



Declining Chinese attitudes toward the United States amid COVID-19

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In this paper, we present findings from four separate studies using different data sources and methods to examine Chinese attitudes toward the United States amid the COVID-19 pandemic. The empirical results consistently indicate a marked and significant decline in Chinese attitudes toward the US between late 2019 and the end of 2022. Using a quasi-experimental design and granular survey data that exploit daily variations in public opinion, we offer additional evidence that the decline in Chinese attitudes toward the United States followed a distinct pattern not true for Chinese attitudes toward other countries. Specifically, the rise in Chinese unfavorability toward the United States closely corresponded to the heightened Chinese attention to the pandemic's progression in the United States. These results collectively suggest a causal effect of COVID-19, shedding light on how public health crises, international relations, and media jointly shape the increasing enmity between the two great powers.

COVID-19 | attitudes | opinion | China | United States

After the Cold War, the dominance of the United States in world affairs depends less on its economic and military resources than on its soft power, that is, its ability to influence other countries through appeal, attraction, and persuasion (1). While soft power is multifaceted and cannot be easily measured quantitatively, one useful key indicator of a given nation's soft power is public opinion toward that nation overseas (2). By this indicator, the US remains influential worldwide, especially in Western and developed countries. However, by the same measure, China has overtaken the United States in influence in some countries, particularly in developing nations (3).

Among the potential conflicts facing the world today, none is more dangerous and potentially devastating than that between the United States and the People's Republic of China (PRC) (4). The risk of military conflict between the United States and the PRC would be minimized by a strong mutual affinity between the American and Chinese people (5, 6). While Americans generally held favorable views toward China in the mid-1980s, their attitudes have significantly declined over time (7). In the post-COVID-19 era, Americans increasingly hold negative views on China, with as many as 83% expressing unfavorable opinions in 2023 (8). One significant factor contributing to Americans' negative views on China is China's perceived failure to control COVID-19 and prevent its spread abroad (9–11).

Earlier research indicates that Chinese attitudes toward the United States steadily declined from the late 1990s to the mid-2010s (12). There are further indications that this trend has continued as of late (12–16), with the COVID-19 pandemic in particular further fueling nationalism and exacerbating the decline in attitudes toward the United States (17). In December 2020, amid the height of the COVID-19 pandemic, a widely circulated article in the *Global Times*, a state-owned newspaper in China, reported survey results indicating that Chinese overwhelmingly disliked the US and that less than 2% of respondents viewed the United States as their "most favored country," down from 7.5% in 2010 (18).

One major reason for this decline is the perception in China that the United States has become less capable of handling world and domestic affairs (6). Such public perception has likely been strengthened by the media in China during the COVID-19 pandemic. Following the onset of the pandemic, China's state media became actively engaged in influencing public sentiment about it (19–22). While one major narrative highlighted China's effective virus control within its borders, another narrative emphasized the perceived failures of the US in managing the pandemic, with the objective being to strengthen public support of the Chinese government (19, 20). Through the

Significance

The COVID-19 pandemic has caused Chinese attitudes toward the US to significantly decline from 2019 to 2022, attributable to a rise in nationalism and a widespread perception of poor pandemic management in the US. This trend was mirrored by a similar decline in Americans' attitudes toward China during the same period. Such mutual deteriorations in perceptions are of grave concern, as they could further aggravate the already tense relationship between China and the US.

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use of framing and subtle persuasion techniques, these two narratives frequently succeed in molding public perception and opinion (16, 23, 24). For example, research has shown that exposure to negative news about the state of COVID-19 in other countries predicted negative perceptions of foreigners among Chinese (25). Additionally, commercial media and social media tend to adopt and amplify these narratives, creating an “echo chamber” phenomenon that is exacerbated by government censorship practices (19, 26). These widely used media narratives during the COVID-19 pandemic, while promoting a surge in national pride for China’s effective control of the public health crisis, likely dampened Chinese favorability toward the United States.

We conducted four separate studies drawing on different data sources and methods in order to undertake a detailed analysis of the increasingly negative perceptions of the United States among the Chinese populace from 2019 to 2022. The results of the four studies consistently show a marked and significant decline in Chinese attitudes toward the United States. In addition, detailed analyses suggest that COVID-19 was an important causal factor in this outcome. Below, we will first discuss these four studies before considering alternative explanations for our findings.

