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Do policy coordination dynamics matter? A quantitative analysis perspective on China's scientific and technological policy evolution

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ABSTRACT

Even though policy coordination is one of the oldest challenges that governments have to confront, as problems evolve and "New Public Management" concepts emerge, it has become even more essential. The current literature on policy coordination among government agencies, however, shows little regarding the way coordination is managed under centralized political systems. This study, based on the science and technology (S&T) policy documents issued by China's central government agencies between 1978 and 2020, provides a quantitative and dynamic analysis of the coordination of policies in China and presents a comprehensive overview of policy coordination paths and processes in centralized political systems. As a result, it provides a way that contributes to the analytical methods available for quantitatively analyzing policy documents. On the other hand, the key findings of the study show that, first, state council-administered ministries have taken the lead in coordinating policy while other types of organizations have collaborated in more subordinate capacities. Second, national themes that are democratic and driven by demand have been the core concern of coordination activities, such as social development, high-tech industrialization, and rural S&T. Third, policy coordination has evolved continuously and has mostly contributed to interpreting macrostrategies and implementing more specific implementation measures.

KEYWORDS

Policy Coordination; Scientific and Technological Policy; New Public Management; Quantitative Analysis; China

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1. Introduction

Since the fragmentation of political authority in traditional bureaucracies gradually revealed its detriment, governments began to reassess the connections between agencies as early as the 20th century, as part of the New Public Administration Movement (Trein, 2018). In government organizations, specialization without coordination was regarded as centrifugal (Bouckaert, 2010). Subsequently, as the complexity of social events has increased, inter-agency coordination has gained a great deal of attention for its capacity to improve public service delivery and tackle wicked problems in a variety of social domains (Tosun & Lang, 2017). Moreover, despite the fact that coordination is gaining importance in a growing number of nations, little research has been conducted on how coordination trajectories alter over time (Bouckaert, 2010). On the other hand, there are few in-depth analyses of how and why coordination is conducted within various political systems, as the vast majority of research focuses on decentralized European and North American political systems (Griessen & Braun, 2008) (Tamtik, 2016). This has left a considerable gap in the literature pertaining to the study of inter-agency collaboration under centralized political-administrative cultures.

In particular, according to the policy process, coordination connections within government agencies consist of policy coordination and administrative coordination. Policy coordination relates to the formulation level of policy concerns, requiring agencies to produce policies and strategies that are compatible with one another and aligned with a set of prioritized policy objectives to minimize conflict (Boston, 2005). Administrative coordination applies to the degree of policy implementation. It stresses the process through which agencies implement policies in a manner that is universally accepted (Painter, 2008). Of the two concerns, policy coordination has received the most attention (Flanagan, 2011), to the extent that some have referred to it as the “philosopher’s stone” that can solve the problems of public administration (Peters, 2018). For policy challenges involving the interests of various stakeholders, agencies must communicate and negotiate to establish policies. Only in this manner can policies be tailored to the interests of each stakeholder group (Sun & Cao, 2018). If we want to comprehend the underlying mechanisms of policy coordination, it is vital that we identify a suitable approach for determining how such inter-agency connections are generated and how they evolve.

1.1. Research Gap

The majority of existing research has been undertaken either from a theoretical perspective or through qualitative approaches such as interviews, questionnaires, and experiments. As a systematic record of coordinating output, this subjective form of research must be supplemented with objective material, such as co-signed policy documents. Co-signed policies provide a lot of data for monitoring inter-agency relations (Huang, 2018). In addition, most of previous research has seen policy coordination from a static perspective, limiting contexts to a single period. Nonetheless, it is well known that "policies coordination wasn't built in a day" and that the procedure is gradual instead.

1.2. Case

Being a representative nation with a centralized authority system, China's coordination strategies and trajectory may differ from those of nations with decentralized political systems (Xiang & Ma, 2021). With the reform and opening up, China has significantly increased the number of S&T development-guiding policies. Seen as competitive advantages for China's S&T advancement are its centralized authority and government assistance (Appelbaum, 2016). Nevertheless, it has been said repeatedly that China must improve collaboration among innovation-promoting authorities (Cao, 2013). In response to these S&T policy coordination issues, the Chinese government has taken a large number of steps in recent years, such as coordinating broad-scale S&T institutional

reforms and convening an Inter-Ministerial Joint Committee (IMJC), among others.

1.3. Objective

Policy coordination characteristics are thoroughly investigated by employing the period of generation, the level of policy authority, and the keywords as analysis components, this study aims to fill a current gap in the literature by examining the characteristics of coordination strategies in centralized political systems such as China and by revealing how and why policy coordination occurs and evolves in a particular political context. Put forth an effort to contribute to the various quantitative policy document analysis methods that are now available.

1.4. Research Questions

This study is centered around the following unique research questions:

- What responsibilities do different organizations play in policy coordination networks? And what elements may influence these interagency relationships in China?
- What policy themes in the sphere of S&T are typically the central focus of policy coordination? And why do such priorities form for policy coordination?
- Based on a review of policy papers that were made through inter-agency negotiations, what is the general trend and nature of China's S&T policy?

