

Study on the Development of S & T Achievements Transformation Policy in Anhui Province—Based on the Quantitative Analysis of 101 Policy Texts

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Abstract

The transformation of scientific and technological achievements is the terminal chain of the whole innovation value chain. Converting scientific and technological achievements into realistic productivity is advantageous to realize the effective integration of science and technology with economy. The policy of transformation of scientific and technological influences the development and core competitiveness of local industries to varying degrees. In this paper, the analysis of policy statistics and multi-dimension are introduced into the research on the transformation of scientific and technological achievements in Anhui Province. Based on the sample of 101 scientific and technological achievements conversion policies from 2001 to 2018 in Anhui Province, this paper analyzes the time distribution, policy types, layout of policy-making subjects, and the use of different types of policy tools. Finally, through the above analysis, summarizing the problems existing in Anhui Province's scientific and technological achievements transformation policy and carrying out further reflections, in order to provide reference for the optimization and improvement of Anhui's scientific and technological achievements conversion policy in the future.

Keywords

Transformation of S & T Achievements, Policy Analysis, Policy Dimensions, Suggestions

1. Introduction

With the advancement of the innovation-driven development strategy and the

revision of the law on the Promotion of the Transformation of Scientific and Technological Achievements, the party and the state have issued a series of regional science and technology innovation policies, which have important strategic significance for China to build an innovative country and develop intellectual property rights. The regional science and technology innovation policy has a more direct effect on the main body of innovation, with clearer objectives, faster response, and more simple means [1]. As an important link to achieve the goal of scientific and technological innovation, the policy of transforming scientific and technological achievements has a positive impact on improving the conversion rate of local scientific and technological achievements. Further improving the policy system for the transformation of scientific and technological achievements in China, especially in the localities, has become an important part of promoting the transformation of science and technology.

In recent years, content (text) analysis has been increasingly used in policy research. Su Jingqin *et al.* (2012) used the national science and technology innovation policy and the Dalian science and technology innovation policy as a sample, using content analysis methods, selecting keywords and using Ucinet-6 software for data processing, and using network diagrams to display the analysis results, then comparing them [1]. Huang Cui *et al.* (2015) conducted a co-word and cluster analysis of 4707 policy documents issued by the central government from 1949 to 2010 to study the characteristics and trends of the changes in science and technology innovation policies and achieved good results [2].

The current academic research on the transformation of scientific and technological achievements is mainly based on text analysis, mainly focusing on the following aspects. First, the framework construction: Zhang Yong'an *et al.* (2016) analyzed the 45 scientific and technological achievements transformation policies promulgated by the state, Beijing Municipality and Zhongguancun from 1996 to 2014, and constructed a three-dimensional structural framework system for the transformation of scientific and technological achievements [3]. Second, the evolution of scientific and technological achievements transformation policy: Du Weijin *et al.* (2017) conducted a comparative analysis of the evolution of the Beijing-Tianjin-Hebei and Yangtze River Delta regions in terms of the objectives, policy tools, and policy implementation of scientific and technological achievements in the period from 1984 to 2015 [4]. Third, the comparative level of central and local scientific and technological achievements transformation policies: Lu Zhangping (2012) analyzed the similarities and differences between the state and Jiangsu province's scientific and technological achievements transformation policies in terms of policy content, policy structure, policy objectives, policy tools and policy implementation effects [5].

According to the database search, as of June 2018, there are few academic research papers on the transformation of scientific and technological achievements in Anhui Province, which is based on the "transformation of scientific and technological achievements in Anhui Province". It began in 1993 [6]. The re-

search on the transformation of scientific and technological achievements in Anhui Province involves many aspects such as colleges and universities, agriculture, performance evaluation and transformation platform construction. It mainly focuses on the problems existing in the transformation of scientific and technological achievements, and finally settles on countermeasures and suggestions. In terms of colleges and universities, Liang Xiangjun *et al.* (2004) analyzed the ways and means of transforming scientific and technological achievements in colleges and universities in Anhui Province, pointing out problems such as insufficient reserve of results, unclear orientation, and serious loss of high-level talents, and putting forward countermeasures and suggestions from deepening the reform of science and technology system in colleges and universities and strengthening the protection of intellectual property rights [7]. In agriculture, Yao Ningguang (2016) provides a way of designing the transformation platform of agricultural scientific and technological achievements based on the service system architecture, including product information, technology demand information services and comprehensive services to promote the transformation of scientific and technological achievements [8]. Zhao Jingqi *et al.* (2016) proceeded from overall situation, through the use of interviews, telephone and other ways to understand the status of the transformation of scientific and technological achievements of some colleges and universities in Anhui, research institutes and enterprises, and put forward macro suggestions on the problems of imperfect policy system, lack of consciousness of transformation, imperfect intermediary service system and so on [9].

