How Surveillance Justifies Mass Coercion: Insights from China's COVID-19 Lockdowns

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Abstract

Conventional wisdom holds that surveillance facilitates targeted coercion. However, we argue that surveillance also justifies mass coercion by making uncertain threats appear certain to citizens, especially during public crises. This dynamic is evident in China's extensive COVID lockdowns. An original nationwide survey experiment from China in 2023 demonstrates that COVID surveillance justifies mass lockdowns by making citizens more likely to believe they are close contacts. To establish external validity, we collected data on COVID cases and lockdown neighborhoods from 2020 to 2022. Using a triple-difference approach with our survey and two World Value Surveys, we show that the pervasiveness of COVID surveillance, as proxied by cellphone penetration rates, significantly mitigates the negative effects of mass lockdowns on public perceptions of human rights respect and trust in the government. Overall, the presence of uncertain threats to public safety amplifies the justifying effects of state surveillance on mass coercion.

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1 Introduction

Surveillance is commonly viewed as a means to facilitate targeted coercion. Surveillance refers to the close observation of individuals, groups, activities, or places by governments, law enforcement agencies, or private organizations to maintain social or political order, ensure public safety, and prevent or investigate crime. In recent years, countries worldwide have adopted digital surveillance technologies—including spyware, metadata collection, high-resolution cameras, facial recognition, and artificial intelligence—to monitor their citizens (Valentino-DeVries, Vo and Yadron 2015; Greitens 2020). Surveillance provides information for authorities to identify key threats among ordinary citizens, enabling them to exercise selective coercion rather than broad, indiscriminate measures (Dimitrov and Sassoon 2014; Sullivan 2016; Xu 2021). However, we see many instances where surveillance coexists with mass or even indiscriminate coercion. This was especially evident during the COVID-19 pandemic, when countries like New Zealand, Singapore, Taiwan, Vietnam, and China enforced COVID surveillance and extensive lockdowns simultaneously for a long period of time.

In this paper, we propose an explanation for the seemingly paradoxical coexistence of surveillance and mass coercion: surveillance may facilitate mass coercion by legitimizing it in the eyes of citizens concerned about uncertain threats to public or personal safety. It is not just governments; citizens themselves often lack information about when and where those threats might materialize. State surveillance collects information on potential threats, giving the government an information advantage over citizens. When the government reveals potential threats to citizens, either through surveillance tools or through its counter-threat actions, citizens may feel a heightened sense of certainty regarding these dangers. The lack of verifiable information on the actual threats and their magnitude means citizens have to rely on the government's surveillance "findings." If they trust these findings and believe in the government's good intentions, they will support the government's counter-actions. This support occurs even if the government overreacts out of fear by coercing a large number of citizens, including innocent individuals, or uses coercion for political reasons, as citizens are unable to see the underlying truth. Thus, surveillance may enable the government to implement mass coercion without significant public backlash.

The above argument can be generalized to other instances, such as counter-terrorist actions and crime crackdowns. In this paper, we focus on the justifying effects of surveillance on mass state coercion in the context of COVID-19 lockdowns in China. China's approach to containing COVID-19 was unparalleled in the world. The government maintained a steadfast 'zero COVID' policy in response to the pandemic for three years. Among these measures, the most dramatic and controversial were massive mandatory surveillance and the lockdown of tens of millions of people. Despite effectively keeping infection rates relatively low, the continued enforcement of these stringent measures eventually stirred public dissent, leading to nationwide protests in late 2022, a movement that has since been referred to as the "White-Paper Revolution." Observers, ranging from scholars and journalists to human rights activists, have criticized China's approach. They argue that the extensive digital surveillance and the severe lockdown policies could be potential catalysts for this rare public dissent in a tightly controlled authoritarian country (e.g., Nordin 2023).[1] However, as we shall illustrate, COVID surveillance had actually mitigated the negative impacts of massive lockdowns in China. Without the development of COVID surveillance tools, these extensive lockdowns would likely have provoked even more potent negative sentiment among the public.

We first conducted a nationwide survey experiment online with a sample of 1085 Chinese citizens in 2023. Using a 2x2 factorial design in the context of COVID lockdowns, we randomized information about whether local governments impose lockdowns on individuals for confirmed cases at a distance or for confirmed cases nearby (hereafter, distant or nearby lockdowns), and whether they engage in COVID surveillance. The distant lockdown scenario illustrates mass coercion perceived as government overreaction, while the nearby lockdown scenario represents reasonable coercion. Our results show that surveillance significantly mitigates the negative effects of mass coercion, compared with reasonable coercion, on support for lockdowns, overall regime policies, and attitudes toward state surveillance, even among coerced individuals.

In the survey experiment, we also include a context of mass protest crackdowns where

[1]For news articles, see for example, China's lockdown protests: What you need to know, CNN, https://www.cnn.com/2022/11/28/china/china-lockdown-protests-covid-explainer-intl-hnk/index.html (Last visited: July 20, 2023); China's protests are testing the surveillance state, VOX, https://www.vox.com/podcasts/2022/12/5/23494424/china-covid-protests-testing-surveillance-state (Last visited: July 20, 2023).

bystanders are arrested, with randomized information concerning whether surveillance was used. The two groups in the protest crackdown context along with the four groups in the COVID lockdown context allow us to conduct three pairwise comparisons. We find that surveillance justifies lockdowns when individuals are uncertain about their exposure to COVID-19, which is the situation with distant lockdowns. It does not, however, justifies nearby lockdowns where individuals are more certain about their exposure to COVID-19, nor does it legitimize mass protest crackdown (i.e., the arrest of the bystanders) when those bystanders see no personal benefit from the crackdown and are certain they are not protesters. These findings suggest that the justifying effects of surveillance on state coercion work primarily when there are uncertain threats and when the coercive measures are perceived as beneficial, such as when COVID lockdowns may offer health benefits to individuals.

To test the information mechanism through which surveillance justifies mass coercion, we included questions regarding the perceived likelihood of COVID exposure and the perceived scale of the lockdown. We show that digital surveillance makes individuals more likely to believe they are close contacts. However, it does not alter individuals' perceptions of the lockdown scale. These findings suggest that surveillance indeed justifies *mass* coercion, as citizens still perceive the lockdown under surveillance to be massive. They support the lockdown because surveillance increases the perceived likelihood of COVID exposure, rather than leading them to believe that surveillance results in a more targeted lockdown. Furthermore, we find that it is the observation of COVID deaths, not collectivist values, that positively moderates the justifying effect of surveillance. These findings imply that individuals more concerned with personal safety, as opposed to public well-being, are more susceptible to justifying mass coercion through surveillance.

The survey experiment provides causal evidence for the justifying effects of surveillance on mass coercion and tests causal mechanisms. To establish external validity, we compiled data on daily counts of residential neighborhoods under lockdown and COVID cases in China from 2020 to 2022,[2] a total of 1.54 million neighborhood-day lockdowns and 366 thousand cumulative positive cases. We combined the 2023 online survey with the 2012

[2]According to the Ministry of Construction's *Urban Residential Area Planning and Design Standards*, a residential neighborhood, or *Xiao Qu*, in China, contains roughly 10,000 to 15,000 residents.

and 2018 World Value Survey Chinese samples, comprising a total sample of 6,093 Chinese citizens. Using a difference-in-differences approach with the repeated cross-sectional data on public opinions, we show that real-world lockdowns at the provincial level significantly reduced individuals' perception of respect for human rights in China and trust in the central government. More importantly, through a triple-difference (DDD) approach, we show that the negative effects of lockdowns on people's attitudes are significantly mitigated by the pervasiveness of COVID surveillance, proxied by cellphone penetration rates. The results remain robust when we exclude more extreme cases of lockdown cities like Shanghai and when using different proxies of surveillance intensity. In addition to provincial-level measures, we match city-level lockdowns with respondents' city of residence using the 2023 survey. The results from the city-level lockdown measure in the 2023 survey are consistent with those from the DDD approach using provincial-level measures, even after further controlling for city-level social-economic variables. Together, the findings derived from the observational data provide real-world evidence for the justifying effects of surveillance on mass coercion.

This paper challenges the conventional wisdom that surveillance is often associated with targeted coercion. Literature on state coercion typically categorizes government coercive measures into high-intensity and low-intensity types (Way and Levitsky 2006; Davenport 2007; Ritter and Conrad 2016). Surveillance is recognized as a tool that enhances the government's information capacity, thereby enabling more preventive, targeted coercive measures to address threats (Dimitrov and Sassoon 2014; Sullivan 2016). In this context, surveillance is linked to low-intensity coercion. However, both theoretically and empirically, we demonstrate that surveillance can also facilitates high-intensity coercion, legitimizing it when there are uncertain threats and when the public perceives the coercive measures as beneficial.

Western media, academia, and public discourse often attach a negative connotation to state surveillance, viewing it as a tool of political repression, especially when it comes to digital surveillance technology from China (e.g., Economist 2016; Chin and Lin 2022; Beraja et al. 2023). In this paper, we demonstrate that, in reality, most Chinese citizens perceive state surveillance as a public good that enhances public and personal safety. Ironically, however, precisely because it is seen as a public good, digital surveillance can be utilized by the government to mask mass state coercion during crises. This is due to the informational

advantage digital surveillance provides to the government over its citizens. Consequently, this paper demonstrates that, in the digital surveillance era, the issue of information asymmetry is inverted, contrary to the traditional belief that the government is at an informational disadvantage due to citizens' preference falsification (Kuran 1991; Lohmann 1993).

Literature on public opinion of state surveillance and coercion commonly emphasizes the liberty-security tradeoff, where citizens tolerate state surveillance and coercion because they are willing to sacrifice political freedom for personal security or societal wellbeing during crises such as terrorist attacks and pandemics (Davis and Silver 2004; Reddick, Chatfield and Jaramillo 2015; Alsan et al. 2020; Ziller and Helbling 2021). Within this literature, surveillance and coercion are both viewed as undesirable by citizens. While we acknowledge this aversion, we challenge the common wisdom by demonstrating that the negative sentiments toward both tools are not merely additive. Contrarily, the combination of surveillance and coercion can lead to more substantial support than coercion alone when citizens face uncertain threats to public safety. Given that most public crises are characterized by significant uncertainty regarding the scale, timing, and location of threats, our findings have broad implications for public opinions on surveillance and state coercion. Moreover, while earlier studies primarily focus on threats to public security, we underscore uncertainty in public threats as a catalyst for public approval of state coercion.

Since the beginning of the 21st century, information technology has been viewed as a tool for liberation (Diamond 2010; Manacorda and Tesei 2020). However, we have observed a recent global trend toward greater digital repression, including censorship, propaganda, and surveillance, as governments have kept pace with technological advancements (King, Pan and Roberts 2013; Roberts 2018; Feldstein 2021; Earl, Maher and Pan 2022; Xu 2021). While many studies have examined digital repression in isolation from physical repression, our paper underscores the complementary relationship between digital surveillance and physical coercion, suggesting that surveillance can facilitate extensive coercion. Moreover, current research on digital surveillance indicates substantial public support for such tools, emphasizing that, in comparison to traditional in-person methods, digital surveillance is less obtrusive, more discreet, and can often be presented as a public good to the general populace (Xu 2019; Su, Xu and Cao 2022; Xu, Kostka and Cao 2022; Kostka, Steinacker and Meckel 2023). Our

findings resonate with this literature in showing general support for digital surveillance. Additionally, we demonstrate that even surveillance and coercion are overtly apparent to citizens, as in the situation of the COVID-19 pandemic, they can still garner widespread public approval, as long as citizens perceive uncertain threats to public safety.

In this paper, we show the legitimizing effect of surveillance on mass coercion in the context of COVID lockdowns in China. However, the logic of surveillance justifying mass coercion is not limited to COVID lockdowns. We can envision other situations where this logic might apply. For instance, when citizens face uncertain threats from terrorist attacks or crimes, surveillance might increase their support for the government's extensive crackdowns on terrorists and criminals. Even in cases of political repression, citizens might back extreme measures against perceived perpetrators, especially if they believe protests could escalate into violent riots, potentially threatening public or personal safety. Additionally, state propaganda and information control could amplify citizens' perceptions of uncertain threats (Blaydes et al. 2021), providing the government with further leverage to employ mass coercion. In short, the justifying effects of surveillance on mass coercion generally apply when citizens face uncertain threats to public safety.

2 A Theory of Surveillance and Mass Coercion

This section presents a theory of surveillance and mass coercion. We first discuss how surveillance can justify mass coercion in general, and then contextualize the theory within the setting of COVID lockdowns.

2.1 Surveillance-Enabled Mass Coercion

All governments, whether democratic or autocratic, employ state coercion to contain potential threats, be they challenges to public order or direct opposition to the regime itself. State coercion refers to the various methods a state uses to enforce compliance with its laws and maintain order within its territorial bounds. It is often categorized into high-intensity and low-intensity types (Way and Levitsky 2006). High-intensity coercion involves using substantial force to ensure compliance from high-profile individuals, large groups of citizens,

or entire organizations. It is often responsive, indiscriminate, and requires only limited information for implementation. In contrast, low-intensity coercion involves using smaller, less visible forces like local police or intelligence units to achieve compliance from individuals deemed key threats, such as criminals or terrorists, core players in opposition networks, or organizers of mobilization. This form of coercion is usually preventive, targeted, and requires detailed information to distinguish these key threats from harmless citizens (Dimitrov and Sassoon 2014).

However, governments often lack the detailed information necessary for targeted coercion. The difficulty in identifying critical, threatening individuals or groups is prevalent in efforts to prevent terrorist attacks, forestall anti-regime mobilization, combat crime, or manage public health crises. The lack of information leads to uncertainty about threats, which, in turn, instills fear in governments. If the fear is not intense, or a government lacks the capacity for high-intensity coercion, it typically refrains from using coercive measures because random coercion does not effectively reduce threats. However, if the fear reaches a critical level, a government may resort to mass coercion, targeting a large number of citizens to contain the threat. Such *mass coercion* is observed even in places where governments face relatively low levels of threat (Gartner and Regan 1996).

Mass coercion is costly for governments. Deploying security forces against many individuals requires substantial resources such as personnel, technology, and infrastructure. Besides, countries engaging in mass coercion may face international criticisms and sanctions, damage to their reputation, and possible economic consequences from disrupted daily life and deterred investments. More importantly, mass coercion can be perceived as an overreaction by a government and a sign of its incompetence, potentially triggering public outrage and even citizen backlash. This is particularly likely when a government indiscriminately coerces a large number of citizens, many of whom may be innocent. Concerns of potential backlash may deter a government from using mass coercion at the beginning.

Governments can adopt surveillance tools to improve their information deficiency. Surveillance enhances a government's information-gathering capability, enabling it to identify key threatening individuals for selective coercion. For example, the U.S. government has engaged in mass surveillance of Americans' international communications, including phone

calls, texts, emails, social media messages, and web browsing to identify spies, criminals, terrorists (Greenwald 2014). Many authoritarian governments like those in East Germany, China, Russia, and Uganda used surveillance tools to identify regime opponents (Gieseke 2014; Valentino-DeVries, Vo and Yadron 2015; Xu 2021). Not to mention that numerous countries have used contact-tracing apps during COVID-19 to contain virus spread.[3] Because the improved information under surveillance allows for better targeting of key threats, state surveillance is often associated with targeted coercion as opposed to mass coercion in the literature (Dimitrov and Sassoon 2014; Sullivan 2016; Xu 2021).

Yet, surveillance is not perfectly precise. In digital surveillance, limitations may include inadequate coverage in time and space, a lack of resources, inaccuracies and biases in data sources, or even data overload, among others. In addition to some of these issues, in-person surveillance may also involve human errors and subjectivity. The inherent inaccuracy of surveillance predictions results in both false positives and false negatives. False positives refer to the instances predicted as threats that are in reality non-threatening, while false negatives are those predicted as non-threatening but are actual threats. Inaccuracies in surveillance, particularly regarding false negatives, can reignite fear in a government because threats are not fully addressed. When the government is more concerned about false negatives – individuals who potentially endanger social or political order but are overlooked by the surveillance system – than false positives, it may overreact by carrying out mass coercion again.