2. Methodology and Data

2.1. Methods

The research employed a modified SNA to analyze the evolution of policy coordination networks and assess the role of each network agency. Policy informatics text analysis tools were also used to examine the coordination priorities of these agencies at various points in time. This method is justified by the reality that the number of issuing agencies and the hierarchy of the byline in co-signed policy documents are crucial data points that reflect the extent and accountability of each agency. Thus, it is essential to appropriately describe these factors in order to explore the collaboration between agencies.

2.1.1. Social Network Analysis

Social network analysis (SNA) is a collection of methods and tools that can be utilized to examine the relationships, interactions, and communications in social networks. As a result, SNA is appropriate for the research and possibly monitoring of online interactions since it can automatically analyze interaction data, providing a bird's-eye perspective of the group's social structure, interaction patterns, and mapping of all communications in the relational space (Rondinelli, 1983). SNA is also commonly employed in bibliometrics to explore network structures and analyze actor connections (Newman, 2001). SNA can often be separated into unweighted and weighted networks, unweighted networks just indicate whether or not two players are connected, whereas weighted networks incorporate the varying degrees of links between actors (Newman, 2004).

In the past, the majority of policy networks were constructed on the basis of cumulative co-occurrence frequencies, with the strength of each edge proportional to the number of times two actors co-appear in policy documents. Even so, these weighted networks may inflate the impact of policy documents generated by numerous agencies, making it difficult to identify the core value subnetworks. In addressing this issue, the study utilized Newman's technique (Newman, 2001), which takes into account the number of agencies used to calculate the

coordination strength between agencies i and j as follows:

$$W_{ij} = \sum_{k} \frac{\delta_i^k \delta_j^k}{n_k - 1} \tag{1}$$

The formula showed that, if i is one of the co-signers in a policy document k, then δ_i^k = 1, otherwise δ_i^k = 0, and n_k is the number of co-signers in policy document k. The weight W_{ij} represents the strength of the collaboration if any between one of the co-signers in document i and j.

The weight of a node in a social network represents the importance of the credit provided to each agency in a co-signed policy document. Whole counting and fractionalized counting are the most common counting techniques for co-authored publications (Sivertsen, 2019). Historically, the majority of studies have employed the complete counting approach to determine the credit of agencies in policy networks. However, this method disregards the diverse duties and authorities of agencies in co-signed policy papers. In this study, we assigned credit to each agency using harmonic allocation. Hodge and Greenberg first proposed harmonic allocation, which was later improved by (N. Hagen, 2010). It is a counting system that employs the co-signer hierarchy in the byline to measure the contribution of each agency. Thereby, the i^{th} agency's credit for a policy document with N co-signers is therefore calculated as follows:

$$Harmonic i^{th} agency\ credit = \frac{\frac{1}{i}}{[1 + \frac{1}{2} + \cdots + \frac{1}{N}]} \tag{2}$$

To evaluate the efficacy of the above-modified social network, we compared it with other policy coordination networks with distinct weighting methods. As a demonstration, the research utilized the policy documents released by numerous agencies and open-source software, including Gephi and Sigma.js, to establish policy coordination networks with four distinct weighting methods, the results of which are presented in Figures 1 and 2. And the entire list of specified key agencies in the networks is displayed in Appendix A1.

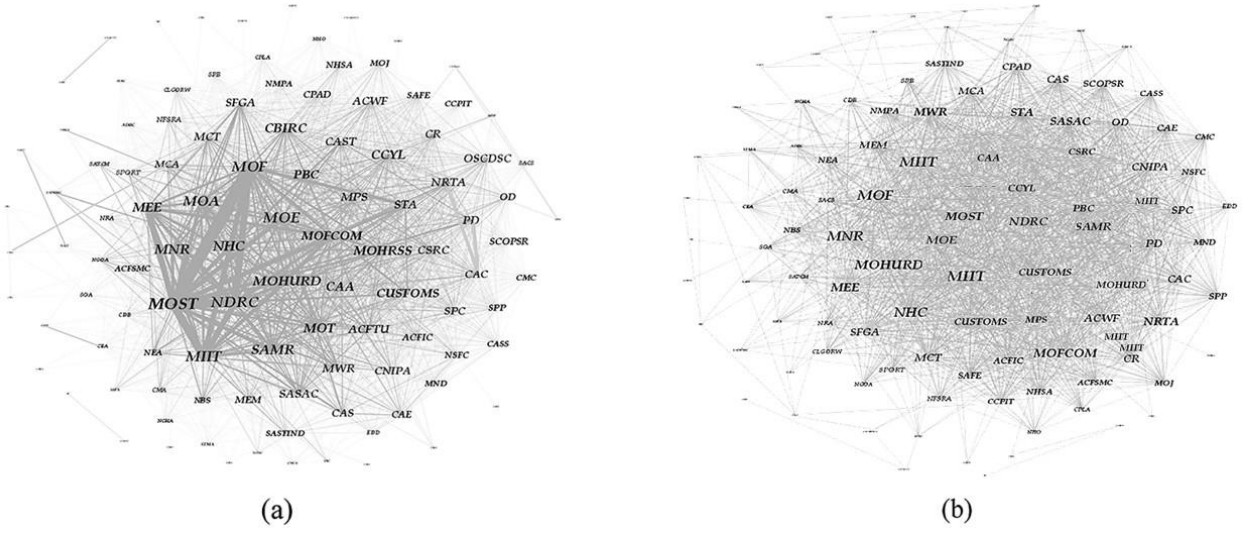


Figure 1. Policy Coordination Networks Based on Cumulative Co-occurrence in Weighted and Unweighted Network Methods.

