Academic Research and Institutional Breakthrough: Theoretical Analysis Under COVID-19

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Abstract
After the outbreak of Covid-19, the public criticized China’s imperfect system and unclear rights and responsibilities of governments at all levels. This study first analyzes the institutional impaction as plausible reasons for the viral outburst and social damage through three dimensions: the tightly coupled system and the decoupling between powers and responsibilities, the conflict between regulatory legitimacy and cognitive legitimacy, and the absence of nongovernment organizations (NGOs) and the nonprofessionalism of professional organizations. Then, given the informational asymmetry, we focus on the promising potential of academic research for an institutional breakthrough. Sensibly, professional knowledge and information disclosure played mediating roles between the relationship of academic research and government policy, while complexity of the decision and external and internal supervisions are motivators and constraints. On this basis, suggestions for achieving institutional breakthrough through academic research are put forward. This study enriches disciplinary boundaries by applying institutional theory to the discussion of state management and academic research, promoting scientific decision-making in political-academic cooperation.

Keywords Covid-19 · Academic research · Institutional breakthrough · Information disclosure · Institutional theory
Introduction

Due to its perilous threat, transmission, or emergence fitness, the COVID-19 epidemic has negatively impacted the economies and social fares across the world. Subjected to wake scrutiny and in-depth research by scholars all over the world, it has set out, however, numerous notable achievements (Abebe et al., 2020; Fry et al., 2020). In particular, research on natural sciences has focused on analyzing the functional mechanism of the virus, revealing its transmitting path or improving the disease prevention, which is part of the scope of basic research and is known to be burdensome and unsettled. Research on social sciences, on the other hand, has focused on analyzing the impact of the virus on different dimensions of people’s lives, inclusive for business development, industrial policies, and macroeconomics (Goodell, 2020; Sigala, 2020), minimizing the losses and preventing future risks through lessons learned (Daughton, 2020; Ivanov & Dolgui, 2020; Rizwan et al., 2020), which is a retrospective study that aims to illustrate the current deficiencies and shed light on the direction of social development by knowing human activities. Despite the different objectives and instruments of research in the two different fields, both have made important contributions to deepen the knowledge of the epidemic.

The prevention and containment process following the outbreak of the epidemic have revealed significant variations in institutional implementation, crisis management, and organizational and coordination capabilities among states across the world (Liu & Saltman, 2020). However, widespread disregard and distrust of professionals in different forms across countries during the early stages of an outbreak led to the failure of outbreak containment. For example, the rigid confidence and bureaucracy of the Wuhan government suppressed the warning information disseminated by the doctor, which in turn deprived the government of preventive and regulatory capacity, resulting in unprecedented closure of cities in the People’s Republic of China (Liu & Saltman, 2020). In the USA, then President Trump refused to listen to the advice of medical experts, turning the simple and effective scientific advice of “wearing a mask” into a performance art of promoting the spirit of democracy and freedom by boycotting masks, which was also a poor demonstration of politics over science.

Although the Chinese government quickly took control after the outbreak, demonstrating effectiveness and efficiency of governance in some areas, the dark side and the systemic problems in the early stage of the epidemic have not been systematically sorted out and theoretically analyzed, and are still having a negative impact on society in different forms until now. For instance, after Wuhan’s lockdown 2 years ago, Xi’an’s unpredictable rigorous shutdown of 12 million people in January 2022 caused a series of social issues. The collapse of the electronic health certificate system paralyzed the city; the residents’ food supply was not guaranteed; a pregnant woman was rejected by a hospital for the lack of health certificate, resulting in miscarriage. According to incomplete statistics reported in the media, thousands of officials have been held accountable since the outbreak, with nearly 100 from July to August 2021, and more than 31 officials being accused in the December 2021 outbreak in Xi’an. Against the background of strong internal supervision
with 2 years of experience in epidemic prevention, the problem of “ineffective epidemic prevention” still occurs repeatedly in various places, and we believe that it is critical to retrace the process of epidemic spread and make institutional attributions as a basis for learning the lesson and finding institutional breakthroughs.

Rational analysis of problems and drawing lessons from them are the basis for further improving the quality of decision-making and governance. Traditional institutional theory emphasizes that institutions, as social rules, can largely reduce the uncertainty of organizational activities and, to some extent, determine the transaction and coordination costs of social activities (North, 1990). Organizations gain legitimacy for survival through three mechanisms: coercive, mimetic, and normative isomorphism (DiMaggio & Powell, 1983). Organizations, including all levels of government, can only obtain resource support and legitimacy if they carry out social activities under a specific regime. Meanwhile, the degree of coupling within organizations produces different characteristics of the system, among which the tight coupling of Weberian bureaucracy is precisely the characteristics of Chinese government organizations (Zhou, 2020). Thus, institutional theory provides a good perspective and tool for analyzing institutional deficiencies in the early stages of the epidemic.

Besides, the existing research on how to achieve institutional breakthroughs is still scarce, and how to deal with the contingency relationship between professionals’ knowledge and regulators’ control over the system is also a world-class dilemma that has not been thoroughly explored. We argue that academic research is a possible path to achieve institutional breakthroughs, i.e., researchers using heterogeneous and exclusive expertise and technical skills can assist the government to improve the quality of decision-making and guide them to comprehensively consider the social value and external impact of decisions with the help of public opinion (Rigby & Morgan, 2018). Although scientific research needs to be subordinated to a particular institutional context and requirement, during the epidemic prevention period, policymakers need to rely on the expertise and insight of researchers, integrate opinions from multiple perspectives, and then weigh the pros and cons before making the optimal decisions. Thus, government and researchers (especially renowned experts) are in a close but mutually constraining relationship (Benoit et al., 2019).

