

## Research on the Latest R&D Subsidy Policy of Hangzhou

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**Abstract:** Government policy has become one of the effective ways to provide targeted support in innovation activities. It also promote the rapid and efficient development of innovation and entrepreneurship. Science and technology innovation policy has been playing a crucial role in guiding companies to spend more on research and development. The latest R&D subsidy policy carried out in Hangzhou is in the form of ex post allowance, emphasized the data reliability, and funding for self-raised R&D capital. This is much different from the previous R&D subsidy process which gives grant just after the application and review of the projects. In this way, the new form of R&D subsidy policy improves the efficiency of government fund use, as well as to guide enterprises to increase R&D investment.

### 1. Introduction

The 18th national congress of the CPC put forward the strategy of innovation-driven development, stressing that scientific and technological innovation is the strategic support for improving social productivity and overall national strength, and must be placed at the core of China's overall development. Keynesian economics held that the “invisible hand” of the market was not omnipotent, and the market mechanism sometimes failed<sup>[1-2]</sup>. Therefore, the “visible hand” of the government should play a more positive role in national economic and social development, including enterprise innovation activities<sup>[4-6]</sup>. Therefore, the government issues relevant policies to provide targeted support in innovation activities, which becomes one of the effective ways to promote the rapid and efficient development of innovation and entrepreneurship<sup>[7-8]</sup>. Science and technology innovation policy has been playing a crucial role in guiding companies to spend more on research and development.

### 2. The present situation of R&D subsidy policy of Hangzhou and its district and county

In recent years, Hangzhou, the innovative city, has made considerable investment in scientific and technological innovation activities. R&D spending of the whole Hangzhou in 2017 is equivalent to 3.15% of its GDP. There is 152.5 R&D personnel per ten thousand employees. The proportion of enterprise R&D spending to sales is 1.88%. The ownership of invention patent per ten thousand is 47.7. The added value of high-tech industry compared to total output is 55.04%. All the performance have achieved and substantially beyond the planning goal of 2020.

Under the unified guidance of the general policy of scientific and technological innovation, each district and county of Hangzhou also have their own emphasis on the specific measures and intensity of innovation funding.

The R&D investment of Xiacheng District is of high growth in recent three consecutive years. Efforts have be made to strengthen the cultivation and support of science and technology enterprises and research institutes, and to increase the linkage between departments and visits. According to the feedback from the statistics department, the R&D expenditure of the whole region reached 1.332 billion yuan in 2017, ranking the 6th in the Hangzhou, 5 places higher than that in 2014. From 2015 to 2017, the annual growth rate of R&D expenditure in the region was 29.7%, 49.1% and 19.3%

respectively.

Shangcheng District in “Policies to strengthen science and technology innovation and to promote the transformation and upgrading in Shangcheng District” mentioned that efforts to implement the national support policies such as enterprise technology innovation research and development expense deduction and high-tech enterprise income tax incentives. To national high-tech enterprises whose R&D expense more than 5% of its sales revenue, and to the municipal high-tech enterprises whose R&D expense not less than 3% of its sales revenue, if their R&D spending year-on-year growth is more than 1 million yuan, the added part will be given to 10% bonus, not exceed 2 million yuan (R&D spending data should be subject to statistical bureau statistics and audit report). The policy should be comprehensive and fair by the following reasons. First assessment and rewards are given by different kind of innovation subjects; Second, incentives are given to the increase of R&D investment; At last all the data are based on the statistical data and audit reports, which are verified by the third party.

