

## On The Economic Impact of Covid-19 On China's Health Sector



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**ABSTRACT:** This paper provides a comprehensive analysis of the economic and health impacts of COVID-19 on China's health sector, combining qualitative analysis with the research of Qian,X et al. The aim of this paper is to analyse the impacts of China's epidemic policy on the economy and the economic burden of COVID-19 on the population and the solutions to this problem, and to use the research data as a reference for managers, pointing out that coping with this type of public health emergencies is a major concern for the health sector. The study first looks at the economic impact of increased demand for healthcare, the The study first identifies the direct economic impact of the outbreak in terms of increased demand for healthcare, reallocation of healthcare resources, and disruption of the supply chain for medical equipment. By analysing official data and industry reports between 2020 and 2022, the study details changes in public and private healthcare spending during the public health crisis and the impact of these changes on the affordability of healthcare services and the economic stability of healthcare providers. At the same time, the paper explores the long-term impact of COVID-19 on the public health situation, especially on the underclass social groups, which in turn increased the economic burden on the healthcare system. Finally, the paper discusses future strategies for responding to similar public health crises through policy interventions and innovative solutions, aiming to provide policy makers with evidence-based recommendations to optimise the allocation of health resources, improve the coping capacity of the healthcare system, and, most importantly, to improve society's coping strategies for coping with the double whammy of economy and health brought about by emergencies and providing economic sustainability.

**KEYWORDS :** Socioeconomic Impacts of COVID-19, Healthcare Affordability, Economic Burden on Healthcare, Policy Interventions for Public Health, Economic Resilience in Health Sector

### INTRODUCTION

The emergence and rapid escalation of COVID-19 into a global epidemic at the end of 2019 has had a major impact on all walks of life around the globe, and China in particular, as the first country to discover the virus, has suffered and its far-reaching effects, more and more seriously as a direct function of the health sector. This explosive growth of the public health crisis has prompted significant changes in Chinese health positively. The main manifestations have been a dramatic increase in the demand for health care, resulting in a lack of health care resources sufficient to face the needs of a large population, as well as dramatic socio-economic upheavals. This paper discusses the direct economic impact of COVID-19, focusing on the changes in the healthcare system and the cascading economic changes, as well as the economic pressures on the state and society. Although there is a great deal of information on the impact of COVID-19, there is still a gap in analyzing the health impacts and economic impacts it has had on the healthcare system of society. This study analyses the impact of China's outbreak policy on the economy and healthcare system, with the aim of

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analysing and examining the health impacts and economic burdens caused by COVID-19, and providing references and recommendations for future policy specifiers.

The study provides a detailed economic analysis of the impact of COVID-19 on China's health ministries and the impact at the societal level, and provides a detailed understanding of the long-term impact of the epidemic on the health economy and the effectiveness of policy in terms of scope, using data from 2020 to 2022 in a qualitative analysis.

The structure of the article begins with a brief introduction to clarify the direction of the study, the research questions and objectives, followed by theoretical support by incorporating existing research, analysis and research using data from the community such as Qian,X, etc., and analysing and discussing the results with the data that can be collected from the community, and finally, recommendations for future policy and analyses of the limitations of the study. The study hopes to provide a valuable brief to the policymakers and already to the future researchers concerned to help face similar crises better in the future.

## **LITERATURE REVIEW**

### **Impact of COVID-19 on the public health sector**

Looking at the impact of the existing COVID-19 on the global economy, particularly in the public health sector, it can be seen that its emergence has put a great deal of pressure on the public health sector and has disrupted the normal functioning of the sector. Qian's (2020) study suggests that when China receives the impact of COVID-19, the social public health sector received a huge blow when China received the impact of COVID-19, the increase in illnesses led to overcrowding of the healthcare system coupled with the government's initial quarantine policy led to a huge pressure on the social and public health sector, which lasted until the mid-point of the outbreak when the government adopted a social security system Liu, Y (2020) study also illustrates that COVID-19 has had a significant impact on public health environments, and that similarly As the government's lax policy of limiting the epidemic in the early stages led to further deterioration of the environment, the function of the government's public health sector almost collapsed as the epidemic progressed further. This demonstrates that COVID-19 had a significant impact on the health of the environment by undermining the normal functioning of the public health sector in a number of ways.