Taking the spread of COVID-19 as an example, this paper first conducts an in-depth institutional attribution of the virus outbreak from three dimensions: tightly coupled system and decoupling of powers and responsibilities; the conflict between regulatory legitimacy and cognitive legitimacy; the absence of NGOs and the non-professionalism of professional organizations. Then, by constructing a theoretical model on the relationship between academic research and the quality of government policy-making and its motivators and constraints, possible paths for institutional breakthroughs with academic research are proposed. Finally, suggestions for institutional breakthrough through academic research are discussed.
Institutional Theory and Realistic Background

Institutional Theory

Institutional theory suggests that organizations have a need to gain legitimacy in order to survive and access resources in a given field (Meyer & Rowan, 1977); therefore, they become isomorphic in three ways: coercive, mimetic, and normative (DiMaggio & Powell, 1983). Coercive isomorphism tends to be accomplished through top-down administratively enforced legal rules, mimetic isomorphism is the imitative copying by organizations of others who are similar or successful, and normative isomorphism is when organizations follow widely accepted standards, expertise, and cultural practices; thus, the latter two are spontaneous bottom-up imitative learning. There are various ways of classifying legitimacy; for example, Suchman (1995) refines the types of legitimacy into pragmatic legitimacy based on actors’ gain or loss of interest, moral legitimacy based on the approval of social norms, and cognitive legitimacy based on the perception and knowledge of “rightness.” Another widely accepted basis of legitimacy is the classification of regulatory, cognitive, and normative pillars proposed by Scott (1995). For the convenience of analysis, combining the above two classifications, this paper divides legitimacy into two broad categories: one is the top-down regulatory legitimacy, whose source is the government and other power institutions; the other is the bottom-up cognitive legitimacy, which mainly contains spontaneously formed rules such as practice, knowledge, and moral norms. If academic research is widely recognized by society, the corresponding compliance behavior can provide cognitive legitimacy.

Organizations need to make trade-offs between efficiency and legitimacy, because coherent behavior to gain legitimacy is often accompanied by loss of efficiency. Well-designed institutional arrangements can mitigate such transaction and coordination costs, ensure that organizations are located in the optimal balance of legitimacy and efficiency as much as possible, and enhance the functioning efficiency of society as a whole, i.e., stable, well-designed, and transparent institutions, as a kind of social rules, can largely reduce the uncertainty of organizational activities and, to some extent, determine the transaction and coordination costs of social activities (North, 1990). Conversely, irrational institutional arrangements can increase the cost of gaining legitimacy for organizations and cause unnecessary losses—and this is exactly what happened during the Wuhan outbreak, which played out many times afterward (see “Novel Coronavirus Diffusion of Institutional Attribution”).

When seeking a balance between legitimacy and efficiency, organizations often employ coupling mechanisms to adopt existing institutional norms. According to the existing literature, there are two forms of coupling in formal systems, the Weberian tight coupling of precisely bureaucratic organizational systems and the loosely coupled mechanisms prevalent in specialized fields such as educational institutions, high technology, and creative industries (Zhou, 2020). Zhou (2020) points out that if the tightness of coupling is measured by a spectrum, then the Chinese bureaucracy would be at one end of the tightest and the USA at the other.
end of the loosest. China’s bureaucracy creates a high legitimacy demand for formal organizations, driving them to adopt more convergent organizational structures and behavioral strategies in order to gain legitimacy, and, at the same time, results in high legitimacy costs due to the imperfections of the existing system. A particular indication of this system is the dual-headed leadership of administrative affairs authority and party committees, whether in hospitals, schools, or various administrative agencies. This setup not only depletes the efficiency of decision-making for knowledge-intensive institutions (hospitals and epidemic prevention departments), but also hinders the bottom-up flow of information due to the multiple layers and the unprofessional background of the leaders.

The degree of coupling is also determined by the extent to which the organization depends on the institution formulator (Meyer & Rowan, 1977). In China, schools, hospitals, and research institutions, on the one hand, rely heavily on the government for funding and exhibit a stronger need for isomorphism and legitimacy, and on the other hand, are more suitable for adopting a flat organizational structure to enhance information interaction. Both features result in a unique structure of “flattening at the bottom, bureaucratizing at the middle and upper levels” for these professional organizations, which can be one of the potential reasons for lagged response in the early stage of an epidemic outbreak.

Realistic Background of Novel Coronavirus Diffusion

Table 1 illustrates the timeline and significant events of the Covid-19 outbreak with the first affected patient reported on December 1, 2019. At the beginning of the epidemic, the cause of the virus and the path of transmission were uncertain, and rapid and strict control decisions could face a high opportunity cost, and the two sessions¹ in Wuhan and in Hubei province were about to be held. The local government leaders with rigid confidence, who subjectively believe that they could effectively control the epidemic, missed the best opportunity for epidemic control. In addition, Wuhan is located in the thoroughfares of nine provinces and is one of the most important transportation routes in China. The return of millions of college students and migrant workers has further aggravated the spread of the disease and its speed, resulting in nationwide closure and shutdown of economic and social activities, giving rise to trillions of economic losses that are still expanding today.

This outbreak is not the first of its kind. As early as 2003, after the SARS crisis, China established a strong communications internet platform covering the entire public health system to enable timely communication and discussion of public health emergencies and access to solutions, yet in the early days of the outbreak, this mechanism failed to function. According to the results of our field interviews with some Chinese CDC officials, they pointed out that China’s 10-year medical reform has basically focused on the medical level and neglected the public health level. In our perception, this argument is one-sided and it is more likely to be one of many

