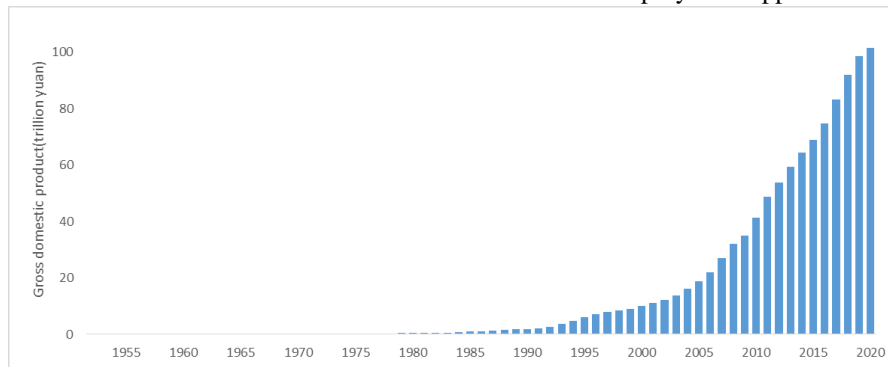
The national investment policy represented by the vehicle purchase tax fund has strongly supported the great-leap-forward development of China's highway construction, especially in driving national economic growth, coordinating regional development, and improving people's livelihood.

1. Boost national economic growth

From 1985 to 1995, the total amount of the vehicle purchase tax was 54.4 billion RMB, which stimulated a social investment of 260 billion RMB in highway construction. During the ninth Five-Year Plan, the tenth Five-Year Plan, the eleventh Five-Year Plan and the twelfth Five-Year Plan, the vehicle purchase tax collected were 65.2 billion yuan, 193.6 billion yuan, 423.2 billion yuan and 11635 billion yuan respectively, stimulating the social investment to 900 billion yuan, 1.98 trillion yuan, 4.08 trillion yuan and 7.1 trillion yuan respectively. The average leverage ratio of the

vehicle purchase tax was about 1:7. From 2016 to 2020, the vehicle purchase tax fund was 1.6 trillion yuan, stimulating more than 10 trillion yuan of social investment in highway construction. The leverage ratio was about 1:5. Although the figure was lower than that in the previous five years, it was still very significant.

Development of China's GDP over the years is shown in Figure 3. Combined with the proportion of investment in highway construction shown in Table 2, we can see that as key fixed assets in China, highway construction has significant effects on stimulating economic growth. It is noted that during the two financial crises, highway construction, especially expressway construction, became an important field in implementing the proactive fiscal policy in China, which effectively stimulated domestic demand and boosted steady growth of national economy. The proportion of investment in highway construction in China's GDP was only 0.16 percent in 1978 while the figure reached between 2 and 3 percent since 1998. Highway investment has experienced high-speed growth, increasing from 576 million RMB to 2.43 trillion RMB over the past 40 years. From 2016 to 2020, China's total investment in highway construction hit a record high, exceeding 10 trillion RMB. In addition, with the increase in highway investment and the growth in highway construction, the upstream and downstream related industries such as steel, cement and transportation equipment are developed and tens of millions of employment opportunities are created.



**Figure 3** China's GDP over the years

**Table 2** Proportion of investment in highway construction in GDP

	1978	1990-1998	1998-2000	2001-2005	2006-2010	2011-2015	2016-2020
Proportion	0.16%	0.48%-1.59%	2.45%	2.75%	2.73%	2.40%	2.40%

2. Coordinate regional development

In order to promote development in underdeveloped areas such as the western region, the national government continued to increase its support for highway investment in those regions. Since 2000, more than 50% of the vehicle purchase tax funds have been used in underdeveloped areas. The Transfer Payment, that is, payment transferred from the account of the national government to the account of local government,

plays a positive role in narrowing the regional disparities. It also improves the transport conditions in the central and western regions, especially in poverty-stricken areas, ensures fair distribution of highway resources, so that the outcomes of transport development can be shared by all. At the same time, the national government subdivides the regions financed with special policies, and provides differentiated support policy with different subsidy standards. For example, the investment policy of the 13th Five-Year

Plan has taken into account the regional differences, and special assistance is given to special areas such as the poverty-stricken areas, the old revolutionary base, the land border-crossing ports, and etc.