### **The economic impact of COVID-19 on China's health sector**

COVID-19 puts enormous operational pressure on the public health sector, and likewise has a significant impact on the most important technical facilities of the economy. Research by Ostadzad et al. (2023) demonstrates that the level of health infrastructure can contribute to economic growth through endogenous growth modelling, particularly in public health crises such as pandemics, and that a strong health system can be effective in supporting long-term economic growth. Whereas the collapse of the grassroots health sector under COVID-19 illustrates the huge economic vulnerability of the local economy in the face of a sudden public health crisis, Tan, L et al.'s (2021) survey shows that China's GDP growth rate went from 4-8% to -8.77% to -12.77% in the epidemic, which shows that the economy of China has produced a huge amount of growth in the face of being hit by the COVID-19 The economic downturn in the supply chain has also had a direct impact on public healthcare replenishment, resulting in a sharp increase in economic spending in the health sector but a sharp decline in the rate of return.

### **Impact of COVID-19 on international and national policies**

COVID-19 not only brought great impacts to the health sector in China but also spread rapidly to the whole world, bringing economic shocks to many countries around the globe. Chudik et al. (2020) assessed the global macroeconomic impacts of COVID-19 through a multi-country model and found that there were significant differences in the economic impacts of the epidemic on different countries, and that China, as a relatively high-income country, had a greater economic impact. greater. The impacts are long-lasting and severe. At the same time, the global health crisis has dramatically increased the use of healthcare infrastructure, leading to a surge in its economic benefits. Meanwhile Milani (2021) used a global vector autoregressive model to study the socio-

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economic responses to the COVID-19 epidemic in 41 countries, illustrating the significant impact of COVID-19 on the health sector in different countries, with severe economic impacts. This suggests that, in addition to internal policy adjustments, countries need to engage in collaborative communication and international synergies to bring greater economic protection to their health sectors and to the world's health sectors.

### Summary

The emergence of COVID-19 has had a dramatic impact on the public health sector, resulting in significant stress and disruption. In China, the healthcare system faced significant challenges due to the disease surge and initial quarantine policies, leading to strained public health services until adjustments were made mid-out of the pandemic. This was further exacerbated by early policy easing, highlighting the fragility of the public health infrastructure and its significant environmental impact. Economically, COVID-19 has placed significant operational pressure on the public health sector, revealing its economic impact on China's health sector and the reasons for the pressure. The collapse of local health systems demonstrates the fragility of the economy, with China's GDP falling sharply due to supply chain disruptions and increased health sector spending, leading to reduced benefits. Internationally, the economic impact of COVID-19 on different countries has varied, with high-income countries like China facing more severe long-term consequences. The global health crisis has highlighted the need to strengthen the health infrastructure and improve its economic benefits, but it has also emphasized the need for international cooperation and policy adjustments to protect and improve the global health sector.

### METHODOLOGY

This study analyzed the economic impact of COVID-19 on the health sector in China through a systematic review and used qualitative research to analyze adaptation tables from other articles. The article analysis consisted of several different stages: firstly, database identification and analysis was carried out to collect journal articles from the last five years that matched the objectives of the study. The articles used focused on the overall impact of COVID-19 on the health sector, especially the economic component, and were used to analyse multiple aspects of its impact on the health sector, especially the economic component. Key data were then identified from the selected articles and quality assessment of the articles was carried out using relevant tools to ensure the reliability and validity of the relevant research literature. The articles were analysed by comparing them with each other to support the direction of the analysis and to provide recommendations for future encounters with such events.

### RESULT AND DISCUSSION

From the data in **Table1**, it can be seen that by 2020, the whole of China has been affected by COVID-19, and the severity of the situation is closely related to the economic development of different provinces and cities, and it can be seen that, except for Hubei Province, which was initially found to be severely affected, the rest of the severely affected areas are economically developed regions such as Guangdong Province, Zhejiang Province, and so on. This is closely related to population density on the one hand, and on the other hand, it also reflects that population and economic flows are more rapid in economically developed areas. As China is the second largest economy in the world, its health sector was even more severely affected by the economy.