To sum up, scholars have long developed the research on the transformation policy of scientific and technological achievements, but there are still shortcomings: 1) the research based on the policy text analysis stays at the national level, and the conclusions and countermeasures are not enough to guide the guidance of the local specific work; 2) the research on the transformation policy of Anhui scientific and technological achievements is less and restricted in a certain aspect, and there is no comprehensive and detailed analysis; 3) few people grasp the transformation of scientific and technological achievements in Anhui province through the analysis of the policy text.

Based on the above research, this paper analyzes the sample of various scientific and technological achievements transformation policies formulated by the Anhui provincial government and various departments from 2001 to 2018 (the choice of 2001 as the starting point is because the earliest policy involved in the transformation of scientific and technological achievements began in 2001), and conducts a subdivision perspective on the main body, annual distribution and development trends. Analyzing the specific content and distribution under different dimensions covered by the policy of transforming scientific and technological achievements, and sorting out the development status of scientific and technological achievements in Anhui Province and its policy shortcomings. Finally, propose targeted countermeasures.

2. Text Selection and Analysis Dimensions of the Translation Policy of Science and Technology Achievements in Anhui Province

2.1. Policy Text Selection and Analysis Method

The selection of Anhui's scientific and technological achievements transformation policy in this paper includes the following ways: 1) Searching on the websites of Peking University and the Law Star with the keywords of "Anhui Province" and "Transformation of Scientific and Technological Achievements", and then analyzing them one by one; 2) In view of the fact that the above websites cannot cover all policy texts, the websites of the Anhui Provincial Government and its various departments are searched for with the words "transformation of scientific and technological achievements", "technology transfer", "technical transactions" and "incubators"; 3) Screening directly related to "transformation of scientific and technological achievements". In order to ensure the integrity and relevance of the collected policies, the various provisions of the collected policies were selected, and the less relevant policies were eliminated. Finally, get 101 texts of this paper.

This paper uses the content analysis method to quantify the policy content, use the document search function to input the above keywords, and then read the context of the keyword part, and summarize the policy tool dimension to which it belongs; then using Excel to perform basic data statistics and chart generation, and visually reflect the policy focus.

2.2. Division of Analysis Dimension

Based on the content of the policy text of "Promoting the Transformation of Scientific and Technological Achievements", this paper draws on the classification of science and technology innovation policies by Rothwell and Zegveld, and combines the discussion and analysis of the transformation of scientific and technological achievements by scholars in recent years. It is intended to be subdivided into the following 13 analytical dimensions. As shown in **Table 1**. Undoubtedly, the macro goal is to lead the overall and directional role. In addition, capital is the basis for R & D, pilot and transformation of results; Platform base construction is the carrier of the transformation of scientific and technological achievements, and is of great significance to the transformation of scientific and technological enterprises and universities in the initial stage and the growth stage; Talents are the key subject of the transformation of scientific and technological achievements. The introduction and cultivation of high-level talents is conducive to improving the conversion rate of scientific and technological achievements and accelerating the transformation of scientific and technological achievements. This is one of the reasons why all localities have joined the "grabbing war".

Since the deepening of the reform of the science and technology system, intellectual property management and protection have received more and more attention.

Table 1. Policy analysis dimension and its main content.