Results

Study 1. In study 1, we assembled a series of social surveys conducted in China between 2019 and 2023 to track changes in attitudes toward the United States over time: the Social Attitudes Questionnaire of Urban and Rural Residents (SAQURR) in 2019 and 2020 (details given in *SI Appendix, Supplementary Materials 1*), the COVID-19 Multi-Wave Study (CMWS) between 2020 and 2022 (details given in *SI Appendix, Supplementary Materials 2*), and the Survey on Living Conditions (SLC) in 2023 (details given in *SI Appendix, Supplementary Materials 3*). While we could not obtain nationally representative samples, we made efforts to represent the Chinese population using quota sampling and weighting. Additionally, we consistently asked a specific survey question: “Do you have a favorable or unfavorable opinion of the US?” In *SI Appendix, Supplementary Materials 4*, we discuss the measurement of the outcome variable, favorability toward the United States, and its demographic correlates in detail.

We summarize the results from this study in Fig. 1, which displays the weighted mean of the favorability scores at each point in time, accompanied by the 95% CI. The Y-axis represents the mean of the favorability scores derived from the same question across each of the surveys. The favorability score, by design, ranges from 0 to 3, with higher values indicating a more favorable attitude. The X-axis represents time, with a vertical line marking the onset of the COVID-19 outbreak in Wuhan in January 2020. The figure clearly reveals three distinct phases in favorability toward the United States:

1. A rapid decline in favorability toward the United States between December 2019 and July 2020, with the favorability score dropping from 1.2 to 0.9;
2. A gradual decline between July 2020 and October 2022, with the favorability score continuing to drop to 0.6 over these 2 y;
3. A recovery between October 2022 and March 2023, with the score rebounding to 0.9, although remaining below pre-pandemic levels.

From the results shown in Fig. 1, we conclude that Chinese attitudes toward the United States significantly declined following the onset of COVID-19.

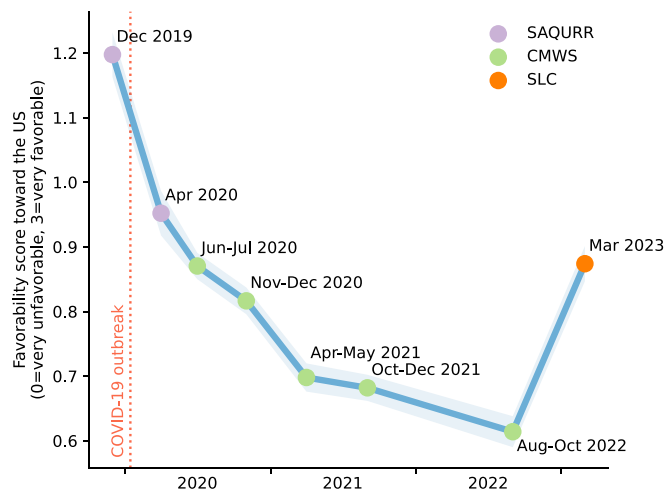


Fig. 1. Trends in Chinese favorability score toward the United States. Data sources: see *SI Appendix, Supplementary Materials 1–4*.

As we will discuss in study 3, the sudden outbreak of COVID-19 disrupted the survey operation of the SAQURR, dividing the sample into two parts, which we treated as two waves. The first wave included all respondents who were interviewed in December 2019, leaving out half of the planned sample in Northwest China, who were interviewed in April 2020. The second wave consisted solely of respondents from Northwest China. To derive the national estimate for April 2020, we imputed data by assuming parallel trends between 2019 and 2020 across regions (for more details, see *SI Appendix, Supplementary Materials 1*). This imputation method relies on the assumption that the trend in Northwest China mirrors the national trend. However, as evidenced by the comparison between December 2019 and July 2020, the broad trend presented in Fig. 1 remains robust even after excluding the data point for April 2020.

Study 2. We complement the survey results reported in study 1 with data from social media. We collected 53 million social media posts mentioning the United States between 2016 and 2023 from the prominent social media platform *Weibo*. After manually coding a subset of these posts, we employed a fine-tuned large language model to measure attitudes toward the United States. The range of the resulting attitude scores is as follows: –2 (highly unfavorable), –1 (somewhat unfavorable), 0 (neutral), 1 (somewhat favorable), and 2 (highly favorable). Further details regarding the social media data and the large language model yielding the attitude scores are available in *SI Appendix, Supplementary Materials 5*.

