



## Research article

# Chinese model in global COVID-19 prevention and control: Successful experience, institutional advantages and optimal path

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## ABSTRACT

The prevention and control measures adopted by various countries have different effects in the face of COVID-19. The performance in some socialist countries and capitalist countries were compared from three aspects, including the proportion of confirmed cases and deaths to the national population, economic recovery and production and living, social satisfaction and international evaluation. The overall performance of listed socialist countries was better than that of capitalist countries. China's performance, forming a unique Chinese model of the epidemic prevention and control, was better than that of other socialist countries. The successful experience of Chinese model can be mainly reflected in four aspects, including resource allocation, social participation, speed and quality, system and mechanism optimization. The successful experience roots in the four institutional advantages of the leadership of the Communist Party of China (CPC), coordinated national response, basic economic system and traditional Chinese culture. In the future, Chinese government should adhere to the socialist system with Chinese characteristics and improve the public health and emergency management system. Chinese government should accelerate the construction of a community with a shared future for mankind and promote the modernization of the national governance system and governance capacity. These findings are of great significance in understanding China's prevention and control measures, the institutional advantages and subsequent optimization.

## 1. Introduction

In late December 2019, a previously unidentified coronavirus emerged, which was officially named Coronavirus Disease-2019 (COVID-19) [1]. All cities in China were affected successively at that time. Countries around the world were also affected, including the United States, Russia, Vietnam, India and so on. At the beginning of the outbreak, all countries lacked effective treatment methods, so prevention and control measures were urgently needed [2].

Influenced by political system [3], leaders' attitudes [4] and other factors, different countries took different measures to overcome the epidemic. Australia initially imposed a national blockade to restrict international entry, and then took strict measures in the community [5]. Japan responded at a fast rate and reduced domestic economic activities. However, after the improvement, Japan loosened immigration restrictions and encouraged domestic gathering activities, which led to repeated deterioration [6]. Vietnam's initial prevention and control measures included early preparation, contact tracing, patient isolation, disease testing, physical

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distancing, community participation and so on [7]. The national epidemic prevention and control measures can directly determine the spread speed and its negative impact on the economy [8], education [9], tourism [10] and other fields.

China's prevention and control measures and results have attracted much attention from scholars. The spread of the epidemic in China went through several stages by the analysis of the spatio-temporal distribution characteristics and influencing factors [11]. China should not only prevent and control the epidemic to the maximum extent, but also share its experience and information with the international community to alleviate the global pressure [12]. China tried many measures, including cordon sanitaire, physical distancing, symptom surveys, quarantine strategies and transport restrictions, to control the epidemic in Wuhan firstly [13]. In the face of a nationwide epidemic, Chinese government tried hard to protect lives, maintain markets and promote economy [14]. The government organized people to take quick and strong measures in mobility control, disinfection, resource allocation and so on [15]. In terms of specific measures, China adopted grid governance measures at the basic level of society. China conducted city lockdown, resident quarantine and household survey according to specific conditions [16]. All in all, China preformed well in emergency management [17], education [18], but it can be further improved in early reactions [19], the existing healthcare system [20] and so on.

The existing research is of great value, which lays a good foundation for understanding different countries' epidemic prevention and control measures. However, it is essential to further compare the performance in different countries from the perspective of national system. What's more, the existing research focuses on the experience and lessons of epidemic prevention and control measures in China. The research on the root of China's successful experience, the advantages of the socialist system, needs to be further supplemented. Therefore, what are the differences in the performance of epidemic prevention and control between major socialist countries and capitalist countries? What is the successful experience of China? What are the institutional advantages on which successful experience depends? What are the future optimization measures?

This paper compares the performance of epidemic prevention and control between major socialist countries and capitalist countries from the dimensions of the proportion of confirmed cases and deaths to the national population, economy recovery, international evaluation, democratic satisfaction and so on. Then the paper focuses on analyzing the successful experience, the institutional advantages and optimization measures in China. Data were collected via the World Bank official website, the Democracy Perception Index and so on. This paper aims to compare the epidemic prevention and control performance between major socialist countries and capitalist countries to prove that China has achieved great success, and then explore the successful experience, institutional advantages especially, and suggestions for the future. This paper analyzes institutional advantages of Socialism with Chinese characteristics, providing the direction for the fellow-up optimization in China and lessons and experience for other countries in the world.

## 2. The comparison of the epidemic prevention and control performance among countries

The COVID-19 prevention and control performance can reflect the national governance capacity. Countries performance can be compared from different aspects, including the proportion of confirmed cases and deaths to the national population, economic recovery and production and living, international evaluation and social satisfaction and so on.

### 2.1. The proportion of confirmed cases and deaths

The proportion of confirmed cases and deaths can reflect countries' ability to deal with public health emergencies, public medical system, governance capacity and so on. According to the real time statistical information released by Johns Hopkins University, five socialist countries (China, Korea, Vietnam, Laos and Cuba) and seven capitalist countries (America, Britain, France, Japan, Russia, Australia and Canada) were selected. The proportion of confirmed cases and deaths to the whole population from the outbreak of the epidemic to August 8, 2021 in 12 countries were analyzed respectively (see Fig. 1) [21].