The Dimension of Policy Analysis	Main Content
Macro goal	The words “accelerating/encouraging the transformation of scientific and technological achievements” appearing in the guiding ideology/overall thinking/overall goals/general requirements fall into this category.
Capital investment	It mainly refers to the government’s financial support for the transformation of scientific and technological achievements, which is generally direct, such as the R & D funds, various special funds, conversion funds, and various direct subsidies.
Construction of platform base	It mainly includes national (key) laboratories, R & D centers, R & D bases, innovation demonstration bases, high-tech parks, R & D associations, technology business incubators, university science parks, productivity promotion centers, scientific and technological achievements transfer and transformation demonstration zones, and technology transfer institutions. etc.
Talent aspect	Including scientific and technological personnel training and introduction, talent planning and training, talent incentives, evaluation and assessment, as well as a series of measures to encourage them to engage in scientific and technological achievements transformation activities.
Tax incentives	It mainly includes tax exemptions, subsidies, tax rate concessions, and pre-tax deductions for research and development expenses for enterprises, various types of technology business incubators, etc., and tax incentives for the conversion of income from results, such as the conversion of scientific and technological achievements rewards the payment of personal income tax in installments and so on.
Protection and management of intellectual property	The main contents include the transformation of intellectual property rights, the protection of rights and interests of job inventors, the construction of intellectual property service system, the support of various incubation bases, the establishment of rights protection centers for demonstration bases, and the transformation of intellectual property rights; On the other hand, it involves the management of results of innovations such as enterprises, universities, and research institutes.
Industry-University-Research (Use) Cooperation	It mainly includes the cooperation of industry, academia and research to establish a transformation platform, docking platform, innovation alliance, transformation agency, and improving the conversion rate of scientific and technological achievements.
Excitation mechanism	It mainly includes the assessment and reward for the work units for the transformation of scientific and technological achievements, the dividends, equity incentives, bonuses and other aspects of scientific research personnel and other staff members who have achieved effective transformation of scientific and technological achievements.
Regulation and system construction	It mainly includes the content of “improving the xxx system”, the provisions on the ways, methods and directions of the transformation of scientific and technological achievements from the macro level, and the legal responsibilities involved in the process of describing the transformation of results.
Transformation of scientific and technological achievements of military and civilian integration	It mainly includes the transformation of military and civilian integration of scientific and technological achievements, the transformation of military and civilian achievements and industrialization bases, the transformation platform of military and civilian integration of scientific and technological achievements, and supports science and technology service organizations to integrate military and civilian technology into comprehensive services.

Continued

Transformation of agricultural scientific and technological achievements	It mainly includes agricultural science and technology achievements transformation funds, funds, agricultural science and technology demonstration parks, and the construction of agricultural science and technology achievements transformation bases, agricultural technology promotion, improvement of agricultural science and technology achievements transformation and application capabilities, agricultural science and technology commissioners and agricultural science and technology experts and training, agricultural industrialization development, the construction of agricultural science and technology innovation system and other content.
Scientific and technological achievements information exchange and intermediary services	It mainly includes scientific and technological achievements project library, technology intermediary service platform, technology trading market/platform, collaborative technology innovation network, scientific and technological achievements transformation intermediary, and technology transfer service organization and so on.
Financial support	It mainly includes the support of various financial institutions, venture capital institutions and their derivative agencies for the main body of transformation of scientific and technological achievements, such as loan, guarantee, venture capital, risk compensation mechanism and so on, and the injection of various social capital.

The government and science and technology departments have fully managed and protected the intellectual property rights created by various innovation entities, and strived to guide and encourage enterprises to become the mainstay of the transformation of scientific and technological achievements; Through a series of measures to encourage universities and research institutes to become the main front for the output and transformation of scientific and technological achievements; encourage the “industry, education and research” to collaborate and innovate, and guide them to become the mainstream of scientific and technological innovation; The introduction of relevant incentive policies fully mobilized the enthusiasm of innovative subjects and accelerated the transformation of scientific and technological achievements into real productivity; Strengthening the construction of scientific and technological achievements information exchange and technology intermediary services, the purpose is to balance supply and demand information, promote the sharing of technical information, increase the exchange of results between the various entities, and ultimately promote the transformation of results. The effective combination of all dimensions has jointly constructed a policy system for the transformation of scientific and technological achievements.

3. Statistics and Analysis of Policies on Transformation of Scientific and Technological Achievements in Anhui Province

3.1. Time Distribution on the Transformation of Scientific and Technological Achievements Policy

Through the statistical analysis of the relevant policy texts of the transformation of 101 scientific and technological achievements in Anhui Province, the number

of annual documents on the transformation policy of scientific and technological achievements in Anhui province from 2001 to April 2018 was obtained, as shown in **Figure 1**. During the period of 2001-2018, the policies related to the transformation of scientific and technological achievements in Anhui Province were generally in a state of volatility, and the number was relatively unstable. There were two peaks: first, the number of policies increased significantly in 2006, and reached the peak of the first phase in 2011. In this year, the number of policies exceeded 10 majors for the first time; the second was a steady increase in 2015-2017 and reached the peak in recent years in 2017.