### 3. Adjust investment priorities to satisfy demands of highway development

The financing scope, direction and priorities of the national investment policy are also constantly adjusted and optimized. For example, under the support of vehicle purchase tax subsidy, the national expressway could make full use of the market to attract more social investment to improve the financing capacity of the project. At present, the cross-region corridors with high transport capacity have been basically formed in China. Provincial capital cities with distance no more than 1,000 km can be reached in 1 day. Inter-regional connectivity has reached a new level and the distance of space and time between different regions has been dramatically shortened. Subdivision of labors and cooperation within and between regions are accelerated, and the layout of productivity and population is under new progress, which helps to form a new pattern of regional development.

To improve the weak links of the ordinary roads, support is strengthened by the national government with significant increase in subsidy standard. During the 13th Five-Year Plan period, the subsidy standard of vehicle purchase tax for ordinary road projects greatly increased. Compared with the subsidy standard in the 12th Five-Year Plan period, the subsidy standard of class I Highway in eastern and central regions increased by 67% - 78%, while the figure was 50% in the western regions. In terms of class II and III highways, the subsidy standard in eastern and central regions doubled, compared with an increase of 50% in the western region. For bridges and tunnels, the subsidy standard increased by 67% - 100%.

With the goal of 'winning the battle against poverty and securing a decisive victory in building a moderately prosperous society', the national government has attached great importance to the construction of roads in poverty-stricken areas. Since 2012, the vehicle purchase tax used for highway construction in poverty-stricken areas has exceeded 1.46 trillion yuan, accounting for 61.3 percent of total highway investment. The amount of social investment stimulated reached over 5.13 trillion RMB. The length of newly constructed and reconstructed rural road reached 2.1 million kilometers. The objective that all the administrative villages were accessible by paved road has been successfully realized. The rural road network with counties as centers, townships and towns as nodes and villages as basic points has been basically formed. The rapid development of rural roads significantly improved the

transport condition for rural residents and raised people's living standards.

Through continuous financing and policy support, the coverage of rural roads has been expanded and the depth of accessibility has been deepened. Transport conditions in rural areas have been significantly improved. The scale of rural road investment in 2016-2020 was 13 times than that in 2001-2005. Communications between rural residents has been strengthened, which brings more opportunities to the peasants to obtain incomes, such as seeking employment in cities and initiating business after returning to hometown. The improvement of transport condition in villages has significant effect on peasants' income, especially in western areas.

## 4.2. PROBLEMS

Three elements are key to the success of China's highway development, namely the national conditions with Chinese characteristics, the large-scale infrastructure construction conducted in the past decades, and the financial policy which is continuously adjusted to keep pace with the times. Meanwhile, there are also some problems in implementation of the policy. For example, the design of the policy does not give full play to the role of the market. Under the present management pattern, the enthusiasm of local government in constructing expressways continues to rise, while the drive to build non-toll ordinary roads is insufficient. At the same time, the market-oriented investment and financing are with more flexibility, which may bring on some non-regulated practices. Certain debt risks for the local government exist.

## 5. CONCLUSION

In conclusion, we believe that the success of highway construction in China benefits greatly from the stable source of funds, which is guaranteed by the investment policy that are continuously adjusted, improved and innovated in the past decades. Best practices could be concluded as follows: firstly, the investment scale continues to expand to effectively meet the needs of highway construction and development; secondly, the government makes efforts to improve the investment structure, to issue differentiated policies in different stages and for different fields; thirdly, more flexible and diverse methods are made with streamlined procedure and simplified standard dimensions; fourthly, in-depth reforms in management modes are push forward, which is in accordance with the division of power and responsibilities of the government, to enhance the adaptability of the policy. Through continuously improving policy design and consistently adjusting policy directions, highway investment policy becomes

more adapted to suit different conditions. The limited financial resources for highway construction have been fully utilized and allocated, which helps to improve the effectiveness and the efficiency of national investment.

Faced with a shared future, China will basically build an integrated and well-connected transport network by the year of 2035, which is featured with smooth connectivity, high-qualified service and modern infrastructure. Targeted to these goals, a certain scale of highways is still needed to be constructed, for which sustainable financial support will be required. Therefore, it is of key importance to establish a mechanism that could guarantee stable and sustainable funds to transport development, which still needs consistent exploration by highway authorities.

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