

Analysis of the Status and Effectiveness of Follow-Up Audit of Science and Technology Innovation Policies

—Based on the audit results announcement of China National Audit Office from 2016-2021

Yu Kexin

Nanjing Audit University, Nanjing, Jiangsu, 210000, China

Keywords: Science and technology policy follow-up audit, Audit result announcement, Government audit

Abstract: With the increasing importance of science and technology innovation capability in national development and construction, science and technology innovation policy audit has also become an important element of government audit. Based on the audit result announcement of the China National Audit Office from 2016-2021, this paper analyzes the current situation and effectiveness of the follow-up audit of China's science and technology innovation policy measures, combined with the report on the rectification of relevant audited units, and proposes optimization suggestions for the current problems of science and technology innovation policy auditing to promote the quality and effectiveness of science and technology innovation policy auditing.

1. Introduction

During the 14th Five-Year Plan period, it is crucial to build a new development pattern, play an important role in science and technology innovation strategy, strengthen the capacity building of innovation system and deepen the reform of institutional mechanism. At the National Conference on Science and Technology Innovation, the General Assembly of the original genera of the two academies, and the Ninth National Congress of the Chinese Association for Science and Technology held in 2016[1], General Secretary Xi Jinping emphasized the need to place science and technology innovation in a more important position and sounded the clarion call for building a world power in science and technology. In the same year, the Audit Office issued the Opinions on Auditing Work to Better Serve the Construction of Innovative Countries and World Scientific and Technological Power, which requires actively playing the supervisory role of auditing in building a modern scientific and technological power. In the current national context, the importance of follow-up auditing of science and technology innovation policies and measures has become more and more significant.

2. Literature Review

China's domestic research related to the follow-up audit of science and technology policies has not yet formed a systematic system, but certain results have still been achieved in terms of audit focus, current audit problems and optimization measures, including:

Zheng Xiaorong and Chen Weihua (2021) pointed out that the follow-up audit of science and technology policies in the context of innovative countries should focus on a total of six aspects, including the allocation and use of central financial funds and special funds for science and technology, the management and development of high-tech enterprises, the financial support for science and technology micro and small enterprises and high-tech industries, the incentive for personnel training, the protection of intellectual property rights, and the transformation and utilization of scientific and technological achievements[2]. Tao Yuxia, Xie Zhihua (2015) and Jin Yishi (2021) pointed out that the current audit evaluation of science and technology funds still has problems such as lack of objective independence, unsound index system and unscientific methods, weak internal control, misappropriation and misuse of research funds, irregular management of

research funds and irregular external allocation of project funds, respectively[3.4]. Wang Qin , Li Fan and Li Qianwen (2020) studied the focus and trend of science and technology policy audit by combining semantic network analysis and social network analysis with selected audit bulletins, and found that the transformation of scientific and technological achievements and enterprise innovation, small and micro enterprises and entrepreneurship financing problems and decentralization of government are three main issues at present[5].

Sun Chengxian and Wang Zhaoquan (2008) proposed that the audit supervision of the budget execution of science and technology funds and scientific research topics should be carried out around the operational characteristics of financial science and technology funds and the management and use of subject funds[6]. Cui Huirong, Bao Yang, and Mei Dongbin (2016) put forward the suggestions of establishing a correct sense of responsibility, constructing scientific and standardized evaluation standards and strengthening the composite talent team for the three problems of the current financial science and technology funds performance audit[7]. Xing Zhanlei and Ma Guangqi (2019) provided countermeasure suggestions for establishing an audit linkage mechanism, applying scientific audit methods, implementing a result announcement system, and improving the comprehensive quality of auditors[8].

In response to the lack of research on the current status and effectiveness of science and technology innovation policy follow-up audit, this paper will analyze the results announcement based on the 2016-2021 Audit Office policy follow-up audit, enrich the current research, and propose optimization suggestions for the existing problems to promote the development and improvement of science and technology innovation policy audit.