The emergence of the peak in the first phase is related to the “Environmental Planning Outline of Guangan Implementation of Strengthening the Capacity of Independent Innovation” issued by the State Council in 2006, the Science and Technology Progress Law of the People’s Republic of China, which was reviewed and approved on December 29, 2007, the “Notice of the General Office of the State Council on Forwarding the Development and Reform Commission and other departments on promoting the industrialization of independent innovation achievements” on December 15, 2008 (referred to as “several policies”). Whether it is the central or local, the policy of transforming scientific and technological achievements with the goal of independent innovation has shown a substantial increase [10]. In addition, the purpose of the “Scientific and Technological progress law” is to promote scientific and technological progress and promote the transformation of scientific and technological achievements into real productive forces. In the “Several Policies”, local and various entities are actively encouraged to implement the transformation of scientific and technological achievements, and various localities have responded.

The peak of 2017 is largely due to the revision of the Law of the People’s Republic of China on Promoting the Transformation of Scientific and Technological Achievements in 2015. Based on this, in 2016, a series of supporting measures, such as the “Several Provisions of the People’s Republic of China on Promoting the Transformation of Scientific and Technological Achievements” and the Notice of the Office of Printing and Distributing the Action Plan for Promoting the Transformation of Science and Technology Achievements, were introduced. Under the unified leadership of the central government, all localities ushered in a response to the policy measures for the transformation of scientific and technological achievements. It can be seen that the changes in the number of local policies are subject to central key events and the impact of important policies is great.

3.2. Policy Types and Formulating Subjects of Transformation of Scientific and Technological Achievements Subject

Through the statistics on the types of science and technology achievements transformation policies in Anhui Province, seven types of policies were obtained. The policy types and their specific distribution are shown in **Table 2**. During this period, the types of policies which were most involved are “notices”, more

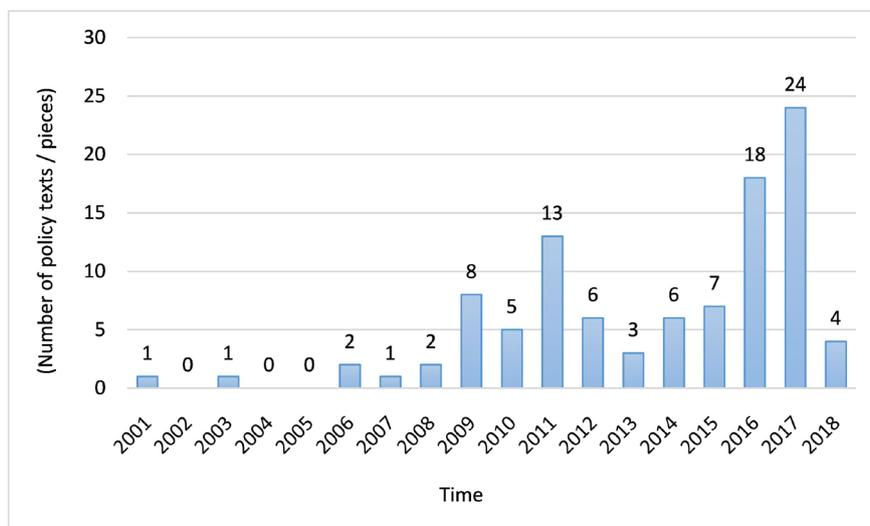


Figure 1. Statistical chart on the number of documents issued by Anhui Province in science and technology achievements in 2001-2018.

Table 2. Types of scientific and technological achievements transformation policy.

Order number	Policy type	Quantity (piece)	Percentage (%)
1	Rules	4	3.96
2	Regulation	3	2.97
3	Notice	70	69.30
4	opinion	29	28.71
5	Outline	6	5.94
6	planning	20	19.80
7	Program	8	7.92
	Total	140	138.60

Source: Inductive according to 101 policy samples. **Note:** The reason why the sum of the number of policies here is 140 instead of 101 is because the notification policy of “Notice on Printing xx” has a relationship with “Rule, Regulation, Opinion, Outline, Plan, Program”, which includes double statistics (For example, “the Notice on Printing and Distributing the Implementation Rules for the Science and Technology Awards of Anhui Province”, this policy belongs to both the “notice” category and the “rules” category, so it will be counted once in the “notice” and “rules”). However, the base of the percentage is still based on the actual sample policy number 101, so the percentage value is too large, but does not affect the overall trend and compare with each other.

than half; followed by opinions, plans, programme, outlines, rules and regulations. Among them, the local regulations formulated by the Standing Committee of the Anhui People’s Congress which are directly or indirectly related to the transformation of scientific and technological achievements only had three. It is not difficult to see that the number of local laws and regulations on the transformation of scientific and technological achievements is slightly insufficient, and the intensity of planning policies is relatively high, accounting for 19.8%; the number of policies and regulations such as the implementation rules and specific programs is small, accounting for only 11.88%.