As far as the proportion of the confirmed cases, China was 0.01 %. Cuba was 3.91 %. Other socialist countries were all within 1 %. However, Australia and Japan kept it within 1 %. Canada and Russia were 3.91 % and 4.40 % respectively. America, Britain and France were as high as 10.94 %, 9.74 % and 9.12 % respectively. When it comes to the proportion of the deaths, China and Laos were lower than 0.001 %. North Korea and Vietnam were lower than 0.01 %. Cuba was about 0.03 %. Australia performed well, accounting for about 0.004 %, but other capitalist countries were higher than 0.01 %. America, Britain and France even approached to 0.2 %. In terms

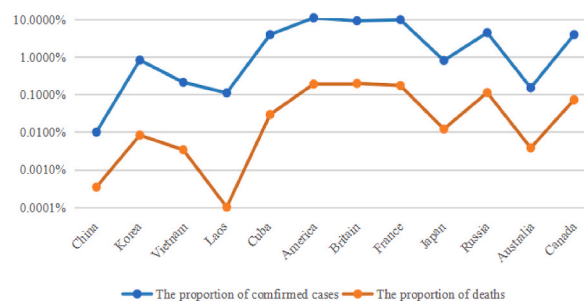


Fig. 1. The proportion of confirmed cases and deaths to the whole population.

of absolute value, the total number of infections in America exceeded 35 million, which was 337.8 times that of China in the same period. Moreover, the total population of America was less than 1/4 of that of China, but the proportion of deaths to the total population was more than 500 times that of China and the proportion of confirmed cases to the total population was more than 1000 times that of China. In terms of relative value, the proportion of confirmed cases to the total population remained at 0.01 %–1 % and the proportion of deaths to the total population remained at 0.0001 %–0.1 % in socialist countries. However, in capitalist countries, these two data were generally maintained at 0.1 %–11 % and 0.00 1 %–1 % respectively.

Combined the data with countries’ development degree and population size, the overall performance of socialist countries was better than that in capitalist countries. Besides, China had the best comprehensive performance among the socialist countries.

2.2. Economic recovery & production and living

Globally, the number of poor people has increased for the first time since 1990 because of the impact of the epidemic. Under the extreme situation of a 20 % contraction in income and consumption, the total number of the poor may increase by 430 million to 580 million compared with the latest official records in 2018 [22]. However, the International Monetary Fund (IMF) and other major regional fund distribution organizations provided small amounts of aid and disbursed the funds at their disposal slowly. As of July 31, 2020, the loans provided by these organizations only accounted for 12.6 % of their capacity [23]. The economy of developed countries were hit unprecedentedly. The three major stock indexes in America, affected by the drop in crude oil price and the epidemic, plummeted at the opening, which caused global stock markets to plummet. Subsequently, the U.S. stock market experienced three consecutive circuit breakers. Many industries were affected, including tourism, industry and so on. In developing countries, such as in Indian, government’s policies exacerbated domestic labor exploitation, widened inequalities and led to serious humanitarian crises [24]. What’s more, the governments of African and other countries adopted various measures to response to the epidemic, including cash transfers, food distribution and so on, but these measures triggered a crisis of social reproduction and then caused national economic collapse [25]. Additionally, some countries in the world were highly dependent on import and export of bulk commodities and external financing. Among them, the economic contraction of Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico and Peru may be as high as 14 % in 2020 [26]. China’s economic development was also affected seriously. The stock market became more turbulent and less predictable [27], but China had enough potential to overcome the unstable economic situational quickly [28]. Besides, the decreasing economic activities in China changed energy consumption and even further prevented environmental pollution [29].

The epidemic has greatly affected the economy, production and life of all countries. According to the information released by the World Bank official website, three socialist countries (China, Vietnam and Laos) and seven capitalist countries (America, Britain, France, Japan, Russia, Australia and Canada) were selected. The 2020–2022 GDP growth rate of these countries were analyzed (see Fig. 2) [30].

According to Fig. 2, in terms of the GDP growth rate in 2020, China, Vietnam and Laos achieved positive GDP growth in 2020. The GDP growth rate of America (-2.8 %) and Japan (-4.3 %) were negative. Britain and France even reached -11 % and -7.8 % respectively. According to the data of 2021 and 2022, China, Vietnam and Laos still preformed well with positive GDP growth. Capitalist countries such as America, Britain and France resumed high positive GDP growth. Therefore, from the perspective of GDP growth rate over the previous year, the overall performance of socialist countries selected was generally better than that of capitalist countries selected, among which China had the best comprehensive performance, taking into account factors such as the degree of national development and international status.

2.3. International evaluation and social satisfaction

In the early stage, Michael Lane, executive director of the World Health Organization (WHO)’s emergency program, expressed his appreciation for China’s anti-epidemic measures. Bruce Aylward, the foreign leader of the China-WHO joint expert team in COVID-19

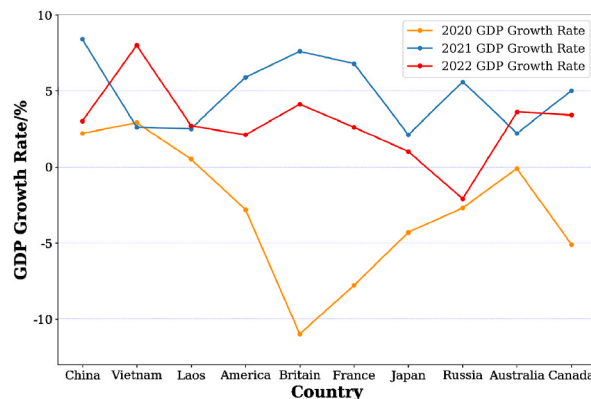


Fig. 2. 2020–2022 GDP growth rate of 10 countries.

also expressed that China's strong intervention measures had significantly changed the curve of the epidemic spread. China had helped the deviation of the curve from the theoretical track because of its scientific decision-making and response strategy. On July 20, 2021, an epidemic caused by a foreign delta virus strain was discovered at Nanjing Lukou International Airport in China. It took China only 5 weeks to contain the spread of the epidemic. China's performance has surprised all the other countries.

Democracy Perception Index (DPI) is the world's largest survey on people's perception of democracy in a country. The 2020, 2021 and 2022 editions of the report provide people's opinions on their country's measures on the epidemic and the degree of government democracy collected from people in 53 countries (regions), covering 75 % of the global population. According to the 2020 report, about 70 % of the people believed that their country's decisions responded well and almost all of them said that China's measures were better than those of America. The top three countries in people's satisfaction with the government were China (95 %), Vietnam (95 %) and Greece (89 %), while the results of America (53 %), Britain (58 %) and Russia (54 %) were pale in comparison [31]. According to the 2021 report, only 58 % of people satisfied with their country's epidemic prevention and control measures. Among them, the countries with the highest people's satisfaction were Vietnam (96 %) and China (93 %) and the lowest countries were Brazil (19 %), Peru (27 %), Poland (27 %), France (27 %) and Italy (28 %) [32]. According to the 2022 report, 68 % of people satisfied with their country's epidemic prevention and control measures. China (94 %) and Vietnam (91 %) had the highest satisfaction rate, while France (47 %), America (57 %), Japan (58 %) and Britain (59 %) were not high [33]. Therefore, in terms of the international evaluation and social satisfaction of countries during the epidemic, the overall performance of socialist countries was better than that of capitalist countries. China had the best comprehensive performance with the consideration of the total population, the level of foreign cooperation and the degree of social development among socialist countries.

