

Quantitative Analysis of the Evolution of China's Research Integrity Policy (Postprint)

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Abstract

[Purpose/Significance] This study analyzes the current status and evolution of research integrity policies issued by China's central government and local responses, aiming to grasp the development trends and stage-specific priorities of these policies, provide support for research integrity construction, and offer assistance for research on the development of China's research integrity policies.

[Methods/Process] We collected and compiled 108 central government policies related to research integrity and 80 local policies that reference and implement central policies. Employing policy text computation and quantitative policy literature methodologies, we systematically analyzed the current status and evolution of policy release dates, issuing institutions, policy content, and policy response situations, identifying characteristics of policy release timing, key institutional features, changes in content emphasis, and features of policy responses.

[Results/Conclusions] Governance measures related to research integrity were already involved as early as 1980. In recent years, the number of policy documents issued has surged around the needs of national innovation construction, with a more resolute stance on governance and more concrete measures and approaches. The governance of research integrity is led by the central government, with the Ministry of Education and the Ministry of Science and Technology being the main management departments at various stages. Relevant departments have gradually joined for collaborative governance, currently forming a synergistic pattern. The focal points, targets, and methods of research integrity governance vary slightly among different departments. However, overall, in terms of methods and objectives, there has been a gradual shift from self-discipline and moral education to simultaneous emphasis on institutional construction and moral construction. The vast majority of local provinces and municipalities across the country have actively responded to central policies and taken measures for research integrity governance, but there is relatively a certain time lag.

Full Text

Quantitative Analysis of the Evolution of Research Integrity Policy in China

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Abstract

[Purpose/Significance] This paper analyzes the current status and evolution of research integrity policies issued by China's central government and local responses, aiming to grasp policy development trends and stage-specific priorities, provide support for research integrity construction, and offer insights for studying the development of China's research integrity policies. **[Method/Process]** We collected 108 central government policies related to research integrity and 80 local policies implemented in reference to central policies. Using policy text computing and quantitative policy document analysis methods, we examined the publication timing, issuing institutions, policy content, and response patterns, revealing temporal characteristics of policy issuance, features of key institutions, shifts in content emphasis, and policy response patterns. **[Results/Conclusions]** First, governance measures related to research integrity can be traced back to 1980, with a sharp increase in recent years driven by national innovation demands, reflecting a more resolute governance attitude and more specific measures. Second, research integrity governance is led by the central government, with the Ministry of Education and Ministry of Science and Technology serving as the primary management departments across all stages. Relevant departments have gradually joined collaborative governance, forming a synergistic pattern. Third, while different departments have slightly different focuses, targets, and methods for research integrity governance, the overall approach has shifted from self-regulation and moral education to a dual emphasis on institutional and moral construction. Fourth, the vast majority of local provinces and municipalities have actively responded to central policies by implementing research integrity governance measures, though with some time lag.

Keywords: research integrity; policy text computing; quantitative policy document research; policy evolution; policy analysis

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1. Introduction

In recent years, research integrity has attracted increasing attention as more cases of research misconduct have been exposed, sparking widespread discussion within the scientific community and society at large. Notable cases include the 2016 “Han Chunyu Incident,” which generated heated debate over whether the research constituted misconduct; the 2017 retraction of 107 papers by Chinese scholars from *Tumor Biology* due to fraudulent peer review; the 2018 case of Professor Liang Ying from Nanjing University, whose 120+ papers were found to involve plagiarism and duplicate submission, leading to disciplinary action and removal from her position; and the early 2019 case of actor Zhai Tianlin, whose doctoral degree was revoked after academic misconduct was discovered following his statement “I don’t know what CNKI is.”

Since the 1990s, the Chinese government has emphasized academic ethics and research conduct. The 2005-2006 Korean “Hwang Woo-suk scandal” and China’s own “Hanxin Incident” prompted authorities to strengthen research integrity construction. In 2010, then Vice Premier Liu Yandong stated at a research integrity symposium that “we must strengthen supervision and management, increase punishment for research misconduct, and never allow fraud and plagiarism to gain a foothold.” In 2017, President Xi Jinping mentioned “innovation” multiple times in his 19th Party Congress report, emphasizing the need to “promote integrity construction.” In 2019, Premier Li Keqiang’s Government Work Report also called for “punishing academic misconduct and curbing impetuous practices.”

