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Multi-Level Governance, Policy Coordination and Subnational Responses to COVID-19: Comparing China and the US

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ABSTRACT *The study adopted the multi-level governance theory for a comparative analysis of how the structure and modes of policy coordination shaped subnational policy responses to COVID-19 in Hubei Province, China, and New York State, USA. It was found that both countries showed a hybrid form of vertical and horizontal coordination in COVID-19 responses despite different political systems. Hubei depended more on vertical steering and horizontal support whereas New York took the primary coordinating role while a nationwide strategy was missing. Contingent upon each country's political legacy, effective multi-level governance in crisis responses should balance national leadership with local autonomy and societal engagement.*

Keywords: multi-level governance; COVID-19; policy coordination; subnational government; comparative policy analysis

1. Introduction

The COVID-19 crisis poses unprecedented challenges to national and subnational governments (Kettl 2020; Mei 2020; Migone 2020; Rocco et al. 2020; Yan et al. 2020). Subnational governments – particularly provincial or state governments – play key roles

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in coordinating emergency responses across levels of government, across different agencies and territories, and across public, private, and non-profit organizations (Bowman and McKenzie 2020; Mallinson 2020; Warner and Zhang 2021). Despite early observations on subnational policies, insufficient attention is given to comparative studies in subnational policy responses to the COVID-19 crisis under different national systems.

Public health crises are characterized by significant uncertainty, high time pressure, paucity of experience, and potentially devastating consequences (Moynihan 2008; Ansell et al. 2010; Rose et al. 2017). Responding to a novel coronavirus pandemic such as COVID-19 presents a more acute challenge for subnational governments. On the one hand, COVID-19 is extremely local. Each region has distinctive timeline and scale of the outbreak, and experiences distinctive social and economic consequences. On the other hand, the virus spreads rapidly, creating significant transboundary spillovers on a global scale. Meeting the challenges imposed by COVID-19 thus requires both timely and localized responses, as well as effective policy coordination across levels, jurisdictions, and sectors (Hu et al. 2020; Kettl 2020; Mallinson 2020; Migone 2020).

Policy scholars have sought to understand how inter-governmental and state–society relationships shaped the coordination of subnational policy responses to COVID-19 in countries of different political systems. For instance, early observers argued that American federalism, characterized by a respect for state sovereignty, fractured authority and capacity, and the lack of federal leadership, contributed to insufficient and divided responses taken by state governments in the US (Downey and Myers 2020; Kettl 2020; Mallinson 2020; Rocco et al. 2020). Executive cooperation in other federal countries such as Canada and Australia have allowed more coordinated responses between national and subnational governments (Downey and Myers 2020; Migone 2020). In a different political system, China's policy responses to COVID-19 were characterized by slow subnational actions at the early stages, due to the country's fragmented authoritarian system (Mei 2020), but by strong central leadership, inter-jurisdictional coordination, and massive societal mobilization in the later stages (Hu et al. 2020; Zhao and Wu 2020). However, most comparative policy scholarship on COVID-19 has focused on different types of democratic systems, such as Australia, Canada, Italy, South Korea, and the USA (e.g. Comfort et al. 2020; Downey and Myers 2020; Vecchi et al. 2020). Few studies have directly compared how COVID-19 policy responses were coordinated in democratic and authoritarian systems.

In this paper, we adopt a multi-level governance (MLG) framework for a comparative analysis of subnational policy responses in China and the US. Multi-level governance refers to the institutional arrangements of policy making and implementation that involve continuous interaction and coordination among government and non-government actors across different levels and territories (Hooghe and Marks 2003; Bache and Flinders 2004; Daniell and Kay 2017; Ongaro et al. 2018; Adam et al. 2019; Homsy et al. 2019). Yet theorization has been lagging with respect to the ways in which policy actions are coordinated in multi-level governance. We propose a framework for understanding the structure and modes of policy coordination in MLG, which is then applied to the comparative analysis of how subnational policy responses to the public health crisis were coordinated in different MLG systems.