The discussion here does not aim to explain when mass coercion would occur but rather to highlight the possibility of mass coercion even with surveillance: a government may resort to mass coercion when false negatives induce strong fear in the government. Moreover, unlike mass coercion without surveillance, a practical solution of mass coercion with surveillance tools might involve adjusting surveillance methods to include more potential threats, thereby minimizing false negatives, albeit at the cost of increasing false positives. In the realm of traditional, in-person surveillance, this implies broadening the target base to include more individuals socially or geographically connected to identified threats. When it comes to

[3]See, Contact Tracing Apps: a New World for Data Privacy, https://bit.ly/3rVf7lp, Last visited: October 15, 2023.

digital surveillance, this implies reducing the error margin for false negatives (e.g., 1% instead of 5%) to broaden the target population.

More importantly, an often-overlooked reality is that citizens are deeply concerned about uncertain threats to public or political order, yet they lack information regarding these threats. For instance, in areas facing the risk of terrorist attacks, citizens remain uncertain about the timing, location, and potential perpetrators of future attacks. However, they may be aware of government surveillance operations. In fact, governments typically do not shy away from disclosing their surveillance operations when these are aimed at enhancing public security. This is because, first, being transparent about surveillance activities helps governments legitimize these operations in the eyes of the public (Xu, Kostka and Cao 2022); second, public knowledge of surveillance can serve as a deterrent to potential wrongdoers. For example, Chinese local governments have installed tens of millions of CCTV cameras on the streets. These cameras are not only highly visible but are also promoted as part of 'Safe City' projects to the public (Su, Xu and Cao 2022). The visibility of surveillance technology itself is intended to reassure the public about their safety and to deter criminal activities.

To guide discussion, Equation (1) presents a stylized model of citizens' expected utility from state surveillance and mass coercion:

$$E[U(surv)] = Pr_{perceived\ threat}(surv) \cdot Benefit_{coercion} - Cost(surv) - Cost_{coercion} \quad (1)$$

where citizens perceive benefits from mass coercion, such as improved public safety, but also faces costs from state surveillance and coercion. The costs of surveillance include restrictions on freedom, a reduction in autonomy, and concerns that collected data may be used against citizens at a later date. These costs are associated with the level of surveillance. Meanwhile, the costs of mass coercion stem from being a target of forceful actions or from feeling sympathy for those who are targeted if a citizen is not among them. It is important to note that mass coercion does not mean violent actions against all targets. In cases of street blockages during manhunts or neighborhood lockdowns during pandemic outbreaks, most citizens may not be the main targets of state violence, although they still bear some costs of mass coercion. Additionally, we assume there are no links between surveillance and

the cost of coercion, as mass coercion is non-targeted. We are interested in how surveillance justifies such non-targeted coercion.

The model's key insight is that citizens' perceived threat depends on information revealed by state surveillance: when they observe the government uncovering potential threats through surveillance programs, their perceived certainty regarding these threats increases. In other words, surveillance makes an uncertain threat appear certain to citizens, thereby leading to higher *expected* benefits from state coercion. Although surveillance may incur costs to citizens, when the rise in expected benefits surpasses the increased costs associated with surveillance, surveillance can justify mass coercion. This situation leads to public support for mass coercion that might not have been as tolerable had it not been based on surveillance. For example, residents in a community might not initially be overly concerned about terrorist attacks and thus might not tolerate state coercion. However, if surveillance reveals the presence of potential terrorists in their community, these residents may start perceiving a more certain threat and thus be more willing to tolerate government countermeasures like street blockages, despite the inconvenience, or even mass detention of residents if they themselves are not among the targets. Citizens might even tolerant direct coercion upon themselves if they are unsure about their status as both a potential threat and a victim, as in the case of contagious diseases. The following subsection applies this theory to the case of surveillance and coercion during COVID-19.

2.2 How Surveillance Justifies Mass COVID Lockdowns

The COVID pandemic created an environment rife with uncertain threats for citizens. This disease is deadly to many and highly contagious, yet detecting its spread poses significant challenges. Individuals potentially exposed to COVID-19 may delay testing and reporting. Some may not strictly adhere to social distancing and limit their interactions. Remembering and tracing one's contacts in public spaces can also be challenging. Furthermore, COVID-19 can be spread by asymptomatic individuals. All of these make it very difficult for citizens to know whether they have been in close contact with an infected person.

On the other hand, digital surveillance tools can help identify and trace close contacts by leveraging big data, telecommunications tracking, and other digital surveillance technologies.

For example, surveillance cameras can check whether individuals have visited locations with confirmed COVID-19 cases. Mobile payment records can be used to track the history of places where purchases were made. Health QR Codes can provide information about citizens' COVID-19 nucleic acid test records. Telecommunication companies can use mobile phone connections to trace citizens' location history. Technologies like AI-powered digital human infrared temperature measurement systems can detect potential fever symptoms. Finally, through the use of big data and AI algorithms, potential COVID-19 close contacts can be rapidly identified amidst a massive amount of information.

Individuals are concerned about the deadly virus but lack information on its spread. When digital surveillance tools identify some individuals as close contacts, the public almost instinctively supports the government's coercive measures, such as enforced home quarantines, because they benefit from reduced exposure to the virus. Surveillance even justifies coercion among those coerced, as being identified as close contacts makes them believe they are not only victims of the virus but also potential threats to others. They accept forced quarantine because the government is protecting others. Besides, quarantine shields themselves from further exposure to potential positive cases and potentially improves their health conditions. Surveillance particularly justifies massive lockdowns, where the government might be overreacting by quarantining a large number of individuals, including many who are "innocent", because these individuals are unsure about their exposure to the virus, whereas surveillance confirms it. As a result, they are more likely to accept lockdowns.

H1. When citizens perceive uncertain threats to public and personal safety, surveillance justifies government mass coercion, even among the coerced individuals.

As Equation (1) illustrates, the justifying effect of surveillance on coercion hinges on the uncertainty surrounding threats and the benefits derived from coercion. Digital surveillance is unlikely to justify state coercion when citizens have already perceived certain threats, as information could be obtained in other ways. For example, if citizens already know they are close contacts and support for quarantine, revealing information through surveillance is unlikely to further increase their support for quarantine. In this sense, surveillance may not justify reasonable coercion, where citizens know they are close contacts, but only mass

coercion, where most citizens are unsure about their exposure to the virus. Moreover, surveillance also cannot justify coercion when it provides no benefits to citizens. This is especially true in cases of political repression targeting bystanders. Those bystanders will not support repression because they do not consider themselves dissidents, and repression yields no benefits to them.

H2. When citizens perceive relatively certain threats to public and personal safety, surveillance should not justify government coercion among the coerced individuals.

H3 In the context of political repression, digital surveillance may not justify government repression among the repressed bystanders.

Citizens' attitudes toward COVID surveillance are mixed. On one hand, surveillance itself functions as a public good for promoting public and personal safety, which earns public support. On the other hand, surveillance intrudes privacy, causes inconvenience, and is associated with state coercion, which can spark negative sentiment against it. Thus, we intend to explore the following research question:

RQ1. In the context of uncertain threats to public and personal safety, how does digital surveillance influence the coerced individuals' attitudes toward state surveillance?

2.3 Discussion on the Theory's Applicability

One might question the applicability of the theory across different scenarios, and argue that the COVID-19 pandemic is different from other uncertain threats such as terrorist attacks or crimes. Indeed, COVID-19 could be perceived as more threatening than those two because its outbreaks are more frequent, deadlier, less predictable, and affect a much broader population. Thus, the justifying effect of surveillance on mass coercion could be larger during the COVID-19 pandemic than under other circumstances. Moreover, the contagious nature of COVID-19 means that ordinary citizens can become potential public health threats, allowing surveillance to justify coercion of ordinary citizens. However, in scenarios unrelated to the pandemic, ordinary citizens typically understand that they do not pose a threat, making surveillance less likely to justify coercion against them. Nonetheless, the

logic that surveillance justifies mass coercion when citizens face uncertain threats remains valid. This logic is applicable to residents of high-crime areas who live under constant threat from criminals, as well as to those living near borders who are concerned about terrorist infiltrations. Furthermore, surveillance can also justify the coercion of ordinary citizens in efforts to capture terrorists and criminals, through measures like road blockades, security checks, and house searches.

The justifying effects of surveillance on mass coercion depend on citizens' awareness of surveillance and the extent to which they trust the reliability of surveillance tools and the governments deploying them. For those skeptical of technology, surveillance may not suffice to alter their perceptions of uncertain threats (Jiang and Wan 2021). In regions where there is limited trust in the government's capacity to handle surveillance and coercion appropriately, citizens might question the real intentions behind coercive measures (Denemark 2012; Nakhaie and De Lint 2013). Furthermore, in certain societies, citizens may place a higher value on privacy than on security. In these scenarios, the cost of revealing surveillance operations may be too high to be offset by its justifying effect on coercion, leading the government to potentially conceal its surveillance activities from citizens. Thus, our theory is more applicable to countries where there is a higher degree of trust in science, technology, and political institutions, and a lower preference for privacy.

Note that Hypothesis 3 applies to bystanders repressed during protests. Our purpose is to demonstrate that surveillance should not justify mass coercion when the individuals subjected to it see no benefits in repression. However, there are instances when repressing protests might appear beneficial to other citizens, particularly if citizens expect the protests to escalate into violent riots, potentially threatening public or personal safety. In those scenarios, surveillance may justifies mass coercion in the eyes of such citizens.

3 COVID Surveillance and Lockdowns in China

China has been renowned for its stringent measures in curbing COVID-19 since the virus first emerged in Wuhan City in January 2020. Committed to an elimination strategy, the government maintained minimal case numbers over three years. Immediately after Wuhan's

outbreak, the Chinese government banned travel to and from Wuhan, enforced strict quarantines in affected regions and initiated a national response. The epidemic peaked in Hubei province, specifically Wuhan, on February 4, 2020, with the city accounting for over 60% and the province over 80% of the nation's cases by March 22. By April 2020, the outbreak was largely contained, leading to the lifting of Wuhan's lockdown on April 8. After the initial outbreak, lockdowns and other restrictive measures were eased throughout China. From April 2020 to November 2021, China successfully executed a strategy focused on "preventing importation from outside and rebound from inside," keeping infection rates low and allowing normalcy to resume in most cities.

The situation began to change with the spread of the Omicron variant in China since December 2021. The Omicron variant has a higher transmission rate than previous strains, leads to more asymptomatic or mild cases, and may evade immunity acquired from prior infections. These characteristics of the new variant made China's elimination strategy much more difficult to sustain. Starting in February 2022, the intensity of lockdowns began to increase, and an outbreak occurred in Shanghai from late March to mid-May. During this period, the majority of Shanghai citizens experienced 48 consecutive days of intensive lockdowns. After suppressing the Shanghai outbreak, China continued to uphold its zero-COVID policy despite increasing difficulties in containing new COVID variants. From mid-2022, the intensity of lockdowns sharply increased across China, with a peak in November 2022. Despite a slight easing of COVID-19 restrictions in November due to concerns over the economy that has been heavily affected by the Zero-COVID policy, the authorities stated that their war against the pandemic remains "unchanged."

The intensified COVID restriction measures led to rising dissent among the public (Doshay et al. 2023; Ong 2023). A series of protests against COVID-19 lockdowns began in mainland China in late 2022. At first, small-scale, unrelated protests occurred sporadically in some places. The situation escalated following a tragic building fire on November 24 in Ürümqi, which claimed ten lives in a neighborhood that had been in lockdown for three months.[4] This incident triggered widespread civil unrest in multiple cities, with protesters nation-

[4]Protest in Xinjiang Against Lockdown After Fire Kills 10, New York Times, https://www.nytimes.com/2022/11/25/world/asia/china-fire.html. Last visited: Dec 9, 2023.

wide calling for the termination of the government's zero-COVID policy and the incessant lockdowns. Responding to the upheaval, China significantly altered its approach by early December, scaling back on testing and lockdowns, as well as authorizing home quarantine for individuals with mild infections, marking a de facto departure from the zero-COVID strategy.

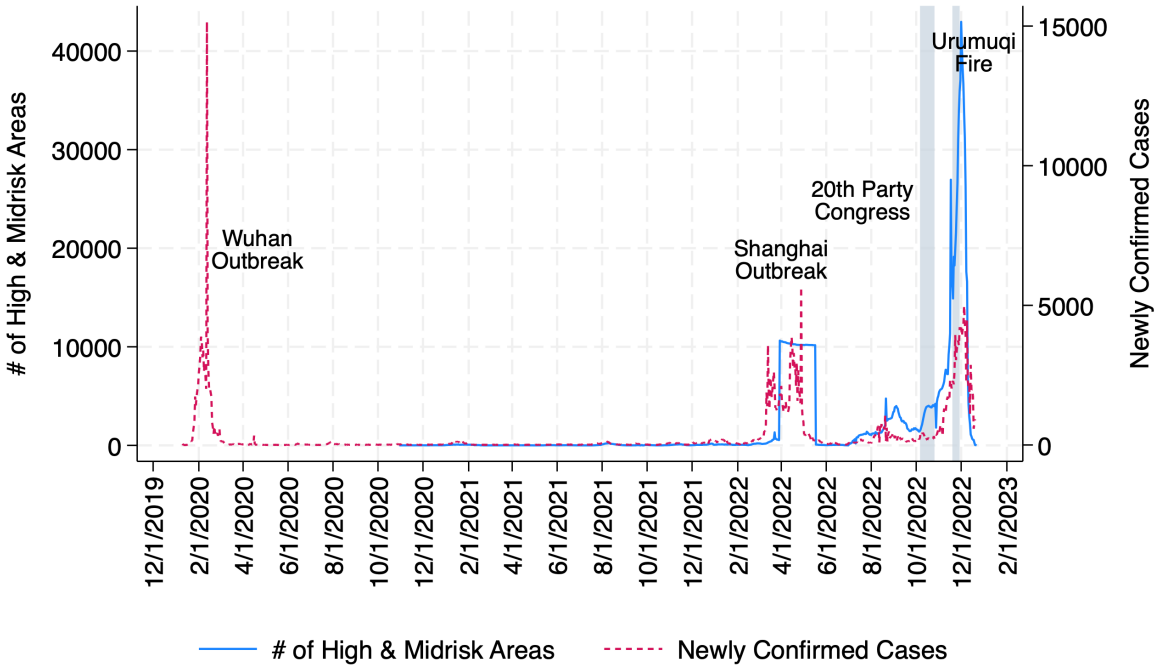


Figure 1: Frequencies of COVID Cases and Lockdowns

Figure 1 displays the daily frequencies of new COVID-19 cases and neighborhood lockdowns from December 1, 2019, to February 1, 2023. COVID-19 case data was sourced from Sina News.[5] Lockdown information was derived from the "Outbreak Risk Level Query" feature within the client application developed by China's State Council.[6] In line with the timelines previously discussed, the data indicate that the occurrence of new COVID-19 cases

[5]Real-time Dynamic Tracking of the New Coronavirus Outbreak. https://news.sina.cn/zt_d/yiqing0121 Last visited: October 27, 2023

[6]Note that data before November 2020 were not available because the feature of the App was not developed. Refer to the Online Appendix for detailed information on data collection and coding procedures. Shanghai presented a unique case as its government ceased systematic reporting of high-risk and mid-risk areas, instead using 'three districts' during its citywide lockdowns from March 30 to May 16, 2023. Since these three districts were not reported daily, we use reported 'closed control areas (7,624)' and 'control areas (2,460)' from April 11, multiplying the number by the days of lockdowns to calculate the total lockdown neighborhood-days during this period.

and lockdowns remained relatively low and stable from April 2020 to February 2022, then experienced a sharp uptick thereafter due to the emergence and spread of the Omicron variant in China. The intensity of lockdowns reached surprising heights in late November and early December, coinciding with nationwide protests demanding the termination of the zero-COVID policy.

Numerous instances indicate that Chinese local governments had used draconian COVID containment measures. In cities experiencing outbreaks, responses have often involved extensive measures such as widespread closures, shutdowns, and full-scale nucleic acid testing.[7] In some cases, pets were even killed while their owners were under quarantine.[8] Additionally, local officials had faced removal from their positions for failing to halt the spread of the virus.[9] To statistically check whether these lockdowns in China are excessive responses by local governments or justifiable actions to contain the virus, we examine the correlations between COVID cases and lockdown intensity, both across locations and over time. The premise is that if lockdowns are implemented to control the virus, the number of positive cases would be highly correlated with the intensity of lockdowns. However, upon aggregating the COVID case and lockdown measures by province, we find a correlation of only 0.69. This correlation remains similar even when the measures are aggregated by days.[10] These low correlations suggest that the massive lockdowns in China were often excessive measures of COVID containment.