¹ Two sessions refer to The National People’s Congress and the Chinese People’s Political Consultative Conference.
| Time                  | Important events                                                                                                                                                                                                                                                                                                                                 | No |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| December 1, 2019     | The first patient admitted by Wuhan Jinyintian Hospital has no history of exposure to Huanan seafood markets (the first place where the epidemic broke out)                                                                                                                                                                                              | 1  |
| December 10, 2019    | Three others developed the disease, two of whom had no history of exposure to Huanan seafood markets                                                                                                                                                                                                                                            | 2  |
| December 30, 2019    | Wuhan Health Commission issued an internal notice: Pneumonia of unknown cause has been found in Wuhan, which is related to the Huanan seafood market. Li Wenliang, Liu Wen, Xie Linka, and other 8 doctors reminded colleagues in WeChat group. A nurse developed mild symptoms of infection.                                                                                     | 3  |
| December 31, 2019    | A team of experts from the National Health Commission has arrived in Wuhan. Wuhan Health Commission has publicly announced 27 cases of pneumonia of unknown cause, no obvious human-to-human transmission has been found, and no infection among medical staff has been found.                                                                 | 4  |
| January 1, 2020      | Wuhan news media reported that 8 people who spread “rumors” were punished in accordance with the law                                                                                                                                                                                                                                               | 5  |
| January 3, 2020      | CT doctor Li Yunhua of Xinhua Hospital found 3 CT abnormalities                                                                                                                                                                                                                                                                                   | 6  |
| January 5, 2020      | Wuhan Health Commission reported 59 cases of patients, no obvious human-to-human transmission was found, and no infection among medical staff was found.                                                                                                                                                                                                  | 7  |
| January 6, 2020      | Wuhan Two Sessions open. The Chinese Center for Disease Control and Prevention issued an internal document to activate the second-level emergency response. Xinhua Hospital held an internal meeting, emphasizing that the situation should not be leaked, especially not to the media.                                                                                                      | 8  |
| January 8, 2020      | Novel coronavirus was confirmed by a panel of experts of the National Health Commission as the cause of the epidemic.                                                                                                                                                                                                                                | 9  |
| January 10, 2020     | Wuhan Two Sessions close.                                                                                                                                                                                                                                                                                                                              | 10 |
| January 11, 2020     | Wuhan Health Commission reported 41 patients, including 6 deaths, stressing that no new cases have been found since the 3rd Jan., no obvious evidence of human-to-human transmission has been found, and no infection among medical staff has been found.                                                                                                                   | 11 |
| January 15, 2020     | Hubei Two Sessions open. The Chinese Center for Disease Control and Prevention issued an internal document to initiate a level 1 emergency response.                                                                                                                                                                                                  | 12 |
| January 16, 2020     | No new cases have been reported by Wuhan Health Commission, and limited human-to-human transmission cannot be excluded. The risk of continuous human-to-human transmission is low.                                                                                                                                                                           | 13 |
| Time              | Important events                                                                 | No |
|-------------------|----------------------------------------------------------------------------------|----|
| January 17, 2020  | No new cases were reported during the close of the two sessions in Hubei province | 20 |
| January 18, 2020  | Wuhan Health Commission announced 4 new cases                                    | 21 |
|                   | Xinhua Hospital CT doctor Li Yunhua found 100 cases of abnormal CT               | 22 |
| January 19, 2020  | Wuhan Health Commission reported 17 new cases, a total of 62                     | 23 |
| **January 20, 2020** | **Zhong Nanshan announced human-to-human transmission, with medical workers infected** | 24 |
| January 21, 2020  | Group meeting of Hubei province, relevant provincial leaders all attend           | 25 |
| January 22, 2020  | Hubei province initiated a second-level emergency response                        | 26 |
| January 23, 2020  | Wuhan city sealing                                                               | 27 |
|                   | Level 1 emergency response was activated in Zhejiang, Guangdong, and Hunan       | 28 |
| January 24, 2020  | Hubei province initiated a level 1 emergency response                            | 29 |

Source: compiled from publicly available information from Weibo and news reports
phenomena that resulted from systemic problems. Some scholars have pointed out that under China’s hierarchical bureaucratic management system, local government officials are conservative in their mentality and insist on “try first, to make their mistake soundless serious, and then, to reduce it to nothing at all (da shi hua xiao, xiao shi hua liao)” and cannot override their leaders to deal with the problem (Hu et al., 2007). However, this attribution is still relatively general. The deeper institutional reasons behind the phenomenon of ineffective epidemic control, as well as the path to break through the negative impact of the system, are worthy of an in-depth discussion.

**Novel Coronavirus Diffusion of Institutional Attribution**

**Tightly Coupled System and Decoupling of Powers and Responsibilities**

**Tightly Coupled System: Poor Information Flow and Lagging Response**

First, China’s political system is a tightly Weberian bureaucracy with significant multiple layers and vertical management (Zhou, 2020), resulting in poor information flow and a serious lag in the responsiveness of central decision-making. The “top-down” political system, in which local governments report to and implement central government decisions, dictates that local governments are more concerned about the attitudes of higher-level officials because it may affect their political career advancement (Chan et al., 2010). However, high-level decision-making is based on collecting information from the bottom, and a smooth pipeline is needed for information to flow from the bottom to the top. In a tightly integrated institutional arrangement, local governments play the role of intermediaries between the people’s voice and the central government (He & Tian, 2008). That is to say if local governments suppress negative news or opposition, they prevent people’s opinions from being conveyed to the central government. At the same time, poor governance and ineffective crisis management by local governments can also weaken people’s trust and recognition of the central and local governments.