We follow an embedded case study design in our comparative policy analysis (Yin 2003). We compare China and the US because they represent vastly different political

systems (authoritarianism vs. democracy), but both are large countries with substantial territorial diversity and have moved toward a multi-level governance approach in various policy areas (Béland et al. 2017; Homsy et al. 2019). Both countries also faced unique policy challenges as the world's epicenter of the COVID-19 pandemic for a period of time. We further choose Hubei Province, China, and New York State, the US, the early epicenters of the pandemic in the two countries, to illustrate how COVID-19 policy responses were coordinated across levels of government, territories, and sectors. We conduct systematic content analysis of the rush transcripts of press briefings held by provincial/state governments – supplemented with formal policy documents, media reports, and official statistics of COVID-19 cases – to describe patterns of policy responses and coordination. Our comparative analysis sheds light on how different mechanisms of multi-level coordination shaped subnational policy responses during the COVID-19 pandemic, contingent upon political and institutional contexts. Moreover, although direct US–China comparative policy studies have been rare with a few exceptions (e.g. Béland et al. 2017; Homsy et al. 2019), we argue that comparing these two dissimilar political systems help identify common lessons that can be learned across divergent contexts for effective policy responses to public health crises.

2. Theory: Multi-level Governance and Policy Coordination

The term multi-level governance was first used in EU studies to make sense of the dispersion of state authority to supranational and subnational institutions during European integration and decentralization (Hooghe and Marks 2003). Marks (1993) defined multi-level governance as "a system of continuous negotiation among nested governments at several territorial tiers". Though early scholars emphasized the territorial rescaling of state power (Peters and Pierre 2001), an expanded conceptualization of multi-level governance also accounts for engagement of the private sector and the civil society into public policy decisions (Bauer and Steurer 2014).

Because multi-level governance involves policy actors across tiers, territories, and sectors, coordination across these boundaries becomes vital for achieving effective policy outcomes (Hooghe and Marks 2003; Bauer and Steurer 2014; Adam et al. 2019). Policy coordination is more challenging during a public health crisis due to the uncertainty with the scale, scope, and severity of the problem (Ansell et al., 2010; Hu et al. 2020). Much of the existing literature focused on the structural features of multi-level governance. Hooghe and Marks (2003) proposed two ideal types of multi-level governance: Type I referring to a system of power sharing among different levels of general-purpose jurisdictions and Type II being essentially a polycentric system of decentralized, overlapping, and competitive jurisdictions .

But multi-level governance is not a binary choice between two opposite forms or structures of governance: centralized or decentralized, Type I or Type II, hierarchy or network. Rather, it is both a form and a process of governance that represents a continuum of institutional arrangements that allow flexible combinations of coordination mechanisms to address policy issues with different scales of externalities (Bache and Flinders 2004; Newig and Koontz 2013; Bauer and Steurer 2014; Homsy et al. 2019). Therefore, we propose a conceptual framework that captures two aspects of policy coordination in multi-level governance: the structural configuration and the mode of coordination.

The first aspect concerns the structural configuration of multi-level governance. An effective MLG system requires coordination that bridges or even transcends the boundaries both vertically and horizontally (Newig and Koontz 2013; Bauer and Steurer 2014; Daniell and Kay 2017).

Vertical coordination takes place between two or more levels of government. Governance operating across multiple scales can better capture the territorial reach of policy externalities (Hooghe and Marks 2003). When a policy issue involves significant transboundary spillovers, central coordination plays critical roles in setting policy priorities, enforcing policy solutions, facilitating collaboration, and enhancing capacity of local actors (Ansell et al. 2010; Bauer and Steurer 2014; Homsy et al. 2019). But vertical coordination needs to work in both top-down and bottom-up ways (Adam et al. 2019). Two-directional interactions between levels of government allow co-production of policy knowledge and solutions that respect local diversity and achieve better policy outcomes (Homsy and Warner 2013).

Horizontal coordination refers to interactions across territorial and functional jurisdictions, and across sectors including state, market, and civil society. This feature is similar to concepts such as partnerships (Bauer and Steurer 2014), networks (Rhodes 1997; Börzel 2011), and collaborative governance (Ansell and Gash 2007). Common resource issues with regional spillovers require inter-jurisdictional collaboration (Newig and Koontz 2013; Homsy et al. 2019). Private companies and civil society organizations can provide government with important resources and capacity in service delivery and emergency responses (Ansell et al. 2010; Jing and Li 2019).