In addition to stringent lockdown policies, China's approach to containing COVID relies heavily on digital surveillance tools, particularly health codes and travel codes. Health codes function as two-dimensional QR codes that display red, yellow and green colors to indicate an individual's COVID health status and serve as travel passes. These were originally created by Alibaba's Nail Platform and Alipay in Hangzhou city, Zhejiang Province in February 2020 as a reaction to the early outbreak of COVID-19 in China. With the help of tech-giants like Ali and Tencent in research and development, other local governments soon launched their

[7]See, for example, North China's Inner Mongolia sacks at least four officials due to poor response to latest COVID-19 flare-up. https://www.globaltimes.cn/page/202110/1237670.shtml.

[8]Health workers in China are killing pets while their owners are in quarantine. https://n.pr/48SY0RX.

[9]Killing Dogs, Locking Down Cities, and Assigning Yellow Codes: Why Do Local Officials in China Often Resort to Extreme Epidemic Prevention Measures? https://bit.ly/3M7Mkkh

[10]Correlations at the provincial level: with Shanghai: 0.69, without Shanghai: 0.35; correlations by day: with Shanghai: 0.81; without Shanghai: 0.69.

own health code. Travel codes was designed to track individuals' whereabout and contact histories, launched by the China Academy of Information and Communications Technology (CAICT) in collaboration with the three major wireless service operators, and was promoted nationwide by the Ministry of Industry and Information Technology (MIIT) and the State Council, etc. Linked to individuals' national ID numbers, health codes and travel codes use GPS location and data mining technologies in combination with user self-reporting to facilitate contact tracing, quarantine, and clinical management. These mobile-phone based digital surveillance tools have been widely used in conjunction with a vast network of community workers, health professionals, and law enforcement officers to implement a variety of COVID containment measures.

There is abundant evidence of surveillance tools being used to facilitate massive COVID containment measures in Chinese cities. For example, in October 2021, health codes were changed to yellow for all household members in Heihe City, Heilongjiang Province – even for those who do not live there – to enforce a citywide lockdown.[11] In Shenzhen Science Park, located in Guangdong Province, a sudden assignment of yellow health codes forced tens of thousands of individuals to undergo nucleic acid testing before they were able to return home.[12] Numerous other smaller-scale cases show that the modifications in health and travel codes were instrumental in enforcing COVID containment measures.[13] To revert health and travel codes to green, citizens were required to conform to nucleic acid tests, adhere to quarantine protocols, or comply with other containment procedures. Non-compliance resulted in severe mobility restrictions, as these codes functioned as mandatory travel passes essential for access to public spaces such as buses, trains, banks, stores, and even the entry gates to their own communities. These surveillance tools not only facilitated the enforcement of COVID restrictions but also served as a justification for mass coercion. Subsequent sections will empirically examine the role of surveillance in rationalizing the stringent COVID lockdowns in China.

[11] 'Imported Case Behind Covid-19 Cluster' In North China's Heihe City. https://bit.ly/45BfaAI.

[12] Rumors Suggest 100,000 People in Shenzhen Science Park Received a 'yellow Code' Status and Lined Up for Nucleic Acid Tests in Hopes of Returning Home. https://bit.ly/46WxQf7

[13] See, for example, Woken Up to Find Your Health Code Has Suddenly Turned Red or Yellow? Don't Panic! We'll Guide You Through the Steps to Address This Issue. http://zj.people.com.cn/n2/2021/1212/c228592-35047111.html

4 Causal Evidence from A Survey Experiment

The observational study shows that the perversiveness of COVID surveillance moderates the negative effects of COVID lockdowns on Chinese citizens' support for state coercion and regime trust. In this section, we design and conduct an online survey experiment to causally identify the moderating effects of state surveillance on mass coercion. This experiment also allows us to examine the information mechanisms through which surveillance legitimizes mass lockdowns. The experiment design was pre-registered on Open Science Framework.

4.1 Experimental Design

The survey experiment was embedded in the aforementioned nationwide online survey conducted in the summer of 2023. All respondents were randomly assigned to one of seven treatment or control conditions that fell into two categories: the "Close Contact" category and the "Protest" Category. The "Close Contact" category was designed to test whether surveillance can justify state coercion when individuals face the *uncertainty* in threats to individual and public health.

To be specific, the "Close Contact" category comprises five groups. In Groups 2 through 5, respondents were informed that they had been mandated for home quarantine because they might be a close contact. As discussed in the theory section, surveillance justifies coercion when there is uncertainty in threats to public and individual safety. In contrast, without uncertainty in threats, government coercion cannot be justified. We use a 2x2 factorial design to explore whether COVID surveillance can justify government overreaction in lockdowns. As shown in Table 1, we contrast lockdown for distant positive COVID cases (uncertain threats) with lockdown for nearby positive cases (certain threats) to represent potential government overreaction in lockdown measures. We also compare the presence of COVID surveillance tools implemented by the local government to the absence of those tools. We are interested in the interaction effect between surveillance and case distance, represented by β_1 in Equation (2). Specifically, because the distant lockdown scenario reflects mass coercion and is perceived as government overreaction whereas the nearby lockdown scenario is

perceived as reasonable, their difference thus captures the effect of government overreaction.[14] Comparing the difference with surveillance to the difference without surveillance helps us examine whether digital surveillance can justify government overreaction in lockdowns.

Table 1: Factorial Design for the Effect of Surveillance on Government Overreaction

	No Surveillance	**Surveillance**
COVID Lockdown: Nearby Case	Group 3	Group 5
COVID Lockdown: Distant Case	Group 2	Group 4

$$Y = \alpha + \beta_1 \text{ (Distant} \times \text{Surv)} + \beta_2 \text{ Distant} + \beta_3 \text{ Surv} + X'\gamma + \epsilon, \tag{2}$$

In the "Close Contact" category, we also include a no-coercion scenario (Group 1), in which there is a distant COVID case, but respondents are not subjected to home quarantine. Comparing the coercion scenarios (Groups 2-5) with this no-coercion scenario helps us understand the impacts of state coercion.

The "Protest" category consists of two groups. In both groups, respondents are told that they were passing by a street in which a group of residents are protesting COVID lockdowns. The police arrested many protesters, including the respondent, who was actually a bystander. This signals government overreaction in repression. Group 6 receives no information about government surveillance on protests whereas Group 7 is informed that digital surveillance assisted the police in identifying protesters. The "Protest" category serves as a comparison because, in situations involving protests, there is no uncertainty as bystanders know for sure they are not protesters, nor do protesters pose a direct threat to other individuals' safety (except in rare violent instances, which are not the case of our experimental vignettes). We want to know whether surveillance can justify protest crackdowns given the absence of uncertainty and direct threat to public safety in this scenario. Combining the "Protest" category together with the "Close Contact" category allows us to do pairwise comparisons to examine the uncertainty mechanism (Table 2). Appendix Table A7 shows that randomization

[14]Note that individuals may perceive both distant and nearby lockdowns as mass coercion, especially in China, where people have prior beliefs about the government's extensive lockdowns. Indeed, we find that respondents, on average, expect 76% and 73% of residents in the community to be under lockdown in the distant and nearby lockdown groups respectively. Regardless, the distant lockdown scenario–mandatory quarantine due to positive cases found 1.5 kilometers away–is viewed as government overreaction by those affected, as they consider themselves unlikely to be in close contact. Surveillance justifies mass coercion by disproportionately affecting those citizens who are more likely to be "innocent."

is successful, with balanced covariates across 7 groups.

Table 2: Pairwise Comparison for the Uncertain Threat Mechanism

Scenarios	**Mechanism**	**Pairwise Comparison**		
		No Surveillance		**Surveillance**
Lockdown: Distant	Uncertain Threat to Safety	Group 2	vs.	Group 4
Lockdown: Nearby	Certain Threat to Safety	Group 3	vs.	Group 5
Protest Crackdown	Neither	Group 6	vs.	Group 7

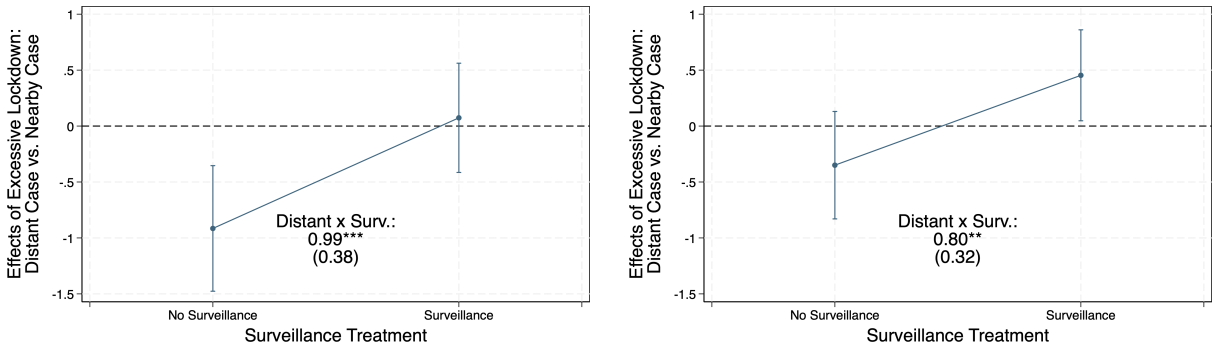
Corresponding to the two different categories, our main outcomes of interest include category-specific questions such as respondents' attitudes towards mandatory home quarantine or being detained by the police as an anti-lockdown protester. We also ask general questions about attitudes toward mandatory home quarantine and police detention to respondents in both categories. This allow us to explore the carryover effects of COVID surveillance on attitudes toward protest repression as well as the carryover effects of protest surveillance on attitudes toward COVID lockdowns. We further ask respondents' overall support for government policies, a proxy for regime legitimacy, and attitudes toward digital surveillance in general, in relation to both COVID contact tracing and tracking down anti-lockdown protesters. Figure A4 shows the flow of the research design and the order of question blocks, and Table A14 show the questions in detail. The treatment vignettes are listed in Appendix A2.2. We also carefully designed the survey questionnaire for ethic considerations. See Appendix A2.3 for a detailed discussion.

4.2 Main Results

Figure 2 shows how digital surveillance moderates the effects of massive lockdowns on people's attitudes toward these lockdowns and support for regime policies, as derived from estimating Equation (2). The results reveal that the presence of digital surveillance tools significantly increases people's support for both lockdowns and regime policies. The effects are large: a figure of 0.99 corresponds to a 13% increase compared to the average support for lockdowns (7.75), and a figure of 0.80 represents a 10% increase relative to the average of support for regime policies (8.22). To phrase the findings differently, mass coercion, compared to reasonable coercion, reduces people's support for the regime and its coercive measures, but

this negative effect is gone when citizens know the presence of digital surveillance. Our results thus provide causal evidence that digital surveillance justifies mass coercion. Note that Figure 2 is analogous to the marginal effects figures from the observational study (Figure 7), though in this case, the treatment variables are dichotomous rather than continuous.

Figure 2: Marginal Effects of Massive Lockdowns by Surveillance



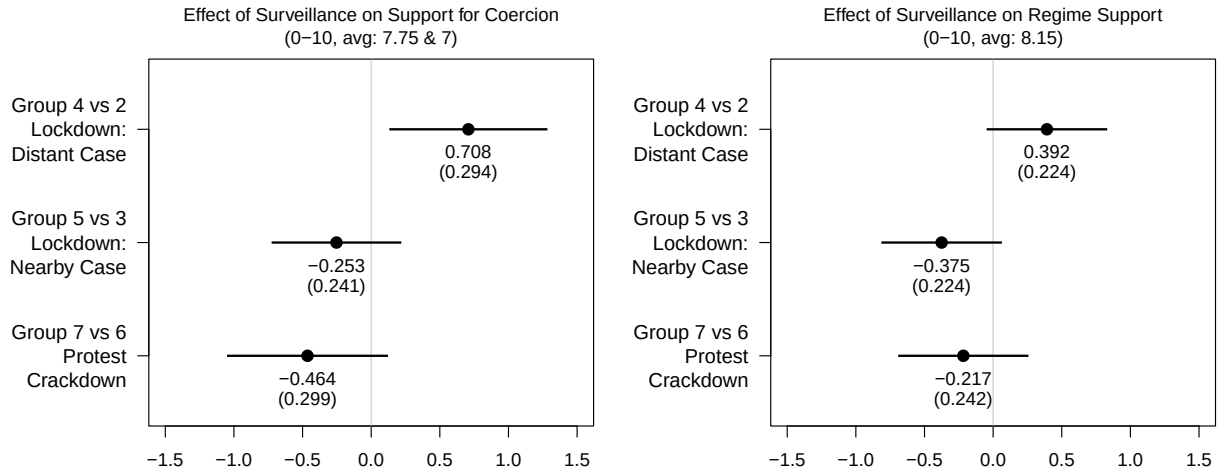
(a) Support for Lockdowns

(b) Support for Regime Policies

Note: Marginal effects with 95% CIs. Robust standard errors are reported in parenthesis. The full results are reported in Columns (2) and (4) in Table A8 in the Online Appendix.

The results of the pairwise comparisons are reported in Figure 3. As suggested by our theory, surveillance legitimizes mass coercion and increases regime support in the presence of uncertain threats to public safety. This is consistent with the finding that surveillance increases support for lockdowns in response to distant COVID cases because, in this situation, citizens are unsure whether they are close contacts or not (H1). By contrast, when threats to public safety are more certain (e.g., nearby COVID cases) or when there is no perceived threat to public safety (e.g., during a protest crackdown), the effects of surveillance on coercion and regime support turn negative, though statistically insignificant (H2 and H3). The fact that surveillance only legitimizes lockdowns for distant cases provide evidence that the justification effects of surveillance are primarily due to uncertain threats to public safety.

Figure 3: Effects of Surveillance on Support for Coercion and Regime: Pairwise Comparisons



(a) Support for Lockdown (Rows 1 & 2) or Protest (Row 3)

(b) Support for Regime Policies

Note: Coefficients with 95% CIs. Robust standard errors are reported in parenthesis. The full results are reported in Columns (1) and (3) in Table A9 in the Online Appendix.

4.3 Mechanism Test

To further explore the mechanism through which surveillance justifies massive lockdowns, we first examine the effect of surveillance on people's beliefs about being a close contact. Columns (1) and (2) in Table 3 show that surveillance significantly makes people more likely to believe that they are close contacts of positive COVID cases. The coefficients indicate a 13% - 14% increase in the perceived likelihood. The evidence is consistent with our argument that surveillance justifies coercion by making uncertain threats appear certain to citizens. Interestingly, digital surveillance does not lead people to believe that government lockdowns have become more targeted, as Columns (3) and (4) in Table 3 demonstrate that surveillance does not affect people's perceptions of lockdown scales. This evidence further suggests that surveillance justifies mass coercion by changing "innocent" citizens' belief about their exposure to uncertain threats rather than changing the perceived accuracy of coercive targeting.

To determine whether concerns for public well-being or personal safety lead to the justifying effects of surveillance on mass coercion, we examine the heterogeneous effects of surveillance on support for lockdowns by individuals' collectivist values and perceived death risks.