From a policy perspective, the Chinese government has issued numerous policies to address research integrity issues over the years. Policy documents reflect government social management practices. Traditional policy research relies on experts’ social-historical knowledge to interpret texts, while emerging methods such as quantitative policy document analysis and policy text computing introduce statistical, bibliometric, content analysis, network analysis, and text mining techniques, reducing uncertainty and subjectivity in qualitative interpretation. Quantitative analysis of policy documents can reveal characteristics of policy actors, current status, and thematic evolution. Existing research has yielded fruitful results, including bibliometric studies of China’s science and technology policies since 1949, quantitative analyses of public policy diffusion using technology transfer policies as examples, content analyses of China’s research funding management policy evolution, and quantitative studies of central government innovation support policies.

However, few studies have quantitatively analyzed China’s research integrity policies, and none have examined local responses to central research integrity

policies. Current research on research integrity in China focuses more on concepts, manifestations, influencing factors, institutional construction, and evaluation systems. Some policy text computing studies have analyzed U.S. policies on research misconduct or examined characteristics of Chinese research integrity policies to provide recommendations. Overall, analysis of the evolution of China's research integrity policies remains limited. Examining policy evolution reveals changes in policy objectives and themes embedded in government documents and reflects shifts in governance philosophy. Analyzing local responses to central policies also helps understand how central policies diffuse to local levels.

This study employs policy text computing and quantitative policy document analysis to examine central research integrity policies and local response patterns, aiming to understand policy development trends and provide support for research integrity construction.

2. Data Sources and Analytical Methods

2.1 Central Policy Data Collection and Analysis

2.1.1 Central Policy Text Collection China has issued numerous documents related to research integrity in recent years, including laws, regulations, rules, and normative documents. These range from programmatic documents containing research integrity provisions to documents directly addressing research integrity with specific measures and opinions. Our policy text data sources include: (1) the *Compilation of Laws, Regulations, and Documents on Research Integrity Construction* compiled by the Ministry of Science and Technology's Research Integrity Construction Office in 2017, which contains over 80 authoritative documents; (2) the "Beida Fabao" (<http://www.pkulaw.cn>) legal database, where we searched for policies using keywords including "research integrity," "research misconduct," "academic misconduct," "academic ethics," "academic norms," and "research conduct construction," downloading full texts as a supplementary dataset; and (3) after removing internal meeting documents with minimal substantive content, we obtained 108 documents, all collected by February 2019.

2.1.2 Structured Information Organization of Policy Texts Bibliographic Information Extraction. We extracted structured bibliographic information for central policies from the Beida Fabao database, including title, validity, effectiveness level, issuing department, document number, publication date, and implementation date. For policies not included in the database, we manually completed the bibliographic information following Beida Fabao's structure.

Standardization of Issuing Institutions. We standardized institutional names as follows: (1) For documents issued by secondary institutions (e.g.,

“General Office,” “Organization Department”), we used the primary institution name (e.g., “General Office of the CPC Central Committee” and “Organization Department of the CPC Central Committee” were both standardized as “CPC Central Committee”); (2) For State Council institutions, the State Council General Office was standardized as “State Council,” while constituent ministries were kept at the ministry level (e.g., “Research Integrity Office of Ministry of Science and Technology” became “Ministry of Science and Technology”); (3) For directly affiliated public institutions and state bureaus managed by ministries, we retained specific unit names (e.g., State Administration of Traditional Chinese Medicine, managed by the National Health Commission); (4) For documents from abolished or restructured ministries, we standardized names according to the 2018 State Council institutional reform plan, with specific name correspondences verified through “institutional evolution” sections on official government websites.

Publication Date Determination. Document dates include publication date, implementation date, and for some documents, revision and implementation dates. For documents without revisions, we used the publication year. For revised laws and regulations, we retained both the original and revision years if the revision content was directly related to research integrity; otherwise, we only kept the original publication year.

Handling of Invalid Documents. Since some collected policies have expired, we included them to reflect the dynamics of policy issuance across years and analyze content evolution.

2.1.3 Data and Methods for Analyzing Policy Content Evolution To identify the main content of China’s research integrity policies and their evolution across stages and important institutions, we conducted keyword clustering and comparative analysis of high-frequency keywords in the overall sample and policies issued by key central institutions, examining changes across time periods.