The networks (a) and (b) illustrate the policy networks based on methodologies generally used in previous research. The size of the labels in this case reflects the credit provided to the agency, while the node labels represent the issuing agencies. The edges highlight the relationship between agencies, and their strength indicates their

closeness.

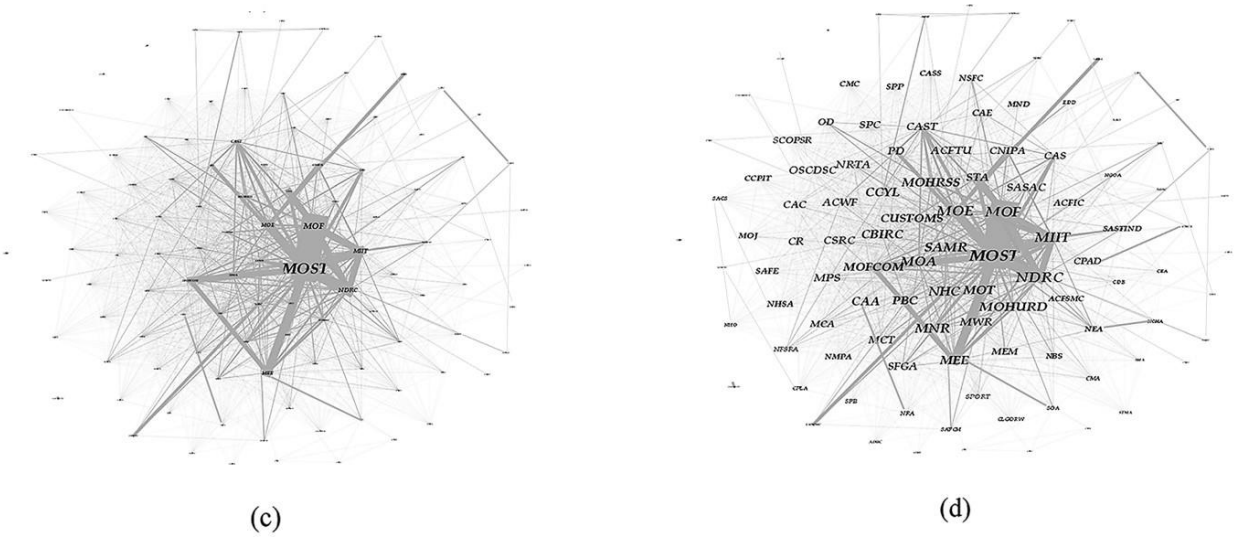


Figure 2. Policy Coordination Networks Based on a Modified Method.

The networks (c) and (d) display the adjusted method's outcomes. It is noticeable that Network (a) contains numerous vital nodes and strong edges, but the contribution of a few more nodes has been overestimated, and the average weighted degree is considerably higher compared to the other networks. A few key nodes are shown in network (b), and it is hard to determine the degree of connection between nodes. The network (c) calculates the weight of edges employing Newman's modified edge weight method and the node weights through harmonic counting. By partially adjusting the method through applying Newman's modified edge weight algorithm in Network (d), it reduces the negative weight generated by multi-departmental coordination and reveals a conspicuous core subnetwork.

The policy coordination network not only demonstrates the connection between agencies but also reflects the real contribution and position of each agency in the network, demonstrating the benefits of the modified policy coordination network in identifying coordination intensity and heterogeneous agency roles in S&T policymaking.

2.1.2 Social Network Analysis

Policy informatics is an analytical approach consisting of concepts, methodologies, and procedures for comprehending complicated public policy and management issues (Johnston, 2011). Policy informatics uses contemporary computational tools to handle enormous quantities of data, mine data from single and numerous sources, discover patterns in multidimensional data, and construct models of a variety of phenomena (Dawes & Janssen, 2013). There are two main research paths on this topic. In one stream, scholars try to obtain relevant insights from government data that has been digitized. In the second, academics employ computational methods and tools to study policy matters, thereby transforming data into valuable and informative knowledge that can be used to assist governments in making decisions (Desai & Kim, 2015). Hence, its pioneers are utilizing network models (Hatmaker, 2011), To investigate the policy-making process, policy agencies, and government programs, document analysis software (L. Hagen, 2015) and visualization approaches (Goyal, 2017) are utilized. The extraction of keywords from policy documents is one of the most important methods for identifying underlying policy ideas (L. Hagen, 2019).

This is the only method that uses the actual content of documents to develop similarity measures or semantic

maps of a field (Aria & Cuccurullo, 2017). Using policy text analysis, we investigated the dynamic changes in policy coordination themes in this study. In general, policy documents are relatively lengthy, which may affect the authenticity and accuracy of selecting core words. Hence, we adjusted how keywords were extracted from policy documents and how dynamic changes to policy themes were discovered in keyword co-occurrence networks.