To sum up, socialist countries selected outperformed capitalist countries selected according to the prevention and control performance. China had the best overall performance among socialist countries. As foreign scholars put it, structural flaws of global capitalism have been exposed because of the COVID-19 epidemic. Their response measures were difficult to protect vulnerable groups from the health and socioeconomic impact, caused by the epidemic [34]. Therefore, the socialist system has advantages in responding to emergencies in public health to some degree.

### 3. Chinese model in global COVID-19 prevention and control: successful experience and international comparison

The success of China's "anti-epidemic war" lies in China's governance capacity. Chinese government coordinated the allocation of resources, expanded social participation, improved the speed and quality of response and timely optimized the system and mechanism, presenting a unique Chinese prevention and control measures, called Chinese model.

#### 3.1. Coordinate the allocation of national resources

In the epidemic period, China coordinated human and material resources from all walks of life. Wuhan was put on "lockdown" from 10 am on January 23, 2020, which delayed the spread of the epidemic to other places by 2.91 days as a whole according to the analysis of world's top research institutions. The total number of cases as of February 19 was 96 % lower than that without intervention measures [35]. In the process of resource allocation, medical units in provinces raced against time to assist Wuhan under the overall deployment and coordination of the Party. A total of more than 340 medical teams and 42,000 medical personnel headed for the front-line against the virus. At the same time, 19 provinces paired up to support 16 cities and prefectures (forest areas) in Hubei, called "province-to-city assistance". In addition, China comprehensively promoted vaccine research. The priority of the vaccine research team was raised to the highest level and all R&D units were under management. The cost was endorsed by ministries and commissions with unconditionally cooperation of 32 departments. In addition, China achieved a balance between fighting the epidemic and resuming work and production. According to statistics from the Ministry of Industry and Information Technology (MIIT) in China, as of April 14, 2020, the national average operating rate of industrial enterprises above designated size reached 99 %. As of May 8, the production resumption rate of central enterprises reached 99.4 %. Therefore, the measures taken by China truly ensured a coordinated national response, concentrating its efforts to overcome the difficulties together.

Overseas governments made organizational and overall planning mistakes in different degrees in their response to the epidemic, such as failing to adopt scientific advice, to effectively use the epidemic-related information provided by China, to communicate openly and transparently with the public and so on. In most capitalist countries, the circulation of commodities was seriously affected, including the insufficient supply of vegetables, the suspension of food and beverage sales in restaurants and so on [36]. In the medical care industry, many countries closed hospitals and reduced beds in order to pursuit of "efficiency". Therefore, all assumptions that developed countries around the world have all the expertise and solutions to deal with global challenges are not completely correct [37]. Besides, most of developing countries contributed to a more devastating impact than the epidemic itself. Indian government forced millions of people into poverty and starvation by controlling economy, which made the country worse. However, the epidemic re-emerged with the lifting of the restrictions, contributing the worsen of the economic situation [38].

#### 3.2. Achieve social participation in cooperation

The outbreak of the epidemic in China coincided with the Spring Festival period. The population flow and the frequency of population gathering were the highest compared with any other time. It is worth mentioning that Wuhan is the thoroughfare to nine provinces in China. The particularity of the time and place would accelerate the spread speed. Therefore, the effective control required the CPC's response measures and full participation in cooperation. Under the guidance of the Party, all, from central to local, from units

to departments, from groups to individuals, took responsibilities and cooperated with a common effort. The “network” of prevention and control formed by the effective leadership of the Party committees at all levels, the coordination and cooperation among local governments and the active response of the people. Grassroots communities played a key role in mobilizing the masses to participate in the battle. A large number of volunteers took the initiative to deliver supplies and help guard checkpoints. Chinese enterprises also contributed their own strength to the battle. They helped the operation of the national supply chain, striving for people to return to work and resuming production and life. For example, private enterprises represented by Alibaba and Zall integrated international supply chain resources and united various forces to prepare and donate a large number of anti-epidemic materials.

In the face of the epidemic, many measures taken by some Western capitalist countries adhered to the principle of capital interest first. On the one hand, these countries adopted exclusive political systems. On the other hand, a large number of confirmed cases and deaths occurred in these countries, which triggered a new type of domestic social and economic inequality. Therefore, the public lacked the awareness of participation. Wearing masks can significantly reduce the likelihood of virus transmission [39]. However, under the influence of populist ideology, America repeatedly encountered problems in requiring people to wear masks in public. The public’s low level of cooperation in this regard also affected the government’s prevention and control effect. The spread of the delta virus strain led to a new round of “lockdown” in various countries. Facing the continuous delay of “lockdown” time, people in London launched anti-vaccine and anti-blockade parades. Beside, in developing countries, such as in India, it was impossible for workers to make a living during the epidemic. Furthermore, the Kenyan government led to the occurrence of large-scale poverty and waste of food stocks due to the closure of informal markets. People’s livelihood became a problem, so it was difficult for the people to respond to the government’s measures. The blockade measures in the slums in the country were even organized by local drug lords and criminal gangs because of insufficient government coordination and low public participation.