3. The Current Situation of Science and Technology Innovation Policy Follow-Up Audit in China

At present, the follow-up audit of science and technology innovation policy carried out by the Audit Office of China mainly includes auditing the implementation of the central budget, the implementation of science and technology innovation policies and measures, and the use of national science and technology special funds.

Table 1 Science and Technology Innovation Policy Follow-Up Audit Content

Focusing Areas	Main Contents
Central Budget Performance	Mainly auditing the Ministry of Science and Technology, China Association of Science and Technology and other science and technology management departments, including financial funds budget management, the effectiveness of the use of funds and assets, internal management level, etc..
Implementation of Science and Technology Innovation Policies	Mainly including the audit of the management of science and technology funds, science and technology policy and institutional reform, innovation and entrepreneurship policy implementation in various regions and departments.
The Use of National Science and Technology Special Funds	Mainly focusing on the implementation of policies, the use of project funds compliance and efficiency, the transformation of project results, etc..
Rectification of Problems Found	Supervising the audited unit to rectify the problems on time and as required; the positive effect of the rectified issues.

From 2016-2021, the Audit Office issued a total of 22 follow-up audit reports on the implementation of major national policy measures, eight of which included science and technology innovation audits, and together with one special follow-up audit report involving science and technology innovation content, there were nine audit bulletins on science and technology innovation policy audits. This paper analyzes and introduces the current situation of the follow-up audit of China's science and technology innovation policies based on the audit announcements involving the audit of science and technology innovation policies from 2016-2021, in three aspects: promoting system construction, making audit recommendations and urging rectification, and summarizing and reflecting good experiences and practices.

Table 2 Science and Technology Innovation Policy Follow-Up Audit Results Announcements

Type of Announcements	Announcements involving science and technology innovation policy follow-up audit	Announcement of rectification of audited issues involving science and technology innovation policies
Policy Follow-up Audit Announcements: A total of 22 from 2016 Q1th to 2021 Q2nd	Year (Quarter):2016(2 nd), 2017(2 nd), 2017(3 rd), 2017(4 th), 2018(1 st), 2018(2 nd), 2018(3 rd), 2018(4 th), 8 in total	2016(2 nd),2017(2 nd), 2 in total
Special audit announcements involving science and technology innovation	No. 3 of 2016,a total of 1	-

3.1 Promoting System Construction

In 2016-2019, the audit promoted the improvement of the management mechanism of scientific research inputs and innovation requirements that do not adapt to the problems, respectively, and the relevant departments implemented the requirements of the General Office of the CPC Central Committee and the General Office of the State Council, and took measures to simplify relevant budgeting, decentralize management authority, increase incentives, strengthen system construction, and form a collaborative supervision and inspection mechanism in order to avoid duplication, multiple inspections and excessive inspections; promoted Central financial science and technology programs and scientific research funds project management reform, revise and improve the management system of scientific research funds, expand the autonomy of the use of scientific research funds pilot, carry out special actions to reduce the burden of scientific researchers, improve the management and evaluation system of scientific research project funds; accelerate the implementation of high-quality development of manufacturing and innovation-driven strategy, the Ministry of Science and Technology and SASAC jointly issued the “Opinions on Further Promoting the Innovation Development of Central Enterprises The Ministry of Finance, the Ministry of Science and Technology and other departments innovated the financial support and management mechanism of science and technology funds, and piloted the “lump sum system” for science and technology funds to stimulate the vitality of science and technology innovation and creation.