To systematically describe the evolution of S&T policy themes, we originally followed the classification criteria provided by MOST, categorizing S&T policy documents into fifteen types based on the social problems they were supposed to solve. Table 1 shows a brief overview of different types of policy themes.

Table 1. Multiple Categories of Policy Themes.

No.	Policy Theme Category	Note
1	Comprehensive policies	*Policies with a broad objective and numerous S&T-related measures
2	Reform of scientific institutions	*Reforming the system of S&T institutions in order to maximize the allocation of S&T resources and increase S&T production
3	Management of S&T plan	*Policies to govern S&T projects, including project application, funding, and project acceptance
4	S&T finances and funds	*Governance of S&T expenditure
5	Basic research and research base	*To encourage the development of basic research and establish or organize a substantial basis of innovation in science and technology for fundamental research, and the study of technological transformation
6	Enterprise technological advancement & high-tech industrialization	*Guidelines for the research, development, application, and dissemination of new technologies
7	Rural S&T and social development	*Policies that improve the application of S&T in agriculture and living
8	S&T talents	*Promote and motivate talent to enhance their research inventiveness and output
9	Scientific intermediate service	*Policies to foster the growth of the S&T intermediate service industry that speed the commercialization of S&T achievements
10	S&T conditions and criteria	*Policies establishing harmonized regulations for technical works
11	S&T banking and tax	*Governing tax and financial services for innovation enterprises
12	S&T achievements and intellectual property	*Patents and copyrights are elements of S&T accomplishment management and protection policies
13	S&T popularization	*Policies designed to facilitate the distribution and application of S&T knowledge throughout society
14	S&T awards	*Rewarding individuals and organizations whose contributions to China's S&T development are exemplary
15	International S&T cooperation	*Use of global S&T resources and improvement of international communication and cooperation

Notes: official website of the Ministry of Science and Technology of the People's Republic of China (MOST).

Based on the accumulated S&T policy documents, we developed a thesaurus of keywords for the fifteen S&T policy document categories. The number of 1923 co-signed policy texts were segmented using text mining tools, and the keywords relating to the chosen keyword thesaurus were extracted for future processing. All the keywords that matched our thesaurus were extracted to create a coword matrix in order to illustrate the development of coordinating themes across time.

2.2. Data

This research uses S&T policy documents as a major channel for tracing policy coordination behaviors; the policy texts were gathered from the policy document database of the State Council of People's Republic of China, the Ministry of Science and Technology of People's Republic of China (MOST), and the PKUlaw database. The following are the primary steps for data collection and processing:

- First, based on the assessment of both domestic and international S&T publications, the article chose the terms "technology," "science and technology," "scientific research," "innovation," "patent," "intellectual property," "basic research," "scientific fund," "talent," "science popularization," "scientific instrument," "high-tech industry," "government," "government agency," and "university" to search all of the related S&T policy texts issued by the central government.
- Second, this research also gathered policy documents released by the major S&T administrative agencies, which include the National Natural Science Fund of China (NSFC), the Chinese Academy of Sciences (CAS), the Chinese Academy of Engineering (CAE), and the Chinese Academy of Social Sciences (CASS), to ensure data integrity to the greatest extent feasible. These studies left 9545 policy documents following the reduction of redundant documents, as well as the manual removal of documents irrelevant to S&T activity.
- Furthermore, take into account the authority level and sample validity of these policy papers, as mentioned in Table 1, certain S&T matters, including judgments on legal issues, promotions and dismissals, as well as treaty ratifications, have been stripped of certain categories. Additionally, since only a small sample size was gathered and military regulations are only partially available to the public, S&T-related military policies were also disregarded.

The study gathered 9145 policy documents, 1923 of which were co-signed, that included information on policy themes, policy issuers, authority levels, release dates, implementation dates, and policy contents. In addition, due to multiple large-scale institutional reforms that have occurred in China since 1978, the names and functions of several institutions have regularly changed. The research used the current names of the agencies to correspond with their historical names in order to depict the growth of inter-agency policy coordination. Figure 1 presents the research framework.

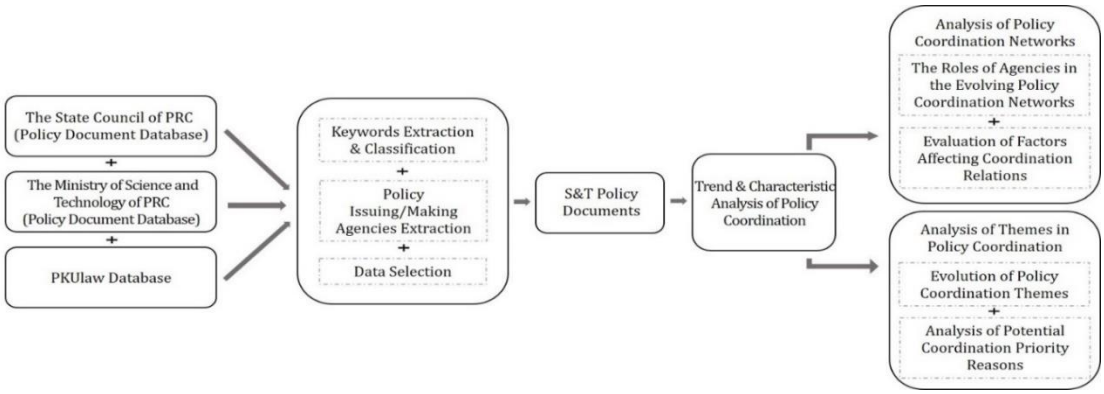


Figure 3. Research Framework.