The second aspect concerns the modes of coordination among policy actors in multi-level governance. Instead of equating vertical coordination with command and control, and horizontal coordination with network governance based on resource exchange, we argue that multi-level governance – vertical or horizontal coordination – entails combinations of four modes of coordination: command and control, steering, negotiating, and supporting.

First, *command and control* is the typical mode of coordination in a top-down, hierarchical system, through which one or a few actors "make collectively binding decisions" without having to obtain the consent of others (Börzel 2011). This is mainly done through orders, mandates, and regulations that require other actors to comply, implement, and enforce.

Second, policy actors in a position of authority may *steer* policy actions through less authoritative means. *Steering* helps overcome the free-riding dilemma among horizontal and decentralized stakeholders through setting goals and priorities, providing guidelines and frameworks, as well as setting norms and practices through advocacy and mobilization (Newig and Koontz 2013; Kettl 2020).

Meanwhile, multi-level governance also entails informal, non-authoritative channels for policy coordination based on power interdependence and resource exchange. *Negotiating* refers to the process of bargaining and dialogues among policy actors to establish the consensus and organizational structure needed for collective decision making and implementation (Daniell and Kay 2017). Though actors of different levels and sectors may possess different bargaining power, *negotiating* entails a continuous process that engages multiple stakeholders, identifies co-benefits, and allows co-production of knowledge and policy solutions (Homsy and Warner 2013).

Finally, governments of different levels and territories need informational, technical, and financial capacities for effective policy actions, particularly when facing complex

problems and major crises. *Supporting* refers to interactions among policy actors based on resource exchange, which ensure flows of information, knowledge, professional and technical assistance, as well as material and financial resource, from higher-level government, other jurisdictions, and non-governmental sectors (Homsy et al. 2019; Hu et al. 2020).

3. China and the US: National Political and Institutional Contexts

Traditionally known for an authoritarian and hierarchical system, China has experienced continuous decentralization and marketization over the past four decades (Ongaro et al. 2018). The reforms have moved a considerable amount of decision-making authority and responsibility to subnational governments, resulting in a governance system of fragmented authoritarianism that is characterized by centralized political control but decentralized policy implementation (Xu 2011; Béland et al. 2017; Mei 2020). Amid these changes, the Chinese central government had to move beyond command and control and find new ways to achieve national goals and implement policy programs in a multi-level governance structure (Béland et al. 2017; Homsy et al. 2019).

A similar structure of fragmented authoritarianism can be found in China's unified three-tier national public health emergency management system that was established after the SARS outbreak in 2003 (Figure 1). Vertically, the central government – led by the State Council – is responsible for overall planning, decision making, and management of public health emergency responses (Hu et al. 2020). Each provincial government is responsible for implementing the central government's directives and guidelines, as well as coordinating and directing local responses within its jurisdiction. Horizontally, at each governmental level, the Health Commission leads the public health responses whereas other agencies are responsible for other areas of crisis responses (Figure 1).

Figure 1. Institutional structure of public health emergency management in China

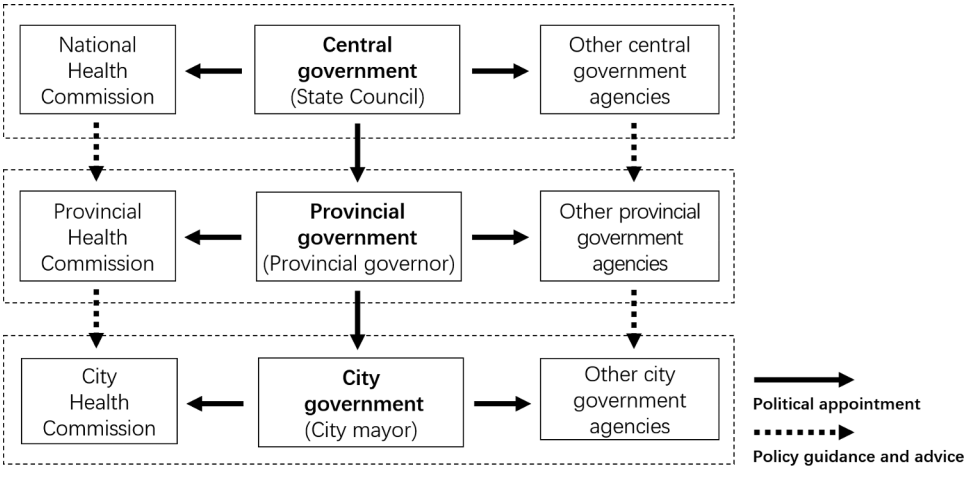


Figure 2. Institutional structure of public health emergency management in the US