### 3.3. Improve response speed and quality

Speed and quality of action is the key to success. China’s excellent overall deployment in a short time with good performance can present the response speed and quality of China. On January 24, 2020, various provinces successively sent medical teams to Wuhan. On January 26, the National Development and Reform Commission in China (NDRC) in China issued an emergency grant of 300 million yuan to subsidize the construction of hospital projects. Huoshenshan Hospital and Leishenshan Hospital were built in just 10 days and 12 days respectively, providing a total of 2600 beds for critically ill patients in Wuhan. Under normal circumstances, it should take at least two years to build that kind of hospitals. It took only over a month for the Chinese government to initially curb the spread of the epidemic, only about two months to control the daily new cases, and only about three months to make decisive progress in the battle for Wuhan, Hubei. Additionally, the standard process of vaccine research and development should take ten years under normal circumstances. However, the adenovirus vaccine of China’s CanSino Company received the approval of military drugs from January 21 to June 25, creating the shortest record in the history of vaccine research and development. The inactivated vaccine of the Beijing Institute of Biology was entered the clinical phase I in 98 days, was put into use in 177 days and was approved for marketing in 335 days. The recombinant protein vaccine of Anhui Zhifei Longcom Biopharmaceutical Company Limited was approved for clinical use from January 29 to June 23, breaking the record in this regard. In July 2020, China Biological Leading Group set up a special team to go to the United Arab Emirates and other Middle East countries to find patients in order to promote the clinical phase III of vaccine research and development. On December 9, 2020, COVID-19 inactivated vaccine of China National Biotec Group Company Limited was registered and marketed in the United Arab Emirates, becoming the world’s first marketed vaccine. The speed and quality can be also reflected in the post-pandemic period. On July 20, 2021, a new wave of epidemic occurred in Nanjing. It took only three days for Nanjing to complete the nucleic acid testing of 9.209 million people. As of August 16, Yangzhou, which was also caught in the epidemic crisis, carried out 10 rounds of nucleic acid testing and its cases were cleared in a short time. Therefore, China’s speed and quality have been shown in the entire epidemic prevention and control period from multiple dimensions.

Many Western countries emphasized that the main infected population of the epidemic are the elderly and the weak with underlying diseases, so ordinary people need not be overly concerned. In the early period, the British Prime Minister proposed the concept of “herd immunity” and did not recommend wearing masks. Due to the lack of sufficient attention, many countries’ response speed were far behind China, which led to a surge in the number of infected people. The “case map” for China looked like the upper left quadrant of a circle, while the “case map” for Europe and North America looked like the lower right quadrant of the circle [40]. At the same time, the vaccination rates in many developing countries were also worrying. For example, Lisa Thompson, a professor at the University of the Western Cape in South Africa, said that as of September 11, 2021, less than 2 % of the total population was vaccinated in Africa. In addition, the “quality” of the measures taken by many countries also need to be improved. The official data about the number of infected people in some countries lacked authenticity. What’s more, Trump signed “\$2 Trillion Corona virus Stimulus Bill” (CARES Act) to provide much-needed assistance to American families, workers and businesses, but the expected role of the policy was difficult to be realized with certain hidden dangers.

### 3.4. Optimize the system and mechanism

The system and mechanism in a country are the foundation for the implementation of various measures. Chinese government established cross-region joint prevention and control mechanism in the special period. National Health Commission (NHC) in China made arrangements to build a vertically penetrating and horizontally inclusive prevention and control network including from the top leader of the central government to every ordinary people. At the same time, Chinese government adhered to the principle of early detection, reporting and treatment, and ensured that all patients can have access to medical resources. The infected would be classified



by three-level protection system and well treated in designated hospitals. What’s more, on February 10, 2020, several important national departments jointly issued the “Opinions on Punishing Criminal and Illegal Activities that Hinder the Prevention and Control of Novel Corona virus Pneumonia” so as to effectively punish crimes, ensuring the implementation of the measures. On February 14, Xi Jinping proposed 15 systems, 9 mechanisms and 4 institutions for public health emergency response system. Among them, the government adopted accountability system, so the poor works, caused the spread of the epidemic in country, were held accountable. Since July 2021, Nanjing, Yangzhou, Zhengzhou and other cities successively happened clustered epidemics. As of August 14, local confirmed cases involved 16 provinces. Because of this wave of epidemic, a total of about 110 public officials were held accountable. 5 deputy mayors were punished. 3 district party secretaries were dismissed. China’s institutional advantages can be embodied in rapid and correct emergency leadership, professional emergency response teams, emergency support provided by the market economy, national governance system and mutual assistance among provinces and so on. Chinese government improved the existing system and mechanism so that Chinese people can work together to achieve great success in the battle.

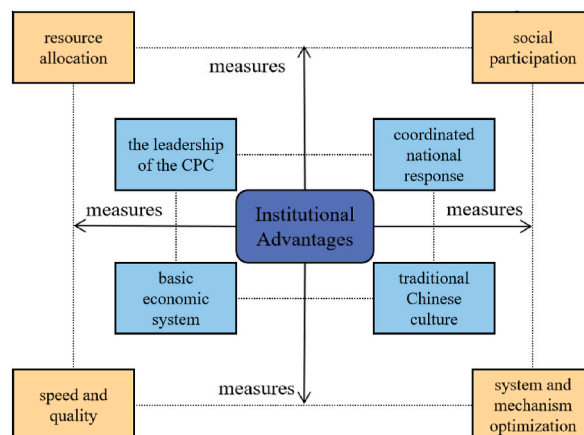
Compared with China’s implementation of a series of optimization measures, many other countries’ governments had no action or acted slowly. In capitalist countries, the relevant mechanisms in Britain and Germany were not sound. Many workers earned little money or even lost their jobs because of reduced work arrangements or tasks [41]. At the same time, most of domestic orders were canceled or postponed due to the epidemic in some developing countries, so millions of workers had to return home without wages or severance pay. Besides, these governments’ tax revenue were low, so they can just provide little support for workers and industries. Therefore, these governments were powerless to formulate effective institutional mechanisms for epidemic prevention and control. Furthermore, many low-income countries had imperfect economic systems and measures. They applied for loans for debt crisis and planed to implement a short-term deficit to realize a substantial “V-shaped” recovery and then adopted fiscal austerity policies, which affected economic recovery and development [42]. In contrast, China, Cuba and other countries with socialist system done a good job in implementing administrative regulations and combining the democratic initiatives and participation [43]. However, most of the other countries only adopted temporary relief measures to deal with the crisis and did not turned into a comprehensive social protection system to respond to emergencies.