In retrospect, the 1 month between the first case on December 1 (event 1) and the Wuhan Health Commission’s internal notification of the discovery of the “unknown disease” (event 3) might be reasonable because the situation was unclear and the government need to prevent panic. However, for the next 20 days, the informal external communication channels were closed (event 8) and the information was only permitted to be passed inside the hospital, with the government reporting at various levels within the relevant agencies according to the formal process. During this precious 20 days, the epidemic spread rapidly until the information could not be concealed and the National Health Commission published an official interpretation of the epidemic (Zhong Nanshan declared “human-to-human transmission” on event 24), at which point the provincial governments all around the country immediately sounded the alarm (event 26) and declared an urban lockdown (event 27).
Did local governments have the authority to release information directly to the public at the start of the outbreak? The “Emergency Response Law” enacted in 2007 and the “Infectious Disease Prevention and Control Law” enacted in 1989 are inconsistent in their provisions for epidemic disclosure. According to the latter, which specifically addresses epidemics, the epidemic should be released by the National Health Commission or, with its authorization, by provincial health departments. Accordingly, the Wuhan government had no authority to release the news, so procedurally, the Wuhan government is legitimate. Considering from cognitive logic, it is also reasonable for local government officials to conceal the information: The news could lead to a public panic and they will certainly be held accountable by the central government; while if they do not release the news in time and cause serious consequences, the leaders in charge will also be condemned by public and be politically responsible. In other words, the consequences of this event are difficult to predict, and procedurally, it is only right not to release the news. Thus, although local governments are accountable to the central government’s intention of “serving the people,” the actual moves often involve a consideration of the impact on themselves, making the decision-making response lag far behind the dynamic crises.

Decoupling Power and Responsibility: Management Dilemma and Conflict of Interest

Under the current system, the division of power and responsibility is unclear. On the one hand, some departments have responsibilities but not powers, producing inefficiency and rigidity in management. In the first week after Wuhan’s lockdown, when rescue supplies from all over the world were pouring into Wuhan, the Hubei provincial government announced that the Wuhan Charity Federation and the Red Cross would be the only two organizations that can accept all the donations and distribute them uniformly, without noticing that these two agencies were severely understaffed and could not handle such a large amount of material distribution. As a result, these two institutions had a huge backlog of anti-epidemic materials while the frontline medical staff had nothing to use. In addition, the “centralized receipt of supplies” made it difficult for many targeted donations to reach their destination in a timely manner, and the short distance between the two agencies and the Wuhan hospitals have become the “unreachable last mile” for the supplies. When Red Cross staff members were condemned by the public for inefficiency, they said helplessly, “Our function is to receive; we have no right to decide to send.”

The National Health Commission, which has the authority to release the outbreak, was stationed in Wuhan on December 30 (event 6) and first announced the emergence of a “human-to-human” outbreak on January 20 (event 24). During the

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2 “Wuhan New Coronary Pneumonia Prevention and Control Command Circular No. 4,” Xinhua News Agency, 2020–1–23. Accessed by [2022–1–30]. https://weibo.com/1699432410/IqRQ3wzqi.

3 Jing, Y., Gong, S. Southern Weekly, 2020–2–1. Accessed by [2022–2–2]. https://www.infzm.com/contents/175676.
investigation, the Wuhan Health Commission, a subordinate agency, issued several releases (events 10, 16, and 19) before the two sessions, the last of which deliberately emphasized that “the risk of continuous human-to-human transmission is low” in an attempt to appease the public. Ultimately, key officials at all levels of the Wuhan city government, who had no authority to release information, took the public’s anger. This is because under the current system, local governments have the responsibility to undertake the consequences of all incidents within their jurisdictions. Meanwhile, the public perceived that the central government as well as the national leaders repeatedly emphasized the need to put people’s lives first, but the local governments have given priority to political factors over people’s interests in the actual implementation of policies. In Hubei province, the center of the epidemic area, when the possibility of “human-to-human transmission” was detected, only the secondary emergency mechanism was activated before the city was locked down (event 26). In contrast, non-epidemic provinces such as Zhejiang, Guangdong, and Hunan were the first to initiate a level 1 emergency response (event 28). This indicates that Hubei province paid far less attention to this outbreak and its severe lack of early warning capability.

On the other hand, some departments have power without responsibility, leading to the space of rent-seeking, selective law enforcement, and corruption. During the period when the epidemic was spreading seriously, the majority of local governments in China’s provinces, cities, and autonomous regions fully responded to the central government’s unified deployment and the call, complying with the overall situation and mobilizing resources to support Hubei, reflecting the system’s good organizational mobilization ability, synergy, and high efficiency. However, there were also a few local governments that withheld anti-epidemic materials for their own use and distributed them to the local real-estate association. The fact that the local governments tend to seek rent through discretionary power in the process of policy implementation not only damages their cognitive legitimacy and contradicts the intentions of the central government, but also reflects the existence of competition and conflict of interest among multiple local governments (Chan et al., 2010). The phenomenon is consistent with the theory of official promotion tournament, where the virtuous competition between various Chinese local government officials has greatly contributed to the development of the Chinese economy (Li & Zhou, 2005). However, in the early stage of epidemic prevention and control, with limited resources, local governments can also fall into a vicious competition by overemphasis on local interests. These examples fully illustrate the dilemma of management practices and conflicting interests among localities due to the lack of unified authority and responsibility.

The Conflict between Regulatory Legitimacy and Cognitive Legitimacy

Based on the classification of legitimacy, local governments follow political logic to gain regulatory legitimacy from higher authorities, while doctors act according to professional knowledge and social norms, which means that their practices have cognitive legitimacy. The suppression of the spread of expertise by political concerns
in the early stages of epidemic diffusion is the outcomes of various organizations’ response to the conflict between regulatory legitimacy and cognitive legitimacy.

The “Dilemma” of Law Enforcement Agencies Under Regulatory Legitimacy

From the perspective of the government’s access to regulatory legitimacy, local government officials in the 34 provinces (cities) and autonomous regions have a great deal of “discretion” in actually dealing with problems due to the lack of clarity in the overall system and the unclear legal boundaries. However, in practice, this power is constrained by the supervision of central government and the promotion mechanism. As a result, government officials often judge the urgency of a situation not by the nature of the event but by the attitudes and inclinations of their superiors, and if discretion is used improperly, they are punished according to the consequences caused (rather than their behavior), which range from warnings, demerits, to dismissal, ending their political careers. Thus, in emergency situations, the government’s need for regulatory legitimacy to “maintain social stability” necessarily conflicts with doctors or the public’s need for cognitive legitimacy to “disseminate information in a timely manner.”