Gongshu District will focus on the key work of “R&D investment, invention patent and high and new technology”, and comprehensively promote the “three multiplier plans”. The R&D expenditure of the district reached 560 million yuan, increased by 28.6% year-on-year, ranking the first in the city. In 2018, 221 invention patents were authorized, increased by 6.25% year-on-year. The added value of high-tech industry reached 6.695 billion yuan, increased by 14.7% year-on-year, accounting for 76.3% of the industrial added value, increased by 0.6 percentage points year-on-year. The three-year action plan for cultivating high-tech enterprises in Gongshu District (2018-2020) in many aspects mentioned to guide enterprises to increase R&D investment. The government will implement the “zero clearing” action on industrial R&D investment, and guide industrial enterprises to increase R&D investment and create intellectual property rights, so as to lay a solid foundation for the declaration of “national high-tech enterprise”, and to promote technological transformation and upgrading of traditional manufacturing industries. The policy also means to implement funding plans for major science and technology projects, to guide and encourage enterprises to increase R&D spending, to tackle key and cutting-edge technologies, and to strengthen the position of enterprises as the main players in innovation.

The proportion of high-tech industry, R&D spending, invention patents per 10,000 people and other key indicators in Jianggan District have made steady progress, and the target of 10% increase in R&D investment set in the government work report has been successfully achieved. Released at the end of 2017 “some policies of Hangzhou economic and technological development zone to promote scientific and technological innovation entrepreneurship” mentions to provide subsidy to the high-tech enterprises enjoying R&D basis tax deduction authorities, 5% of the amount of self-raised R&D expenses for the national high-tech enterprise, the other high-tech enterprises 2% of the amount, up to 2 million yuan. If R&D expenses are account for more than 5% of sales revenue, the 20% increase of R&D expenses over the previous year will be subsidized, which shall not exceed 5 million yuan per enterprise per year. In 2018, nearly 400 small, medium and micro-sized enterprises in the economic development zone received government incentives and subsidies for innovation. It can be seen that the subsidy mode of the economic development zone is consistent with the post-subsidy spirit in the “Management of financial subsidy funds for R&D expenses of small, medium and micro-sized enterprises in Hangzhou” issued by Hangzhou municipal science and technology commission in 2018.

In 2017, the R&D expenditure of Xihu District reached 4.58 billion yuan, increased by 181% year on year, accounting for 4.22% of GDP, 2.59 percentage points higher than the previous year, ranking the 7th in advance and ranking the 2nd in Hangzhou. The government provides support to the sub-street innovation carrier, research and development center, enterprise research institute and other institutions. In 2018, the fourth and fifth batches of funding for science and technology exceeded 20 million yuan. For those small, medium and micro enterprises that have received R&D subsidy from Hangzhou city government, district and township government will also undertake R&D subsidy for them at 70% and 30% amount, respectively. In 2018, the first batch of 57 small and micro enterprises received supporting funding, with a funding amount of more than 7 million

yuan.

Binjiang District continues to increase investment in scientific and technological innovation. In 2016, the district allocated 1.7 billion yuan of industrial support funds, and the investment in enterprise R&D continued to grow. The R&D expenditure of the district has exceeded 12.2 billion yuan, accounting for 13.5% of the GDP. By the end of November, the region spent 18.8 billion yuan on scientific and technological activities, increased by 20% year-on-year. According to the spirit of Hangzhou science and technology committee and district meeting, Binjiang District will review the 2017 R&D expenses of high-tech start-ups approved in 2016, and provide R&D subsidies to relevant enterprises according to the 2018 annual funding plan. Only 64 of the 136 enterprises that set up projects in 2016 reported additional and deducted R&D expenses. It also reflects the fairness and rationality of the post-funding mode.

Xiaoshan District compiled training materials such as “Policy compilation of R&D expenses before tax plus deduction” and “Instructions for R&D expenses statistical annual report filling”, so as to facilitate enterprises to master relevant policies and mobilize enterprises to increase the enthusiasm of R&D input. R&D funds will be used as an important basis for enterprises to recommend and apply for various scientific and technological plans at all levels and enjoy government science and technology incentive policies.

In 2017, Yuhang District spent 5.35 billion yuan on R&D, increased by 22%, ranking second in the Zhejiang province. R&D expenditure accounts for 3.16% of GDP, ranking 7th in the province and 3rd in the city. At the same time, Yuhang District issued the implementation measures of R&D investment subsidy for enterprises in Yuhang District. It will subsidize qualified enterprises by 15%-20% of the year-on-year increase of R&D investment, with no more than 2 million yuan for each enterprise. According to the provisions and reviews of the documents, the 2017 R&D subsidy of Yuhang District of 167 enterprises was 72,512,700 yuan in 2018, and the R&D supporting subsidy of Hangzhou city of 58 small, medium and micro-sized enterprises was 4.504 million yuan in 2018.