As shown in **Figure 2**, in the 101 policy texts, it is mainly based on single agencies or departments, the ratio is 84%. And there are only 16 joint publications by two agencies or departments; the departments or agencies that issue separate articles are mostly the General Office of the People's Government of Anhui Province, the People's Government, and the Science and Technology Department of Anhui Province. The department that issued the joint document is mostly in the Science and Technology Department of Anhui Province and the Finance Department of Anhui Province, as shown in **Figure 3**. It can be seen that the provincial government, the government office, and the science and technology department are the primary subjects of the policy of transforming scientific and technological achievements, which demonstrates that they have fully fulfilled their respective responsibilities; The second is followed by the Anhui Provincial Economic and Information Commission, the Standing Committee of the National People's Congress, the Department of Finance, and the Grain Bureau. Among them, the Standing Committee of the People's Congress of Anhui Province adopted local regulations and played a guiding and leading role; The number of joint publications is relatively large, which indicates that Anhui Province has relatively improved cooperation in the formulation of scientific and technological achievements transformation policies.

In addition, among the 16 policies jointly issued by the multi-sector, the Department of Finance of Anhui Province and the Government Finance Office of Anhui Province has appeared 13 times, which indicates that the aspects of the finance and taxation are emphasized in the process of scientific and technological achievements transformation in Anhui Province.

3.3. Analysis on the Application of Policy Tools Used in Transformation of Scientific and Technological Achievements

Based on the statistics of 101 policy samples of scientific and technological achievements transformation in Anhui Province from 2001 to April 2018, the application of each analysis dimension is obtained, as shown in **Table 3**. The 13 types of analysis dimensions mentioned above have appeared 410 times in 101 policy texts, and the most frequent ones are related to the "Scientific and Technological Achievements Transformation Carrier (Platform Base Construction)", and accounting for 14.88%. The second is "information exchange of scientific and technological achievements and intermediary services of science and technology" and "industry-university-research (use) cooperation", accounting for 11.46% and 11.22% respectively which indicated that the construction of various incubators, bases for scientific and technological achievements transformation, technology/property rights trading platform and intermediary service institutions for scientific and technological achievements transformation in Anhui Province were relatively good and valued. It is the focus and main trend of transformation of scientific and technological achievements in recent years. At the same time, Anhui Province pays special attention to the coordinated development of production, teaching and research, which is also in line with the current

trend of coordinated development of science and technology at home and abroad. With the construction and perfection of the “1 + 2 + 20 + n” operation system, the intellectual property operation platform and the platform for transforming scientific and technological achievements have become the focus of attention and exploration in various provinces in recent years. Anhui Province is also adopting scientific research projects such as soft science and relying on resources such as universities and scientific research institutions, actively explore the construction of one-stop platform for “R & D, transformation and industrialization”.

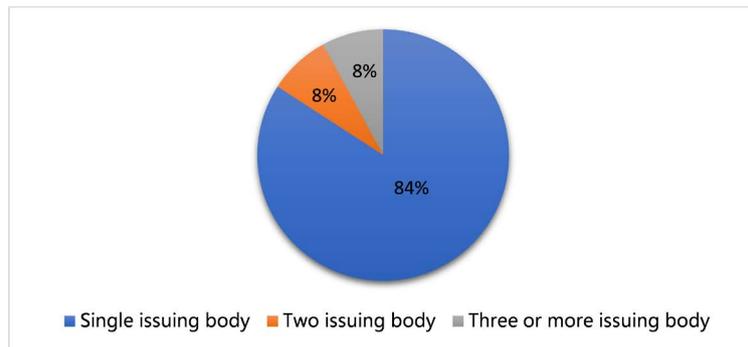


Figure 2. 2001-2018 years of joint publication of policies on transformation of scientific and technological achievements in Anhui. Source: Based on statistical analysis of 101 policy samples.