Based on the data provided in **Table2** we can see that COVID-19 imposes a huge economic burden on China's health sector. As can be seen from the table, the total cost to society is RMB 266,496.8 million. Of this, the cost of conventional medical care was RMB 241,959 million, non-conventional medical care was RMB 210,681 million, and productivity loss was RMB 261,465 million. These figures emphasise the huge economic blow that the epidemic has had on China's health sector, and the importance of the government strengthening disease prevention and control measures in response to similar public health crises in the future. In order to reduce the economic burden on the health sector, it should be recommended to policymakers to invest in more effective outbreak early

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warning and response systems, improve the efficiency of the healthcare infrastructure, and optimise disease prevention and control strategies in order to reduce the demand on public resources and to achieve economically healthy and sustained development of the health sector.

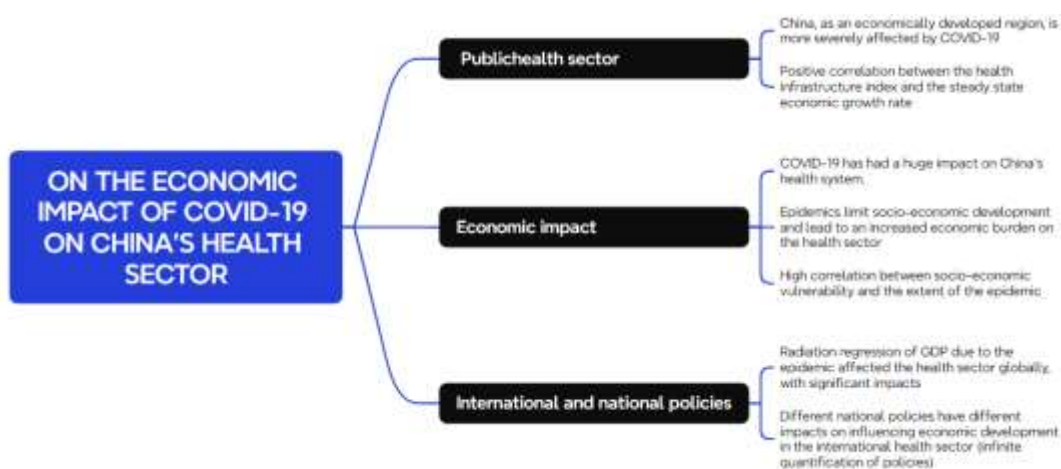
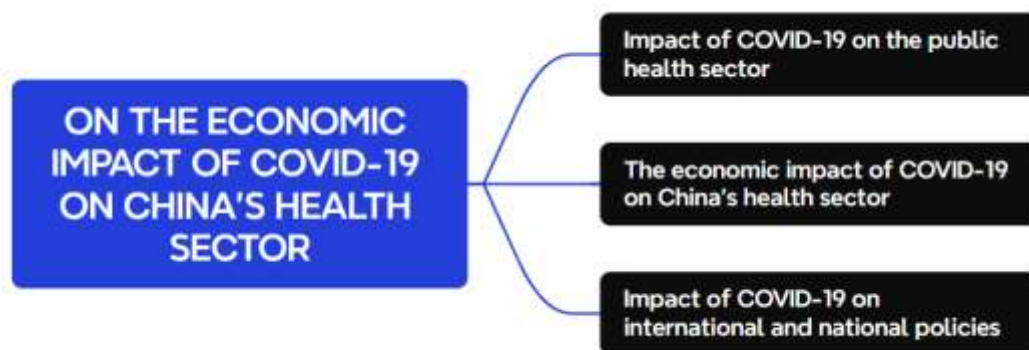
The relationship between the health infrastructure index and the steady state economic growth rate can be seen in [Table3](#), which shows that there is a significant positive correlation between the health infrastructure index and the steady state economic growth rate. As the health infrastructure index rises from 0.1 to 1.0, the steady state economic growth rate rises from close to -0.14 to close to 0.02. This shows that strengthening health infrastructure can significantly contribute to the steady state growth of the health sector economy, reflecting the fact that investing in health infrastructure is an effective way to increase the country's economic growth potential. It is therefore recommended that the Government should make health infrastructure development a core element of the country's macroeconomic strategy, especially when formulating plans for future economic recovery, in order to strengthen health infrastructure development and generate long-term growth momentum for the health sector economy.