Policy Text Segmentation. We used the jieba segmentation tool (<https://github.com/fxsjy/jieba>) for Chinese word segmentation, pandas for statistical analysis, and developed a custom “Research Integrity Domain Vocabulary” based on extensive literature review. We also applied stopword lists from Harbin Institute of Technology, Sichuan University’s Machine Intelligence Lab, policy-specific stopwords, and a self-built stopword list, followed by vocabulary standardization based on word meanings.

Keyword Extraction and Evolution Analysis. We used TF-IDF algorithm to extract keywords from segmented policy texts, analyzing overall central research integrity policies and representative departments. We examined keyword evolution across four time periods (segmentation basis described in Section 3.1). For overall keywords (all policy texts or all policies from a ministry), we: (1) extracted Top 15 keywords after removing low-significance words; (2) calculated

TF-IDF values for each keyword across four periods to reflect importance; (3) visualized changes using line charts. For period-specific analysis, we stored segmentation results by period, extracted Top 15 keywords using TF-IDF after removing low-significance words, and compared changes across periods.

Keyword Clustering. We extracted Top 50 keywords from central research integrity policies, performed co-word analysis using the scipy toolkit (counting co-occurrences per text segment), clustered results using VOSviewer software, and had experts interpret and label clusters. The analytical process is shown in Figure 1 [Figure 1: see original paper].

2.2 Local Policy Data Collection and Analysis Methods

Since some documents in the full dataset (e.g., the *Science and Technology Progress Law*) cover broad content with only some research integrity-related provisions, many responsive forwarding policies are not entirely relevant. To ensure accurate analysis, we screened 71 documents directly related to research integrity from the 108 central policies to analyze local responses. The method is illustrated in Figure 2 [Figure 2: see original paper].

For response data, we retrieved from Beida Fabao database the forwarding status of these central policies by provincial-level administrative institutions, recording each policy's reference and implementation by province. Response lag T was calculated as the average difference between the year province i first forwarded policy j and policy j 's publication year, using the formula:

$$T_i = \frac{\sum_{j=1}^n (y_{forward} - y_{publication})}{n} \quad (n \neq 0)$$

where $y_{forward}$ is the year province i first forwarded policy j , $y_{publication}$ is policy j 's publication year, and n is the number of research integrity policies forwarded by province i .

3. Results Analysis

3.1 Analysis of Research Integrity Policy Publication Timing

Annual publication statistics are shown in Figure 3 [Figure 3: see original paper]. The results show that China's research integrity policy issuance has generally increased. As research misconduct cases have become more frequent, the growing number of policies reflects increasing national attention. Policy issuance peaks follow major misconduct incidents. Based on these trends and major case timelines, we divided policy evolution into four stages: 1980-2001 (slow development, only 6 documents, 1-2 per year), 2002-2006 (steady growth, 20 documents, 3-5 per year), 2007-2011 (fluctuating growth, 26 documents, with annual fluctuations but higher average than previous stage), and 2012-2018 (explosive

growth, 56 documents, with peak years issuing 13-16 documents). The first two stages show approximately linear growth, while the latter two demonstrate near-exponential growth, reflecting China's increasing emphasis on research integrity governance.

3.2 Analysis of Issuing Institutions and Their Evolution

3.2.1 Institutional Publication Patterns and Changes To understand institutional publication patterns, we analyzed total and stage-specific document counts by institution, including both lead and joint issuances (Figure 4 [Figure 4: see original paper], Table 1). Among 108 central policies from 21 institutions, the Ministry of Education issued the most (35 total, 26 lead, 9 joint), followed by the China Association for Science and Technology (19 total, 14 lead, 5 joint), Chinese Academy of Sciences (19 total, 11 lead, 8 joint), and Ministry of Science and Technology (16 total, 12 lead, 4 joint). The CPC Central Committee and State Council General Office also issued substantial numbers (12 and 7 respectively), demonstrating high-level attention.

Institutional evolution shows that the National People's Congress focused on the first stage, establishing early legal foundations, while the CPC Central Committee and State Council have shown increasing attention, particularly the State Council in the fourth stage (10 documents). The Ministry of Education has demonstrated growing concern across all stages, while the Ministry of Science and Technology and Chinese Academy of Sciences have consistently focused on research integrity throughout all stages. Supporting ministries like Finance and Human Resources have also cooperated across stages.