Taking the landmark event of “Li Wenliang and other doctors were admonished” on December 30 (event 8) as an example, after the Wuhan Health Commission issued an internal notification of an unknown infectious disease, Li Wenliang and 10 other doctors alerted their friends via WeChat, which was spread to some extent, but was publicly accused by the police of “spreading rumors” on January 1, especially after Dr. Li Wenliang also contracted the disease, provoking strong public outrage. In response, the Supreme People’s Court commented, “If the law is understood mechanically, we can indeed conclude that pneumonia infected by the new coronavirus is not SARS. To say that SARS appeared in Wuhan is fabricated and false information, and the information has caused chaos in the social order. There is a legitimacy to impose administrative penalties or even criminal punishment for the fabrication and dissemination of false information in accordance with the law…”

As can be seen, the judiciary recognized that the police treatment was justified, as Covid-19 is not SARS, the information was indeed a rumor, and the procedure was legal.

Subsequently, the Supreme Court further stated that “it has been proven that although Covid-19 is not SARS, the publisher of the information … was not completely fabricated, and if this rumor [was adopted] …, it could have been a fortunate event.” This suggests that this “rumor” should have not been treated as a rumor simply because it has practical legitimacy, such that the Wuhan police in the whole event “adopted a reasonable procedure but led to an unreasonable result.”

As to how to prevent such problems, the Supreme Court emphasized that, “attempting to legally crack down on all information that is not fully factual is
neither legally necessary nor institutionally possible, and may even lead us to the opposite of the value of legal justice and weakening the government’s credibility… Therefore, law enforcement agencies, in the face of false information, should fully consider the degree of subjective malignancy of the information publisher and disseminator, and their ability to perceive …” According to this interpretation, the Supreme Court wished the law enforcement agencies to use their discretionary power to improve information discernment and should not be overly harsh.

However, the Supreme Court concluded by listing four types of rumors that must be “severely cracked down” during an epidemic and cover almost all aspects of society. They are “rumors about the status of the epidemic that cause social disorder, rumors about slanderous information about the state’s ineffective control of the epidemic that cause social disorder, rumors about fabricated information about medical institutions’ uncontrolled treatment of the epidemic and ineffective treatment of the epidemic that cause social disorder, and rumors about medical institutions’ uncontrolled treatment of the epidemic that cause social disorder.” Thus, the two requirements above still formed a conflict; in the era of information explosion, the authenticity of a piece of information, the possible consequences, and the true motives of the disseminator are not easy to be verified or accurately judged in a short period of time. If the police failed to promptly investigate and deal with the “intentional fabrication and dissemination of false information” resulting in adverse social consequences, it would loss both procedural legitimacy and practical legitimacy and be inevitably responsible for their “inaction.”

At the same time, according to the Supreme Court’s commentary, the distinction between “not being overly harsh” and “harshly investigating and punishing” rumors is based on whether the rumor could create significant “social disorder.” However, social disorder is not a definite fact but rather the outcomes of information having an indirect effect on the behavior of enough others. The impact of the information (rumor) requires multiple steps to generate chaos: the information is published, others receive the information, others identify, understand, and spread the information, and enough people change their behaviors. Each of these steps is highly subjective, so the process from “publishing a message” to “social disorder” is extremely uncertain; even scholars in the field of expertise have difficulty in making accurate predictions. It is clearly impossible for law enforcement officers to predict whether each piece of information (rumor) will produce significant social disorder by relying on their personal perceptions and experiences.

Even if all the information is true, if law enforcement officials judge it to be a negatively influential message against social order, the regulatory legitimacy need to maintain social stability will encourage leaders not to release the information. Thus, when an unprecedented and uncertain event occurs, such as an unknown virus starting to circulate, the Wuhan government’s response logic can be inferred from the facts in Table 1. First, the news was contained within the organization (event 8); at the same time, the threat of the virus was reported to higher authorities to judge the consequences of this event (event 3 Wuhan Health Commission issued an internal document, and event 6 National Health Commission moved in). When the situation is unknown, officials are not inclined to issue unauthorized warnings to cause adverse social impact and damage their regulatory legitimacy. Even after
determining that the virus may be “human-to-human,” priority was given to maintaining the “two sessions” (event 10 reported that no “human-to-human” transmission was found, event 11 the opening of the two meetings in Wuhan, and event 13 the continuation of the information lockdown). Before and after the opening of the two sessions in Hubei province, a stark contrast can be seen between the internal and external information of the organizations: on January 11, there was already an infection among healthcare workers but the information was contained, because on the same day, Hubei province two sessions opened. Until the day before the closing of the two sessions on January 16, the Wuhan Health Commission started to announce that “limited human-to-human transmission cannot be excluded.” When officials without medical knowledge were confronting with the unknown virus, they had chosen the conventional path: On the one hand, they were in a need to eliminate or control the social impact in order to ensure the smooth convening of the two sessions; on the other hand, they were waiting for internal decisions from higher authorities to avoid personal political risks. This is the prevailing political logic for officials to gain regulatory legitimacy in a centralized system, but it also leads to the loss of the first opportunity to control the outbreak.

**Breakout of Expertise Under Cognitive Legitimacy**

The core of academic research lies in “critical thinking,” in recognizing, exploring, and discovering the unknown. From the perspective of doctors, disease control experts, and other professionals, years of professional training and rich clinical experience enable them to quickly determine the emergence of unexpected situations. “Science have no borders,” when an “unknown disease” such as the novel Coronavirus is found to be highly infectious and fatal, the professional approach is not to conceal the information, but to evaluate the risk scientifically and to publish the information immediately; when the situation is beyond professionals’ understanding, they usually call for the common attention of more professionals and scholars. Therefore, the 11 doctors, including Li Wenliang, discussed the virus within professionals and released early warning information to their family and friends in a WeChat group at the beginning of the outbreak, despite being asked by their work unit to “strictly prohibit the dissemination of information to the outside of the organization.” This behavior showed that Dr. Li’s cognitive legitimacy prevailed as a professional, and it also showed the glory of human nature, so many ordinary people call him a “hero” and expressed their deep gratitude and condolences for his passing.