Consolidating these scores over individuals and time, we derived the average attitude score and tracked its changes over time. With the purpose of tracking the long-term trend in online attitudes toward the United States over recent years, we smoothed the daily data, filtering out shorter-term fluctuations. Fig. 2 presents the smoothed trend in the average attitude score. Similar to Fig. 1, we mark the onset of the COVID-19 outbreak with a vertical line.

The long-term trend depicted in Fig. 2 shows relatively stable average attitudes toward the United States, with a score of around –0.55 (between neutral and somewhat unfavorable) from 2016 to 2018. However, starting in 2019, the average attitude underwent a steadily sharp decline over the ensuing 3 y, reaching an all-time low of –0.76 by mid-2022. It then recovered modestly at almost the same speed throughout 2023 until our data collection concluded. Similar results were obtained using a subset of *Weibo*

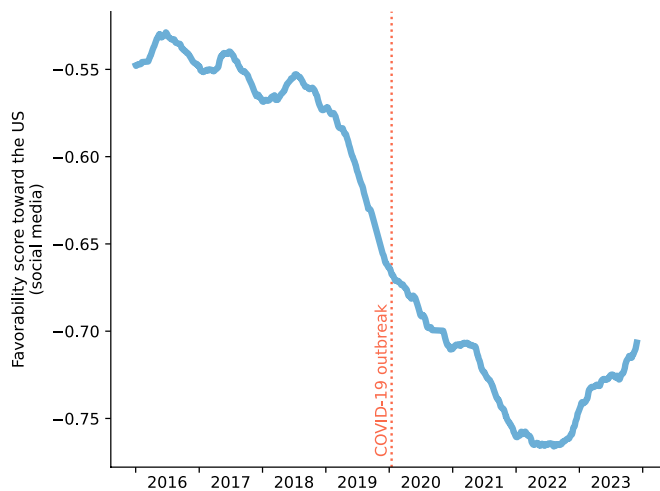


Fig. 2. Chinese online attitude toward the United States: Smoothed over 540-day sliding windows. Data source: see *SI Appendix, Supplementary Materials 5*.

users who remained active throughout the observation period, thereby guarding against potential confounding due to changes in user composition (*SI Appendix, Supplementary Materials 5* and Fig. S3).

The sharp decline in Chinese favorability toward the United States, which began in 2019, coincided with the escalation of the China–US trade war. This trade war, originating in mid-2018, intensified after Meng Wanzhou, the Chief Financial Officer and daughter of the founder of the Chinese multinational technology corporation Huawei, was detained in Canada at the request of the US Department of Justice on December 1, 2018 (27). While this escalation of the China–US trade war triggered a decline in favorability toward the United States, as shown in Fig. 2, its impact was later exceeded by that of COVID-19-related factors, a topic we will explore further in study 4.

Study 3. The results of study 2 suggest that the decline in Chinese attitudes toward the United States commenced prior to the COVID-19 outbreak, raising the question of whether the COVID-19 outbreak was the actual cause of the decline. To address this question, we revisit the first two data points in Fig. 1, marked December 2019 and April 2020. These data points came from the same survey (SAQURR), with a coincidental 4-mo gap. Initially, we had intended to complete the SAQURR survey between December 2019 and February 2020. However, the survey was unexpectedly interrupted in January 2020 due to the outbreak of COVID-19 and did not resume until April 2020. By the time of the survey’s interruption, data collection had been completed in Northeast and South China, but only 46% of the sample in Northwest China had been surveyed. The collection of the remaining data in Northwest China resumed and concluded in April 2020.

The disruption provides the opportunity to implement a quasi-experimental design for study 3 (28). Assuming the disruption caused by COVID-19 as an unexpected external shock, we can designate the survey respondents in December 2019 as the control (or pre-treatment) group and the survey respondents in April 2020 as the treatment (or post-treatment) group.[†] Thus, the treatment effect of COVID-19 is estimated by the difference between the two groups. To ensure comparability, we only

[†]*SI Appendix, Table S1* presents the balance of covariates between the control and treatment groups.

included respondents from the same region (Northwest China). We used the same outcome measure as that in study 1.

We present the results from study 3 in Fig. 3. To assess the comparability between the control group and the treatment group, we also compare, in addition to the mean favorability scores toward the United States, the mean favorability scores toward seven other countries or regions. In essence, we treat differences in favorability toward these other societies as baselines, allowing us to derive “difference-in-differences” estimates for attitudes toward the United States. The results of this quasi-experimental approach are displayed in Fig. 3, showing a significant decline in favorability toward the United States resulting from the onset of COVID-19.