**Table4** shows rail passenger numbers between 2018 and 2020, highlighting the significant decline in 2020 due to COVID-19. The decline in passenger numbers illustrates the impact of closure measures and travel restrictions on mobility. The decline in travel reflects reduced economic activity and changes in public behaviour to contain the spread of the virus. The development of the epidemic has led to a significant reduction in the number of people travelling, which in turn side by side reflects the fact that the epidemic has limited socio-economic development and has had a cascading effect on the economy of the health sector, affecting the health of the population on the one hand, and on the other hand contributing to a significant increase in economic investment in the health sector, with a lower rate of return, which has increased the expenditure of the governmental sector while increasing the economic burden on the health sector.

The graph in **Table5** shows the response of GDP of different countries when an epidemic occurs, and through the volatility graph in the graph we can see that a pandemic may reduce global real GDP by three percentage points, and at the same time, according to the Chinese Banking and Insurance Newspaper (2022) at the time of the epidemic, China's public health expenditure accounted for 7% of total GDP, and from this it can be deduced that the radiation of GDP regression caused by the epidemic affects the health sector around the world, which can have a significant impact on the economy of the health sector.

**Table6** is the regression coefficient test table about China during the epidemic, from which we can see that the negative correlation between the number of cases and the P, S, M data in the table is very strong, and that the macroeconomic situation has a strong correlation with the control and spread of the new crown epidemic. The degree of socio-economic hit is highly correlated with the degree of development of the epidemic. Compared with the regression level before the epidemic the negative correlation between the epidemics increased, and the economic level in the epidemic decreased significantly, thus affecting the economic development of China's health sector, and laterally affecting the economic investment in the health sector, creating an obstacle to the development of the economy and society.

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Taking the above charts together we can see that COVID-19 has a significant economic and health impact on the health sector in China. And influenced by multiple factors, the impact on China as the world's second largest economy and first country of discovery is unrivalled, with the healthcare system under the impact of the epidemic taking a huge economic hit. These factors highlight the need to strengthen health infrastructure and develop effective crisis management strategies to mitigate future public health crises and support sustainable economic development.

### Conclusion and Suggestion

This study comprehensively analyses the economic impact of the COVID-19 epidemic on China's health sector and finds that the epidemic severely challenged the allocation of healthcare resources and had a profound effect on the economic stability of the health system. Analyzing the data, we see a significant increase in healthcare expenditure during the epidemic, especially a substantial rise in investment in conventional and non-conventional healthcare, which directly increases the economic burden on the health system. In addition, society suffered a huge loss of productivity due to the overuse of healthcare resources and the lack of labour due to the epidemic, which in turn exacerbated the overall economic recession.

Therefore, it is recommended that the government and relevant organizations increase investment in health infrastructure, not only to improve the health of citizens, but also to strengthen the economy's resilience to disasters. In future economic recovery plans, health infrastructure development should be considered as a central part of the country's macroeconomic strategy, especially in terms of upgrading medical facilities and technology in underserved areas. In addition, policies aimed at improving capacity for disease prevention, diagnosis, treatment and surveillance need to be developed and implemented in order to enhance the responsiveness and adaptability of health systems to future crises.

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At the international level, enhanced global cooperation is essential for managing health crises. By sharing resources, information and strategies, global health challenges can be addressed more effectively while promoting economic stability and recovery. As we move forward, in order to respond to possible future public health emergencies, cooperation between national and international agencies will become even more important, ensuring greater global preparedness.