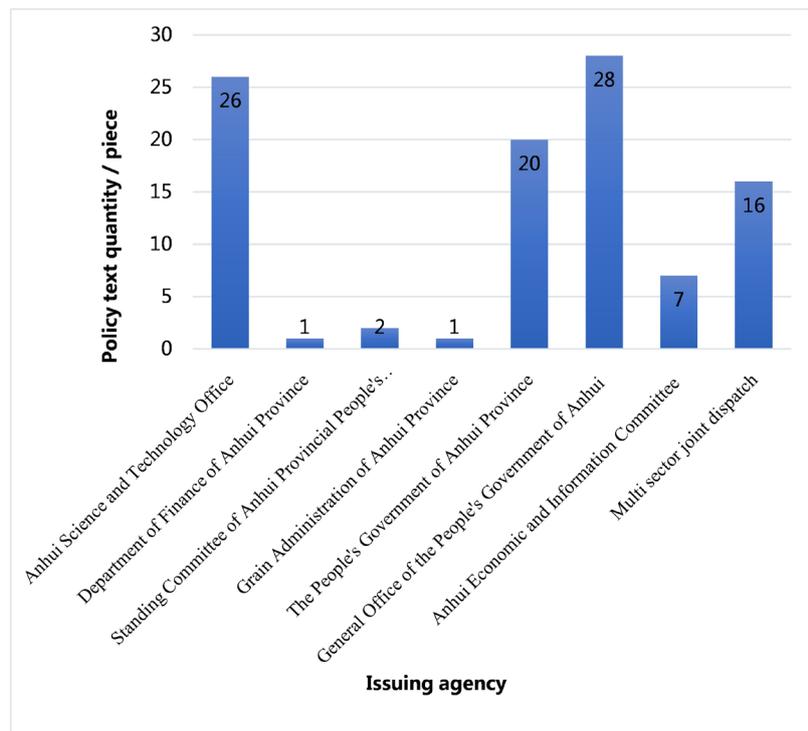


Figure 3. Statistics on the development of various departments and their publications in the transformation of science and technology achievements in Anhui Province from 2001 to 2018. Source: Based on statistical analysis of 101 policy samples.

Table 3. Statistics on the number of dimensions of each segment of Anhui Province's scientific and technological achievements transformation policy.

Policy Content Classification	Frequency of Occurrence (times)	Percentage (%)
Macro goal	29	7.07
Capital investment	36	8.78
Construction of platform base	61	14.88
Talent aspect	26	6.34
Tax incentives	5	1.22
Protection and management of intellectual property	40	9.76
Industry-University-Research (Use) Cooperation	46	11.22
Excitation mechanism	38	9.27
Regulation and system construction	22	5.36
Transformation of scientific and technological achievements of military and civilian integration	12	2.93
Transformation of agricultural scientific and technological achievements	30	7.32
Scientific and technological achievements information exchange and intermediary services	47	11.46
Financial support	18	4.39
Total	410	100

Source: according to the 101 policy samples of Anhui Province.

Thirdly, the “Intellectual Property Protection and Management”, “Incentive Dimensions” and “Capital Investment” dimensions are used significantly, and the frequency of occurrence accounted for 9.76%, 9.27% and 8.78% respectively. In the protection and management of intellectual property, corporate intellectual property management accounted for 27.5%, the management of results in universities and research institutes accounted for 42.5%. This indicates that Anhui Province has gradually put the transfer of scientific and technological achievements on the agenda, paying more and more attention to the management and protection of intellectual property, focusing on the protection and management of scientific and technological achievements of universities and research institutes, and focusing on enhancing the status and role of the core subjects of enterprise transformation. At the same time, giving incentives to teams and individuals who have made important contributions to the transformation of scientific and technological achievements, and giving direct financial support to teams and individuals who have implemented the transformation of scientific and technological achievements, and adopting a multi-pronged approach to promote the transformation of scientific and technological achievements into real productivity.

4. The Perfection of the Transformation Policy of Scientific and Technological Achievements in Anhui Province

4.1. Timely Update and Develop Local Regulations

The policy of higher diffusion intensity is mainly based on legal policies [11]. According to statistics, no matter the state or Anhui Province, there are few laws and regulations on the transformation of scientific and technological achievements. According to the statistics of Wang Yongjie and others, there is only one law on the transformation of scientific and technological achievements, that is, the Law of the People's Republic of China on the Promotion of the Transformation of Scientific and Technological Achievements (Hereinafter referred to as the "Transformation Law") [12]. This article will also add another, that is, the Law of the People's Republic of China on the Scientific and Technological Progress, the latest revision of the law was in 2007 and has not been updated for 11 years. Among the 101 policy texts counted in this paper, there are only three local regulations, including the "Regulations on Promoting the Transformation of Scientific and Technological Achievements in Anhui Province", "Regulations on Promoting the Development of Strategic Emerging Industries in Anhui Province" and "Regulations on Science and Technology Progress in Anhui Province".