The favorability of Chinese people toward the United States notably declined by 25%, from 0.997 to 0.749, and this difference in favorability scores between 2019 and 2020 is statistically significant at the 0.01 level. In contrast, attitudes toward the seven other countries or regions remained unaffected by the onset of COVID-19. This finding confirms that the decline in attitudes toward the United States following the outbreak of COVID-19 was indeed causal.

Study 4. Only under strong assumptions can an observed association be interpreted as causal (28). In studies 1 to 3, we have observed a sharp decline in attitudes toward the United States in China after the onset of COVID-19 in early 2020. Can we find more direct evidence linking COVID-19 and the decline in Chinese attitudes toward the United States, especially bearing on our conjecture that the decline is partly attributable to the perception that the United States failed to control the pandemic?

To meet this objective, we conducted study 4, in which we analyzed data from the 2018 and 2020 waves of the China Family Panel Study (CFPS), a nationally representative longitudinal, biennial social survey conducted in China. In *SI Appendix, Supplementary Materials 6*, we provide details of the CFPS survey. As a standard question in every wave since 2012, CFPS asked all respondents about their trust in Americans. Thus, changes in responses to this question between 2018 and 2020 at the individual level provide a means by which we assess the impact of COVID-19 on Chinese attitudes toward the United States. See *SI Appendix, Supplementary Materials 7* for a summary of differences between the CFPS data and the other three surveys used in

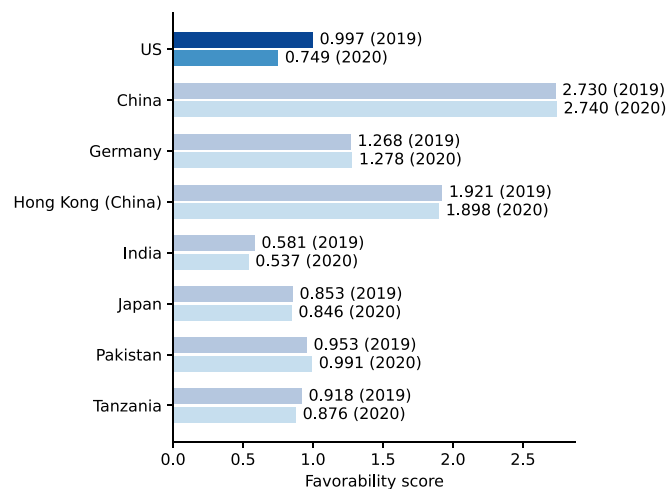


Fig. 3. Chinese favorability score toward the United States and seven other societies: Pre- and post-COVID-19 outbreak. Data sources: see *SI Appendix, Supplementary Materials 1*.

Table 1. Chinese attention to the US pandemic and trust in Americans in 2020

Variables	Trust in Americans (0 to 10)			
	(1)	(2)	(3)	(4)
Public attention on:				
Pandemic in the United States	-0.768*	-0.839*	-0.766*	-0.837*
	(0.323)	(0.331)	(0.321)	(0.329)
China-US trade war			-0.024	-0.025
			(0.115)	(0.115)
Daily new COVID-19 cases in the United States (logged)		0.474		0.475
		(0.363)		(0.363)
Daily COVID-19 deaths in the United States (logged)		-0.140		-0.141
		(0.101)		(0.101)
Baseline trust in Americans (2018)	0.318***	0.318***	0.319***	0.318***
	(0.019)	(0.019)	(0.019)	(0.019)
Individual-level covariates	Yes	Yes	Yes	Yes
Province + week fixed effects	Yes	Yes	Yes	Yes
Observations	11,430	11,430	11,430	11,430
Adjusted R-squared	0.149	0.149	0.149	0.149

Note: The public attention variables are quantified using the logged daily Baidu Index scores for each Chinese keyword or keyphrase. The estimations additionally account for individual-level covariates (gender, age, age squared, high school completion, marital status, urban *hukou*, internet user, enrollment status in full-time education, employment status, and whether one was interviewed on the weekend) and include province- and week-fixed effects, although their coefficients are not shown here to save space. SEs in parentheses are clustered at the province level. *** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$ (two-tailed test). Data source: see *SI Appendix, Supplementary Materials 6*.

study 1. A distinctive advantage of the CFPS data is that they allow our regression analysis to control for each individual's baseline trust in Americans in 2018, as it was measured before the pandemic.