### ACKNOWLEDGMENT

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## Appendix

Table 1. Close contacts, suspected cases and confirmed cases of COVID-19 by region, China, January–March 2020 (Huajie Jin, 2020)

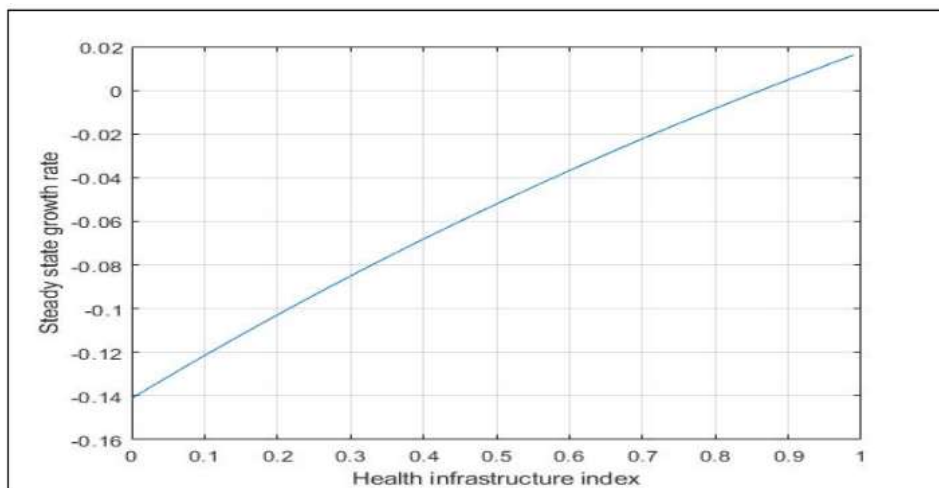
Region	No. of close contacts			No. of suspected cases			No. of confirmed cases		
	Total	Diagnosis		Total	Diagnosis		Total	Survival outcome	
		Non-COVID-19	COVID-19		Non-COVID-19	COVID-19		Survived	Died
Anhui province	28 981	27 445	1 538	1 129	139	990	990	984	6
Beijing	4 164	3 943	221	2 905	2 325	580	580	572	8
Chongqing	23 803	22 542	1 261	2 900	2 321	579	579	573	6
Fujian province	13 315	12 609	706	609	264	345	345	344	1
Gansu province	4 337	4 107	230	691	553	138	138	136	2
Guangdong province	41 136	38 956	2 180	7 517	6 016	1 501	1 501	1 493	8
Guangxi Zhuang autonomous region	16 216	15 357	859	816	562	254	254	254	0
Guizhou province	2 577	2 508	69	736	589	147	147	145	2
Hainan province	6 574	6 226	348	841	673	168	168	162	6
Hebei province	11 143	10 622	521	690	367	323	323	317	6
Heilongjiang province	16 619	16 491	128	1 535	1 051	484	484	471	13
Henan province	40 019	37 898	2 121	6 390	5 114	1 276	1 276	1 254	22
Hubei province	278 179	263 437	14 742	68 127 <sup>a</sup>	0	68 127 <sup>a</sup>	68 127 <sup>a</sup>	64 609	4 483 <sup>b</sup>
Hunan province	27 331	25 883	1 448	5 098	4 080	1 018	1 018	1 014	4
Inner Mongolia autonomous region	3 123	2 957	166	1 111 <sup>a</sup>	0	111	111	110	1
Jiangsu province	12 843	12 162	681	3 235	2 589	646	646	646	0
Jiangxi province	27 310	25 863	1 447	4 693	3 756	937	937	936	1
Jilin province	3 904	3 782	122	418	320	98	98	97	1
Liaoning province	3 729	3 531	198	701	561	140	140	139	1
Ningxia Hui autonomous region	4 719	4 469	250	75 <sup>a</sup>	0	75	75	75	0
Qinghai province	437	414	23	18 <sup>a</sup>	0	18	18	18	0
Shaanxi province	20 011	18 951	1 060	1 025	770	255	255	252	3
Shandong province	20 733	19 634	1 099	3 876	3 102	774	774	767	7
Shanghai	14 142	13 393	749	2 584	2 068	516	516	510	6
Shanxi province	4 564	4 350	214	301	164	137	137	137	0
Sichuan province	15 128	14 326	802	552 <sup>a</sup>	0	552	552	549	3
Tianjin	3 008	2 849	159	871	697	174	174	171	3
Tibet autonomous region	32	30	2	1	0	1	1	1	0
Xinjiang Uyghur autonomous region	2 083	1 973	110	381	305	76	76	73	3
Yunnan province	10 899	10 321	578	911	729	182	182	180	2
Zhejiang province	46 764	44 286	2 478	6 295	5 038	1 257	1 257	1 256	1
<b>Total of all regions</b>	<b>707 913</b>	<b>671 315</b>	<b>36 598</b>	<b>126 032</b>	<b>44 153</b>	<b>81 879</b>	<b>81 879</b>	<b>77 280</b>	<b>4 599</b>
<b>Total<sup>c</sup></b>	<b>NR</b>	<b>NR</b>	<b>NR</b>	<b>98 200<sup>b</sup></b>	<b>NR</b>	<b>NR</b>	<b>81 879<sup>b</sup></b>	<b>NR</b>	<b>4 602<sup>b</sup></b>