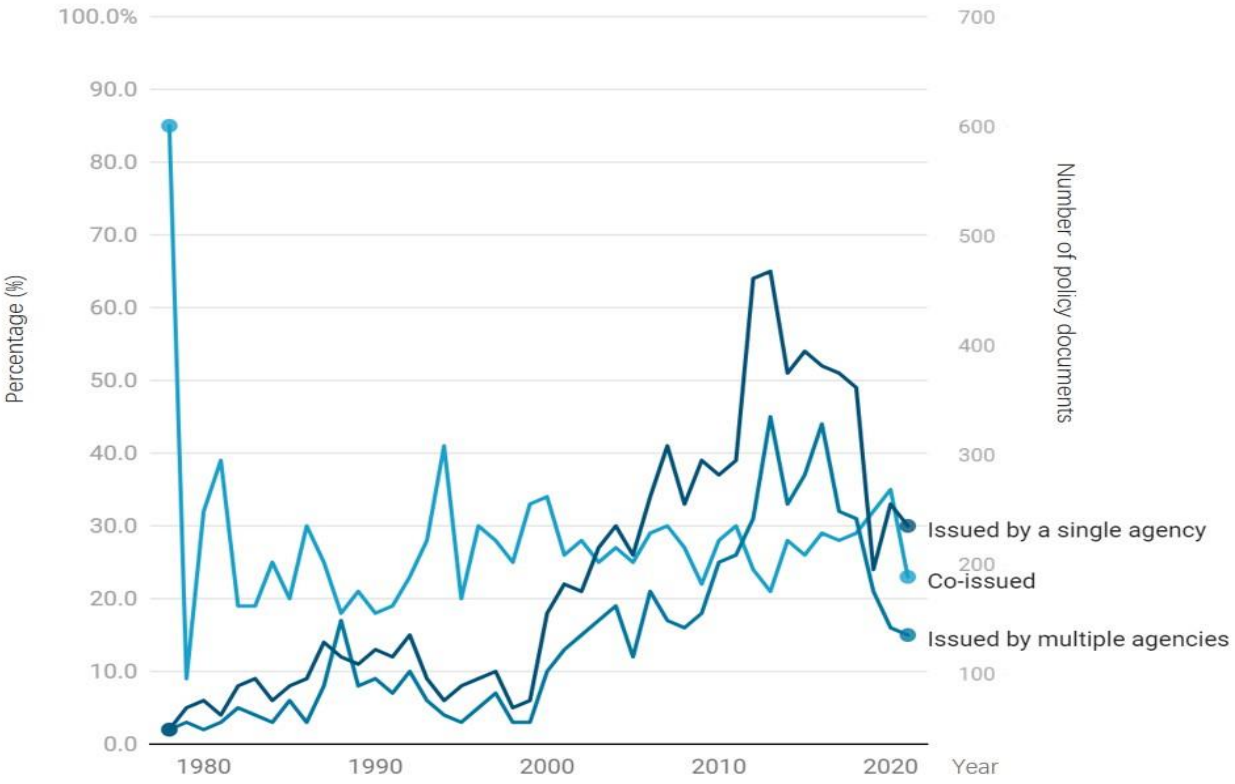
3. Results and Findings

3.1. The Overall Trend and Characteristics of the Coordination of S&T Policy

From 1978 and 2020, Figure 3 depicts the number of S&T policy documents each year. Except for 1978, when MOST was still in the process of recovering from the Great Cultural Revolution and released few policy publications with the assistance of other agencies, The amount of policy documents released by multiple bodies has increased in general. Nonetheless, policy documents issued by a single sector still dominate, and the cosigning percentage remains between 20% and 40%. This highlights a crucial component of bureaucracy that facilitates the assignment of responsibilities.

Moreover, observing the characteristics of co-signed policy documents reveals that they frequently take the form of rules, regulations, and measures; they interpret the laws and macrostrategies issued by the SC, and the CCCPC and formulate more specific implementation measures. This is connected with China's top-down policymaking system, characterized by the centralization of decision-making authority in a number of top S&T governance agencies, while the underlying execution design is dispersed across a number of participating agencies and follows specified guidelines. In the beginning phases, coordination between a limited number of agencies might be smoother. Gradually, however, as S&T policy texts incorporate the interests of a greater number of stakeholders, it may become necessary to add more agencies to balance the interests of various groups. In addition, early-stage collaboration experience and trust make the environment more favorable for achieving large-scale coordination.

Figure 4. The Amount of S&T Policy Documents Produced Annually from 1978 to 2020.



3.2. S&T Policy Coordination Networks by Evolution Period

To further explore the evolving relationships between agencies, we assessed policy coordination networks at different historical phases based on the performance of agencies in terms of policy issuance.