According to the time estimation, the "Transformation Law" was enacted in 1996, and the "Regulations on the Promotion of the Transformation of Scientific and Technological Achievements in Anhui Province" was passed in 2003. It is undoubtedly the subordinate law established in accordance with the "Transformation Law", however, in terms of time linkage, it is relatively lagging behind some provinces. In 2015, the "Transformation Law" was revised, and the market-oriented pricing mechanism for scientific and technological achievements and the evaluation system for scientific research achievements were improved. The incentives were increased, and the transformation of scientific and technological achievements was once again pushed into a new upsurge. However, Anhui Province has not yet adjusted the lower-level law "Regulations on the Promotion of Scientific and Technological Achievements in Anhui Province" according to the revised "Transformation Law". Compared with other provinces in the Yangtze River Delta, Anhui Province has a backward trend, as shown in **Table 4**. As of May 2018, the "Regulations on the Promotion of the Transformation of Scientific and Technological Achievements in Anhui Province" is still in the stage of drafting the revised draft. It is worth noting that the "Implementation Rules for the Promotion of the Transformation of Scientific and Technological Achievements in Anhui Province" as the lower law of the "Regulations on the Promotion of the Transformation of Scientific and Technological Achievements in Anhui Province" was revised on September 20, 2017, and there was a chaotic situation in which the lower law was revised before the upper law. This is inconsistent with the law.

In addition, Anhui Province has presented too many departmental regulations

Table 4. Formulation and revision of the regulations on promoting the transformation of scientific and technological achievements in the provinces of the Yangtze River Delta.

Province	Set Time	Revision Time
Shanghai	April 20, 2017	April 20, 2017
Zhejiang	January 16, 2004	March 30, 2017
Jiangsu	October 17, 2000	September 29, 2010
Anhui	October 24, 2003	Being revised

Source: According to the official website of the Science and Technology Department of the three provinces and one city in the Yangtze River Delta.

and too few laws and local regulations. This has resulted in the transformation of scientific and technological achievements by various cities and towns in various non-special normative documents in accordance with unified laws and regulations. It leads to its lack of novelty and attractiveness, and is easy to cause confusion. It is also easy to lead to the weak stability of the local science and technology achievements transformation policy, and is also easy to give researchers the feeling that the results are not adequately protected by legal protection, and the enthusiasm of scientific researchers cannot be fully mobilized.

In view of this, with the rapid development of science and technology, policy regulations and actual development should follow suit. Anhui Province should thoroughly study the basic dimensions and specific systems of the revised Law on the Promotion of the Transformation of Scientific and Technological Achievements. On this basis, understand the reform trend and basic spirit of the upper-level law. In particular, paying attention to the scope of parameters of specific provisions, and amending the Regulations on Promoting the Transformation of Scientific and Technological Achievements as soon as possible without violating the regulations. Pay attention to the formulation of localized specific implementation rules for market-based pricing mechanism, incentives and scientific research results evaluation system, and clarify the specific proportion standards for the province's scientific and technological achievements rewards. In this process, focusing on the formulation of localized specific implementation rules for market-based pricing mechanisms, incentives, and scientific research results evaluation systems, and clarifying the specific proportion standards for the province's scientific and technological achievements awards, transformation income distribution, and job-related scientific and technological achievements transformation income, to formulate targeted local regulations. At the same time, Anhui Province must ensure the duration, continuity and operability of the policy, and fully protect the legitimate rights and interests of researchers.