**The Absence of NGOs and the Nonprofessionalism of Professional Organizations**

**The Absence of NGOs**

There are two notable professional NGOs in this epidemic: the Red Cross Society of China Wuhan and the Wuhan Institute of Virology. The Red Cross is a “non-governmental organization” founded on the model of the Western system and is responsible for specialized tasks such as emergency response and rescue in the event of a disaster. However, unlike
most charitable organizations in the West, the Red Cross in China is headed by government officials and relies on government funding for staffing and daily operations. In other words, although it has the name “NGO,” it is still a government organization. This is also the case with the Wuhan Institute of Virology.

The absence of real NGOs on the one hand reduced the speed of response to disasters. The rescue cases of many natural disasters such as earthquakes and floods have demonstrated that spontaneous rescue by civil organizations is more timely than government agencies especially at the beginning of chaos. During the first few days of Wuhan’s lockdown, the absence of NGOs has led to a huge gap between the needs for help of the disaster-affected citizens and the limited efficiency of formal organizations. A large number of people could not be properly arranged and rescued, causing a series social problems and secondary disasters. This kind of tragedy was still playing out during Xi’an’s lockdown from December 2021 to January 2022. Allowing people to spontaneously organize and help themselves is extremely important to reduce damage in the early stages of a disaster. Although the spread of the epidemic is special and it is improper to mobilize people on a large scale, during the lockdown period, a lot of organizing work was done by community volunteers. Moreover, the long absence of NGOs in the whole society has led to a strong public dependence on the government and a lack of “self-helping” awareness as well as organizational skills, which aggravated the chaos during the initial blockage in Wuhan.

The Nonprofessionalism of Professional Organizations

During the Covid-19 outbreak, professional organizations have not demonstrated the professional competence they should have, not only amplifying losses but also overdrawing social trust. After the 1990s, China began to withdraw and merge epidemic prevention stations, and professionals engaged in epidemic prevention were marginalized. As a result, it is all medical or even biological experts who speak out on infectious disease control. It is easy to fall into the huge trap of using scientific research standards to demand clinical and first-line control. For example, the Wuhan Institute of Virology, known as one of the nine P4 virus research institutes in the world, has shown a disappointing performance in this Covid-19 epidemic in terms of its scientific research achievements, leadership, and crisis response ability. Without any evidence, they have publicly declared that a traditional Chinese medicine called Shuanghuanglian can effectively suppress the novel coronavirus. This discredits the Wuhan Institute of Virology.

On December 20, 2021, during the latest city closure in Xi’an, the system of “One Code Pass” (an electronic travel credential for all citizens) collapsed due to technical problems, paralyzing the entire city of Xi’an. The emergency repair engineer was prevented from entering the office for not being able to present the One Code Pass. On January 4, such a problem occurred again, and the party secretary and director of the Xi’an Big Data Resources Administration, Liu Jun, gave the explanation that “the system was overloaded due to excessive access” and failed to convince the public, and was suspended from his duties for incompetent
It is appalling that such a technology-based department was led by a nonprofessional man with only a propaganda work experience.

Along with the development of organizations, the bureaucratization of organizations is an inevitable fate, which requires the introduction of competition mechanisms to promote organizational self-reinvention so as to sustain their vitality and competitiveness (Eisenstadt, 1959). Reforms are urgently needed within Chinese research institutions, especially in the appointment for leadership positions at top research institutions. Preventing relationships from replacing capacity, establishing and improving a democratic and open peer review system, and ensuring that professional scientists hold important leadership positions are the key measures in the reform (Cao, 2020; Park & Luo, 2001).

Academic Research and Institutional Breakthroughs

Academic Research and the Quality of Government Decision-making: the Mediating Role of Information Disclosure and Expertise

The information asymmetry has been criticized by netizens during the epidemic. The blockage of information in the early stages of the outbreak exacerbated the spread and panic of the epidemic. Meanwhile, a scientific research team led by the National Health Commission published relevant research in international academic journals such as CNS and Lancet with exclusive data. This was questioned by netizens for having the data but not releasing it in a timely manner, leading to the massive spread of the virus. In China, the government is mainly responsible for the release of epidemic information, and researchers are not allowed to publish detailed infection data. Nonetheless, the academic research has objectively disseminated the valuable information on the Covid-19 virus. The rapid and borderless information dissemination enhances the government’s ability to intervene and requires the government to improve its information processing and social governance capabilities (Haveman et al., 2017). In major public health crises, the integrity of information access has begun to receive more attention, and academic research, as a form of information disclosure, can effectively enhance the quality of government policies.

Scholars express their views though multiple channels facilitate the diffusion of knowledge and the accessibility of information (Rigby & Morgan, 2018). In the context of emerging economies, governments can use their power to isomorphism the behavior of scientific researchers to serve political ends (Ding et al., 2020; Peng & Luo, 2000). Academic research, on the other hand, can use expertise to influence the policy-making, thereby creating a resource-dependent relationship between government and researchers. For example, ideas that cannot be conveyed in formal channels (e.g., suggesting ideas to officials, submitting research reports, being invited to academic seminars held by the government, giving interviews to official media) can be published in informal channels (published in online blogs, microblogs, self-published interviews, etc.); some criticisms may be difficult to be formally published in Chinese journals, but can be made available through English-language publishing institutions; by publishing high-quality research and
participating in international academic exchanges and seminars, researchers can gain international influence to enhance the domestic influence of their views or open a “policy window” through the pressure of public opinion (Kingdon, 1995). In addition, scholars can draw some profound and important conclusions through mining existing data, thus providing strong theoretical support for policy-making (Kebede et al., 2020).