Table 3: Surveillance's Impact on Perceived Close Contact Risk and Lockdown Scale

VARIABLES	(1) Close Contact	(2) Close Contact	(3) Lockdown Percentage	(4) Lockdown Percentage
Mean	6.18 (0-10)	6.20 (0-10)	72.98 (0-100)	73.20 (0-100)
Distant x Surv.	0.846**	0.792**	-2.020	0.001
	(0.375)	(0.371)	(4.009)	(4.052)
Distant	-1.046***	-1.026***	2.931	0.938
	(0.280)	(0.276)	(2.918)	(2.980)
Surv.	-0.221	-0.191	-1.703	-2.716
	(0.252)	(0.250)	(2.856)	(2.810)
Ind. Ctrls.	No	Yes	No	Yes
Constant	6.593***	5.687***	72.952***	74.370***
	(0.180)	(0.882)	(1.978)	(10.056)
Observations	591	565	591	565
R-squared	0.028	0.113	0.005	0.036

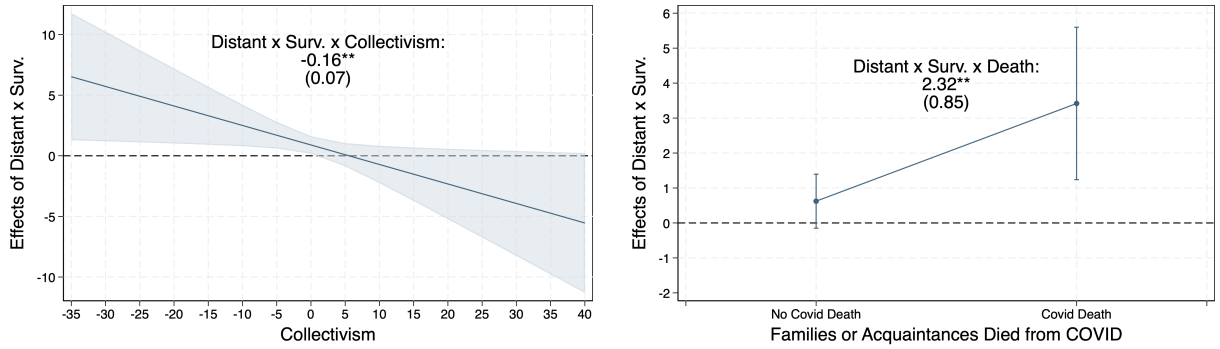
Robust standard errors are in parentheses. Columns (1) and (3) do not control for individual characteristics. Columns (2) and (4) control for gender, age, education, ethnicity, religion, marital status, work experience, party membership, income, language skills, social media usage, and social class status. The full table is reported in Table A10 in the Online Appendix.
*** p<0.01, ** p<0.05, * p<0.1

As shown in Figure 4(a), the justification effect of surveillance diminishes among individuals with stronger collectivist values. On the other hand, Figure 4(b) shows that surveillance is more likely to justify lockdowns among individuals who have experienced COVID-related deaths within their family or acquaintances. Collectivism reflects one's concern for public well-being, while firsthand observation of COVID deaths heightens an individual's perceived personal safety risk. It is likely that individuals with stronger collectivist values are already inclined to support lockdowns, thus surveillance does not further justify excessive measures. By contrast, more individualistic citizens, or those perceiving higher personal risks, are more susceptible to the justifying effects of surveillance on mass coercion.

4.4 Additional Outcomes and Discussion

Table 4 shows that COVID surveillance increases public support toward government surveillance in general, surveillance of the COVID pandemic, and surveillance of people protesting lockdowns. It also makes people more likely to accept the implementation of the City Code, a type of QR code similar to the health code for COVID-19 but cover a wider

Figure 4: Heterogeneous Effects of Surveillance on Support for Lockdowns



(a) For Public Safety: Collectivism

(b) For Personal Safety: COVID Death

Note: Marginal effects with 95% CIs. Robust standard errors are reported in parenthesis. The full results are reported in Columns (2) and (4) in Table A11 in the Online Appendix.

category regulating citizens' daily lives.[15] Besides, digital surveillance increases people's support for lockdowns in general, including the lockdown of others, and for the repression of people who protest COVID lockdown policies. In short, surveillance moderates the negative effects of mass coercion on a series of coercive measures not only in COVID containment but also in other aspects of life.

One might be concerned that the high level of support for surveillance and coercion in the survey is due to respondents falsifying their preferences. To check this, we included an anonymity treatment midway through the survey, reminding them that the survey is anonymous and the data will be securely stored.[16] Appendix Table A13 shows no differences in main outcomes between the treated and control groups, suggesting no evidence of preference falsification in those questions. The anonymity treatment is effective as it reduces respondents' self-censorship in more sensitive questions (see Columns [6] and [7] in Table A13).

[15]See, for example, Shanghai upgrades standards of city-level QR codes, https://www.citynewsservice.cn/news/3o9y7kreg8n564ex

[16]We state anonymity in the consent form before the survey, and this anonymity treatment serves as an additional reminder.

Table 4: Surveillance's Impact on other Outcome Measures

VARIABLES	(1) Surveillance	(2) COVID Surveillance	(3) Protest Surveillance	(4) City Code	(5) Support: Lockdown	(6) Support: Repression
Mean (0-10)	7.42	8.08	7.25	7.39	8.13	7.47
Distant x Surv.	1.016**	1.017***	1.229***	0.755*	0.876**	0.676*
	(0.414)	(0.367)	(0.403)	(0.440)	(0.354)	(0.405)
Distant	-0.553*	-0.618**	-0.388	-0.431	-0.374	0.009
	(0.298)	(0.279)	(0.289)	(0.306)	(0.265)	(0.293)
Surv.	-0.621**	-0.351	-0.496*	-0.497	-0.288	-0.242
	(0.291)	(0.244)	(0.288)	(0.313)	(0.253)	(0.284)
Ind. Ctrls.	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.489***	8.741***	8.257***	7.823***	9.306***	8.147***
	(0.988)	(0.970)	(1.025)	(1.045)	(0.895)	(0.962)
Observations	565	565	565	565	565	565
R-squared	0.072	0.054	0.098	0.090	0.070	0.062

Robust standard errors in parentheses. Control variables include gender, age, education, ethnicity, religion, marital status, work experience, party membership, income, language skills, social media usage, and social class status.The full table can be found in Table A12 in the Online Appendix.
*** p<0.01, ** p<0.05, * p<0.1

5 Observational Evidence from Real-World Lockdowns

In this section, we leverage data from three waves of surveys and the real-world COVID cases and lockdown intensities. First, we employ a difference-in-differences strategy to establish the negative impacts of COVID lockdowns on citizen attitudes toward the government and its coercion. We then apply a triple-difference approach to illustrate how digital surveillance moderates these negative effects.

5.1 Data and Empirical Strategies

To examine the effects of real-world lockdowns on citizens' attitudes toward the government and its coercive measures, we first conducted a nationwide online survey among 1,085 Chinese citizens in the summer of 2023. We use a quota sampling strategy to ensure that age, gender, education, and geographic demographics closely mirrored the Chinese population. By combining this survey with two waves of World Value Surveys from 2013 and 2018, we are able to employ a difference-in-differences strategy to examine the impacts of COVID lockdowns that took place from late 2020 until the end of 2022. Given our focus on regime

legitimacy and attitudes toward state coercion, we specifically included several questions identical to those in the World Value Surveys. We used perceived respect for human rights as a proxy for support for state coercion, as respect for human rights is the opposite of state repression. Since it is politically sensitive to ask people in China whether they support the CCP regime and the Chinese central government is typically equated with the CCP regime, we use trust in the central government as a measure of regime legitimacy. Figure 5 presents the means and standard deviations of these two primary outcome variables across the three surveys. The statistics from our survey align closely with those from the two WVS waves, indicating that our sample is largely representative of the Chinese populace.[17]

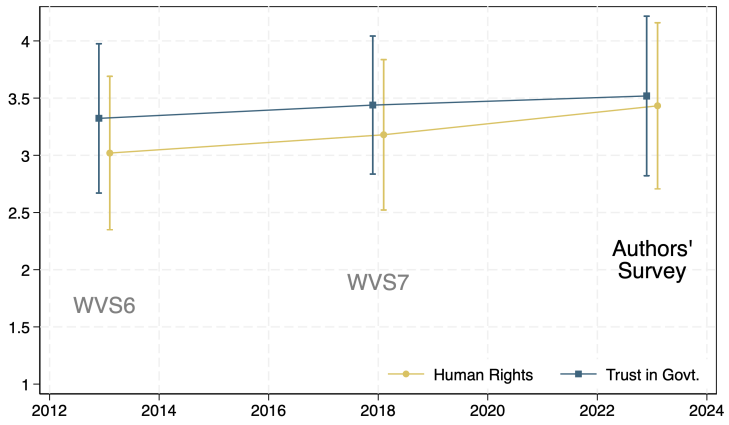


Figure 5: Average Human Rights Perception and Trust in Government across Surveys

We also collected data on the daily numbers of high-risk and mid-risk neighborhoods from January 1, 2020, to December 31, 2022, and aggregated the total number of lockdowns by province over the three years. We chose to aggregate the lockdown measures at the provincial level because the World Value Surveys only provide identifiers at this level. Additionally, the sampling locations of the two WVS waves cover fewer than a quarter of China's 334 prefecture-level units and differ between waves. Nevertheless, when viewed at the provincial level, the WVS samples represent the majority of China's 31 provinces, with a few exceptions such as border regions like Xinjiang and Tibet. Moreover, COVID surveillance and control measures in China were largely guided and organized by provincial

[17]The appendix further demonstrates that other individual characteristics remain consistent across the three surveys.

governments due to regional disparities. Thus, using provinces as the unit of aggregation is the most logical approach. Figure 6 shows these aggregated lockdown measures. Among the 31 provincial-level units in China, Shanghai Municipality recorded a maximum of 493,243 lockdown neighborhood-days (attributed to 48 days of city-wide lockdowns around April 2022), while Zhejiang Province had the least, with only 1,169 lockdown neighborhood-days over the three-year span.

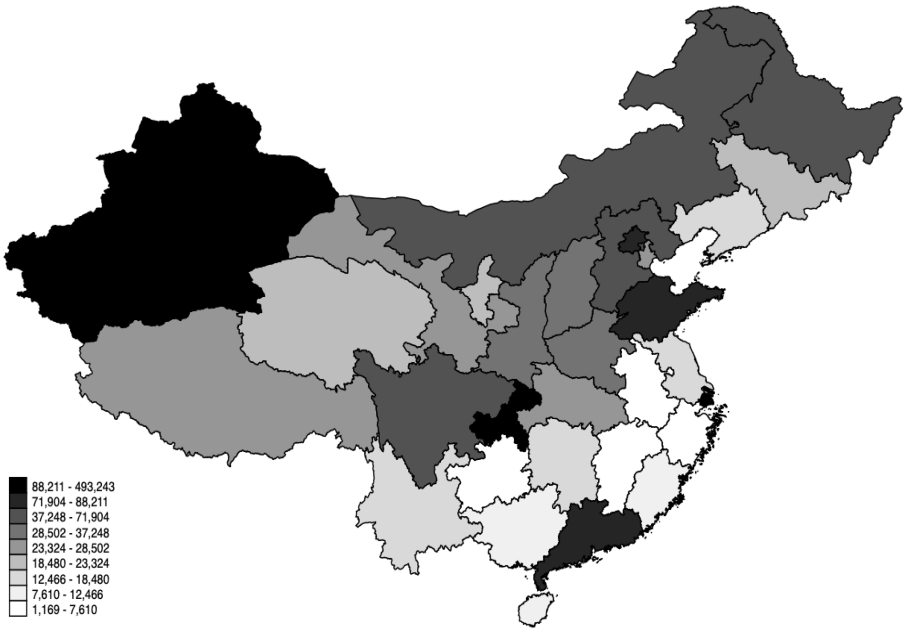


Figure 6: Provincial-level Lockdown Intensity, Oct. 2020 - Dec. 2022

We use Equation (3) to estimate the effect of COVID lockdowns on outcome variables. The main predictive variable is a continuous measure of lockdown intensity at the province level interacting with the post-COVID time dummy. $X'_{i,t}$ indicates covariates controlling for individual characteristics. Since the treatment is on the provincial level, we also control for time-varying province characteristics, denoted by $\Theta'_{p,t}$. λ_p stands for province fixed effects, while τ_t denotes time fixed effects (corresponding to the years of survey waves). Our main focus is on the DiD estimator, β.

$$Y_{i,t} = \alpha + \beta\ (\text{Lockdown}_p \times \text{PostCOV}_t) + X'_{i,t}\gamma + \Theta'_{p,t}\rho + \lambda_p + \tau_t + \epsilon_{i,t}, \tag{3}$$

Given our interest in understanding whether digital surveillance could legitimize government lockdowns, we also employ a triple-difference specification to examine the marginal ef-

fects of post-COVID lockdowns ($\text{Lockdown}_p \times \text{PostCOV}_t$) based on the degree of surveillance intensity (Surv_p). Equation (4) presents this triple-difference specification, which includes two time-varying consecutive interaction terms in addition to province and time fixed effects. We anticipate that β_1 will be both positive and statistically significant.

$$\begin{aligned} Y_{i,t} = \quad & \alpha + \beta_1 \left(\text{Lockdown}_p \times \text{PostCOV}_t \times \text{Surv}_p\right) + \beta_2(\text{Lockdown}_p \times \text{PostCOV}_t) \\ & + \beta_3(\text{Surv}_p \times \text{PostCOV}_t) + X'_{i,t}\gamma + \Theta'_{p,t}\rho + \lambda_p + \tau_t + \epsilon_{i,t}, \end{aligned} \tag{4}$$

To measure COVID surveillance intensity, we use per capita mobile phone usage in a province as a proxy. As previously mentioned, during the COVID-19 pandemic, China heavily used smartphone-based health QR codes and travel codes for surveillance and control measures, and different provinces developed different codes. Health QR codes indicate an individual's health status and are often determined by their recent COVID testing, while travel codes help track their recent travel and contact history. A significant number of Chinese citizens used these apps on their mobile phones as a routine part of daily life, especially when accessing public places or using public transportation. Thus, whether an individual was under COVID surveillance or not depends on if this individual has a smart phone, which makes per capita mobile phone usage a reasonable proxy for COVID surveillance.[18]

5.2 Results

Table 5 shows the effects of COVID lockdowns on perceived respect for human rights and trust in the central government. In Columns (1) and (3) we use the full samples of the three surveys that include all available provinces. In Columns (2) and (4) we drop samples from Shanghai City, because its long-time city-wide lockdowns in early 2022 might change the results significantly. We consistently find that lockdowns lower perceived respect for

[18]While not every mobile phone user in China uses a smartphone, the smartphone penetration rate in China has already reached 68.4%. Moreover, higher mobile phone penetration typically corresponds to higher smartphone penetration. Therefore, mobile phone usage serves as a suitable proxy for smartphone usage. As an alternative measure for COVID surveillance, we also use per capita mobile internet access, and the results are very similar (see Appendix Figure A2). The correlation between the two measures is 0.9975. However, since data on mobile internet access is only available for 2021, we use per capita mobile phone usage in 2022 to proxy for COVID surveillance in the main analysis.

human rights (i.e., support for coercion). The magnitude is substantial; when lockdown intensity reaches its maximum value (i.e., 493,243 neighborhood-days), perceived respect for human rights drops by -0.44. Given that the average value is 3.17 on a scale of 1 to 4, this represents a 14% decrease. Additionally, in the sample excluding Shanghai, we find that lockdowns significantly reduce trust in the central government. The maximum lockdown intensity (i.e., 10,181 neighborhood-days in this sample) results in an 8% decrease in trust.

Table 5: Effects of COVID Lockdowns on Human Rights and Regime Trust

	Respect for Human Rights		Trust in Central Govt.	
	(1) All Sample	(2) No Shanghai	(3) All Sample	(4) No Shanghai
Lockdown x PostCOVID	-0.009***	-0.018**	-0.001	-0.026**
	(0.002)	(0.009)	(0.003)	(0.012)
Prov. Population (Log)	1.566**	1.627***	0.012	0.199
	(0.610)	(0.578)	(0.822)	(0.907)
Prov. GDP (Log)	0.051	0.028	-0.458*	-0.529*
	(0.217)	(0.212)	(0.275)	(0.285)
Age	0.002**	0.002**	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.027	0.027	-0.006	-0.008
	(0.019)	(0.019)	(0.017)	(0.016)
High School	-0.060**	-0.056**	-0.015	-0.014
	(0.026)	(0.026)	(0.026)	(0.026)
College Above	-0.038	-0.033	-0.030	-0.027
	(0.038)	(0.038)	(0.037)	(0.037)
Social Class	0.083***	0.081***	0.030**	0.029**
	(0.015)	(0.015)	(0.014)	(0.014)
Time FEs	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	-9.682***	-9.923***	7.480	6.794
	(3.450)	(3.309)	(4.794)	(5.224)
Observations	5,776	5,674	6,093	5,993
R-squared	0.081	0.081	0.048	0.051

Robust standard errors are clustered by provinces and survey waves. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022.
*** p<0.01, ** p<0.05, * p<0.1

The negative public sentiment toward lockdowns and the government was not driven by the actual severity of the pandemic. We control for cumulative COVID cases at the province level in our main specifications in Equation (3) and the effects of lockdowns remain robust

(see Appendix Table A2 for details). These results suggest that citizens' negative sentiments were not a reaction to the threat of COVID or a perceived failure of the government to control the virus. Instead, these sentiments stemmed from Chinese local governments' stringent lockdown measures.