3.2 Audit Suggestions and Supervision of Rectification

From 2017 to 2019, the audits proposed to deepen the reform of the science and technology system, promote the integration of industry, academia and research, increase the support for major science and technology projects led by leading enterprises, improve the evaluation and incentive policies for scientific research, and improve the efficiency of the transformation of scientific research results; accelerate the high-quality development of the manufacturing industry and the implementation of the innovation-driven strategy, support and guide enterprises to increase investment in technological innovation, promote the transformation of scientific and technological achievements and Promote the application, effectively enhance the core competitiveness and increase the support for scientific and technological innovation and other recommendations. In response to the above suggestions, various departments actively improve: the Ministry of Science and Technology and other five departments jointly issued a special action notice, for innovation and entrepreneurship-related systems are still not perfect, the scope of clean-up, direction and other specific deployment; on the issue of low conversion rate of patent authorization, the National Development and Reform Commission and relevant departments are studying measures to crack the policy bottlenecks affecting the development of innovation and entrepreneurship, the Ministry of Education and other active promotion of scientific and technological achievements asset assessment projects for the record. The Ministry of Finance and the General Administration of Taxation will work with relevant departments to study and improve the tax policies related to the transformation of scientific and technological achievements; the Ministry of Finance authorizes the central-level research and development institutions and the competent departments of universities to handle the registration of state-owned asset property rights of scientific and technological achievements for

investment in the establishment of enterprises; the Ministry of Education has issued a document requiring the coordination and standardization of various types of supervision and inspection in the education system and the sharing of inspection results; the Ministry of Science and Technology, the Ministry of Finance, the Ministry of Education and other departments have established “5 + N” of the central and local linkage mechanism, the national science and technology plan related projects random sampling checks, etc..

3.3 Summarization of Good Experiences and Practices

According to the audit of each year, the relevant regions and departments actively adopt the audit recommendations, and there are mainly the following types of experience and practices worth promoting in the implementation of science and technology innovation policies and measures.

3.3.1 Accelerate Scientific and Technological Innovation and Promote the Transformation and Upgrading of the Real Economy

Tianjin increased policy and service support, through the introduction of “intelligent manufacturing ten” implementation rules and other policy measures to provide service support for the implementation of intelligent manufacturing enterprises, free to provide intelligent transformation assessment assessment, strong support for enterprise intelligence, industrial Internet, robotics industry and other 10 key areas of science and technology industry development. Yingtian, Jiangxi Province, by promoting the construction and application of mobile Internet of things, actively carry out the construction of “smart city”, build a public service platform for mobile Internet of things, and build a mobile Internet of things network covering the whole area.

3.3.2 Reduce Financing Costs and Ease the Burden of Science and Technology-Based Smes

Shanghai, Yunnan Province, Shandong Province, Chongqing, etc. to take effective measures to reduce the financing costs of science and technology-based SMEs. Shanghai has set up a policy financing guarantee fund of RMB 5 billion for science and technology-based and innovative SMEs in the growth stage, with preferential guarantee rates for high-quality enterprises; Yunnan Province cooperates with Agricultural Bank of China Yunnan Branch to set up a credit product “Science and Innovation Loan” for science and technology-based SMEs; Shandong Province further improves the financing cost of science and technology-based SMEs. Shandong Province further improves the information database of science and technology-based SMEs, increases the interest subsidy for SMEs and the risk compensation for cooperative banks; Chongqing explores the establishment of a knowledge value credit evaluation system and sets up a knowledge value credit loan risk compensation fund to provide free guarantees for credit loans to science and technology-based SMEs to support their innovation and entrepreneurship.

3.3.3 Timely Refund of Deposits and Reduction of Institutional Transaction Costs for Science and Technology-Based Smes

Gansu Province verifies and rectifies the problem of inappropriate implementation of preferential loan interest rate policies and expensive financing for science and technology-based SMEs, requires banks to verify and rectify loans that violate policy provisions on a case-by-case basis, interviews legal persons of guarantee institutions, and requires that no security deposits be collected from science and technology-based SMEs, which reduces institutional transaction costs.

3.3.4 Strengthen the Protection of Property Rights, Promote the Protection of Intellectual Property Rights and the Transformation of Achievements

Shanxi Province organized the Xi'an branch platform of the national public service platform for IPR operation to cooperate with universities and law firms, and successively established the Silk Road Innovation and Entrepreneurship Property Rights Protection Service Alliance and the Innovation and Entrepreneurship Property Rights Protection Bidding Service Platform to provide IPR protection, online bidding transactions and other services to help enterprises solve IPR problems.