The US, by contrast, is understood conventionally as a federalist, democratic system that prioritizes local autonomy and values engagement by the private sector and the civil society (Béland et al. 2017; Homsy et al. 2019). Although the federal government has expanded its authority over the past decades in certain policy areas, the contested relationship between federal and state governments, coupled with partisan politics and declined public trust in government, often complicated the effort to achieve coordinated responses to transboundary policy issues including major crises (Béland et al. 2017; Kettl 2020; Rocco et al. 2020).

The US public health emergency management system historically followed a decentralized approach, but changes since 2001 have largely aimed at integrating a multi-tier coordination network (Moynihan 2008). According to the National Response Framework (NRF) and National Incident Management System (NIMS), a centralized unit of command assumes the authority to ensure integrated and coordinated actions across agencies and levels of government. As shown in Figure 2, state governments lead joint responses in public health emergencies, directing and overseeing local responses while coordinating with other states if necessary (Burkle et al. 2007). The federal government intervenes and provides resources and support upon the request of state governments, which are then responsible for integrating federal, state, and local resources and actions.

4. Hubei Province, China, vs. New York, USA: Epicenters in a Global Pandemic

Both systems of public health emergency management were tested during the COVID-19 pandemic (Refer to supplemental materials for COVID-19 response timelines in both countries). China's Infectious Disease Prevention and Control Law (IDPC) stipulates that classifying any new disease as a Type-I infectious disease – which essentially prompts the highest-level emergency response – has to be approved by the central government (i.e. the State Council). Yet until mid-January 2020, the State Council had received no report on the novel coronavirus that had appeared in Wuhan City, the capital city of Hubei Province in late December 2019, and the provincial government had chosen to downplay the severity of the disease (Mei 2020). The early attempt of the National Health Commission (NHC) and the Chinese Center for Disease Control and Prevention (CCDC) to quickly respond within their own functional jurisdictions (e.g. diagnosis and treatment) failed to generate more active responses by provincial or municipal governments (Mei 2020). By the time the nation's top infectious disease experts, convened by

NHC and CCDC, reported the situation to the central government on January 20, 2020, community transmission of the virus was out of control.

On January 20, President Xi demanded national coordinated efforts to contain the virus transmission and the State Council formally included the novel coronavirus as top-priority infectious disease, prompting a nationwide mobilization to fight the pandemic. With the nod of the central government, Wuhan municipal government enforced the unprecedented and now famous citywide lock-down on January 23. Within a matter of two to four days, all but one province had declared top-level public health emergency responses although by that time many provinces had only reported a few or dozens of confirmed cases. The nationwide mobilization allowed China to rapidly "flatten the curve" with most provinces seeing the peak of new confirmed cases within 1–2 weeks. Hubei Province also began to see the curve flattened by mid-February, and on May 02, the state of emergency was lifted after seeing zero new cases for over a month.

Different from China, state governments have taken the lead in fighting the pandemic in the US (Bowman and McKenzie 2020). The first confirmed COVID-19 case was reported in Washington State on January 21, 2020. As cases spread across the country, the stronger autonomy of state governments, rooted in the US federal system, allowed governors of two-third states to initiate public health emergency responses before President Trump declared a national emergency on March 13. Washington State was the first state to declare emergency on February 29, while by March 17, all states were under state of emergency (Bowman and McKenzie 2020). But the lack of consistent and timely federal coordination also contributed to greater variations across the states as they made decisions about when and how to respond to the coronavirus (Kettl 2020).