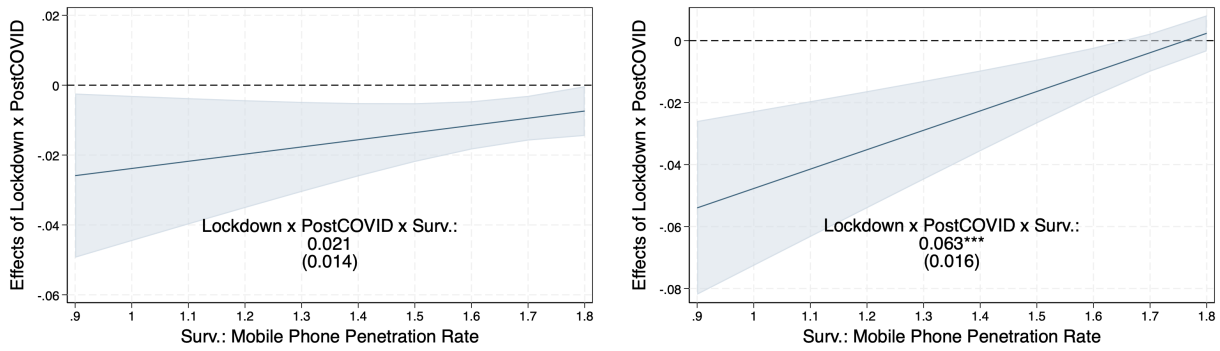
To check the validity of the parallel trends assumption inherent in the DiD design, we examine the dynamic effects of lockdowns by interacting the lockdown measure with time dummies, as recommended by Angrist and Pischke (2009). We do not observe any significant pre-treatment trends for either outcome (see Figure A1 and Table A1 in the Online Appendix), which lends support to the validity of our DiD approach.

A key theoretical prediction is that digital surveillance can legitimize COVID lockdowns. We examine this argument using the triple-difference strategy specified in Equation (4). As shown in Figure 7, the extent of COVID surveillance significantly mitigates the adverse effects of lockdowns on citizens' perceived respect for human rights and their trust in the central government. In comparison to a province with the lowest level of surveillance, a province with the highest level of surveillance experiences a 0.019 increase in perceived respect for human rights. This represents a 75% reduction in the lockdown effect observed in provinces with the lowest level of surveillance (Figure 7a). The moderating effect of surveillance regarding trust in the central government is even larger, as the effect of the lockdown becomes negligible in provinces with the highest level of surveillance, equating to a 100% reduction (Figure 7b).[19]

To further establish the robustness of our results, we match the daily lockdown intensity at the prefecture level to our survey respondents' city of residence in 2023 (we are able to identify 297 out of 333 cities in China). Since the city of residence is only available in our 2023 survey, we are not able to use the DiD approach. Instead, we look directly at the interaction of daily lockdowns and cellphone penetration rates at the city level. The results are consistent with our provincial-level analyses and are reported in Table 6. We can see that the daily lockdown at the city level significantly decreases the perceived respect for human

[19]One might be concerned that citizens could use multiple phones to evade COVID surveillance and lockdowns. However, this was unlikely to be a concern for our study because our measure of lockdowns is at the neighborhood level, where everyone living in a neighborhood is required to be quarantined. The scenario of using multiple phones primarily applies to travel codes and to those individuals who wish to travel without being tracked. Even this is challenging, as one's COVID health code must be linked to their unique ID card. In many places, citizens must show both travel codes and health codes to move freely during the pandemic.

Figure 7: Marginal Effects of Lockdowns (Post COVID) by Surveillance Intensity



(a) Respect for Human Rights

(b) Trust in the Central Government

Note: Marginal effects with 95% CIs. Robust standard errors are clustered by provinces and survey waves. The lowest per capita mobile phone usage is 0.91 (Tibet) whereas the highest is 1.8 (Beijing). The full results are reported in Columns (1) and (3) in Table A3 in the Online Appendix.

rights as well as trust in the central government. However, digital surveillance modifies the negative effects substantially. These effects remain strong even after we control for city-level economic measures. The economic indicators of a city are important confounders to consider, as a city's economic strength might affect its ability to conduct both lockdown and digital surveillance. The fact that, conditional on economic conditions, we find consistent results at the city level is reassuring.

5.3 Discussion

The negative effects of COVID lockdowns on citizens' views of the Chinese government and its coercive actions could be more pronounced for two reasons. First, the severity of lockdowns was relatively mild. Our data indicates that, over three years, there were 1.54 million neighborhood-days under lockdown across China. Given that China has 1-2 million neighborhoods and that the pandemic spanned over 1,065 days (from January 7, 2020, to December 7, 2022), fewer than 1‰ of neighborhood-days underwent some kind of lockdown. This means the vast majority of Chinese citizens did not experience intense lockdowns during the pandemic. Despite the relatively mild lockdown conditions, the significant negative impacts we observed in nationwide samples suggest a robust public sentiment against the Zero-COVID policy. Second, China began developing its COVID surveillance tools in March

Table 6: Moderating Effects of Surveillance, Prefecture-level Data

	Respect for Human Rights		Trust in Central Govt.	
	(1) All Sample	(2) No Shanghai	(3) All Sample	(4) No Shanghai
Lockdown x Penetration	0.047**	0.047**	0.053***	0.053***
	(0.020)	(0.020)	(0.018)	(0.016)
Lockdown	-0.104**	-0.104**	-0.144***	-0.143***
	(0.049)	(0.049)	(0.049)	(0.042)
Penetration	-0.075	-0.076	-0.138*	-0.138**
	(0.089)	(0.089)	(0.080)	(0.062)
GDP per capital	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP composition	0.129	0.132	0.070	0.074
	(0.111)	(0.110)	(0.102)	(0.103)
Ind. Characteristics	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	3.947***	3.948***	3.077***	3.058***
	(0.386)	(0.390)	(0.366)	(0.325)
Observations	898	869	1021	982
R-squared	0.072	0.063	0.062	0.068

Robust standard errors. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. GDP composition is measured as the ratio of the secondary and the tertiary industry output. Individual characteristics include gender, age, education, religious, marital status, full time job, sector of employment, CCP affiliation, income level, fluency of English, social media usage, and reported social class. The full results are reported in Table A4 in the Online Appendix.
*** p<0.01, ** p<0.05, * p<0.1

2020, and for nearly three years, most Chinese citizens were subject to COVID surveillance. The moderating effects of surveillance on lockdowns we observed imply that, had the government not used COVID surveillance during the pandemic, the negative sentiment against lockdowns might have been even stronger.

One may be concerned about the potential endogeneity between lockdowns and COVID surveillance capacity. For example, in areas where local governments have developed stronger surveillance capacity to monitor the disease, it might be less necessary to enforce stringent lockdown measures. At the society level, this could reduces the negative impacts of COVID containment, as fewer citizens would be subject to intensive lockdowns. However, the moderating effects from the trip-difference estimator mean that for any level of lockdown intensity even it might have been reduced by surveillance, surveillance still makes lockdowns more

tolerable to citizens.

Nevertheless, we refrain from interpreting the observational evidence as causal because we were limited to using aggregated provincial-level measures for surveillance and lockdowns. These measures might captures other unobserved confounders. For example, mobile phone usage could also reflect citizens' exposure to propaganda and misinformation about the pandemic. The Chinese government has always overstated the severity of the pandemic in other countries, and such information was disseminated through social media. This could potentially amplify the moderating effect of this variable. To address these issues, in the following section, we use a survey experiment to causally identify the moderating effect of digital surveillance on COVID lockdowns.

6 Conclusion

The existing literature on state surveillance typically associates it with targeted coercive measures. However, in this paper, we argue that surveillance can also facilitate mass coercion. It legitimizes such coercion by making uncertain threats appear more certain to citizens. We examine this argument in the context of COVID lockdowns in China. We show that the pervasiveness of COVID surveillance significantly mitigates the negative impacts of massive lockdowns on public opinions toward the Chinese government and its coercive measures during the pandemic. Through a survey experiment, we further demonstrate that it is the uncertain threats from the COVID pandemic to personal safety that enables the justifying effects of surveillance on mass coercion. In essence, surveillance increases citizens' perceived likelihood of COVID exposure, making them more tolerant of mandatory quarantines for personal safety.

The justifying effects of surveillance on mass coercion extend beyond the context of COVID containment. We can imagine other situations where this logic applies: when citizens confront uncertain threats to public safety, such as terrorist attacks, crimes, or violent protests, state surveillance might legitimize excessive coercive measures against perpetrators, especially if citizens see benefits from these actions. However, given that mass coercion can provoke backlash and considering the varying degrees of trust citizens place in the gov-

ernment and technology across contexts, we do not anticipate surveillance always justifying mass repression. Nonetheless, future research could delve into other situations where the justifying effects of surveillance on mass repression might be observed.

The perceived uncertainty in threats to public safety as a source of support for surveillance and mass coercion implies that governments might exploit this uncertainty through propaganda and information control to exert undue control over their citizens. For example, spreading news of significant COVID-19 fatalities abroad and emphasizing the ease of virus transmission might have amplified the justification for intensive surveillance and stringent lockdowns in China. Similarly, amplifying threats from gang crimes in the media, coupled with criminal surveillance, might have led citizens to endorse the Struggle Against Gang Crime campaign, a series of massive crackdowns on "organized criminals" nationwide in China.[20] Future studies could explore the role of propaganda and information manipulation in facilitating surveillance and mass coercion.

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Online Appendix

Table of Contents

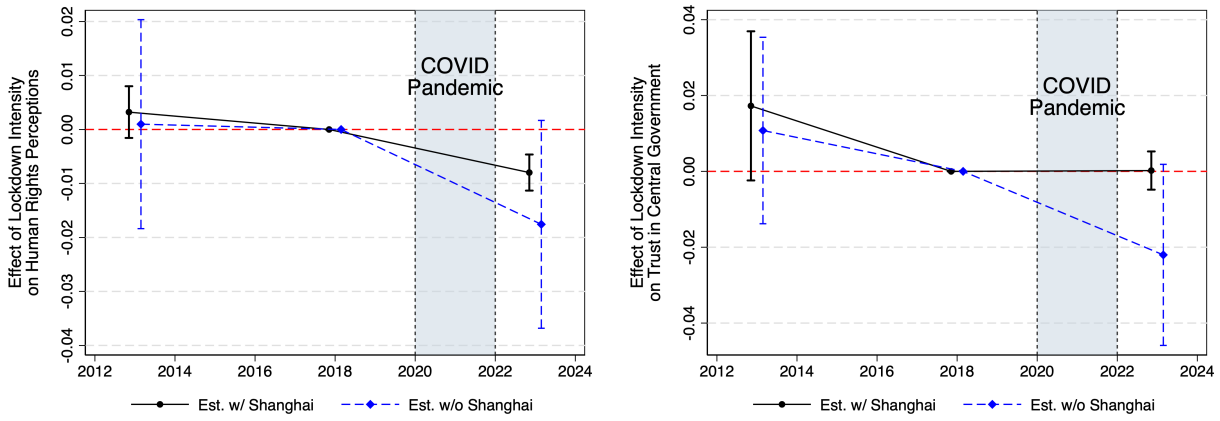
A1 Observational Study

A1.1 Data collection and coding.

[add: data collection procedure. –Xin] We collected the community-level daily lockdown statistics from the *Pandemic Risk Level Inquiry WeChat Mini Program* developed by the Chinese State Council. This Mini Program provides real-time updates about the risk levels and lockdown areas. We therefore access the Program's data from its PC portal at 10PM every day from October 30, 2020 to December 22, 2022. The Mini Program was terminated at the end of 2022, when all COVID lockdown measures were suddenly lifted. We also asked the RAs to digitize the community-level risk information published by the Guangdong Provincial Health Commission daily from April 2, 2021 to August 15, 2022. We then compare the data collected from the Mini Program to the data hand-collected by RAs to check the accuracy of our data scrapping using the overlapping dates. The correlation of these two data sources is %98.9 on a daily basis. We therefore use the data from the Mini Program as it provides a wider time-horizon for the analysis.

A1.2 Placebo Tests

Figure A1: Dynamic Effects of Lockdowns on Human Rights and Regime Trust



(a) Respect for Human Rights

(b) Trust in the Central Government

Note: Coefficients and 95 percent confidence intervals. Coefficients benchmarked to 2018. The original regressions can be found in Table A1.

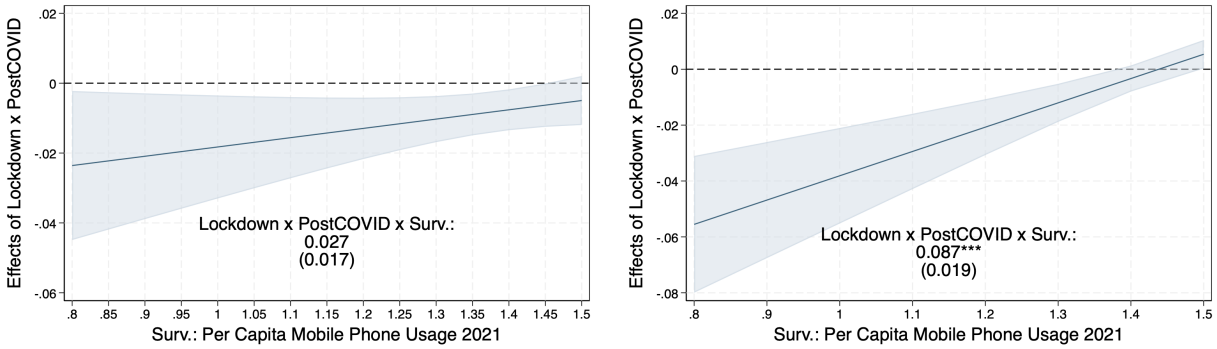
Table A1: Dynamic Treatment Effects

	Respect for Human Rights		Trust in Central Govt.	
	(1)	(2)	(3)	(4)
	All Sample	No Shanghai	All Sample	No Shanghai
Lockdown x Yr2013	0.003	0.001	0.017*	0.011
	(0.002)	(0.010)	(0.010)	(0.012)
Lockdown x Yr2023	-0.008***	-0.018*	0.000	-0.022*
	(0.002)	(0.010)	(0.003)	(0.012)
Prov. Population (Log)	1.638***	1.650***	0.416	0.428
	(0.615)	(0.612)	(0.989)	(1.041)
Prov. GDP (Log)	0.022	0.019	-0.627**	-0.626*
	(0.218)	(0.225)	(0.305)	(0.326)
Age	0.002**	0.002**	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.027	0.027	-0.006	-0.008
	(0.019)	(0.019)	(0.017)	(0.017)
High School	-0.060**	-0.057**	-0.017	-0.015
	(0.026)	(0.026)	(0.026)	(0.026)
College Above	-0.038	-0.033	-0.030	-0.028
	(0.038)	(0.038)	(0.037)	(0.037)
Social Class	0.083***	0.081***	0.031**	0.030**
	(0.015)	(0.015)	(0.014)	(0.014)
Time FEs	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	-9.970***	-10.012***	5.959	5.932
	(3.499)	(3.436)	(5.594)	(5.779)
Observations	5776	5674	6093	5993
R-squared	0.075	0.075	0.043	0.044

Robust standard errors are clustered by provinces and survey waves. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022. Base year: 2018.
*** p<0.01, ** p<0.05, * p<0.1

A1.3 Results and Robust Tests

Figure A2: Marginal Effects of Lockdowns by Surveillance Intensity

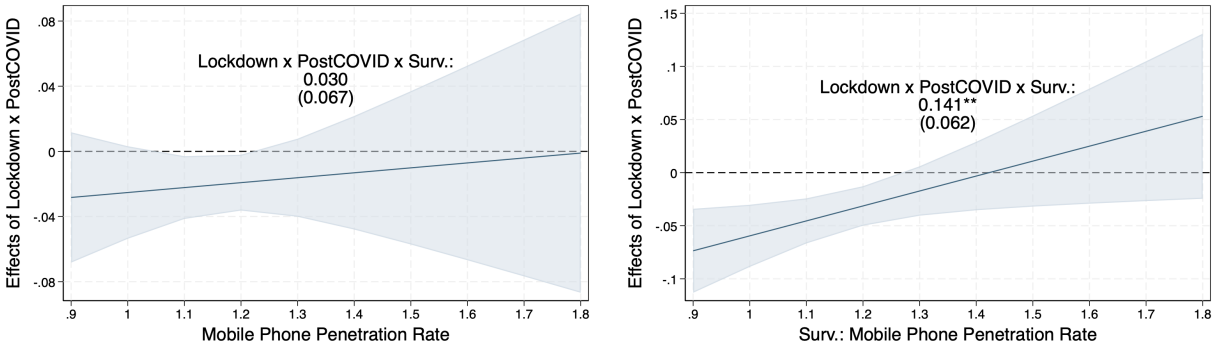


(a) Respect for Human Rights

(b) Trust in the Central Government

Note:

Figure A3: Marginal Effects of Lockdowns (Post COVID) by Surveillance Intensity



(a) Respect for Human Rights

(b) Trust in the Central Government

Note:

Table A2: Effects of Lockdowns, Conditional on COVID Cases

	(1)	(2)	(3)	(4)
	All Sample	No Shanghai	All Sample	No Shanghai
Lockdown x PostCOVID	-0.004*	-0.009	0.000	-0.031***
	(0.002)	(0.008)	(0.004)	(0.012)
TotalCase x Yr2013	-0.023*	-0.031**	-0.035*	-0.041**
	(0.013)	(0.013)	(0.018)	(0.017)
TotalCase x Yr2023	-0.041***	-0.039***	-0.008	0.008
	(0.009)	(0.007)	(0.018)	(0.015)
Prov. Population (Log)	1.537**	1.384**	-0.575	-0.650
	(0.586)	(0.576)	(0.726)	(0.773)
Prov. GDP (Log)	0.044	0.076	-0.332	-0.347
	(0.207)	(0.206)	(0.275)	(0.272)
Age	0.002**	0.002**	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.027	0.027	-0.006	-0.008
	(0.019)	(0.019)	(0.017)	(0.016)
High School	-0.060**	-0.056**	-0.013	-0.012
	(0.026)	(0.026)	(0.025)	(0.025)
College Above	-0.037	-0.032	-0.028	-0.024
	(0.038)	(0.038)	(0.036)	(0.037)
Social Class	0.083***	0.082***	0.031**	0.030**
	(0.015)	(0.015)	(0.014)	(0.014)
Time FEs	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	-9.344***	-8.473***	10.786**	11.551**
	(3.287)	(3.177)	(4.155)	(4.477)
Observations	5776	5674	6093	5993
R-squared	0.076	0.076	0.042	0.046

Robust standard errors are clustered by provinces and survey waves. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022.
*** p<0.01, ** p<0.05, * p<0.1

Table A3: The impact of cellphone penetration rate on modifying the effect of lockdown

	Respect for Human Rights		Trust in Central Govt.	
	(1)	(2)	(3)	(4)
	All Sample	No Shanghai	All Sample	No Shanghai
Lockdown x PostCOV				
x Per Capita Mobile	0.021	0.030	0.063***	0.141**
	(0.014)	(0.067)	(0.016)	(0.062)
Lockdown x PostCOV	-0.044*	-0.056	-0.110***	-0.200***
	(0.025)	(0.079)	(0.028)	(0.074)
Per Capita Mobile x PostCOV	-0.026	-0.081	-0.036	-0.533
	(0.273)	(0.470)	(0.204)	(0.484)
Prov. Population (Log)	1.631***	1.635***	0.183	0.335
	(0.589)	(0.592)	(0.922)	(0.885)
Prov. GDP (Log)	0.023	0.022	-0.536*	-0.589**
	(0.214)	(0.217)	(0.286)	(0.290)
Age	0.002**	0.002**	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.028	0.028	-0.004	-0.007
	(0.019)	(0.019)	(0.016)	(0.016)
High School	-0.058**	-0.055**	-0.009	-0.008
	(0.025)	(0.025)	(0.025)	(0.025)
College Above	-0.037	-0.033	-0.027	-0.027
	(0.038)	(0.038)	(0.037)	(0.037)
Social Class	0.082***	0.081***	0.030**	0.029**
	(0.015)	(0.015)	(0.014)	(0.014)
Time FEs	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	-9.913***	-9.942***	6.898	6.231
	(3.356)	(3.360)	(5.305)	(5.033)
Observations	5776	5674	6093	5993
R-squared	0.075	0.075	0.045	0.046

Robust standard errors are clustered by provinces and survey waves. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022.

*** p<0.01, ** p<0.05, * p<0.1

Table A4: The correlation between COVID Lockdowns, cellphone penetration, and Human Rights and Regime Trust, prefecture level

	Respect for Human Rights		Trust in Central Govt.	
	(1) All Sample	(2) No Shanghai	(3) All Sample	(4) No Shanghai
Lockdown x Penetration	0.047**	0.047**	0.053***	0.053***
	(0.020)	(0.020)	(0.018)	(0.016)
Lockdown	-0.104**	-0.104**	-0.144***	-0.143***
	(0.049)	(0.049)	(0.049)	(0.042)
Penetration	-0.075	-0.076	-0.138*	-0.138**
	(0.089)	(0.089)	(0.080)	(0.062)
GDP per Capital	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP Composition	0.129	0.132	0.070	0.074
	(0.111)	(0.110)	(0.102)	(0.103)
Ind. Characteristics				
Age	-0.004	-0.004	0.000	-0.000
	(0.003)	(0.003)	(0.003)	(0.003)
Education	-0.008	-0.010	-0.015	-0.016
	(0.012)	(0.012)	(0.011)	(0.011)
Ethnic Minority	0.108	0.108	0.215***	0.218**
	(0.098)	(0.098)	(0.077)	(0.093)
Religious	-0.161**	-0.158**	-0.106*	-0.102*
	(0.062)	(0.063)	(0.058)	(0.053)
Married	0.076	0.100	0.088	0.094
	(0.084)	(0.084)	(0.074)	(0.069)
Full-time Employment	0.002	0.027	0.036	0.076
	(0.087)	(0.086)	(0.082)	(0.075)
Public Sector	-0.010	-0.016	-0.076	-0.089
	(0.080)	(0.082)	(0.068)	(0.067)
Managerial Role	0.100	0.070	0.087	0.063
	(0.066)	(0.064)	(0.060)	(0.057)
CCP affiliation	0.132*	0.139*	0.174***	0.166**
	(0.078)	(0.079)	(0.065)	(0.071)
Income	-0.037**	-0.036**	-0.017	-0.018
	(0.017)	(0.017)	(0.016)	(0.015)
English Proficiency	0.006	0.017	0.023	0.033
	(0.028)	(0.028)	(0.025)	(0.024)
Social Media Usage	-0.076***	-0.080***	0.104***	0.103***
	(0.028)	(0.027)	(0.028)	(0.026)
Social Class	0.053***	0.049***	0.032**	0.030**
	(0.014)	(0.014)	(0.013)	(0.013)
Prov. FEs	Yes	Yes	Yes	Yes
Constant	3.947***	3.948***	3.077***	3.058***
	(0.386)	(0.390)	(0.366)	(0.325)
Observations	898	869	1021	982
R-squared	0.072	0.063	0.062	0.068

Robust standard errors . Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022. GDP composition is measured as the ratio of the secondary and the tertiary industry output. Individual characteristics include gender, age, education, religious, marital status, full time job, sector of employment, CCP affiliation, income level, fluency of English, social media usage, and reported social class.

*** p<0.01, ** p<0.05, * p<0.1

Table A5: The Effect of Lockdown Intensity: High Risk Areas Only

	Respect for Human Rights		Trust in Central Govt.	
	(1) All Sample	(2) No Shanghai	(3) All Sample	(4) No Shanghai
Lockdown x PostCOVID	-0.011***	-0.016*	-0.002	-0.028**
	(0.002)	(0.009)	(0.005)	(0.012)
Prov. Population (Log)	1.592**	1.622***	0.031	0.233
	(0.605)	(0.588)	(0.826)	(0.903)
Prov. GDP (Log)	0.046	0.037	-0.466*	-0.533*
	(0.217)	(0.215)	(0.275)	(0.284)
Age	0.002**	0.002**	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.027	0.027	-0.006	-0.008
	(0.019)	(0.019)	(0.017)	(0.016)
High School	-0.060**	-0.057**	-0.015	-0.014
	(0.026)	(0.026)	(0.026)	(0.026)
College Above	-0.038	-0.034	-0.029	-0.027
	(0.038)	(0.038)	(0.037)	(0.037)
Social Class	0.083***	0.081***	0.030**	0.029**
	(0.015)	(0.015)	(0.014)	(0.014)
Time FEs	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	-9.818***	-9.966***	7.421	6.574
	(3.420)	(3.335)	(4.810)	(5.195)
Observations	5776	5674	6093	5993
R-squared	0.075	0.075	0.042	0.044

Robust standard errors are clustered by provinces and survey waves. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022.

*** p<0.01, ** p<0.05, * p<0.1

Table A6: The Effect of Lockdown Intensity: Medium Risk Areas Only

	Respect for Human Rights		Trust in Central Govt.	
	(1)	(2)	(3)	(4)
	All Sample	No Shanghai	All Sample	No Shanghai
Lockdown x PostCOVID	-0.034***	-0.247***	0.011**	-0.026
	(0.007)	(0.087)	(0.004)	(0.080)
Prov. Population (Log)	1.474**	1.319**	-0.004	-0.033
	(0.631)	(0.627)	(0.815)	(0.844)
Prov. GDP (Log)	0.075	0.059	-0.441	-0.442
	(0.220)	(0.206)	(0.274)	(0.274)
Age	0.002**	0.002**	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.027	0.027	-0.006	-0.009
	(0.019)	(0.019)	(0.017)	(0.017)
High School	-0.059**	-0.054**	-0.013	-0.013
	(0.026)	(0.026)	(0.026)	(0.026)
College Above	-0.039	-0.033	-0.031	-0.031
	(0.038)	(0.038)	(0.037)	(0.038)
Social Class	0.083***	0.082***	0.030**	0.029**
	(0.015)	(0.015)	(0.014)	(0.014)
Time FEs	Yes	Yes	Yes	Yes
Prov. FEs	Yes	Yes	Yes	Yes
Constant	-9.225**	-7.904**	7.438	7.676
	(3.571)	(3.802)	(4.768)	(4.993)
Observations	5776	5674	6093	5993
R-squared	0.075	0.076	0.042	0.042

Robust standard errors are clustered by provinces and survey waves. Columns (1) and (3) use the full sample, which includes all available provinces. Columns (2) and (4) exclude samples from Shanghai City. Shanghai is an outlier because the majority of its citizens experienced 48 consecutive days of intensive lockdowns from March 30 to May 16, 2022.

*** p<0.01, ** p<0.05, * p<0.1

A2 Experimental Study

A2.1 Design, Randomization, and Measurement

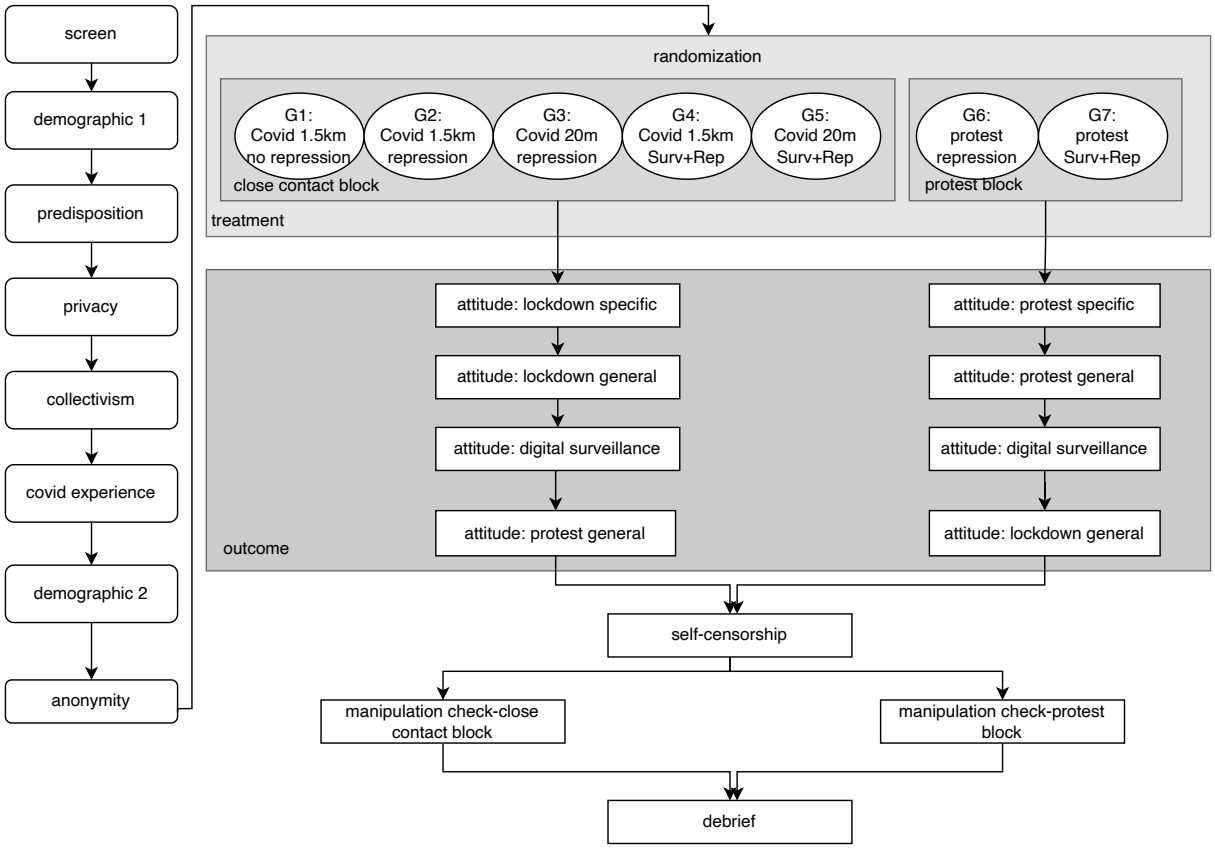


Figure A4: Flow Chart

Figure A4 shows the flow of our survey and the embedded experiment. Once the survey participants provide their consent to participate, they will be presented with screening questions to ensure their suitability for the study. Following the screening phase, all participants will be asked a set of demographic questions, including their place of birth, party affiliations, education, family income, and other relevant information. Additionally, participants will respond to predisposition questions that gauge their perspectives on specific government policies and their orientation towards privacy and collectivism.

Next, participants will be randomly assigned to one of the seven study groups described below. They will be instructed to read the corresponding vignette associated with their assigned group and then proceed to answer questions regarding their opinions on COVID

containment, surveillance, and the crackdown on anti-lockdown protests.

We can specify the following seven study groups for the survey experiments:

The COVID Close-Contact Category (public goods provision):

Group 1 - Placebo without lockdown or surveillance: Participants read a scenario where they have a low chance of being a close contact and are not required to undergo mandatory home quarantine.

Group 2 - Lockdown without digital surveillance, overreaction: Participants read a scenario where they have a low chance of being a close contact but are required to undergo mandatory home quarantine.

Group 3 - Lockdown without digital surveillance: Participants read a scenario where they have a high chance of being a close contact and are required to undergo mandatory home quarantine.

Group 4 - Lockdown with digital surveillance, overreaction: Participants read a scenario where they have a low chance of being a close contact, but surveillance identifies them as a close contact, and they are required to undergo mandatory home quarantine.

Group 5 - Lockdown with digital surveillance: Participants read a scenario where they have a high chance of being a close contact, surveillance identifies them as a close contact, and they are required to undergo mandatory home quarantine.

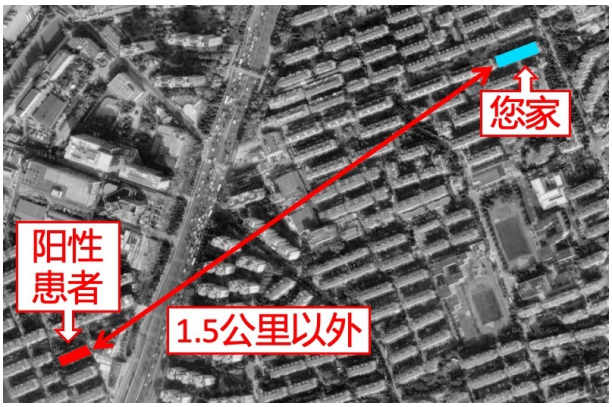
The Protest Category (non-public goods provision):

Group 6 - Repression of protesters without digital surveillance: Participants read a scenario where they are not a protester, but they are arrested by the police.

Group 7 - Repression of protesters with digital surveillance: Participants read a scenario where they are not a protester, but surveillance identifies them as a protester, and they are arrested by the police.

A2.2 Treatment Vignettes

The detailed vignettes are provided below. We use the following graphs in the vignettes to distinguish between distant COVID cases and nearby COVID cases. All vignettes have been translated from Chinese.