4.2. Improving the Policy Sensitivity

In recent years, although the number of scientific and technological achievements transformation policies in Anhui Province has steadily increased, the absolute value is still at a low level. Among 101 policy texts counted in this paper,

the two important policies for the transformation of scientific and technological achievements: the Regulations on Scientific and Technological Progress of Anhui Province and the Detailed Rules for the Implementation of Scientific and Technological Incentives of Anhui Province were respectively formulated in 2008 and 2009, and as of May 2018, there was no sign of any change. Generally speaking, the “Regulations” and “Rules” of Anhui Province on the transformation of achievements and other policies are updated at a lower frequency. From a realistic perspective, the areas involved in the transformation of scientific and technological achievements have been expanding and the speed of renewal has accelerated. A series of supporting measures such as fiscal policy, taxation policy, and intellectual property policy have been improved along with changes in domestic and international trends. However, the low update frequency reflects the low sensitivity of policy-making institutions, which cannot smell the new changes in society at the first time, and is not conducive to the innovation and development of regional science and technology, so the sensitivity needs to be improved.

According to the above analysis, we can see that the government and the science and technology management departments are the main policy makers for the transformation of scientific and technological achievements, and in the process of policy-making, paying more and more attention to cooperation between various departments. Therefore, all departments, especially the competent authorities, should always focus on international cutting-edge technology, and pay attention to the formulation and implementation of policies such as basic research and development and transformation of achievements in emerging industries and cutting-edge technologies. As can be seen from the previous article, Anhui Province now pays more attention to the transformation of agricultural scientific and technological achievements, the transformation of hygiene and health science and technology achievements, the transformation of electronic information technology achievements and biopharmaceutical technology development and transformation of achievements, and Keeps up with the development of the era of “precise poverty alleviation”, “new medicine” and “big health”. However, with the further development of a new generation of artificial intelligence, quantum communication, and intelligent voice, the policy of transforming scientific and technological achievements should continue to expand the scope of coverage, deepen the frontier science and technology fields, and escort the development and industrialization of new technologies and products by the means of finance and taxation and others.

4.3. Systematize Intellectual Property Management and Protection Systems

In the 101 policy texts counted in this article, in the dimension of intellectual property protection and management, the government is committed to building an intellectual property management system and an early warning and prevention mechanism to support the establishment of a rapid rights protection assis-

tance center in the independent innovation demonstration zone and industrial agglomeration development base of the United Nations. The government also encouraged innovative entities to convert patents and give them a series of rewards. However, there are no systematic and specific regulations for the management of intellectual property. There is less involvement in the quality of intellectual property, outcome indicators, pre-conversion assessments, and the development of professionals in the transformation of scientific and technological achievements.

With the increasing number of intellectual property infringement cases, the importance of intellectual property management and protection is self-evident in the era of big data informatization of the Internet +. Therefore, the government should strictly control the quality, attach importance to the evaluation of scientific and technological achievements and the policy of professional transformation of personnel training, the formulation of implementation rules and the setting of output indicators to promote the development and industrialization of the research and development stage of scientific and technological achievements. The government should give priority to protection, supplemented by incentives, and use basic policy tools to manage and protect intellectual property rights in all aspects of R & D, production testing, commercialization and industrialization from the perspective of innovative value chains and areas of scientific and technological activities. At the same time, it should pay more attention to enhancing the enthusiasm of scientific research personnel, especially the enthusiasm of scientific research personnel in universities and research institutes. In addition, marked by the output of major achievements and guided by intellectual property, and introduced specific evaluation and assessment systems for various indicators related to the transformation of scientific and technological achievements, and quantify the assessment standards, so that they become passive and active, and then increase the conversion rate of scientific and technological achievements.

5. Conclusions

Based on 101 policy texts, this paper divides all policy texts into 13 dimensions. Starting from the time distribution of science and technology achievement transformation policies, the types of policies and the application of the main body and policy tools, this paper analyzed the development of science and technology achievements transformation policy in Anhui Province. After systematic analysis, the following conclusions were drawn: 1) From 2001 to 2018, the number of scientific and technological achievements transformation policies in Anhui Province reached two peaks in 2011 and 2017 respectively, indicating that the change in the number of local policies is greatly affected by key central events and important policies; 2) The types of science and technology achievements transformation policies in Anhui Province mainly include the rules, regulations, notices, opinions, outlines, plans, and programs. The most important

type is the “notification” category, and the main body of policy formulation is based on one subject, which is relatively single; 3) In recent years, the application of the policy tools for the transformation of scientific and technological achievements in Anhui Province is mainly based on “platform and base construction, technology intermediary services and cooperation between industry, universities and research institutes”, and many other tools are involved. In view of this, this paper proposed the development proposals for timely updating and developing local regulations, improving the policy sensitivity and systematizing intellectual property management and protection systems. Hoping to provide reference for the Anhui’s scientific and technological achievements transformation policy in the future.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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