3.2.2 Evolution of Inter-Institutional Collaboration To examine collaboration evolution, we analyzed institutional cooperation networks. Due to sparse data in early stages, we divided the timeline into two periods: 1980-2006 (first half) and 2007-2018 (second half). Network diagrams (Figures 5 [Figure 5: see original paper] and 6 [Figure 6: see original paper]) show dramatic differences: the early network was sparse, while the later period became dense, indicating significantly increased collaboration frequency and relationships, reflecting a trend toward joint governance. In the first half, the Ministry of Science and Technology was the central node, while in the second half, the Ministry of Education became central. Early participants were primarily science and technology management departments (Ministry of Science and Technology, Ministry of Education, NSFC, Chinese Academy of Sciences), while later stages saw more institutions actively joining governance efforts.

3.3 Content Evolution Analysis Based on Keywords

Government philosophy and guidelines are embedded in policy documents. Analyzing content evolution reveals changes in governance focus and methods.

3.3.1 Content Analysis of Central Research Integrity Policies Key-word clustering (Figure 7 [Figure 7: see original paper]) shows four main themes: research conduct construction, project management, credit supervision, and talent innovation. These represent China's policy priorities: addressing "research conduct construction" at the source, "project management" for outputs, encouraging "talent innovation" among researchers, and establishing "credit supervision" systems.

Top 15 keywords (Table 2) and their importance across periods (Figure 8 [Figure 8: see original paper]) show policies center on "research," "science and technology," and "project," with "project" gradually declining in importance, suggesting shifting governance targets. "Review" and "evaluation" mechanisms are closely related, with both increasing in importance, particularly during 2002-2006. "Innovation" has risen significantly, reflecting that research integrity is the cornerstone of technological innovation. Governance methods like "research conduct construction," "education," and "propaganda" remain important, with "research conduct construction" peaking in 2007-2011, while "education" and "propaganda" continue rising.

3.3.2 Content Evolution Across Stages Stage-specific Top 15 keywords (Table 3) show distinct policy focuses changing over time, with completely different terms between first and fourth stages, indicating evolving governance challenges. Each stage responded to specific incidents: 1980-2001 focused on scientists' self-regulation through laws like the *Academic Degrees Regulations* and *Science and Technology Progress Law*; 2002-2006 emphasized academic ethics and evaluation reforms; 2007-2011 defined research misconduct and stressed research conduct construction; 2012-2018 issued specific regulations like the *Measures for Handling Academic Misconduct in Degree Theses* and *Interim Provisions on Recording Serious Dishonesty in National Science and Technology Programs*, providing concrete governance goals and punishment mechanisms.

3.3.3 Content Analysis by Key Institutions Top keywords for the Ministry of Education and Ministry of Science and Technology (Table 4) reveal distinct functional characteristics: the Ministry of Education focuses on "research conduct construction," "teacher ethics," and the "student-teacher-academic" ecosystem, defining misconduct as "academic misconduct"; the Ministry of Science and Technology manages research activities involving "national science and technology programs," "projects," and "scientific workers," focusing on the "state-researcher-project" ecosystem and defining misconduct as "research misconduct."

3.3.4 Content Evolution in Key Institutions The Ministry of Education's keyword evolution (Table 5) shows continuity around "research conduct construction," progressing from "academic ethics" and "academic norms" to "innovation" and identifying "academic misconduct," then to "propaganda" focusing on "graduate students," "degree theses," and "research personnel." The

Ministry of Science and Technology's evolution (Table 6) shows earlier attention to “research misconduct,” shifting from “review,” “evaluation,” and “bidding” to “innovation,” “propaganda,” and defining “dishonesty” and “responsibility.” Notably, the fourth stage replaced “research misconduct” with “dishonesty.”

3.4 Local Response Analysis

After central policies are issued, local implementation is crucial for effectiveness. We analyzed provincial responses to central policies (71 directly relevant policies). Response lag ranged from same-year to ten years, averaging 2.65 years. The “quantity-lag” distribution scatter plot (Figure 11 [Figure 11: see original paper]) shows Shanghai, Beijing, Zhejiang, and Hunan in the upper-right quadrant (many responses, fast speed), while Jilin and Hebei show moderate responses with fast speed.