1. Confirmed positive cases 1.5km away

2. Confirmed positive cases in the adjacent apt bldg

G1 Imagine you are in this situation: Recently, in a residential building very far away, about 1.5 kilometers away from your apartment building, two patients with fever went to the hospital and were confirmed to be positive for COVID-19. In the past few days, you haven't been to that residential building, but you might have come into contact with these two confirmed patients in other situations. Therefore, you are unsure if you are a close contact or not.<<insert Graph 1 here>> The local government has quarantined the residential building where the confirmed COVID-19 patients reside. You and your family have not been subjected to mandatory home quarantine.

G2 Imagine you are in this situation: Recently, in a residential building very far away, about 1.5 kilometers away from your apartment building, two patients with fever went to the hospital and were confirmed to be positive for COVID-19. In the past few days, you haven't been to that residential building, but you might have come into contact with these two confirmed patients in other situations. Therefore, you are unsure if you are a close contact or not.<<insert Graph 1 here>> Currently, big data communication and other digital monitoring technologies have not yet been applied to contact tracing and determine close contacts of the COVID-19 in your local area. The local government enforces mandatory home quarantine for all potential close contacts of COVID-19. Therefore, you and your family have been subjected to mandatory home quarantine.

G3 Imagine you are in this situation: Recently, in a residential building very close to yours, adjacent to your apartment building, two patients with fever went to the hospital and were confirmed to be positive for COVID-19. In the past few days, you haven't been to that residential building, but you might have come into contact with these two confirmed patients in other situations. As a result, you are unsure if you are a close contact. <<insert Graph 2 here>> Currently, big data communication and other digital monitoring technologies have not yet been applied to contact tracing and determine close contacts of the COVID-19 in your local area. The local government enforces mandatory home quarantine for all potential close contacts of COVID-19. Therefore, you and your family have been subjected to mandatory home quarantine.

G4 Imagine you are in this situation: Recently, in a residential building very far away, about 1.5 kilometers away from your apartment building, two patients with fever went to the hospital and were confirmed to be positive for COVID-19. In the past few days, you haven't been to that residential building, but you might have come into contact with these two confirmed patients in other situations. Therefore, you are unsure if you are a close contact or not.<<insert Graph 1 here>> During the pandemic, local governments efficiently identified and tracked close contacts using big data communication and other digital monitoring technologies. For example: 1. Surveillance videos are checked to see if individuals have entered places with COVID-19 positive patients. 2. Mobile payment records are used to trace the places where individuals have made purchases. 3. Health Treasure (Health Code) is checked for individuals' COVID-19 nucleic acid test records. 4. Travel history is traced using big data communication travel cards (travel codes) to locate individuals' travel records. 5. Individuals are monitored for fever symptoms using AI digital infrared temperature measurement systems and

other digital technologies. 6. A Smart Screening System is used to quickly identify potential close contacts of COVID-19. The local government enforces mandatory home quarantine for all potential close contacts of COVID-19. Therefore, you and your family have been subjected to mandatory home quarantine.

G5 Imagine you are in this situation: Recently, in a residential building very close to yours, adjacent to your apartment building, two patients with fever went to the hospital and were confirmed to be positive for COVID-19. In the past few days, you haven't been to that residential building, but you might have come into contact with these two confirmed patients in other situations. As a result, you are unsure if you are a close contact. <<insert Graph 2 here>> During the pandemic, local governments efficiently identified and tracked close contacts using big data communication and other digital monitoring technologies. For example: 1. Surveillance videos are checked to see if individuals have entered places with COVID-19 positive patients. 2. Mobile payment records are used to trace the places where individuals have made purchases. 3. Health Treasure (Health Code) is checked for individuals' COVID-19 nucleic acid test records. 4. Travel history is traced using big data communication travel cards (travel codes) to locate individuals' travel records. 5. Individuals are monitored for fever symptoms using AI digital infrared temperature measurement systems and other digital technologies. 6. A Smart Screening System is used to quickly identify potential close contacts of COVID-19. The local government enforces mandatory home quarantine for all potential close contacts of COVID-19. Therefore, you and your family have been subjected to mandatory home quarantine.

G6 Imagine you are in this situation: Recently, due to the detection of one COVID-19 infection case in your neighborhood, the entire neighborhood was required to be locked down. Considering that several lockdowns had been implemented in the past year, the residents of this neighborhood could not tolerate another one. As a result, many took to the streets, protesting against the negative impacts of the COVID-19 lockdown measures on their lives. Suppose during the time of the protest, you happened to pass through the block where the protest was taking place and followed the crowd, standing and observing for a while. Due to concerns about social stability, the police took away many of the protesters. You were also taken away by the police for questioning.

G7 Imagine you are in this situation: Recently, due to the detection of one COVID-19 infection case in your neighborhood, the entire neighborhood was required to be locked down. Considering that several lockdowns had been implemented in the past year, the residents of this neighborhood could not tolerate another one. As a result, many took to the streets, protesting against the negative impacts of the COVID-19 lockdown measures on their lives. Suppose during the time of the protest, you happened to pass through the block where the protest was taking place and followed the crowd, standing and observing for a while. According to reports, the police utilized big data methods, surveillance cameras, and artificial intelligence facial recognition software to track the protesters. Due to concerns about social stability, many of the protesters were taken away by the police. Based on the indications from big data monitoring and algorithmic software, the police determined that you might be one of the protesters. You were also taken away by the police for questioning.

A2.3 Ethic Considerations

We obtained approval for all aspects of this survey from the IRBs of the authors' home institution and adhere to the EGAP Principles on Research Transparency and Protection of Research Team Members. We also follow the APSA Principles and Guidance for Research with Human Subjects in conducting the online survey experiment. First, we obtained

informed consent from our respondents. The consent form was presented to respondents immediately upon entering the survey. We provide information about the content of the survey, the general purpose of the research, the estimated time of the survey, the potential risks and benefits to respondents, the respondent's rights in participating in the survey, the anonymous nature of the survey, and the contact information for the IRBs in case of complaints. Respondents could choose to agree or disagree with the consent form. Choosing "agree" indicates explicit consent to participate. Choosing "Disagree" automatically exited people from the survey.

There is no deception in any aspect of the research, including the identity, activities, and motivations of the researchers. Although the scenarios about COVID containment in the experimental setting are hypothetical, they reflect real-world situations in China during COVID-19. The survey ended with a debrief to inform respondents that the scenarios were hypothetical for the purpose of understanding people's attitudes toward COVID policies in the past. We tell respondents that China has relaxed its COVID policies and quote relevant information from the Chinese Center for Disease Control and Prevention. This is to minimize the potential negative impacts of reminding respondents about their COVID experience and to reduce potential risks.

We took a number of measures to further minimize potential risks to respondents and research team staff. First, we collected non-identifiable information only and the information are securely stored in servers outside China. We informed respondents the protection of privacy in the beginning of the survey and allowed them to exit the survey at any time. Second, we also avoid asking questions that are sensitive in the context of China. For example, we did not ask about support for political institutions, attitudes toward the CCP, and opinions toward political leaders. In our protest scenarios, we focused on small-scale, localized protests, ensuring they were not linked to the nationwide "White Paper" movement, which is deemed sensitive. Moreover, only 29.5% of respondents were assigned to these protest scenarios. Third, we carefully choose the wording of the questions to minimize their sensitivity. We then asked our Chinese collaborators to check the questions and languages used in the survey and removed sensitive ones. The non-sensitive nature of the survey is reflected by the low voluntary dropout rate. Among the 2,030 total survey takers, there

are only 232 respondents (11.4%) who did not finish the survey but were not forced out by screening mechanisms (i.e., respondents who spent 2 to 30 minutes in the survey but did not finish all questions).[A1] Many of these dropouts may have left the survey for reasons unrelated to its content. Given the measures we have taken to reduce sensitivity, we believe this online survey poses no harm or potential trauma to its participants,

The survey was conducted through a reputable, US-based survey company, which further help protect respondents' privacy and increase data security. Each respondent received a small amount of payment (10 - 15 Chinese Yuan, or 1.5 - 2.2 USD equivalent) as compensation for their time.

(Davis and Silver 2004)

A2.4 Experimental Results

Table A7: Covariate Balance across 7 Groups

Variables	obs.	Grp1 No Coerce	Grp2 Distant	Grp3 Nearby	Grp4 Distant Surv.	Grp5 Nearby Surv.	Grp6 Protest	Grp7 Protest Surv.	p-value
Age	1085	35.16	33.52	35.66	34.71	35.71	36.73	36.18	0.446
Female (Y=1)	1085	0.46	0.43	0.46	0.46	0.44	0.43	0.47	0.987
Edu. Level (6-21)	1085	13.99	13.86	13.93	13.89	13.74	13.99	13.69	0.932
Minority (Y=1)	1085	0.06	0.07	0.05	0.08	0.07	0.09	0.02	0.216
Religion (Y=1)	1085	0.18	0.25	0.19	0.24	0.20	0.24	0.17	0.489
Married (Y=1)	1085	0.57	0.58	0.59	0.62	0.63	0.63	0.60	0.846
Job (Y=1)	1085	0.62	0.70	0.70	0.69	0.73	0.75	0.66	0.208
State Job (Y=1)	1085	0.11	0.12	0.12	0.19	0.10	0.14	0.16	0.217
Lead Job (Y=1)	1085	0.42	0.42	0.46	0.45	0.44	0.52	0.40	0.450
Party (Y=1)	1085	0.12	0.05	0.08	0.15	0.08	0.18	0.16	0.002
Income (1-9)	1043	5.83	5.70	5.83	5.78	5.73	6.04	5.67	0.704
English (1-5)	1085	3.08	2.76	2.94	2.92	2.90	2.97	3.03	0.361
Social Media (1-4)	1085	3.22	3.20	3.12	3.22	3.22	3.15	3.15	0.930
Class (0-10)	1085	5.18	4.93	4.97	5.03	4.68	4.96	4.90	0.505

[A1] Except for the 1085 effective respondents, the other 713 survey takers were screened out for quota control or attention check reasons.

Table A8: Impact of surveillance in modifying the effect of overreaction

	(1)	(2)	(3)	(4)
Dep. Variable	Support: Lockdown	Support: Lockdown	Support: Govt Policy	Support: Govt Policy
Mean (out of 10)	7.753	7.701	8.223	8.193
Distant X Surv.	1.030***	0.989***	0.840***	0.803**
	(0.377)	(0.375)	(0.318)	(0.316)
Distant	-0.846***	-0.915***	-0.301	-0.350
	(0.276)	(0.286)	(0.238)	(0.244)
Surv.	-0.203	-0.240	-0.358	-0.352
	(0.244)	(0.244)	(0.230)	(0.228)
Ind. Ctrls:				
Female		0.380**		-0.028
		(0.190)		(0.163)
Age		-0.002		-0.011
		(0.014)		(0.012)
Education		-0.037		-0.050
		(0.045)		(0.038)
Minority		0.661**		0.595*
		(0.320)		(0.312)
Religious		-0.336		-0.336
		(0.265)		(0.211)
Married		0.009		0.087
		(0.307)		(0.279)
Full-time job		-0.102		0.074
		(0.343)		(0.321)
Public Sector Job		0.142		-0.044
		(0.267)		(0.219)
Senior Job		0.085		0.225
		(0.261)		(0.221)
CCP		0.825***		0.756***
		(0.260)		(0.203)
Income		-0.078		-0.086
		(0.070)		(0.057)
English Proficiency		-0.265**		-0.212**
		(0.107)		(0.096)
Social Media		0.264**		0.149
		(0.125)		(0.106)
Social Class		0.147**		0.138**
		(0.064)		(0.053)
Constant	8.007***	8.020***	8.338***	9.138***
	(0.141)	(0.879)	(0.147)	(0.773)
Observations	591	565	591	565
Adj. R-squared	0.017	0.054	0.008	0.038

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A9: The Effect of Surveillance: Subgroup Comparison

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Variable	Support: Lockdown	Support: Lockdown	Support: Crackdown	Support: GovtPolicy	Support: GovtPolicy	Support: GovtPolicy
Mean (out of 10)	7.546	7.855	7.007	8.262	8.124	7.933
Distant	Yes	No	NA	Yes	No	NA
Surveillance	0.708**	-0.253	-0.464	0.392*	-0.375*	-0.217
	(0.294)	(0.241)	(0.299)	(0.224)	(0.224)	(0.242)
Ind. Ctrls:						
Female	0.411	0.382	0.256	0.222	-0.302	-0.168
	(0.281)	(0.262)	(0.290)	(0.203)	(0.259)	(0.232)
Age	0.003	-0.006	0.004	-0.006	-0.014	-0.005
	(0.019)	(0.020)	(0.017)	(0.016)	(0.018)	(0.012)
Education	-0.050	-0.021	-0.124*	-0.068	-0.033	-0.035
	(0.071)	(0.058)	(0.075)	(0.052)	(0.058)	(0.063)
Minority	0.993**	0.304	0.566	0.929**	0.324	-0.362
	(0.442)	(0.454)	(0.605)	(0.358)	(0.563)	(0.519)
Religious	-0.119	-0.592	-0.558	-0.158	-0.512	-0.299
	(0.373)	(0.377)	(0.414)	(0.252)	(0.349)	(0.344)
Married	-0.108	0.222	0.357	0.195	-0.114	0.275
	(0.445)	(0.435)	(0.441)	(0.348)	(0.428)	(0.353)
Full-time job	-0.199	-0.071	-0.237	-0.304	0.378	-0.439
	(0.492)	(0.471)	(0.519)	(0.406)	(0.479)	(0.457)
Public Sector Job	0.510	-0.268	0.111	0.078	-0.244	0.017
	(0.395)	(0.337)	(0.445)	(0.273)	(0.357)	(0.365)
Senior Job	-0.022	0.117	0.121	0.266	0.201	0.227
	(0.406)	(0.327)	(0.386)	(0.309)	(0.310)	(0.316)
CCP	1.065***	0.546	0.763**	0.806***	0.641**	0.080
	(0.379)	(0.365)	(0.363)	(0.266)	(0.319)	(0.322)
Income	-0.131	-0.023	0.048	-0.019	-0.140*	-0.070
	(0.110)	(0.086)	(0.118)	(0.081)	(0.080)	(0.080)
English Proficiency	-0.252	-0.282*	-0.084	-0.072	-0.377**	-0.012
	(0.154)	(0.150)	(0.185)	(0.123)	(0.148)	(0.143)
Social Media	0.134	0.390**	-0.131	0.136	0.183	-0.065
	(0.180)	(0.172)	(0.168)	(0.126)	(0.165)	(0.132)
Social Class	0.160*	0.118	0.080	0.134*	0.151*	0.183***
	(0.087)	(0.098)	(0.092)	(0.070)	(0.085)	(0.064)
Constant	7.761***	7.402***	8.516***	8.151***	9.741***	8.622***
	(1.270)	(1.247)	(1.152)	(0.935)	(1.230)	(0.861)
Observations	282	283	297	282	283	297
Adjusted R-squared	0.048	0.032	0.021	0.035	0.037	-0.007

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A10: Surveillance's Impact on Perceived Close Contact Risk and Lockdown Scale

	(1) Close Contact	(2) Close Contact	(3) Lockdown Percentage	(4) Lockdown Percentage
Dep. Var Mean	6.183	6.198	72.981	73.204
Distant x Surv.	0.846**	0.792**	-2.020	0.001
	(0.375)	(0.371)	(4.009)	(4.052)
Distant	-1.046***	-1.026***	2.931	0.938
	(0.280)	(0.276)	(2.918)	(2.980)
Surv.	-0.221	-0.191	-1.703	-2.716
	(0.252)	(0.250)	(2.856)	(2.810)
Ind. Ctrls				
Female		0.351*		-2.365
		(0.185)		(2.084)
Age		0.022		-0.113
		(0.014)		(0.136)
Education		-0.036		-0.118
		(0.043)		(0.511)
Minority		-0.234		3.836
		(0.369)		(3.765)
Religious		-0.006		-2.293
		(0.225)		(2.533)
Married		0.170		2.557
		(0.324)		(3.112)
Full-time job		0.033		1.462
		(0.331)		(3.391)
Public Sector Job		-0.140		-6.233*
		(0.280)		(3.386)
Senior Job		0.165		-1.434
		(0.252)		(2.777)
CCP		-0.040		-1.908
		(0.356)		(3.577)
Income		-0.079		-0.086
		(0.068)		(0.686)
English Proficiency		-0.152		-2.038*
		(0.101)		(1.139)
Social Media		0.062		2.586**
		(0.107)		(1.214)
Social Class		0.205***		0.774
		(0.065)		(0.633)
Constant	6.593***	5.687***	72.952***	74.370***
	(0.180)	(0.882)	(1.978)	(10.056)
Observations	591	565	591	565
Adjusted R-squared	0.023	0.085	-0.000	0.006