After the outbreak, Chinese scholars combined their research fields and academic expertise to provide constructive suggestions for effectively coping with the impact of the epidemic on various industries (e.g., Langellier, 2020; Nash & Geng, 2020). A well-known example is Dr. Zhang Wenhong from the Fudan University Hospital in Shanghai, who has gained a high reputation for his professional, rational, insightful, and humorous speech. He has disseminated a large number of scientific recommendations for the prevention and control of the epidemic and greatly enhanced the quality of policies. In turn, the trust in professional scholars of the Shanghai government has significantly improved its governing capacity. Against the background of the “one-size-fits-all” cleanup policies of many Chinese provinces in late 2021 and early 2022, the Shanghai government, with the intellectual support of a group of top experts, scholars, and technicians, was able to conduct the “precise prevention and control,” a 20-square-meter milk tea store is designated as the “medium risk” area in Shanghai, making it the smallest “risk control area” in the whole country, in stark contrast to Xi’an, where all 12 million citizens were strictly locked down. The Shanghai government has revealed its scientific prevention process: relying mainly on big data and professionals to make decisions, focusing on high-risk groups, releasing specific information in a timely manner, conducting rapid epidemiological surveys, and conducting small-scale precision nucleic acid screening rather than nucleic acid test for all. The Shanghai government tried not to disturb the citizens and control the potential patients precisely. Such scientific policies and effective governance require officials to have full trust in scholars and professionals.

**Proposition 1** In an uncertain environment, academic research can enhance the quality of government decision-making by generating expertise and improving information disclosure to help governments make scientific decisions. That is, expertise and information disclosure play a mediating role between academic research and the quality of government decisions.

**Moderating Effects of Decision Complexity, Internal and External Supervisions, and Information Disclosure**

After the outbreak of the epidemic, governments, like the public, turned to the expertise generated by academic research when experience in administrative decision-making failed to address the viral threat from nature. Decisions about

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5 Ling, J. medical field (Yi xue jie). 2022–1-14. Accessed by [2022–2-20], https://www.ysj.org.cn/detailPage?articleId=305280.
epidemic prevention often involve organizing multiple sectors and personnel, such that the high cost of making mistakes (Zaremba et al., 2020) has driven political logic to compromise with expertise. We were able to observe that due to the specialized and complex nature of the epidemic, local governments have begun to actively seek professional advice before issuing government announcements. Certainly, due to the large variability of different medical types such as vaccine development and clinical trials, how to coordinate the relationship between different subjects so as to provide authoritative and recognized scientific references for the government’s scientific decisions involves the knowledge structure, skill expertise, and academic and social reputation of scholars. Therefore, when decisions are more complex and specialized, the barrier effect of knowledge can prompt governments to seek the support of expertise.

**Proposition 2** The more complex and specialized the decision is, the greater the dependence of government decision quality on the academic research.

External supervision refers to the bottom-up monitoring of the public on the government. The public spontaneous supervision has been essential in driving the diffusion of early outbreak news, and it has enhanced the need for quality enhancement of government decisions. Increasingly developed information technologies have made an important contribution to the control of the outbreak and the rapid sharing of information. Meanwhile, these technologies have also enabled people to communicate information and pay attention to public events. Firewalling the people from information can only avail resentment. The active acceptance of external supervision by decision-makers will enhance their dependency on expertise, thus contributing to the quality of decisions.

Although researchers are also subject to information blocking, the diffusion of rational and objective academic views improves information disclosure and strengthens the positive impact of academic research on the quality of government decision-making by enhancing the capacity and intensity of external monitoring. Given that academic research encourages constructive criticism and rational discussion, the dissemination of academic views will, to a certain extent, enhance the public’s ability of critical thinking. Since the outbreak, the public has begun to follow the research on Covid-19 and to absorb scientific knowledge on epidemic prevention. Although rational and irrational views are mixed on Chinese major online platforms and research-based epidemic prevention measures collide directly with “folk wisdom,” such an explosive influx of information and a whole-of-society attention to science are a golden opportunity to enlighten the public wisdom, since China has strengthened the content censor on internet. The debate and popularization of academic views have objectively improved the critical thinking of Chinese people and thus enhanced their monitoring capacity and indirectly strengthened the reliance of policy on academic research.

Improving the information disclosure also needs the cooperation between officials and scholars. Government officials need to improve their communication skills with the people and with healthcare leadership toward a speedy and better
comprehension of medical terms (such as “not human-to-human transmission,” or “limited human-to-human transmission,” or “continuous human-to-human transmission”) during public emergencies to minimize ambiguity in decisions. Withal, utilizing clearer and simpler wording and refraining from sophisticated medical terminologies during public health crises would improve the conversation between the government and the people.

**Proposition 3** The intensity of external supervision (bottom-up) will enhance the dependence of the quality of government decisions on the academic research.

**Proposition 4** The improvement of information disclosure will strengthen the positive moderating effect of external supervision on the relationship between academic research and the quality of government decision.

Internal supervision refers to top-down censorship and supervision from central government. While internal supervision is considered to be an effective way to prevent corruption and regulate the implementation of laws and rules, it also promotes the need for regulatory legitimacy and the degree of coupling of governments at all levels. Since 2012, the “anti-corruption” campaign launched by the central government has investigated and punished more than 4 million government officials, including 226 officials at or above the provincial and ministerial levels. This movement strengthened the legitimacy crisis awareness of officials at all levels, making them more intensely seeking permission and endorsement from their leaders, resulting in problems such as lack of initiative, low efficiency, and rigid management behavior. These problems broke out during the epidemic in Wuhan and the lockdown of Xi’an. Meanwhile, due to the lack of democratic mechanisms, under strong internal supervision, the government can directly intervene in academic research by emphasizing the regulatory legitimacy of research (Ding et al., 2020; Peng & Luo, 2000), and weaken officials’ adopting of external advice. Therefore, this paper believes that the intensity of internal supervision will strengthen the “upward responsibility” mechanism of local governments, thereby weakening the dependence of government decision-making on professional knowledge, and becoming a threat to academic research breaking through the current system.