A major initial finding of study 4 is a significant decline in the CFPS respondents' trust in Americans between 2018 and 2020. On a numerical scale of 0 to 10, the average trust in Americans decreased by 29%, from 2.64 to 1.87. The percentage of individuals indicating "complete distrust" (0) rose from 34% in 2018 to 49% in 2020. We did not find noticeable declines in the CFPS respondents' trust in other groups over the same interval, such as the "strangers" group, which scored at a similarly low level as "Americans" in 2018. The decline in trust toward Americans between 2018 and 2020 was substantial, especially when compared to earlier changes in the same indicator tracked by the CFPS data in the past. The CFPS respondents' trust in Americans had been continuously and slightly declining from 2012 through 2014 to 2016, followed by a recovery in 2018. The sharp downturn from 2018 to 2020 was more than twice the reduction observed from 2012 to 2016 (*SI Appendix, Supplementary Materials 6 and Table S4*).

Beyond this initial result, we further examine daily variations in the respondents' attitudes toward Americans during the CFPS fieldwork period from July to December 2020. We pay special attention to individuals whose initial trust in Americans surpassed the level of "complete distrust" in 2018, as 67% of them lowered their trust in Americans in 2020. In other words, we focus on individuals whose trust had the "potential" to decline.

In the second half of 2020, the very high numbers of confirmed COVID-19 infection cases and deaths in the United States drew a great deal of public attention in China, as they stood in sharp contrast to very low numbers in China at the time (29).[‡] Many

[‡]The Oxford COVID-19 Government Response Tracker (29) reports that, as of December 31, 2020, the cumulative COVID-19 confirmed cases and deaths in the United States were 20,099,363 and 352,123, respectively. By contrast, the corresponding figures for China in 2020 were 87,071 confirmed cases and 4,634 deaths.

Chinese perceived that the American political and social elites had mishandled the public health crisis. Earlier research has proposed this factor as an explanation for the decline in favorability toward the United States in China during the pandemic (17).

We use the fluctuating levels of public attention on the US pandemic as a proxy for the dynamic information environment in which the Chinese populace is embedded. Given that Chinese information sources (e.g., social and state media) often cast a negative light on pandemic management in the United States, heightened public attention is likely to be accompanied by a decline in public trust in Americans within a broader trend of deteriorating attitudes toward the United States.

We test this hypothesis by merging the 2020 CFPS data with Baidu Index data. The Baidu Index captures the daily fluctuations in queries for specific keywords or key phrases entered into Baidu, the dominant search engine in China. In this study, the key phrase in question is "the pandemic in the United States" (in Chinese). We took a logarithmic transformation of the daily Baidu Index scores for this phrase to measure public attention on the pandemic in the United States. Details about this and other Baidu-based measures are provided in *SI Appendix, Supplementary Materials 6*. Our primary analysis investigates the association between the average score for trust in Americans from the CFPS interviews conducted on a given day and the logged Baidu Index score for "the pandemic in the United States" on the same day. We also experimented with alternative lagged specifications (given in *SI Appendix, Supplementary Materials 6*).

Table 1 presents the key regression results. Column (1) shows that when the public paid greater attention to the pandemic in the US on a given day, respondents interviewed on that day reported lower trust in Americans. Specifically, a one-standard-deviation increase (0.283) in public attention on the pandemic in the United States was associated with a 0.217-point (0.283×0.768) decrease in trust in Americans, corresponding to a 9.2% decline from the sample mean (2.355) in 2020.

Column (2) further incorporates two variables that measure the actual severity of the COVID-19 pandemic in the United States:

the logged number of confirmed new cases and deaths attributable to COVID-19 from the previous day. Importantly, the public attention variable remains nearly unchanged in Column (2), whereas neither variable measuring the actual pandemic severity has a significant coefficient. This finding suggests that ordinary Chinese people did not closely monitor and thus were unaffected by factual pandemic developments in the United States, but they may have been influenced by the media.

Column (3) seeks to distinguish between the effects of public attention on the US pandemic and on the China–US trade war. While public attention on the US pandemic significantly reduced Chinese people's trust in Americans, public attention on the China–US trade war did not have a significant impact. In essence, during our study period, the US pandemic was of greater significance than the trade war in influencing Chinese people's trust in Americans. Column (4), which simultaneously controls for the measures of the actual severity of the US pandemic (confirmed new cases and deaths) and public attention on the trade war, reveals a similarly significant effect of public attention on the US pandemic.