**4. Chinese model in global COVID-19 prevention and control: institutional advantages**

China’s performance is the embodiment of the transformation of institutional advantages into governance efficiency. China’s success bases on four institutional advantages, including the leadership of the CPC, coordinated national response, the basic economic system and traditional Chinese culture (see Fig. 3).

*4.1. The leadership of the CPC, guaranteeing the success fundamentally*

The leadership of the CPC is the most essential feature and the greatest advantage of socialism with Chinese characteristics. Since its establishment in 1921, the Party has been constantly exploring the way to lead the Chinese people to develop continuously. In the process, the leadership of the CPC has concentrated in organizing capacity, productivity, creativity, executive ability and drivers for growth, which has also shaped five basic characteristics, including advanced organization, forward-looking strategy, scientific decision-making, performance of governance and peaceful development. In the face of sudden epidemic, the Party took the people as the center, using the greatest human and material resources to treat every patient, regardless of cost and without fear of difficulties. Xi Jinping pointed out that the Party has always served the people wholeheartedly. Besides, the implementation of the measures in China also relied on the people. The Party fully mobilized the enthusiasm of the people and gathered the wisdom of the people, forming a joint force. Therefore, China can contain the spread speed in a short time and actively undertake international responsibilities, helping other countries overcome the epidemic. Besides, the Party effectively took into account the two “battlefields” of normalized epidemic



**Fig. 3.** The institutional advantages of China and corresponding prevention and control measures.

prevention and control and economic and social development, coordinating both internal and international imperatives. In brief, the leadership of the Party has played a pivotal role in the “big test”.

#### 4.2. Coordinated national response, taking the advantage of concentrated efforts

The ability to gather the strength of the country on a major task is a significant advantage of China’s governance. Adhering to coordinated national response is to use the dialectical thinking of the main contradiction and the secondary contradiction in the materialist dialectics. On the one hand, China has established an overall view and based on the whole situation, promoted the part with the whole. On the other hand, China has focused on the principal contradiction to grasp the key problem, promoting the whole with the part. Xi Jinping’s clarified that the national governance system is like a game of chess. The Party Central Committee is the “King” in the leading position and the others are like “Rooks, Knights and Cannons”. The Party is the command center, uniting all sectors of society and all forces. The positive factors and forces of all parties also do their best to take responsibility. During the special period, the Party committees and governments at all levels unified command, coordination and deployment under the leadership of the Party. Provinces, cities, counties and villages were linked at all levels. All departments and units cooperated efficiently. According to the national condition, prevention and control measures were formulated in the region, forming a strong synergy. China has the institutional advantages of coordinating national response and concentrating its efforts on major events, so Chinese government can realize the deployment of resources from all walks of life, effectively integrating of national and social forces and truly implementing it in full manner. This not only meets the needs of the country’s normalized governance, but also shows significant advantages in abnormal governance, helping the country overcome major public crises.

#### 4.3. Basic economic system, gathering all economic forces effectively

The basic economic system has obvious advantages in mobilizing the enthusiasm of various economic entities. Firstly, public ownership has laid the institutional foundation for the distribution of means of production in the whole society. Marx and Engels believed that all production departments can be managed by the whole society. It means that all production departments can be operated according to the general plan and the participation of all members of society for the public interest. With socialist public ownership as the main body, the run of society is based on people’s needs and public interests. Therefore, the Chinese government can show its outstanding ability in coordinating resources compared with capitalist countries, especially the ability to provide free treatment for the patients. What’s more, China has encouraged multiple ownership economies developing together, so private and foreign-funded enterprises have willed to contribute. According to the statistics, as of February 29, 2020, all sectors of society donated a total of about 21.6 billion yuan to Wuhan and other regions, of which the total amount of corporate donations was about 20.4 billion yuan, about 94 % of the total donation. Among all donations with a donation amount exceeding 10 million yuan, the total amount donated by private enterprises was about 10.23 billion yuan (accounting for 63 %). Central/state-owned enterprises was about 4.67 billion yuan (accounting for 29 %). Foreign-funded/joint ventures was about 650 million yuan (accounting for 4 %). Other institutions (including corporate foundations, public welfare organizations, schools and so on) was about 700 million yuan (accounting for 4 %) [44]. Therefore, the public and non-public economies can complement each other and help China tide over the difficulties together.

#### 4.4. Traditional Chinese culture, working in unity with mutual assistance

Both national institution and governance system are influenced by the specific history and culture of a country. Chinese culture has affected the people and the construction of the national system imperceptibly, just like an “invisible hand” shaping the Chinese model. As a treasure of the Chinese nation, traditional culture includes people-oriented spirit of benevolence, team spirit, the sacrificial spirit, the spirit of cooperation and so on. After the outbreak of the epidemic in Wuhan, Chinese people could not bear their compatriots to be in deep distress, so they contributed their own efforts. Doctors from all over the nation submitted petitions to go to the front line of the epidemic. Scientific researchers worked day and night to complete many scientific research problems with the spirit of exploration. Ordinary people petitioned as volunteers to help as much as they can. All regions and departments united and cooperated to take measures as soon as possible. The people of China demonstrated their great love and social responsibility with practical actions. Furthermore, China tried its best to actively help other countries in need. Chinese people not only effectively curbed the spread of the epidemic in China, but also shared information and provided assistance to other countries.

### 5. Optimal path of Chinese model in global Covid-19 prevention and control

The COVID-19 prevention and control measures can reflect the effectiveness of various countries’ systems and test national governance capacity. Compared with the prevention and control measures of Western capitalist countries such as America, China’s epidemic performance can show strong institutional advantages, but there are also weak links that need to be improved, including early reaction, the construction of public health management system and so on. Therefore, the experience and lessons should be summarized to constantly optimize the Chinese model.