**Proposition 5** The intensity of internal supervision (top-down) will weaken the dependence of the quality of government decision on academic research.

On this basis, we draw a theoretical framework as shown in Fig. 1.

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6 Data from China Economic Website, accessed by [2022–3–1], http://district.ce.cn/newarea/sddy/201410/03/20141003_3638299.shtml.
Suggestions for Institutional Breakthrough Through Academic Research

Implementing measures to promote institutional improvement directly in emerging economies is still difficult (Li & Qian, 2013). However, the institutional breakthrough might be achieved by academic research via generating professional knowledge and improving information disclosure. According to our framework, decision complexity and external supervision are favorable factors as they enhanced the dependency of government decision on expertise. Meanwhile, overemphasizing internal supervision will strengthen the regulatory legitimacy and increase the possibility of its conflict with the cognitive legitimacy formed by professional knowledge, thus weakening such a dependency. In order to strengthen the institutional breakthrough through academic research, we propose the following four suggestions.

Correctly Handle the Relationship between Academic Research and Political Intervention

Government and academic research are in a mutually reinforcing relationship. Only an inclusive discussion environment can produce diverse research and prepare for the knowledge that can be relied on when emergencies occur. First, the Chinese government should truly implement democratic centralism in decision-making, fully absorb the opinions of professionals from various aspects, and make scientific decisions. Despite the availability of technological conveniences such as the Internet of Things, big data, and artificial intelligence, the management of public health crises still relies on the decision-makers’ foresight and strategic thinking. Establishing a supporting database with scientific recommendations would be helpful for high-quality decision-making. Second, the government should change management
thinking and social governance modes, weaken the degree of intervention in academic research, and actively open relevant data to provide basic conditions and guarantee measures for researchers to carry out scientific research and solve problems, thus to provide solid theoretical support for making scientific decisions. Third, academic researchers can collect and develop relevant data through multiple channels, actively engage in international academic discussions, and publish academic research results in journals with high visibility and influence. This can force the government to pay attention to relevant issues (Rigby & Morgan, 2018) and promote the transformation of the government’s information disclosure and governance mode with public opinion and external supervision, so as to achieve institutional breakthroughs. Meanwhile, academic research may lay a scientific foundation for technological innovation to break through information blockade, prompt the government to change its governing mode, and achieve institutional breakthroughs.

Guide the Behavior of Researchers with Correct Institutional Norms and Evaluation Systems

The Chinese government should encourage researchers to pay more attention to the social value and international impact of research. First, the government should improve its skills in prioritizing, understanding, regulating, funding, fostering, and evaluating scientific studies of practical significance; timely detect and punish academic misconducts for ethics violations and lack of integrity; and maintain a benign academic culture. Second, the government should formulate distinctive and comprehensive evaluation criteria for scientific research, fully communicate those, and name achievements on the basis of democratic centralism. It must highlight the actual value and social effect of scientific advances and closely combine academic research with economic and social development.

Continue to Increase Funding for Basic Research and Improve the Income Distribution Mechanism

The government could lead the establishment of a regular funding support mechanism for basic research and take multiple measures such as policy support and tax incentives to attract public welfare foundations and scientific research institutions with a sense of social responsibility to jointly increase the basic research funding. By providing diversified supporting policies and tax incentives to enterprises carrying out basic research, the government reduces its intervention in the operation of enterprises and strongly supports and promotes the international collaboration between enterprises. In addition, the government can also improve the income distribution system to attract high-level talents and high-tech enterprises to carry out cooperative research with actual benefits, so as to protect bilateral interests with the system, thus expanding the cooperative subjects, funding channels, knowledge structure, and guarantee mechanism. This is conducive to the production of high-quality scientific research results that will champion in gaining international S&T competitive advantage.
Strengthen the Professionalism and Rationality of the Leadership Team Structure

None of the three Hubei Health Commission leaders who were dismissed after the outbreak had a medical background. In this regard, Jiang Qingwu, the former dean of the School of Public Health at Fudan University, said in an interview with China News Weekly that in many places, the top and second leaders of the health commission have no medical or public health education background. This is unbelievable as it is a position that requires expertise. “The various problems in the early stage of the epidemic in Hubei have something to do with this phenomenon of ‘people who are not professionals but doing professional things’.” Although “political awareness and moral character” are the most important criteria in the promotion of officials, more weight should be given to professional ability in the leadership configuration of professional institutions such as research institutes, hospitals, universities, and health commissions. This would reduce the potential conflicts between cognitive and regulatory legitimacy within these departments. Meanwhile, there should be a complementarity between the first and second in command in terms of professionalism and managerial competence to improve the scientific and managerial efficiency of decision-making (Liu & Ma, 2022).

The Chinese people, under the leadership of the Party and government, have mobilized all their forces to fight Covid-19, demonstrating a strong action power and responsibility. However, 2 years after the diffusion of Covid-19, the secondary disaster it has caused to the Chinese people through an imperfect institutional system continues to spread. Mencius, the Confucian philosopher, said, “Water can carry a boat, but it can also overturn it (Shui neng zai zhou, yi neng fu zhou).” The source of the Chinese government’s strong mobilization and execution power is the trust it has gained by giving full play to the people’s initiative and significantly improving their quality of life over the past decades. Therefore, those in power must stand with the people and effectively serve the people in order to truly turn the crisis into opportunities (Li, 2011).

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Declarations

Ethics Approval This article does not contain any studies with human participants performed by any of the authors.

Conflict of Interest The authors declare no competing interests.

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