In New York State, the first COVID-19 case was reported on March 1. On March 7, Governor Cuomo declared a state of emergency and authorized "all necessary State agencies to take appropriate action to assist local governments and individuals in containing, preparing for, responding to and recovering from this state disaster emergency" (EO-No. 202). Case numbers continued to rise in the state while the state government misjudged the threat of the novel coronavirus, as Governor Cuomo said " this is not the Ebola virus … this spreads like the flu" (Daily briefing, March 9). With the cases spiking, New York became the first state to issue the stay-at-home order on March 17, with 43 other states to follow suit, and further was put on the NY-PAUSE order on March 20. These restrictive measures allowed New York – the early epicenter in the US – to also "bend the curve", reaching its peak of new confirmed cases by April 15. One month later, phased reopening began in the state.

5. Multi-level Coordination in Subnational COVID-19 Responses

5.1 Systematic Content Analysis

We proceed to describe, using the cases of Hubei Province, China, and New York State, USA, how subnational policy responses were coordinated in the multi-level governance framework. We conducted systematic content/coding analysis of the transcripts of daily press briefings on COVID-19 responses hosted by provincial/state governments.[1] Our focus was early policy responses, that is, from the date of the first press briefing to the date of the apex of the outbreak (i.e. the highest new confirmed cases). Therefore, we

only analyzed the press briefing transcripts between January 21 to February 18, 2020, in Hubei Province, and between March 1 and April 15, 2020, in New York State.

We focused on the interactions mentioned in the press briefing statements, and coded actors that interacted with the provincial/state government, the direction of each interaction (i.e. who initiated the interaction), and the mode of coordination during the interaction (as reflected by the verb). Through opening coding, we identified all interactions between subnational governments and other actors that were mentioned in the transcripts, and created initial categories of actors, directions, and types, of all interactions. We coded the press briefings in Hubei and New York in its original language to capture the nuances of language differences between Chinese and English. We then grouped the initial categories into family categories for actors and modes of coordination (see Table 1 for the codebook).

Using this codebook, we then conducted systematic coding of the content of the press briefing transcripts. For instance, in the March 23 daily briefing, NY Governor Cuomo said that "we are today issuing an emergency order that says to all hospitals you must increase your capacity by 50 percent. You must. Mandatory directive from the State". For the structure of coordination, this sentence was coded as an interaction initiated by the state ("stateactor" direction) toward "the public health sector" (actor), hence belonging to the family category of "horizontal coordination". For the mode of coordination, this interaction was coded as "mandate", hence belonging to "command and control". In Hubei's provincial press briefing on January 26, the Provincial Governor said that "the Province has allocated 1.075 billion yuan [about US$153 million] to support municipalities in pandemic containment and medical supply procurement". This was coded as "vertical coordination" with "local governments" as the actor ("provinceactor" direction) and "supporting" as the mode of coordination.

Table 1. Coding framework: structure and modes of coordination

Family categories	**Keywords**
1. ***Structure of coordination (actors)***	
Vertical coordination	President; Other national leaders (e.g. Vice President in the US, Premier in China); Federal government/central government (i.e. State Council); Federal agencies/central government ministries; Local governments (municipality/city/county)
Horizontal coordination	Other provinces/states; Public health sector (hospitals, testing labs, health care professionals); Private businesses; Civil society (general public, community, non-profit organizations)
1. ***Mode of coordination (interactions)***	
Command and control	Mandate; Require; Regulate; Authorize; Approve; Declare; Request; Direct; Order; Demand; Enforce; Implement
Steering	Stress; Emphasize; Prioritize; Care for; Tour; Visit; Guide; Provide guidance; Lead; Advise; Encourage; Advocate; Mobilize; Call for
Negotiating	Coordinate; Speak/say to; Have a conversation with; Send a letter to; Meet with; Call; Agree; Work with
Supporting	Support; Help; Contribute; Provide help/assistance; Allocate/provide supplies; Volunteer; Donate; Contract; Ask for help/assistance; Ask to volunteer

We used investigator triangulation in which three researchers worked independently to code the data, and then compared their findings. Discrepancies in coding were discussed until consensus was reached. We created an EXCEL dataset of all actors and interactions which allowed us to count the frequency for each code and compare the patterns between Hubei and New York. Detailed summary statistics of the content analysis are available in the supplemental material.