Notably, as a placebo test, we examined whether public attention on the pandemic in general (including China, see *SI Appendix, Supplementary Materials 6* for specifics) affected trust in Americans and whether public attention on the pandemic in the US affected trust in other target groups, such as parents, neighbors, officials, and doctors. As anticipated, public attention on the general pandemic conditions failed to have a meaningful impact on public trust in Americans while public attention on the pandemic in the US only affected public trust in Americans but not in other groups (for detailed results, see *SI Appendix, Table S9*). Thus, the association between public attention on the US pandemic and trust in Americans is unlikely to be driven by alternative cognitive processes beyond the evaluation of Americans/the US.

Throughout our regression analysis, we controlled for each respondent's baseline trust in Americans as measured in the previous CFPS wave (2018), major individual-level covariates, and province- and week-fixed effects. Standard errors are clustered at the province level to account for the within-province correlation of the error term. Our additional tests demonstrate the robustness of the major findings by considering the influence of public attention on several other salient events in 2020, including the death of George Floyd, the extradition case of Meng Wanzhou, and the military presence of the United States in the South China Sea. Incorporating public attention to these events into the analysis does not change our findings (*SI Appendix, Table S10*). The estimated effect of public attention on the pandemic in the United States is also robust to using alternative model specifications, different estimation methods, and various sample restrictions (*SI Appendix, Supplementary Materials 6 and Tables S11–S14* for more details).

Conclusion

This article provides a detailed analysis of the increasingly negative perceptions of the United States among the Chinese populace from 2019 to 2022. The key findings, supported by four separate

studies drawing on different data sources and methods, are as follows: First, Chinese attitudes toward the United States began to deteriorate in 2019 due to the US–China trade war, but the COVID-19 pandemic, which started in early 2020, sustained and further worsened the situation over an extended period. Second, the observed association between the decline in Chinese attitudes toward the US and COVID-19 is causal (as shown in studies 3 and 4), mediated through the intricate relationship between public health crises, international relations, and media influence.

Notably, this decline in favorable perceptions of the United States in China was mirrored by a similar decline in Americans' attitudes toward China (8–11), highlighting a mutual deterioration in perceptions during the pandemic. Such reciprocal negative sentiments are particularly worrisome as they may exacerbate already strained Sino-American relations, posing challenges for future diplomatic engagements and international stability.

A more positive finding, however, is the improvement in Chinese attitudes toward the United States in 2023, as shown in Figs. 1 and 2. This change followed China's sudden and unprepared abandonment of its “zero-COVID” policy in December 2022 (30). The cost of this policy shift was enormous. It is estimated that 97% of the Chinese population (1.4 billion people) was infected during December 2022, with between 1.3 and 2.6 million COVID-19-related deaths occurring between December 2022 and January 2023 (31). The reopening coincided with a rebound in Chinese attitudes toward the United States. Our findings align with an independent study, which also reports that Chinese enmity toward the United States has softened since 2023, with the percentage of adults in China who view the United States as friendly rising from less than 20% in December 2022 to around 30% in March 2023 (32). Hence, the decline in Chinese attitudes toward the United States was reversed with the end of the COVID-19 pandemic. The reversal could be explained by the eroding persuasiveness of the contrasting narratives previously permeated in Chinese state-controlled media. It also suggests that Chinese attitudes toward the United States may depend not only on their “absolute” perceptions of the United States but also on a comparative assessment of the governance capacities of both the United States and China. Future research can build on this preliminary finding of a rebound in Chinese attitudes toward the United States in the “post-pandemic” era.

Data, Materials, and Software Availability. The data files have been deposited in Princeton DataSpace (<https://doi.org/10.34770/ew2y-jy92>) (33) and Y.X.'s website (<https://yuxie.scholar.princeton.edu/share-files/data-files-declining-chinese-attitudes-toward-united-states-amidst-covid-19>) (34). The data files contain the questionnaires and anonymized data of surveys COVID-19 Multi Wave Study (CMWS), Survey on Living Conditions (SLC), Social Attitudes Questionnaire of Urban and Rural Residents (SAQURR), and China Family Panel Studies (CFPS), as well as the aggregated *Weibo* attitudes.

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