Fuyang District launched “notice of 2018 financial aid for corporate R&D funding”, request the applied enterprises having special accounting for R&D spending. When their 2017 annual sales revenue are in the range of 10 million - less than RMB 50 million, 50 million - 200 million yuan, 200 million yuan above, the R&D spending should accounts for the proportion of sales revenue respectively 6%, 4%, 3% or more. This kind of enterprises are qualified to declare the R&D expenditure of financial aid. At the same time, the collection scope of R&D expenses is also specified. In addition to submit the regular 2017 annual financial reports (R&D disclosure included), 2017 enterprise annual income tax return, special verification report of additional deduction of R&D fee issued by agencies, 2017 enterprise annual R&D cost parameter, declaration enterprises also need to provide the material of all kinds of financial reward support (funding) enterprise received since 2012, and the project list enterprises has been declared for financial incentives in 2018. It is also to avoid repeated funding, improving the use of financial funds efficiency.

Chun 'an county actively encourages enterprises R&D, by implementing the policy of post R&D subsidies, subsidies 10% of the actual R&D investment. In 2018, 54 enterprises applied for 192 projects for the record. After expert review and special audit, 40 enterprises met the requirements and received 6.320,800 yuan of R&D subsidies. In 2017, the county invested 172 million yuan in R&D, accounting for 0.67% of the county's GDP, an increase of 9.8% year-on-year. R&D expenditure of industrial enterprises accounted for 0.97% of main business income, 0.4 percentage points higher than last year.

### **3. Conclusion**

The government has been funding enterprise innovation activities for a long time, but the mode and focus of funding have been changing all the time. The purpose is to satisfy the funding demand, effectively guide enterprises to increase R&D investment and enhance innovation vitality. Through the research on the latest policies related to R&D investment and funding of Hangzhou and its subordinate districts and counties, this paper draws the following three conclusions:

Firstly, the latest subsidy policies tend to be post funding. Different from the previous R&D subsidy process which gives grant just after the application and review of the projects<sup>[3]</sup>, the latest policy emphasize on the actual input and growth of R&D investment. At the same time, the comparison is supplemented by ranking, with relative instead of absolute value, make enterprise formed benign competition consciousness. The policy also well avoid funded projects with no R&D input. Binjiang District, nearly half of the funded projects with no R&D investment, is a very good example.

Secondly, the credibility of enterprise declaration data can be enhanced. In the past, many indicators could not be cross-verified when funding projects, leaving hidden dangers for “adverse selection” and “moral hazard”<sup>[9-10]</sup>. However, the after-event subsidy is based on the actual R&D input of the enterprise in the previous year, so whether the relevant data are true or not directly affects the fairness and justice of the subsidy. Therefore the latest policies requires the data from tax system or audit report, which have been through a third party authentication, and has the legal effect. In addition, the government will publish the subsidized R&D input data through government website, to strengthen the social supervision, further ensuring funding open and transparent.

In addition, the latest policy emphasizes subsidies for self-funded R&D investment to improve the efficiency of financial funds. In the subsidy policies of Hangzhou city and some subordinate districts and counties, it is also mentioned that the R&D investment that receives financial assistance should be the enterprise's own funds, so as to avoid repeated subsidies and waste of financial resources. Therefore, when the application materials are submitted, it is also necessary to verify the content of materials such as various kinds of financial incentive support (subsidy) obtained by the enterprise, and the list of projects that the enterprise has declared and intends to apply for financial incentive support (subsidy). Although the workload of check has been increased to some extent, it can effectively improve the utilization efficiency of innovation subsidy funds and better promote more enterprises to participate in the work of increasing R&D input.

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