Table 2. Cost of COVID-19 according to cost component and COVID-19 diagnosis, China, January–March 2020

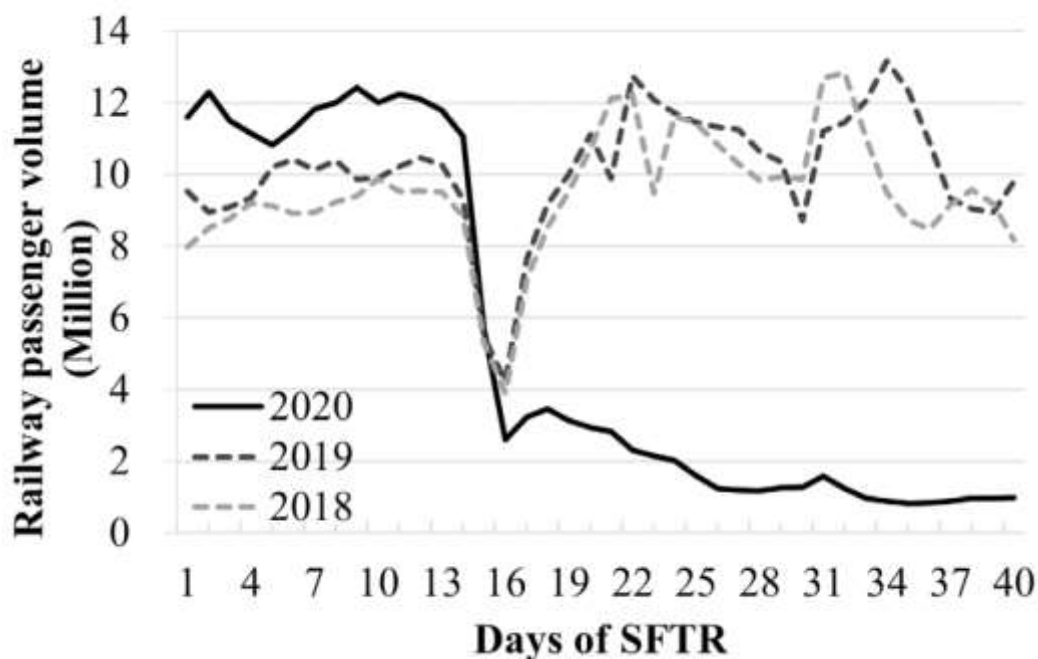
Cost component	Cost, million ¥							Total cost, million ¥ (million US\$)
	People not considered to have had COVID-19	Close contacts diagnosed as COVID-19 negative	Suspected cases diagnosed as COVID-19 negative	Confirmed cases surviving			Confirmed cases died	
				Non-severe	Severe	Critical		
<b>Routine health care</b>								
Identification and diagnosis	N/A	95.16	13.30	33.91	5.74	0.27	2.32	150.70 (21.81)
Medical observation <sup>a</sup>	N/A	261.85	17.50	N/A	N/A	N/A	N/A	279.35 (40.43)
Inpatient care	N/A	N/A	13.46	314.00	169.70	46.79	405.31	949.26 (137.37)
Medicines	N/A	N/A	N/A	22.18	377.07	30.92	267.86	698.03 (101.02)
Treatment for pre-existing conditions	N/A	N/A	N/A	2.20	45.43	2.37	20.54	70.54 (10.21)
Follow-up for recovered cases	N/A	N/A	N/A	1.45	0.25	0.01	N/A	1.71 (0.25)
<b>Subtotal</b>	<b>N/A</b>	<b>357.01</b>	<b>44.26</b>	<b>373.74</b>	<b>598.19</b>	<b>80.36</b>	<b>696.03</b>	<b>2 149.59 (311.08)</b>
<b>Non-routine health care<sup>b</sup></b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>2 106.81 (304.89)</b>
<b>Quarantine for test-negative cases</b>	<b>N/A</b>	<b>803.17</b>	<b>33.41</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>836.58 (121.07)</b>
<b>Productivity loss</b>	<b>2 638 379.36</b>	<b>2 635.33</b>	<b>169.86</b>	<b>328.63</b>	<b>62.10</b>	<b>3.41</b>	<b>26.51</b>	<b>2 641 605.20 (382 287.29)</b>
<b>Total (societal cost)</b>	<b>2 638 379.36</b>	<b>3 795.51</b>	<b>247.53</b>	<b>702.37</b>	<b>660.29</b>	<b>83.77</b>	<b>722.54</b>	<b>2 646 698.18 (383 024.34)<sup>c</sup></b>