#### 5.1. Adhere to the socialist system with Chinese characteristics

The socialist system with Chinese characteristics is essential to the development and progress of contemporary China, which can

provide fundamental institutional guarantee. The sudden outbreak of COVID-19 has brought great negative effects to various countries. Chinese government combined the socialist system with the actual national conditions and found a way to success on the basis of putting the safety and health of the people first. China fully made use of the socialist system with Chinese characteristics, including the party's centralized and unified leadership, the people-centered concept and coordinated national response. In the future, China should adhere to the leadership of the CPC and regard people as the first place so as to continuously improve the ability to respond to emergencies. Furthermore, China should also enrich theoretical system and practical system to optimize the "governance of China" so as to effectively address the challenges of international public health risks.

### 5.2. *Improve the public health and emergency management system*

Countries' public health and emergency management system have been brought severe challenges because of the epidemic. In the process, China has shown a series of remarkable achievements, but some shortcomings have also been exposed, which are difficult to be detected under the normalized governance of the country, including major epidemic prevention and treatment system, short-term and full-scale medical assistance and so on. More effective vaccine and virus detection techniques have needed urgently [45]. At the same time, the effectiveness of public health and emergency management system can directly determine the speed of controlling the spread of the epidemic. In mid-March 2022, Shenzhen encountered a large-scale spread of Omicron and the city took only seven days of "slow life" to resume normal production and life. However, the prevention and control in Shanghai during the same period showed lackluster performance after one month of prevention and control. The ability to take effective measures in time should be further improved. Asymptomatic infected people contacted a large number of people in the early stage, so that it was necessary to take strict block in the later stage. In addition, Beijing also met several difficult periods in 2022, because the implementation of epidemic prevention measures should be further improved. The different performance in the same period are mainly because of the differences of public health and emergency management measures. China should take a long-term view, sum up experience and learn from lessons. China should strive to organically combine the advantages of the centralized and unify system with a collaborative and innovative emergency response mechanism in the future. China should continuously improve the public health emergency system, scientific and technological research system, monitoring and early warning system, public crisis education system and so on. The government should also improve public health and emergency protection network so as to effectively safeguard the safety of people's lives.

### 5.3. *Accelerate the construction of a community with a shared future for mankind*

Countries should realize that virus knows no borders. China has provided Chinese wisdom and solutions for promoting world peace and development. China not only tried hard to stable domestic situation, but also actively taken international responsibilities, including timely notifying the epidemic information and sharing the prevention, control, diagnosis and treatment plan to the WHO and other countries. China done its best to provide financial aid to developing countries for them to fight the epidemic and realize economic recovery and social development. China also provided anti-epidemic material assistance, including masks, protective clothing and test kits, to more than 150 countries and 13 international organizations. All countries are closely connected with each other. Therefore, all countries should oppose a zero-sum approach. Living in the global village, mankind will confront with increasing common challenges in the future. It is necessary for all countries to consider the common destiny of mankind at the global level. The key for countries to work together lies in practical actions. The international community should make efforts in multiple fields, including economic development, security construction and ecological protection. Besides, China should continue to shoulder its responsibilities in both domestic and international situations, striving to build a community with a shared future for mankind.

### 5.4. *Promote the modernization of the national governance system and governance capacity*

The performance can reflect national governance system and governance capacity. China's performance can not only show the advantages of the socialist system with Chinese characteristics, but also expose some management problems. Governance efficiency in China still needs to be further explored and improved. At the same time, China's national governance is facing multiple challenges in the century, which determines that it is important to maintain the system construction in China. China should constantly reform and innovate to organically unify the "insistence of the foundation" and the "creation of a new era". On the one hand, the government should play the role of "underpinning", offering services to special groups. On the other hand, Chinese government should empower enterprises to fully mobilize and make good use of the power of the market, society and people, gathering the strength of the whole city to overcome the crisis. Therefore, it is necessary to maintain inheritance and innovation, upholding the spirit of openness and inclusiveness, harmonious coexistence and mutual learning and integration, to identify problems and further break through obstacles with self-confidence. China should adhere to the unity of theory and practice and the combination of problem orientation and top-level design.

## 6. Conclusion

Throughout the history of human civilization, pandemics are often the accelerators for the rise and fall of civilization as well as the catalysts for cultural inheritance and innovation [46]. In the special period, the overall performance of socialist countries listed was better than that of capitalist countries listed in several fields. China had the best overall performance among socialist countries. The success relies on China's strong institutional advantages. The biggest feature of the Chinese model is the leadership of the Party. In the



future, China, adhering to the socialist system with Chinese characteristics, should improve the public health and emergency management system, accelerate the construction of a community with a shared future for mankind and promote cultural inheritance and innovation. At the same time, different countries should tap their own advantages and learn from experience and lessons so as to improve public health and emergency management systems for future emergencies. Countries should actively undertake international responsibilities and maintain a balance between the optimization of domestic health governance system and the contribution to the global public health governance. All countries should participate to build a healthy community of human beings and jointly meet potential challenges.

There are limitations in this paper. First of all, the paper is mainly descriptive analysis. Although some data have used to compare the performance between major socialist and capitalist countries, the data analysis is insufficient. Secondly, this paper mainly focuses on the successful experience of epidemic prevention and control in China and its institutional advantages, but lacks analysis of the shortcomings and reasons about China's epidemic prevention and control measures.

Future research may be carried out from the following two aspects. Firstly, several major capitalist countries and socialist countries can be selected to conduct quantitative research on different fields, including economic recovery, production and life, social satisfaction and international evaluation. Besides, the shortcomings in the process of prevention and control in China and the relatively good measures taken by other countries can be further analyzed. The feasibility of China learning from other countries' experience can be further discussed.

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### Additional information

No additional information is available for this paper.

### Data availability statement

Data sharing does not apply to this paper; the data currently used in this study is from the real time statistical information released by Johns Hopkins University, the World Bank official website and Democracy Perception Index (from 2020 to 2022), so access to the data requires permission from the relevant official websites.