Following the view of Pan, the evolution of China's S&T system is divided into four main periods (Pan, 2019):

- The first stage (1949–1978) is the beginning of the founding of New China, the foundation period for S&T.
- The second stage (1978–1998) is the reform period of the S&T innovation system, where peace and development have been the era themes and S&T as the primary producing force became the centrepiece.
- The third stage (1998–2006) is the construction period of the national S&T innovation system.
- The fourth stage (2006–2020) involves implementing the innovation-driven development strategy and creating a national scientific research and innovation system.

Examining the development of China's S&T policies, we discover that a few remarkable conferences or laws have a significant impact on the overall path of the S&T landscape in China. These key events have separated China's S&T policy evolution into several historical periods, each with its own objectives and responsibilities.

Throughout the analyzed time periods, as many as 152 organizations joined the S&T policy-making network. According to their administrative characteristics, we categorized all agencies into nine unique categories, as depicted in Figure 5.

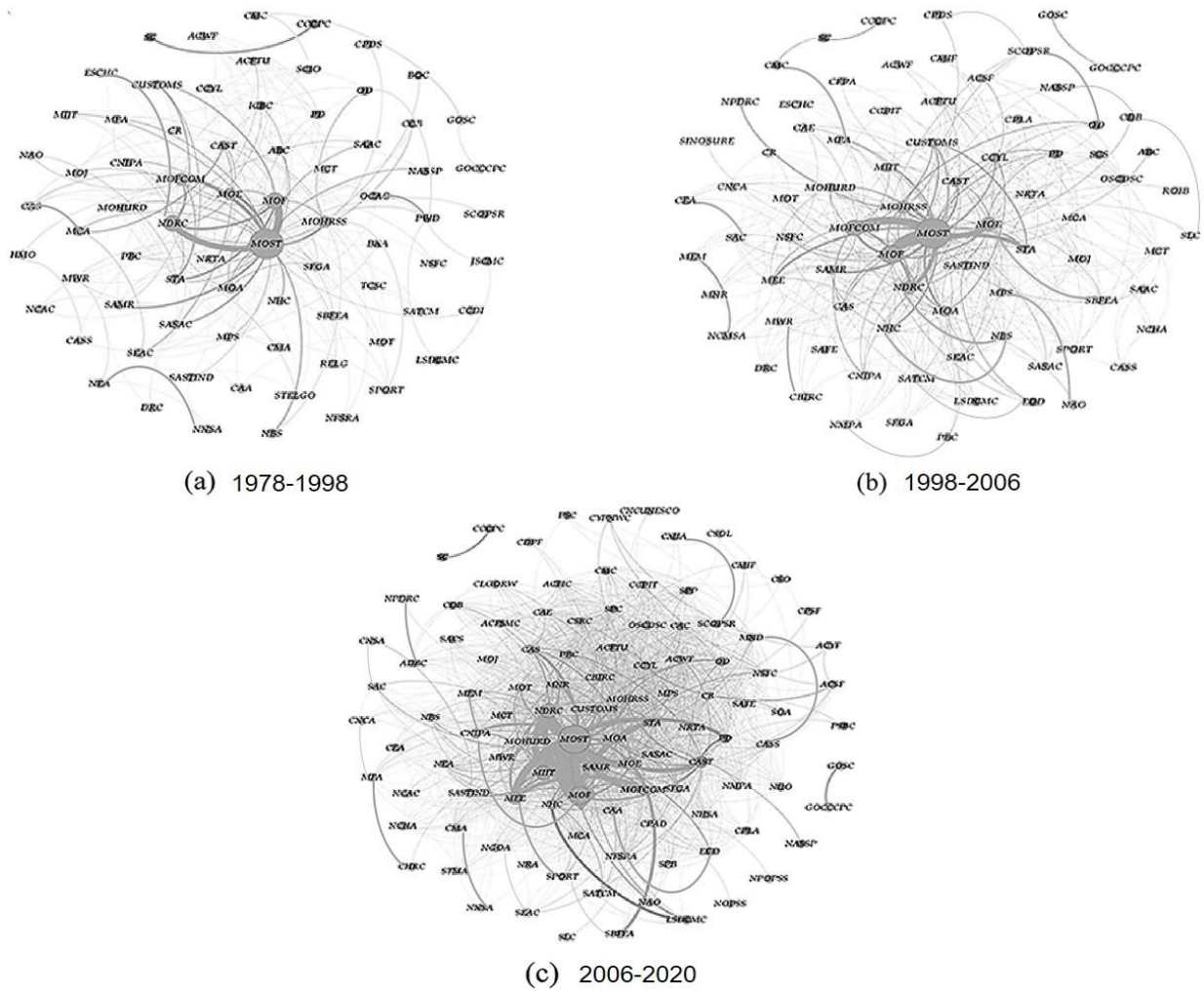


Figure 5. Three Stages of China's S&T Policy Coordination Networks (1978–2020).

The color-coding serves to highlight the significant role played by SC-affiliated institutions in coordinating S&T policies. Other types of agencies also engage in S&T operations. The networks (a), (b), and (e) are policy coordination networks spanning these historical periods. In Newman's modified edge weighting method, the width of an edge symbolizes the degree to which agencies are able to work together. The hues of nodes and edges match the agency type. The indicators shown in Table 2 correspond to the coordination network at each stage.

Table 2. Different Stages of Policy Coordination Network Indicators.