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**Table 3. The Relationship between health infrastructure and economic growth**



**Table 4. The Railway passenger volume of SFTR in 2020: Actual DRPV of 2018–2020**



**Table5 Counterfactual real GDP projections, 2020Q1-2021Q4**

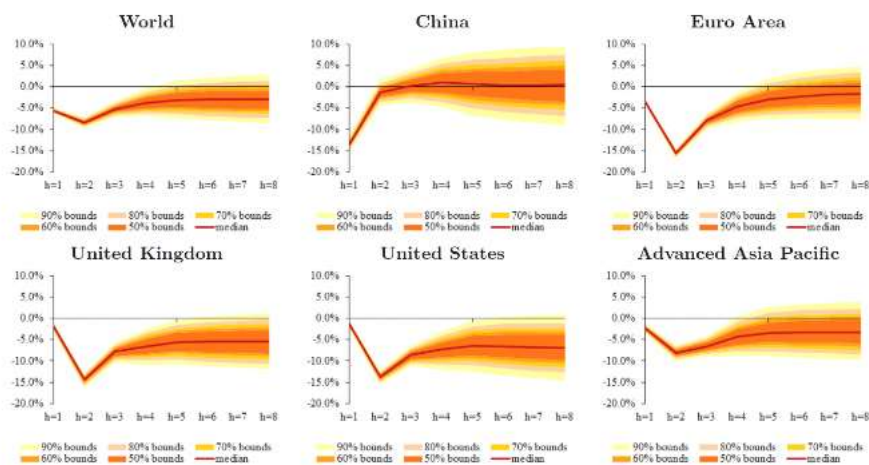




Table6 Regression coefficient test table of China

Sentiment factors	M <sub>c</sub>			S <sub>c</sub>		
non- Sentiment factors	lnX <sub>c</sub>	B <sub>c</sub>	M1 <sub>c</sub>	lnX <sub>c</sub>	B <sub>c</sub>	M1 <sub>c</sub>
coefficient	-0.426** (0.086)	-0.305** (0.038)	-0.525** (0.153)	-0.183* (0.071)	-0.131* (0.057)	-0.225* (0.085)
Sentiment factors	C <sub>c</sub>			P <sub>c</sub>		
non- Sentiment factors	lnX <sub>c</sub>	B <sub>c</sub>	M1 <sub>c</sub>	lnX <sub>c</sub>	B <sub>c</sub>	M1 <sub>c</sub>
coefficient	0.209* (0.103)	0.150 (0.100)	0.257** (0.052)	-0.109** (0.037)	-0.078 (0.079)	-0.134 (0.095)

Note \* p < .05 \*\* p < .01. Unstandardized coefficients are reported with standard errors in parentheses. In order to compare coefficients, variables included in the analyses were rescaled to the unit interval.



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