5.2 The Structure of Coordination

We first compare the structural patterns of coordination between the provincial/state government and other actors. Although situated in different political contexts, both subnational governments relied on a multi-level governance system in COVID-19 responses, as indicated by a similar composition of vertical coordination (52.4 vs. 52.9 percent) and horizontal coordination (47.6 vs. 47.1 percent) in Hubei and New York, respectively. On the other hand, the New York state government played a more active role in coordinating policy responses, initiating 75.5 percent of all interactions with other actors compared to only 36.2 percent for the Hubei provincial government, which reflects the greater autonomy of state governments as the chief coordinator in public health emergency responses in the US federal system.

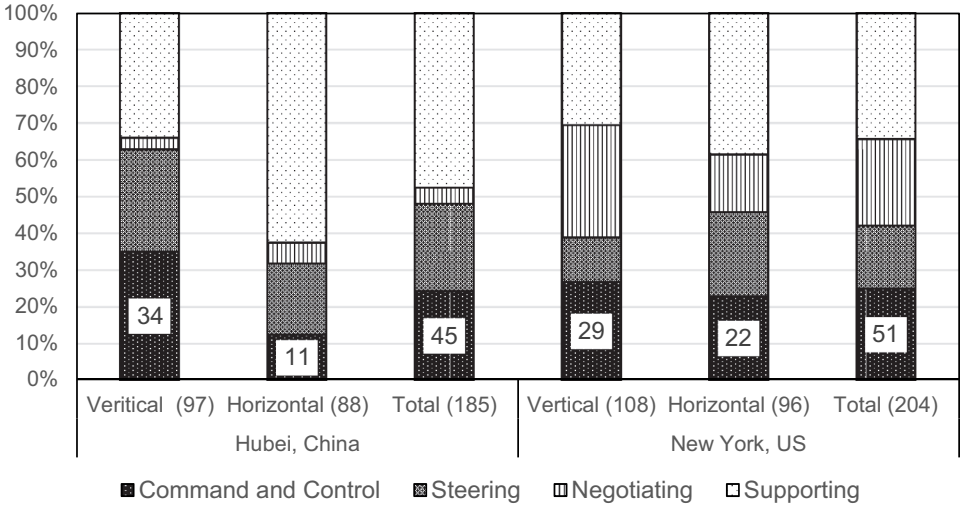
The majority of vertical coordination took place with the central/federal government in Hubei and New York. Yet the central government in China is more dominant, initiating 71 out of 87 central–provincial interactions (81.6 percent). Such interactions included President Xi and other national leaders providing directives, orders, or guidance, and the State Council and central agencies issuing national strategies or providing supports. By contrast, New York state government initiated 50 out of 89 federal–state interactions (56.2 percent), mainly involving negotiating with or making requests to the President or federal agencies.

The New York state government also dominated horizontal coordination in the COVID-19 responses (85 out of 96 interactions, or 88.5 percent), which included seeking collaboration and assistance from other states, public health institutions and professionals, as well as the private sector. In Hubei, horizontal coordination involved two-directional interactions between the provincial government and other actors. A larger share of horizontal interactions took place between the province and the civil society (17.3 percent, compared to 3.4 percent in New York), confirming previous observations that a wide mobilization of communities and the general public was key to China's early success to controlling the pandemic (Cheng et al. 2020; Zhao and Wu 2020).

5.3 Modes of Coordination

Despite different political contexts in China and the US, command and control accounted for a similar share in all interactions (24.3 percent in Hubei and 25.0 percent in New York; Figure 3), suggesting the importance of command-and-control tools in public health crisis responses. Command and control mostly took place during vertical coordination in Hubei Province (34 out of 45 interactions, or 75.6 percent), compared to New York State (29 out of 51, 56.9 percent).

Figure 3. Composition of four modes of coordination in COVID-19 crisis responses: Hubei, China, vs. New York, USA



Note: Data for confirmed COVID-19 cases were derived from: http://2019ncov.chinacdc.cn/2019-nCoV (China); https://covid.cdc.gov/covid-data-tracker/#trends (US). The confirmed case data officially released by government may not reflect the actual number of infected cases.