4. China's Science and Technology Innovation Policy Follow-Up Audit Effectiveness

4.1 Remarkable Results of the Central Department Budget Execution Audit

According to the provisions of the Audit Law, the Audit Office conducts regular audits of the Ministry of Science and Technology, the Technical Association of the Chinese Association for Science and Technology and other science and technology management departments, while extracting secondary budget units for key audits and extending audits on relevant matters, and has issued announcements of budget execution audit results since 2005. In 2015, the Audit Office conducted a pilot phased implementation of budget execution audits for the Ministry of Science and Technology. The Audit Office effectively made recommendations on the problems found by the audit, actively urged rectification and improvement, and the specific rectification results were announced to the society through the audited departments. The audit found that the problems involved huge amounts of money, and through the audit, it played an important role in standardizing the budget management of science and technology financial funds, improving the efficiency of the use of funds and assets, strengthening the management of state-owned assets, and improving the management level.

4.2 The Audit of the Transformation of Scientific and Technology Achievement Projects Continues to Deepen

In the development of China's scientific and technological innovation, the low transformation rate of scientific and technological achievements and the low economic and social benefits of scientific research results are long-standing problems, and the current institutional mechanism for the transformation of achievements of scientific research units in China is still unsound, and the audit has also focused on this issue. In 2017-2018, the audit sampled the dual-innovation demonstration bases of universities, research institutes and other patent authorizations and the fulfillment of contracts for the transfer of scientific and technological achievements, and found that this led to The low rate of transformation of scientific and technological achievements in the innovation and entrepreneurship system is not perfect, scientific research assessment and evaluation mechanism is not scientific, scientific research institutions and technology-based enterprises approval process is complex and difficult to define, and scientific research team negative tax pressure, etc. In 2019, the reform of the science and technology system has made significant progress, and the funding and project management have been optimized while the investment in science and technology continues to increase, the audit focused on the implementation of science and technology policies, and found that in the allocation of resources, there are still many problems in the transformation of results and the opening and sharing of scientific research equipment. Through the audit, problems in the operation efficiency of scientific research funds, fund management level, assessment and evaluation mechanism, innovation and entrepreneurship mechanism, etc. were found and rectified, which is of great significance to the development of scientific and technological innovation in China.

4.3 Good Implementation of Science and Technology Innovation Policy Follow-Up Audit

The audit authority focuses on the implementation of science and technology innovation policies, and compares the policies and systems related to science and technology introduced by relevant regions and departments, reports on the work carried out, etc. with the Party Central Committee's science and technology innovation strategic planning, regulations and policies, focusing on the local government, scientific research project units and other policies not in place, not timely and actively urge rectification. At the same time, the auditor also reflects and promotes the excellent experience and practices of some regional departments in a centralized manner. Through the audit, the relevant departments effectively rectify the situation according to the audit recommendations, and play an important role in promoting the transformation and upgrading of the real economy, intellectual property protection, and reducing the financing and transactional costs of science and technology-based SMEs.

5. Recommendations of Optimizing China's Science and Technology Policy Follow-Up Audit

5.1 Establish and Improve the Performance Evaluation System for the Transformation of Scientific and Technology Achievements and Innovate Audit Techniques and Methods

At present, China's audit institutions have gradually shifted the focus of science and technology auditing from financial auditing to performance auditing, but not enough attention is paid to major national science and technology projects and transformation of R&D project results, which currently account for a low percentage of audit announcements, the results are not significant, and the evaluation system of science and technology innovation policy auditing has not been perfected. A performance evaluation system should be established on the transformation of scientific and technological achievements, scientific assessment of the effectiveness of the implementation of science and technology projects through the establishment of objective and easily quantifiable performance targets, and precise provision of support to address obstacles based on the results of performance assessment to enhance the efficiency and effectiveness of the transformation of scientific and technological achievements. At the same time, it is also possible to combine big data technology to integrate audit results, analyze the relevance of science and technology innovation policies, achieve full coverage of science and technology audit, and evaluate policies objectively and comprehensively.