NO.	Stage	Number of Co-signed Policies	Nodes	Edges	Clustering coefficient
1	1978–1998	276	98	380	0.763
2	1998–2006	231	105	845	0.771
3	2006–2020	1230	120	2100	0.856

Visualizing the policy coordination networks across time periods reveals that agency positions appear to reflect the network's interest linkages. Building inter-agency interactions seems to be based initially on an agency's interests and sphere of jurisdiction, followed by its budgetary requirements and relationships with various public administration departments (Zhou, 2016). The policy coordination networks demonstrate that an increasing number of agencies of various types are participating in the S&T policymaking process and that relationships between agencies have grown. The potential causes are as follows:

- Aside from the effect of the external environment, the increasing complexity of the S&T policy mandate itself can be a major issue. This expanded policy purpose necessitates that policymakers encourage a greater range of parties to participate in the policy-making process since they must include individuals who represent the interests of a wide variety of stakeholders. They can only support the logical allocation of resources and benefits in this manner.
- Although other types of agencies participate in these networks, the core subnetwork is still comprised of ministries under the SC, particularly the key ministries such as MOST, MOF, and NDRC. Likely due to their enormous administrative resources and financial support, these organizations are quickly gaining influence in the network. In contrast, other sorts of agencies are positioned on the network's periphery, these agencies just support the core organizations in achieving shared objectives.

3.3. Connections between central planning and networks for policy coordination

A centrally planned system is one of the major distinguishing characteristics between China and other political environments (Zheng, 2010). In the past few decades, the Chinese government has aggressively adjusted its national S&T development strategy and followed international technical frontiers in order to meet the demands of national economic and social development. Comparing these policy coordination networks at various stages reveals that the evolution of a national strategy has influenced the formation of new relationships and the consolidation of existing ties between agencies.

Frequently, governments create long-term S&T plans to guide the nation's S&T development. The centrally planned system has shown to be effective and influential, leading to the rapid expansion of China's S&T capabilities over a relatively short period (Gao & Tisdell, 2003). In these networks, it is evident that the central government's S&T plans represent the long-term aims of S&T development. Hence, it is reasonable for subordinate agencies to modify their conduct in accordance with the requirements of these plans to achieve the stated objectives.

According to the degrees of voluntarism or coercion in the connection, cooperative interactions between agencies can be classified into two extreme categories. The term voluntarism refers to actively entered connections, shared values, and cooperation agreements. Those encounters that are influenced by authority and power are

described as coercive (Alexander, 1993). Remarkable is the fact that the construction of a "made" order is highly dependent on the authority of the main agencies and the pressure they exert on their subordinate agencies to adopt and obey the norms and regulations of coordination. If the leaders lack sufficient authority to direct the affiliates or if the affiliates refuse to comply with the regulations, coordination efficiency may be compromised. From this perspective, establishing a self-organized order might prove more effective and stable. To cultivate and shape such self-organized cooperation, however, involves a lengthy process of establishing interdependencies and trust. During this phase, external forces may aid in increasing the speed with which agencies coordinate with one another. In other words, the constructive guidance of authority may provide the agencies with the opportunity to learn one another's culture, regulations, and practices, enabling them to proactively seek out their best suited partners.

Tracking the policy coordination networks across time reveals that the position of each agency has steadily stabilized, while the connections between some agencies have also strengthened. This could be a signal that the general framework for coordinating S&T policy has been gradually shaped under the impact of the supreme authority. Certain representative agencies, including MOST, MOF, NDRC, MOFCOM, and MOE, have established long-lasting and increasingly interdependent working relationships. However, we predict that even if their superiors refused to intervene, these organizations, based on their shared responsibilities and mutual trust, would continue their active collaboration. In other words, self-organized coordination patterns may keep developing as a result of the cumulative trust and shared objectives that are built over long-term collaboration processes.

3.4. The evolution of S&T policy coordination subject matter

The themes at issue in coordinated policies are dynamic, quite different emphasis is placed at each stage. Using keyword co-occurrence maps, we observed the dynamic changes in these themes and investigated the factors causing change. Figure 6 illustrates the changes in theme as a count of its occurrence at different stages. The frequency with which each category has been updated is displayed vertically, from most frequent to least frequent. Bottom indicates the frequency of each category from high to low.