In both cases, supporting was the most important mode of coordination in subnational COVID-19 responses, accounting for 47.6 percent of all interactions in Hubei and 34.3 percent in New York respectively (Figure 3). Supporting is the primary mode in horizontal coordination in Hubei (62.5 percent, compared to 38.5 percent in New York). In fact, support from other provinces and public health professionals was the primary reason for the dramatic medical capacity surge to diagnose, isolate, and treat COVID-19 patients in Hubei (Hu et al. 2020).

A stark difference existed in the share of negotiating in all modes of coordination: 23.5 percent in New York compared to only 4.3 percent in Hubei (Figure 3). New York relied heavily on negotiating even when interacting with the federal government (33.7 percent) and other states (45.5 percent). This probably reflects the federalist tradition in multi-level governance in the US, in which actors from different levels have to engage, discuss, and negotiate for joint policy actions. In contrast, steering is a more popular mode of coordination in China (23.8 percent) than in the US (17.2 percent). Steering not only included the government mobilizing the private sector or the civil society in joint pandemic responses, but more notably included the central government setting policy priorities, drawing policy attention, and providing guidance for subnational governments.

5.4 Illustrative Examples

We further elaborate how different structure and modes of coordination in China and the US played out in subnational policy responses to COVID-19 in Hubei and New York using two illustrative examples – medical capacity surge and lockdown orders.

Medical capacity shortage was the most urgent challenge during the early stage of COVID-19 responses in both epicenters. In Hubei, the provincial government heavily depended on the central leadership to mobilize nationwide resources, expertise, and personnel to rapidly surge its medical capacity. On January 25, the central government established a Central Leadership Group to coordinate national responses to the pandemic and dispatched a special task force to advise provincial and local actions in Hubei Province. Led by a vice premier, the task force was in charge of coordinating the inter-agency and inter-provincial efforts to constructing temporary hospitals and ensuring medical supplies (Provincial press briefing, January 26). Non-profit organizations also spontaneously mobilized and donated medical resources to Hubei Province (Hu et al. 2020). Meanwhile, hospitals in other provinces and in the military provided much-needed assistance in medical personnel and resources (Hu et al. 2020). By February 18, at the peak of Hubei's outbreak, more than 32,000 doctors and nurses had been providing COVID-19 patient care in Hubei (Provincial press briefing, February 18).

New York State's efforts to secure outside support in medical capacity surge were met with haphazard federal leadership. The state government had to make repeated requests and negotiate with the federal government for support and resources, such as securing medical supplies and seeking help from Army Corps of Engineers to build temporary hospitals. The lack of a consistent nationwide strategy left state governments, including New York, to negotiate and collaborate with other states and the private sector in joint pandemic responses (Mallinson 2020). In fact, Governor Cuomo repeatedly complained in his daily briefings that New York State had to engage in competitive bids with other states and even the federal government to procure medical supplies. The state government initiated its own "surge and flex" effort to enhance the state-wide medical capacity, including demanding every hospital increase its intensive care capacity by at least 50 percent (*command and control*), and negotiating with public health facilities, many of which were private hospitals, to facilitate mutual assistance among hospitals in treating COVID-19 patients (*steering* and *negotiating*). The state also made direct appeals to retired health care professionals to volunteer and called for assistance from medical professionals from other states. By March 25, more than 40,000 medical volunteers had responded (Daily briefing, March 25), and an estimate of 30,000 volunteers from other states came to New York's assistance during the peak of the outbreak.

Another major policy response taken by subnational governments was to issue lockdowns and stay-at-home orders. In the evening of January 22, the mayor of Wuhan City made a sudden announcement of a citywide lockdown from 10 the next morning. Many other cities in Hubei province followed suit in the next few days. According to the IDPC Law, these lockdown measures had to be approved by the central government. In daily press briefings, provincial and municipal leaders repeatedly declared their commitment to "strictly follow the order of the central government". However, the top-down nature of the lockdown decision left local governments and communities scrambling to meet citizens' complaints and daily needs. Later, vertical coordination by the central government and inter-provincial assistance played a critical role in ensuring necessary supplies were delivered from the whole country. Community organizations and the private sector were mobilized by government to provide critical assistance to residents.