### CRedit authorship contribution statement

**Yi Han:** Funding acquisition, Investigation, Project administration, Supervision, Writing – review & editing. **Tong Xu:** Conceptualization, Formal analysis, Funding acquisition, Methodology, Visualization, Writing – original draft, Writing – review & editing.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### References

- [1] Y.C. Wu, C.S. Chen, Y.J. Chan, The outbreak of COVID-19: an overview, *J. Chin. Med. Assoc.* 83 (3) (2020) 217–220. [https://journals.lww.com/jcma/fulltext/2020/03000/the\\_outbreak\\_of\\_covid\\_19\\_an\\_overview.3.aspx](https://journals.lww.com/jcma/fulltext/2020/03000/the_outbreak_of_covid_19_an_overview.3.aspx).
- [2] Y. Xiao, M.E. Torok, Taking the right measures to control COVID-19, *Lancet Infect. Dis.* 20 (5) (2020) 523–524. [https://doi.org/10.1016/S1473-3099\(20\)30152-3](https://doi.org/10.1016/S1473-3099(20)30152-3).
- [3] Y. Mao, Political institutions, state capacity, and crisis management: a comparison of China and South Korea, *Int. Polit. Sci. Rev.* 42 (3) (2021) 316–332. <https://doi.org/10.1177/0192512121994026>.
- [4] T. Maak, N.M. Pless, F. Wohlgezogen, The fault lines of leadership: lessons from the global Covid-19 crisis, *J. Change Manag.* 21 (1) (2021) 66–86. <https://doi.org/10.1080/14697017.2021.1861724>.
- [5] A. Stobart, S. Duckett, Australia's response to COVID-19, *Health Econ. Pol. Law* 17 (1) (2022) 95–106. <https://doi.org/10.1017/S1744133121000244>.
- [6] K. Karako, P. Song, Y. Chen, et al., Overview of the characteristics of and responses to the three waves of COVID-19 in Japan during 2020–2021, *Bioscience Trends* 15 (1) (2021) 1–8. <https://doi.org/10.5582/bst.2021.01019>.
- [7] L.V. Tan, COVID-19 control in Vietnam, *Nat. Immunol.* 22 (3) (2021) 261. <https://doi.org/10.1038/s41590-021-00882-9>.
- [8] S. Kumar, V. Maheshwari, J. Prabhu, et al., Social economic impact of COVID-19 outbreak in India, *Int. J. Pervasive Comput. Commun.* 16 (4) (2020) 309–319. <https://doi.org/10.1108/IJPC-06-2020-0053>.
- [9] M. Händel, M. Stephan, M. Gläser-Zikuda, et al., Digital readiness and its effects on higher education students' socio-emotional perceptions in the context of the COVID-19 pandemic, *J. Res. Technol. Educ.* 54 (2) (2020) 267–280. <https://doi.org/10.1080/15391523.2020.1846147>.