5.2 Improve the Science and Technology Policy Auditing Results Announcement System

At present, there is still a lack of public disclosure of science and technology innovation policy audit results, and auditing institutions should improve the result announcement system and make the audit results available to the society. On the one hand, promoting the announcement of results is conducive to the improvement of audit quality and audit transparency, and the public can increase their awareness of science and technology innovation policy audit and social supervision of audited units, which is conducive to the implementation of audit results. On the other hand, the auditing work conducted by the auditing authority under public supervision helps to standardize and improve the government audit, thus promoting the improvement of science and technology innovation policy and related auditing work.

5.3 Strengthen the Construction of Audit Personnel and Make Overall Planning of Audit Forces

On the one hand, the science and technology innovation project has gradually improved the professional quality of policy auditors. At present, most of the auditors have a professional background in financial auditing, which cannot meet the need to conduct research on complex policies. Professional training should be conducted regularly for auditors, and outstanding auditors should be guided to learn professional knowledge related to science and technology innovation to improve their professionalism and practical ability to better solve various problems encountered during the implementation of science and technology innovation audit. It is also possible to enrich the professional background of the audit team through the introduction of talents and external experts, and adjust and optimize the structure of the auditors to meet the needs of science and technology policy auditing.

On the other hand, with the continuous development of market economy, enterprises play an increasingly important role in the science and technology innovation system, and the matters and objects involved in science and technology audits are increasing. When facing the challenge of insufficient audit power, auditing authorities can consider making full use of internal audit and social audit power, using their audit results for comparison and analysis, forming a mechanism for sharing audit inspection results, improving audit efficiency, and promoting full coverage of science and technology innovation auditing.

5.4 Pay More Attention to Science and Technology Innovation Policy Follow-Up Audit

The current international environment is complex and volatile, and for national development and security, the strategic independence of science and technology and independent innovation are

crucial. 2021, for the first time, science and technology policy was listed by the Central Economic Work Conference as one of the seven major policy orientations, and the 2022 Government Work Report clearly states that the innovation-driven development strategy should be implemented in depth and the foundation of the real economy should be consolidated and strengthened. Science and technology audits focus on the implementation of major national and regional science and technology policies and important science and technology-related systems, the use of financial science and technology funds and the development of science and technology projects, etc. With the development of the international situation, the role of science and technology-specific audits has become increasingly prominent. The “Notice of the Audit Office on the Issuance of Guidance on the Follow-up Audit of Major National Policies and Measures in 2020” does not include matters related to the national innovation-driven development strategy and science and technology audits into the key concerns of policy follow-up audits. It should raise the importance of science and technology audit work, include the innovation-driven development strategy into the policy follow-up audit key concerns, timely identify the current problems in the implementation of science and technology policies, analyze the causes and timely improve.

References

- [1] Cui Huirong, Bao Yang, Mei Dongbin. Exploration of financial science and technology funding performance audit[J]. Finance and accounting communication: on,2016,0(2):103-106
- [2]Jin Yishi. Analysis and prevention of audit risk of special funds for science and technology projects [J]. Contemporary Accounting,2021(4):130-132
- [3] Li Jie. Research on the design and application of performance auditing framework for science and technology funds - taking national science and technology major special funds as an example [J]. China CPA,2014(6):99-103
- [4] Sun Chengxian, Wang Zhaoquan. Current problems in the operation of financial science and technology funds and audit countermeasures [J]. China Science and Technology Forum, 2008(10):10-13
- [5] Tao Yuxia, Xie Zhihua, Du Haixia. Research on performance audit of public science and technology funds[J]. Finance and accounting communication: on,2015,0(6):97-100
- [6] Wang Qin, Bi Ying. The experience and inspiration of the performance audit of the transformation of scientific and technological achievements by the U.S. Audit Office[J]. China Audit, 2019,0(3):62-63
- [7] Wang Qin, Li Fan, Li Qianwen. Semantic network analysis of science and technology policy audit[J]. Finance and Accounting Monthly,2020,0(7):97-102
- [8] Xing Zhanlei, Ma Guangqi. Problems and countermeasures of science and technology innovation policy audit[J]. Fiscal supervision,2019,0(14):76-80