By contrast, the New York PAUSE was announced on March 20 after the state government had been steering and negotiating with the public and the private sector since the first confirmed case on March 1. For instance, in his March 11 daily briefing the governor stated that he was asking businesses voluntarily to reduce workforce density (*negotiating*), strongly advised non-essential businesses to work from home (*steering*) on March 16, while the state directed local governments to reduce workforce (*command and control*). Meanwhile, the state government had prepared policy measures to help alleviate potential livelihood disruptions by the stay-at-home order, which also contrasted the chaotic aftermaths of the lockdown measure in Hubei. For instance, on March 16, the state government mandated local governments to provide childcare educational services for essential health care workers and meal programs for children from low-income families who were affected by school closure. The state government also waived the unemployment application waiting period to respond to the expected surge of unemployment and financial needs because of COVID-19.

6. Discussion and Conclusions

We adopted the multi-level governance perspective for a comparative analysis of subnational policy responses to the COVID-19 crisis in China and the US, two countries of different political systems. We proposed and applied a conceptual framework of policy coordination to examine how public health crisis governance was coordinated among policy actors across tiers, territories, and sectors, and how different structure and modes of coordination mechanisms shaped subnational policy responses during the COVID-19 pandemic. Our findings contributed to comparative policy analysis of public health crisis responses and the multi-level governance literature, and offered important policy lessons for achieving effective coordination in public health crisis responses.

Our comparative analysis revealed interesting similarities of multi-level coordination in the subnational policy responses to COVID-19 in China and the US. Despite having dissimilar political systems, both countries have shown a form of "hybrid coordination" (Hu et al. 2020) that involved horizontal and vertical interactions. Both Hubei and New York engaged in flexible combinations of coordination modes ranging from command and control and steering, to negotiating and supporting. These findings echo previous studies (e.g. Ongaro et al. 2018; Homsy et al. 2019) that challenged the conventional notion of China as an authoritarian regime with sole dependence on top-down, command-and-control tools.

Nonetheless, our comparative analysis also revealed stark differences in the ways in which subnational governments coordinated COVID-19 responses, which were rooted in different national political contexts and had different advantages and weaknesses. The more active role of New York state government reflected the respect for state autonomy in the US federal system as well as the primary coordinating role of states in the US emergency response system. This system allowed New York State to take independent and aggressive measures, to mobilize local governments, private businesses, and citizens, and to initiate inter-state collaborations, when federal leadership in steering a nationwide strategy was missing (Bowman and McKenzie 2020; Mallinson 2020). A rather contrasting picture was observed in China. The Hubei provincial government took a rather

weaker role in coordinating the multi-level joint efforts to contain the outbreak in its own jurisdiction, reflecting a more centralized nature of China's multi-level governance that has been suggested in previous studies (Béland et al. 2017; Homsy et al. 2019). But the over-reliance on the central government may continue to weaken the ability of subnational governments to swiftly detect and respond to a new public health crisis. As we observed in early January in Hubei, subnational governments lacked the willingness to take aggressive measures without the central government's approval and even explicit directives, or the capability to implement those measures without the central government's support.

A key policy lesson from our comparative analysis would be that countries have to build upon their own political and institutional contexts and leverage their strengths in crisis policy responses, such as strong central leadership in China vis-à-vis strong state and local initiatives in the US. At the same time, multi-level governance entails a flexible division of labor and authority across levels and sectors according to the scales of externalities of the policy problems (Hooghe and Marks 2003). A national, even global, public health crisis such as COVID-19 requires a coherent national strategy coordinated and enforced by the national government (Kettl 2020; Mei 2020). But responding to local outbreaks and citizens' concerns also needs local initiatives and horizontal collaboration among the state, market, and civil society (Cheng et al. 2020; Hu et al. 2020).

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Note

1. For the content analysis, we collected the transcripts of daily press briefings hosted by the Hubei provincial government (http://www.hubei.gov.cn/hbfb/xwfbh/index_10.shtml) and by the New York state government (https://www.governor.ny.gov/news).

Supplementary Material

Supplementary data for this article can be accessed at https://doi.org/10.1080/13876988.2021.1873703.

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