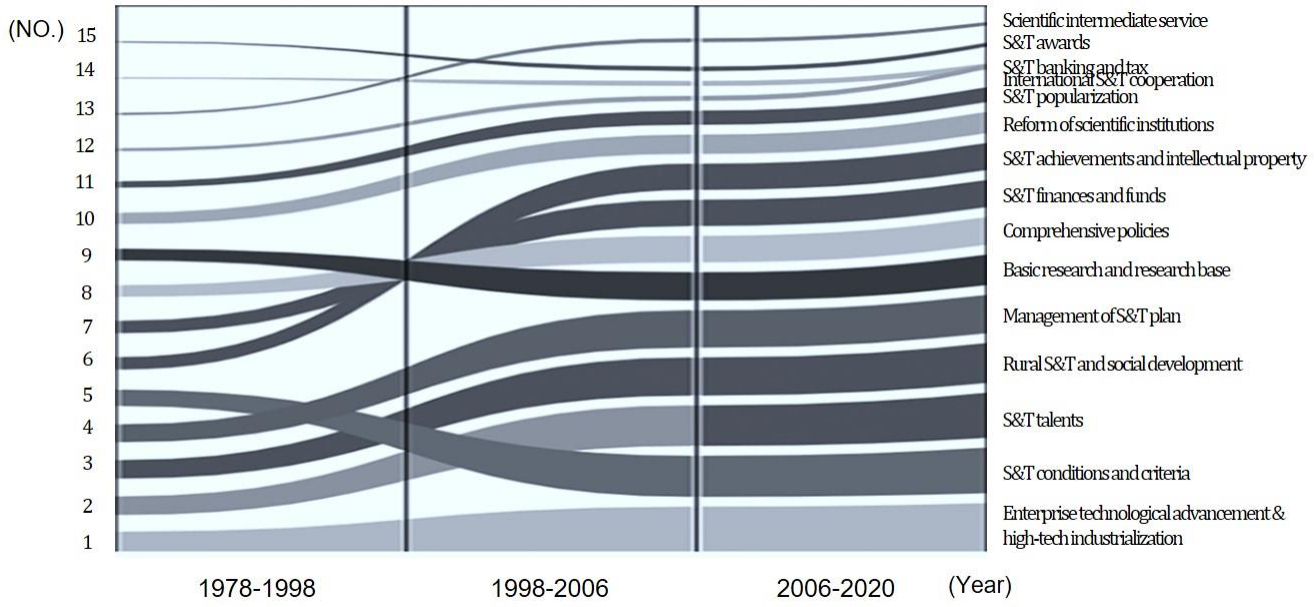


Figure 6. The Dynamics of Coordination Category Evolution.

The themes of Enterprise technological advancement & high-tech industrialization, rural S&T and social development, and S&T talents have been the most prevalent coordinating themes over time, as shown in Figure 6.

In contrast, less attention has been given to the specific areas directly subordinate to an agency's role, such as scientific intermediate service, S&T awards, and international S&T cooperation. Also, the themes are distributed unevenly, which could be related to either of the two possibilities. First, topical themes are frequently aligned with national strategic priorities, which naturally gain more support from multiple agencies. Second, coordination and specialization are hostile, as well as the majority of public sector reforms that swing between them to achieve the ideal governance balance (Peters, 2018). Commonly observed among the larger issues are labor-intensive tasks relevant to the interests of multiple parties from a variety of social areas. Thereby, it might prove challenging to assign all tasks to a single agency.

4. Conclusion

Through a quantitative analysis of policy documents, this paper traces the path of China's S&T policy coordination development. A dynamic perspective facilitates capturing more information about China's policy coordination at multiple historical stages, which is useful in comprehending how policy coordination progresses in a typical centrally organized nation. Comparing policy networks and coordination themes from various time periods exposes some of the characteristics that impact the formation of cooperative connections.

China's experiences demonstrate that the distinctiveness of its political systems has resulted in highly heterogeneous coordination systems. In centralized nations, both self-organized and authority-stimulated coordination systems coexist. Undoubtedly, authority-stimulated coordination patterns have significant benefits, they are prompt and aggressive in their endeavor to compel interagency coordination. But still, this approach has limited capacity for promoting long-term optimism towards cooperative policy coordination. Consequently, it may be more optimal to cultivate self-organized coordination as the dominant pattern of coordination while using authority-stimulated methods occasionally.

Overall, this study enriches the literature on policy coordination in centrally organized countries, expands the dimensions of analysis and methods for tracking policy documents, and provides valuable insights into how policy coordination processes in centrally organized political systems such as China. But nonetheless, there have been restrictions on this research. The study's exclusive focus on S&T policies, which might not be representative of other policy areas, is a potential limitation. It is possible that interagency coordination functions differently in other policy domains, such as economic and social issues. Consequently, it is essential to use caution when transferring the outcomes to other policy domains. To further comprehend how inter-agency relationships work in multiple policy domains and political contexts, additional research is needed.

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Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

Appendix

A1. List of the Agencies.

NO.	Agency	Abbreviation
1	National Natural Science Foundation of China	NSFC
2	The State Council of the People's Republic of China	SC
3	General Office of the State Council of China	GOSC
4	Ministry of Science and Technology of the People's Republic of China	MOST
5	Ministry of Finance of the People's Republic of China	MOF
6	National Development and Reform Commission, People's Republic of China	NDRC
7	Ministry of Industry and Information Technology of the People's Republic of China	MIIT
8	Ministry of Education of the People's Republic of China	MOE
9	Ministry of Commerce, People's Republic of China	MOFCOM
10	Ministry of Human Resources and Social Security of People's Republic of China	MOHRSS
11	State Administration of Science, Technology, and Industry for National Defense	SASTLND
12	National People’s Congress	NPC
13	Chinese Academy of Social Sciences	CASS
14	China Association for Science and Technology	CAST
15	Chinese Academy of Sciences	CAS
16	Chinese Academy of Engineering	CAE
17	State Taxation Administration of China	STA
18	China National Intellectual Property Administration	CNIPA
19	Equipment Development Department of the Central Military Commission	EDD
20	Central Military Commission of the People's Republic of China	CMC
21	Central Committee of the Communist Party of China	CCCPC

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