Provincial response patterns (Table 7) show Shanghai had the most forwarded documents (8), followed by Beijing and Zhejiang (6 each). Overall, 75% of provinces forwarded central policies, demonstrating broad participation. Responses concentrated in the latter two stages, particularly the fourth stage (2012-2018), with most provinces issuing documents then; half issued documents in the third stage (2007-2011); only two provinces responded in the second stage; none responded in the first stage. This pattern aligns with central policy intensity but with slight lag.

Our data only includes provincial forwarding recorded in Beida Fabao, potentially missing some implementations (e.g., Jiangxi's *Procedures for Investigating Academic Misconduct in Higher Education Institutions* and Henan's *Interim Provisions on Recording Bad Credit in Henan Provincial Science and Technology Programs*). Therefore, results provide a reference point but may not fully capture all local responses.

4. Conclusion and Discussion

This study collected 108 central research integrity policies and 80 local implementation policies, using policy text computing to analyze overall patterns and evolution. Key findings include: (1) Research integrity governance measures date back to 1980, but recent years have seen explosive growth driven by national innovation needs, with more resolute attitudes and specific measures, though dedicated legislation is still lacking, potentially causing inconsistent standards. (2) Central government leadership is evident, with the Ministry of Education and Ministry of Science and Technology as primary managers across all stages, joined gradually by other departments forming a collaborative governance pattern. (3) While departments have different emphases, the overall approach has shifted from self-regulation and moral education to combined institutional and moral construction. (4) Most provinces have actively responded to central policies, albeit with some time lag.

Compared to existing studies, this research combines policy 计量 methods with text computing to reveal content-level evolution, analyzing not only issuing institutions but also their collaboration and local response patterns, providing a comprehensive overview of policy implementation.

Limitations include: (1) Incomplete data sources, potentially missing some local responses; (2) Small local policy dataset preventing distinction between forwarding, reference implementation, and implicit responses; (3) Interpretation remains at the data level. Future improvements will expand data sources through web scraping, distinguish policy response types, and conduct expert interviews for deeper interpretation.

References

- [1] Results fail to convince the academic community; details of Han Chunyu incident investigation are awaited [EB/OL]. [2019-04-30]. <http://news.sciencenet.cn/htmlnews/2018/9/417149.shtml>
- [2] STIGBRAND T. Retraction Note to multiple articles in Tumor Biology [EB/OL]. [2019-04-30]. <https://doi.org/10.1007/s13277-017-5487-6>.
- [3] Nanjing University announces Liang Ying disciplinary decision: revocation of graduate supervisor qualification [EB/OL]. [2019-04-30]. <http://js.people.com.cn/n2/2018/1215/c360307-32414128.html>.
- [4] Beijing Film Academy establishes “Zhai Tianlin Incident Investigation Team” [EB/OL]. [2019-04-30]. http://epaper.ynet.com/html/2019-02/12/content_{319264}.htm?div=-1.
- [5] Liu Yandong: Strengthen research integrity and conduct construction to promote healthy development of science [EB/OL]. [2019-04-30]. http://www.gov.cn/ldhd/2010-03/30/content_{1569423}.htm.
- [6] Xi Jinping: Secure a decisive victory in building a moderately prosperous society in all respects and strive for the great success of socialism with Chinese characteristics for a new era—Report at the 19th National Congress of the Communist Party of China [R]. Beijing: People’s Publishing House, 2017: 1-71.
- [7] Full text of 2019 Government Work Report [EB/OL]. [2019-04-30]. <http://www.gov.cn/zhuanti/2019qglh/2019lhzfgzbg/index.htm>.
- [8] Huang Cui. Quantitative Research on Policy Documents [M]. Beijing: Science Press, 2016.
- [9] Pei Lei, Sun Jianjun, Zhou Zhaotao. Policy text computing: A new way of interpreting policy texts [J]. Library and Information, 2016(6): 47-55.
- [10] HUANG C, SU J, XIE X, et al. A bibliometrics study of China’s science and technology policies: 1949-2010 [J]. Scientometrics, 2014, 102(2): 1521-1539.