- [10] W. Yiwei, K. Najaf, G.F. Frederico, et al., Influence of COVID-19 pandemic on the tourism sector: evidence from China and United States stocks, *Curr. Issues Tourism* 25 (23) (2022) 3783–3798, <https://doi.org/10.1080/13683500.2021.1972944>.
- [11] Y. Chen, Q. Li, H. Karimian, et al., Spatio-temporal distribution characteristics and influencing factors of COVID-19 in China, *Sci. Rep.* 11 (1) (2021) 3717, <https://doi.org/10.1038/s41598-021-83166-4>.
- [12] B. Salzberger, T. Glück, B. Ehrenstein, Successful containment of COVID-19: the WHO-Report on the COVID-19 outbreak in China, *Infection* 48 (2) (2020) 151–153, <https://doi.org/10.1007/s15010-020-01409-4>.
- [13] M. Hasnain, M.F. Pasha, I. Ghani, Combined measures to control the COVID-19 pandemic in Wuhan, Hubei, China: a narrative review, *Journal of Biosafety and Biosecurity* 2 (2) (2020) 51–57, <https://doi.org/10.1016/j.jobbb.2020.10.001>.
- [14] W. Tian, How China managed the COVID-19 pandemic, *Asian Econ. Pap.* 20 (1) (2021) 75–101, [https://doi.org/10.1162/asep\\_a\\_00800](https://doi.org/10.1162/asep_a_00800).
- [15] Z.J. Cheng, Z. Zhan, M. Xue, et al., Public health measures and the control of COVID-19 in China, *Clin. Rev. Allergy Immunol.* 64 (2021) 1–16, <https://doi.org/10.1007/s12016-021-08900-2>.
- [16] Y. Wei, Z. Ye, M. Cui, et al., COVID-19 prevention and control in China: grid governance, *J. Publ. Health* 43 (1) (2021) 76–81, <https://doi.org/10.1093/pubmed/fdaa175>.
- [17] L. Wang, B. Yan, V. Boasson, A national fight against COVID-19: lessons and experiences from China, Australian and New Zealand, *J. Publ. Health* 44 (6) (2020) 502–507, <https://doi.org/10.1111/1753-6405.13042>.
- [18] E. Xue, J. Li, T. Li, et al., China's education response to COVID-19: a perspective of policy analysis, *Educ. Philos. Theor.* 53 (9) (2021) 881–893, <https://doi.org/10.1080/00131857.2020.1793653>.
- [19] Y. Liu, R.B. Saltman, Policy lessons from early reactions to the COVID-19 virus in China, *Am. J. Publ. Health* 110 (8) (2020) 1145–1148, <https://doi.org/10.2105/AJPH.2020.305732>.
- [20] S. Sun, Z. Xie, K. Yu, et al., COVID-19 and healthcare system in China: challenges and progression for a sustainable future, *Glob. Health* 17 (1) (2021) 1–8, <https://doi.org/10.1186/s12992-021-00665-9>.
- [21] Data source: <https://coronavirus.jhu.edu/map.html>. (Accessed 1 September 2023).
- [22] A. Sumner, C. Hoy, E. Ortiz-Juarez, Estimates of the impact of COVID-19 on global poverty, in: *EconStor: Estimates of the impact of COVID-19 on global poverty, WIDER Working Paper No. 2020/43*, 2020, pp. 1–14.
- [23] T. Stubbs, W. Kring, C. Laskaridis, et al., Whatever it takes? The global financial safety net, Covid-19, and developing countries, *World Dev.* 137 (105171) (2021) 1–8, <https://doi.org/10.1016/j.worlddev.2020.105171>.
- [24] S. Miyamura, Turbulence ahead: labour and struggles in times of the Covid-19 pandemic in India, *Can. J. Dev. Stud.* 42 (1–2) (2021) 165–177, <https://doi.org/10.1080/02255189.2021.1894415>.
- [25] L. Ossome, The care economy and the state in Africa's Covid-19 responses, *Can. J. Dev. Stud.* 42 (1–2) (2021) 68–78, <https://doi.org/10.1080/02255189.2020.1831448>.
- [26] T. Franz, Spatial fixes and switching crises in the times of COVID-19: implications for commodity-producing economies in Latin America, *Can. J. Dev. Stud.* 42 (1–2) (2021) 109–121, <https://doi.org/10.1080/02255189.2020.1832881>.
- [27] C.C. Lee, C.C. Lee, Y. Wu, The impact of COVID-19 pandemic on hospitality stock returns in China, *Int. J. Finance Econ.* 28 (2) (2023) 1787–1800, <https://doi.org/10.1002/ijfe.2508>.
- [28] B.K. Dhar, Impact of COVID-19 on Chinese economy, *Econ. Aff.* 9 (3/4) (2020) 23–26. <https://ssrn.com/abstract=3597313>.
- [29] Q. Wang, M. Su, A preliminary assessment of the impact of COVID-19 on environment—A case study of China, *Science of the total environment* 728 (2020) 138915, <https://doi.org/10.1016/j.scitotenv.2020.138915>.
- [30] Data source: <https://data.worldbank.org/country>. (Accessed 1 September 2023).
- [31] Data source: <https://daliaresearch.com/blog/democracy-perception-index-2020/>. (Accessed 1 September 2023).
- [32] Data source: <https://latana.com/democracy-perception-index-report-2021/>. (Accessed 1 September 2023).
- [33] Data source: [https://docs.google.com/spreadsheets/d/1gdjTHqM\\_O2kDNYFgVLWVzCn4lFWzFRoMRUDTelXxTM4/edit#gid=1271546525](https://docs.google.com/spreadsheets/d/1gdjTHqM_O2kDNYFgVLWVzCn4lFWzFRoMRUDTelXxTM4/edit#gid=1271546525). (Accessed 1 September 2023).
- [34] S. Stevano, T. Franz, Y. Dafermos, et al., COVID-19 and crises of capitalism: intensifying inequalities and global responses, *Can. J. Dev. Stud.* 42 (1–2) (2021) 1–17, <https://doi.org/10.1080/02255189.2021.1892606>.
- [35] H.Y. Tian, Y.H. Liu, Y.D. Li, et al., An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in China, *Science* 368 (6491) (2020) 638–642. <https://www.science.org/doi/full/10.1126/science.abb6105>.
- [36] P. Zanoni, Whither critical management and organization studies? For a performative critique of capitalist flows in the wake of the COVID-19 pandemic, *J. Manag. Stud.* 58 (2) (2020) 577–581, <https://doi.org/10.1111/joms.12655>.
- [37] J.A. Oldekop, R. Horner, D. Hulme, et al., COVID-19 and the case for global development, *World Dev.* 134 (105044) (2020) 1–4, <https://doi.org/10.1016/j.worlddev.2020.105044>.
- [38] J. Ghosh, A critique of the Indian government's response to the COVID-19 pandemic, *Journal of Industrial and Business Economics* 47 (3) (2020) 519–530, <https://doi.org/10.1007/s40812-020-00170-x>.
- [39] H. Karimian, Q. Fan, Q. Li, et al., Spatiotemporal transmission of infectious nanochemical particles in water environment: a case study of Covid-19, *Chemosphere* 335 (2023) 139065, <https://doi.org/10.1016/j.chemosphere.2023.139065>.
- [40] C. Martinez, Karl marx in wuhan: how Chinese socialism is defeating COVID-19, *Int. Crit. Thought* 10 (2) (2020) 311–322, <https://doi.org/10.1080/21598282.2020.1779504>.
- [41] A. Adams-Prassl, T. Boneva, M. Golin, et al., Inequality in the impact of the coronavirus shock: evidence from real time surveys, *J. Publ. Econ.* 189 (2020) 104245, <https://doi.org/10.1016/j.jpube.2020.104245>.
- [42] C. Laskaridis, When push came to shove: COVID-19 and debt crises in low-income countries, *Can. J. Dev. Stud.* 42 (1–2) (2021) 200–220, <https://doi.org/10.1080/02255189.2021.1894102>.
- [43] V. Wallis, M.L. Zhou, Socialism, capitalism, and the COVID-19 epidemic: interview with victor wallis, *Int. Crit. Thought* 10 (2) (2020) 153–160, <https://doi.org/10.1080/21598282.2020.1783920>.
- [44] Sina. In the fight against the epidemic, the total amount of corporate donations reached 20.4 billion yuan. Available online: [http://k.sina.com.cn/article\\_7395349859\\_1b8cc156301900vbsy.html](http://k.sina.com.cn/article_7395349859_1b8cc156301900vbsy.html). (Accessed 1 September 2023).
- [45] K. Shahin, L. Zhang, M.H. Mehraban, et al., Clinical and experimental bacteriophage studies: recommendations for possible approaches for standing against SARS-CoV-2, *Microb. Pathog.* 164 (2022) 105442, <https://doi.org/10.1016/j.micpath.2022.105442>.
- [46] V. Rozin, The pandemic, the crisis of modernity, and the need for a new semantic project of civilization, *Philosophy and Cosmology* 25 (25) (2020) 32–42, <https://doi.org/10.29202/phil-cosm/25/3>.