- [11] Zhang Jian, Huang Cui, Ye Xuanning, et al. Quantitative study of public policy diffusion in China: The case of technology transfer policies [J]. *China Soft Science*, 2016(2): 145-155.
- [12] Li Yanping, Wu Shaotang, Gao Fei, et al. Evolution, evaluation, and trends of China's research funding management policies since reform and opening-up: A content analysis based on policy texts [J]. *Studies in Science of Science*, 2009, 27(10): 1441-1447, 1453.
- [13] Yang Kairui, He Renxing, Zhong Shuhua. Quantitative study of Chinese central government policies supporting innovation and entrepreneurship development (2003-2017): Data analysis from the State Council and 16 ministries [J]. *Science & Technology Progress and Policy*, 2019, 36(15): 107-114.
- [14] ZHANG X, YANG F. Rural informatization policy evolution in China: A bibliometric study [J]. *Scientometrics*, 2019, 120(1): 129-153.
- [15] Huang Cui, Su Jun, Shi Liping, et al. Quantitative study of China's wind energy policy from a policy tools perspective [J]. *Studies in Science of Science*, 2011, 29(6): 876-882, 889.
- [16] Yuan Junpeng, Huai Mengjiao, Pan Yuntao, et al. Overview of research integrity studies in China: A scientometric perspective [J]. *National Defense Science & Technology*, 2017, 38(6): 14-20.
- [17] Tian Ruiqiang, Yao Changqing, Liu Liying, et al. Quantitative study of academic misconduct governance policies and cases [J]. *Chinese Journal of Scientific and Technical Periodicals*, 2018, 29(4): 355-361.
- [18] Jin Tong, Zhang Hongwei, Zhao Yong. Characteristics and implications of China's research integrity governance from a policy text 计量 perspective [J]. *Technology Intelligence Engineering*, 2018, 4(5): 116-126.
- [19] Huang Cui, Ren Jie, Zhang Jian. Quantitative research on policy documents: A new direction for public policy research [J]. *Journal of Public Management*, 2015, 12(2): 129-137, 158-159.
- [20] Ministry of Science and Technology Research Integrity Construction Office. *Compilation of Laws, Regulations, and Documents on Research Integrity Construction* [M]. Beijing: Higher Education Press, 2017.
- [21] CPC Central Committee and State Council Issue "Opinions on Further Strengthening Research Integrity Construction" [EB/OL]. [2019-04-30]. http://www.gov.cn/zhengce/2018-05/30/content_{5294886}.htm.

Author Contributions

Feng Lingzi: Designed the research framework, processed and analyzed data, wrote the manuscript.

Liu Jing: Processed policy text data.

Yuan Junpeng: Conceived the research idea, participated in research and revised the manuscript.

Quantitative Analysis of the Changes of Research Integrity Policy in China

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Abstract: [Purpose/significance] This paper analyzes the current situation and changes of research integrity policy issued by the Chinese central government and the local response, in order to grasp the development trend and stage focus of the policy, provide support for the construction of research integrity, and provide help for the development research of research integrity policy in China. [Method/process] This paper collected 108 policies related to research integrity issued by the central government and 80 local policies for the implementation of the central policy. By using the policy text computing and policy documents quantitative research method, this paper analyzed and combed the current situation and changes of policy release time, publishing institutions, policy content and policy response, and obtained the time characteristics of policy release, the characteristics of important institutions, the change of content focus and the characteristics of policy response. [Result/conclusion] Relevant governance measures of research integrity have been involved earlier. In recent years, China has put forward the need to build an innovative country, so the number of policy papers has increased sharply, the attitude to the governance of research integrity is more resolute, and the measures are more specific. The management of scientific research integrity is led by the central government. The Ministry of Education and the Ministry of Science and Technology are the main administrative departments at all stages. Relevant departments have gradually joined in the joint management. At present, a pattern of joint efforts has been formed. There are slight differences in the focus, object and method of research integrity governance among different departments, but generally speaking, the trend is to gradually shift from self-restraint and moral education to system construction and moral construction. The vast majority of local provinces and municipalities throughout the country have responded positively to the central policy and taken measures to improve scientific research integrity, but there is

a relative time lag.

Keywords: research integrity; policy text computing; policy documents quantitative research; policy change; policy analysis

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.