Robust standard errors are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A11: How Collectivism and COVID experience Modify the Treatment Effects

	(1)	(2)	(3)	(4)
Dep. Var.	Support: Lockdown	Support: Lockdown	Support: Lockdown	Support: Lockdown
Mean (out of 10)	7.753	7.701	7.753	7.701
Distant X Surv. X Collectivism	-0.129*	-0.161**		
	(0.072)	(0.074)		
Distant X Collectivism	0.072	0.108*		
	(0.052)	(0.057)		
Surv. X Collectivism	0.028	0.028		
	(0.053)	(0.054)		
Collectivism	0.032	0.030		
	(0.037)	(0.039)		
Distant X Surv. X COVIDdie			2.457**	2.795**
			(1.233)	(1.187)
Distant X COVIDdie			-1.839**	-2.323***
			(0.841)	(0.854)
Surv. X COVIDdie			-0.748	-0.709
			(0.831)	(0.772)
COVIDdie			-0.119	-0.088
			(0.395)	(0.414)
Distant X Surveillance	0.929**	0.893**	0.697*	0.623
	(0.368)	(0.368)	(0.390)	(0.394)
Distant	-0.762***	-0.831***	-0.592**	-0.615**
	(0.266)	(0.275)	(0.288)	(0.297)
Surveillance	-0.173	-0.210	-0.107	-0.148
	(0.244)	(0.245)	(0.254)	(0.260)
Ind. Ctrls				
Female		0.517***		0.361*
		(0.193)		(0.188)
Age		-0.004		-0.006
		(0.014)		(0.013)
Education		-0.028		-0.050
		(0.045)		(0.043)
Minority		0.556*		0.550*
		(0.329)		(0.318)
Religious		-0.306		-0.318
		(0.268)		(0.262)
Married		-0.020		0.155
		(0.307)		(0.303)
Full-time job		-0.101		-0.133
		(0.338)		(0.330)
Public Sector Job		0.202		0.147
		(0.268)		(0.270)
Senior Job		0.045		0.115
		(0.261)		(0.257)
CCP		0.670**		0.881***
		(0.278)		(0.253)
Income		-0.069		-0.084
		(0.067)		(0.068)
English Proficiency		-0.270**		-0.250**
		(0.105)		(0.107)
Social Media		0.284**		0.262**
		(0.124)		(0.122)
Social Class		0.145**		0.139**
		(0.063)		(0.061)
Constant	7.991***	7.853***	8.024***	8.336***
	(0.143)	(0.867)	(0.153)	(0.838)
Observations	591	565	591	565
Adjusted R-squared	0.040	0.086	0.035	0.081

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A12: Surveillance's Impact on other Outcome Measures

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Variable	Surveillance	COVID Surveillance	Protest Surveillance	City Code	Support: Lockdown	Support: Repression
Mean (out of10)	7.373	8.034	7.219	7.329	8.094	7.453
Distant x Surv.	1.016**	1.017***	1.229***	0.755*	0.876**	0.676*
	(0.414)	(0.367)	(0.403)	(0.440)	(0.354)	(0.405)
Distant	-0.553*	-0.618**	-0.388	-0.431	-0.374	0.009
	(0.298)	(0.279)	(0.289)	(0.306)	(0.265)	(0.293)
Surv.	-0.621**	-0.351	-0.496*	-0.497	-0.288	-0.242
	(0.291)	(0.244)	(0.288)	(0.313)	(0.253)	(0.284)
Ind. Cntrls						
Female	0.325	-0.009	-0.040	0.426*	0.162	0.193
	(0.208)	(0.190)	(0.209)	(0.220)	(0.180)	(0.204)
Age	-0.005	-0.009	-0.014	-0.000	-0.012	-0.009
	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.014)
Education	-0.040	-0.077	-0.092*	-0.052	-0.076*	-0.083
	(0.055)	(0.051)	(0.053)	(0.059)	(0.046)	(0.053)
Minority	0.584	0.660**	0.772**	0.726*	0.656**	0.312
	(0.382)	(0.334)	(0.340)	(0.380)	(0.276)	(0.389)
Religious	-0.081	-0.173	-0.257	-0.174	-0.129	-0.139
	(0.267)	(0.234)	(0.265)	(0.292)	(0.238)	(0.267)
Married	0.417	0.073	0.365	0.087	-0.081	0.099
	(0.361)	(0.318)	(0.366)	(0.373)	(0.322)	(0.352)
Full-time job	0.052	0.154	0.501	-0.277	-0.153	0.285
	(0.390)	(0.353)	(0.390)	(0.411)	(0.330)	(0.388)
Public Sector Job	0.004	-0.385	-0.072	-0.125	-0.339	-0.387
	(0.269)	(0.284)	(0.280)	(0.298)	(0.273)	(0.298)
Senior Job	-0.043	0.121	0.133	0.125	0.432*	0.250
	(0.284)	(0.256)	(0.279)	(0.295)	(0.252)	(0.264)
CCP	1.045***	0.581**	1.072***	1.102***	0.664***	1.021***
	(0.265)	(0.267)	(0.283)	(0.292)	(0.243)	(0.305)
Income	-0.111	-0.070	-0.008	-0.019	-0.128**	-0.018
	(0.071)	(0.067)	(0.075)	(0.076)	(0.062)	(0.073)
English Proficiency	-0.181	-0.155	-0.249**	-0.341***	-0.203**	-0.200*
	(0.117)	(0.103)	(0.113)	(0.128)	(0.101)	(0.108)
Social Media	0.139	0.277**	-0.005	0.001	0.284**	0.066
	(0.130)	(0.125)	(0.127)	(0.133)	(0.120)	(0.120)
Social Class	0.222***	0.134**	0.183***	0.283***	0.129**	0.141**
	(0.065)	(0.061)	(0.066)	(0.069)	(0.057)	(0.067)
Constant	7.489***	8.741***	8.257***	7.823***	9.306***	8.147***
	(0.988)	(0.970)	(1.025)	(1.045)	(0.895)	(0.962)
Observations	565	565	565	565	565	565
R-squared	0.072	0.054	0.098	0.090	0.070	0.062

Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A13: Testing Preference Falsification

VARIABLES	(1) Support: Lockdown	(2) Support: Policies	(3) Support: Repression	(4) COVID Surveillance	(5) City Code	(6) Self-Censor No Criticism	(7) Self-Censor No Answer
Anonymity	0.075	0.031	0.072	0.153	0.123	-0.215**	-0.172**
	(0.125)	(0.116)	(0.150)	(0.133)	(0.156)	(0.103)	(0.086)
Constant	8.095***	8.130***	7.327***	7.921***	7.336***	2.813***	0.844***
	(0.087)	(0.080)	(0.106)	(0.095)	(0.112)	(0.072)	(0.064)
Observations	1,085	1,085	1,085	1,085	1,085	1,085	1,085
R-squared	0.000	0.000	0.000	0.001	0.001	0.004	0.004

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

A2.5 Variable Definitions

Table A14: Variable Definitions - Survey Experiment

Variable Label	Question	Variable Coding
	Demographics	
Female	What is your gender?	1 = female; 0 = male.
Age	What is your year of birth [please fill in 4-digit integer]?	[calculated]
Province	Which province is your current residency?	[list of provinces in China]
Education	What is your highest level of education attainment?	1 = primary school; 2 = secondary school; 3 = vocational middle school; 4 = high school; 5 = junior college; 6 = college; 7 = master's; 8 = Ph.D.
Minority	What is your ethnicity?	0 = Han; 1 = otherwise.
Married	What is your marital status?	1 = married; 0 = otherwise.
English proficiency [1, 5]	What is your level of English proficiency?	1 = do not speak English at all; 2 = can say a few sentences; 3 = can speak and read a little; 4 = can manage conversations, but not fluently; 5 = can speak fluently.
Income category [1, 10]	What is your total disposable income, including salaries, stipends, and allowances?	10 categories, from low to high.
Religious	Do you have a religion?	1 = yes; 0 = no.
CCP member	What is your political affiliation?	1 = Chinese Communist Party; 0 = otherwise.
Self-reported social class [0, 10]	What do you think is your social class on a 0-10 scale?	0 = the bottom of the society; 10= the top of the society.
Having worked full-time	Have you ever had a full-time job?	1 = yes; 0 = no.
Public sector worker	What is the nature of your employer?	1 = SOEs or the government; 0 = otherwise.
Being reported to	In your job, are there any people who report to you?	1 = yes; 0 = no.
Govt has right: video surveillance	Do you think the government has the right to video surveillance of people in public places?	4-point Likert scale. 1 = absolutely no; 4 = absolutely yes.
Govt has right: email and online surveillance	Do you think the government has the right to monitor email and messages on the web?	4-point Likert scale. 1 = absolutely no; 4 = absolutely yes.
Govt has right: information surveillance	Do you think the government has the right to gather intelligence on all people living in this country	4-point Likert scale. 1 = absolutely no; 4 = absolutely yes.
Social media usage: get news	Do you usually get news information through social media, such as browsing WeChat, Weibo and other platforms?	1 = Never, 2 = Several times per month, 3 = Several times per week, 4 = Everyday
Social media usage: retweet	Do you usually retweet or comment on current political hotspots on social media?	1 = Never, 2 = occasionally, 3 = often, 4 = very frequently
Social media usage: criticize	Would you criticize unreasonable policies, regulations and systems on social media or forums?	1 = Never, 2 = occasionally, 3 = often, 4 = very frequently
Trust in central government	How much do you trust the central government ?	11-point Likert scale. 0 = absolutely no trust; 10 = completely trust.
Respect Human Rights	How much respect is there for individual human rights nowadays in this country?	4=very much; 3=respect; 2=not much; 1=not at all
	Liberty values	
Liberal values: component 1	In the long run, multiparty systems are unsuitable for China in its current state.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Liberal values: component 2	People should be allowed to post positive or negative comments on government policies on the Internet.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Liberal values: component 3	People should be restricted from gathering and participating in demonstrations in public places.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Liberal values: component 4	The government has no right to interfere in the decision to have a child, or how many children to have.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Liberal values: component 5	Military training arranged uniformly by the state is of little significance to middle school and college students.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.

Political opinion		
Political opinion: component 1	In the long run, our political system can solve the problems our country faces.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Political opinion: component 2	In this world, there are more advanced political systems than the current system in our country.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Political opinion: component 3	Broadly speaking, I am proud of our political system.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Political opinion: component 4	The epidemic has exposed my country's obvious shortcomings in information reporting and disclosure.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Political opinion: component 5	I would rather live under my country's political system than any other.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Political opinion: component 6	This question is to verify the seriousness of the answer. Please select the second option from the left. : This question is to verify the seriousness of the answer. Please select the second option from the left.	4-point Likert scale. 1 = strongly disagree; 4 = strongly agree.
Privacy		
Privacy: component 1	Ability to control who has access to information about you	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 2	No one watches or listens to you without your permission	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 3	Ability to control what information about you is collected	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 4	Resists being asked overly personal questions in social and work settings	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 5	Have enough alone time without being disturbed by others	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 6	Ability to share intimate things with people you trust	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 7	not be monitored while working	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 8	not to be disturbed at home	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 9	Ability to travel in public without always being identified	4-point Likert scale. 1 = totally unimportant; 4 = Very important.
Privacy: component 7	Cleared cookies and browser history	1-yes; 2-no.
Privacy: component 8	Opting out of this site because it requires real names	1-yes; 2-no.
Privacy: component 9	Deleted or edited content you previously posted	1-yes; 2-no.
Privacy: component 10	Have used a search engine that does not track your search history, such as Baidu browser's incognito mode	1-yes; 2-no.
Privacy: component 11	Refuse to provide personal information that is not relevant to the transaction, such as birthday	1-yes; 2-no.
Privacy: component 12	Have used a service that allows you to browse the web anonymously, such as a proxy server, Tor software, or a virtual private network (VPN)	1-yes; 2-no.

Collectivism		
Collectivism: component 1	I would rather rely on myself than on others.	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 2	My personal identity separate from other people is very important to me.	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 3	I do my job better than others and that's important to me	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 4	For me, winning is everything.	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 5	If a colleague received an award, I would be very proud of him.	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 6	For me, happiness is spending time with other people	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 7	Family members should stick together no matter what sacrifices are required.	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Collectivism: component 8	It is important to me to respect the decisions made by the group I belong to.	11-point Likert scale. 0 = absolutely disagree; 10 = totally agree.
Political knowledge		
Political knowledge 1	How many members are there in the Standing Committee of the Politburo of the Communist Party of China?	1 = 7; 0 = 5, 9, 15, Not sure.
Political knowledge 2	Which of the following people does not belong to the Standing Committee of the 19th Politburo of CPC?	1= Wang Qishan; 0 = Han Zheng, Zhao Leji, Li Zhanshu, Don't Know.
Political knowledge 3	Which of the following countries is not a permanent member of the UN Security Council?	1 = Germany; 0 = United States, China, Russia, UK, Not sure.
Political knowledge 4	During the past 5 years, what is roughly the average real GDP growth rate of China?	1 = 6\%; 0 = 3\%, 13\%, 20\%, Not sure.
Political knowledge 5	Which of the following is the current Prime Minister of France?	1 = Emmanuel Macron; 0 = Jacques Chirac, François Hollande, Nicolas Sarközy, Not sure.
Covid Experience		
Covid: infected	Have you ever been infected with the new coronavirus before the national lockdown is lifted in December 2022?	1 = yes; 0 = no.
Covid: close contact	Before the nationwide unblocking in December 2022, have you or your family members had the experience of being a close contact with the new crown?	1 = yes; 0 = no.
Covid: lockdown experience	Which of the following types of quarantines have you encountered in the past three years? (Multiple choice)¡br¿	1 = mandatory home quarantine; 2 = mandatory hotel quarantine; 3 = mandatory Fangcang quanrantine ;4 = no quarantine experience
Covid: lockdown measure	Do you think the lockdown measures implemented by my country in the early stage of the new crown epidemic are reasonable?	11-point Likert scale. 0 = completely unreasonable; 10 = perfectly reasonable.
Covid: family die	In the past few years, have any relatives or acquaintances of yours died of COVID-19 (with or without underlying medical conditions)?	1 = yes; 0 = no.
Covid: family die timing	If a relative or acquaintance around you passed away due to infection with the new crown, when did he/she become infected?	1 = before Dec. 2022; 2 = after Dec. 2022; 3 = both

Outcome Measures

Support govt policy	In general, do you agree with the policies, regulations and practices of our government.	11-point Likert scale. 0 = not support at all; 10 = fully support.
Reasonable: lockdown myself	Based on the information you have just read, do you think it is reasonable for you to be forced by the government to quarantine at home?	11-point Likert scale. 0 = absolutely unreasonable; 10 = completely reasonable.
Reasonable: arrest myself	Do you think it was reasonable for the police to take you away for questioning in the situation you had just read?	11-point Likert scale. 0 = absolutely unreasonable; 10 = completely reasonable.
Reduce outing	If you are still in the epidemic prevention and control period, will you minimize your outings because you are worried about being listed as a close contact?	1 = certainly not; 2 = probably not; 3 = maybe yes; 4 = definitely will
Re-install Trip Code	The current new crown is still popular. If the government wants to monitor the spread of the new crown and encourage everyone to install the trip code again, but the installation is purely voluntary, would you like to install it?¡br¿	1 = very reluctant; 2 = not willingly; 3 = somewhat willingly; 4 = very willingly
Reasonable: lockdown others	Do you think it's reasonable to require mandotary home quarantine to covid close contacts?	11-point Likert scale. 0 = absolutely unreasonable; 10 = completely reasonable.
Reasonable: contact tracing using DS	Do you think it is reasonable to use digital surveillance for contact tracing?	11-point Likert scale. 0 = absolutely unreasonable; 10 = completely reasonable.
Support: city code	Do you support the use of City Code?	11-point Likert scale. 0 = not support at all; 10 = fully support.
Support DS: general	Do you support the government's use of digital technology to monitor citizens?	11-point Likert scale. 0 = not support at all; 10 = fully support.
Support DS: macro data	Do you support the government's use of digital technology to monitor macro data, such as public opinion trends, population flow trends, etc.	1 = not support at all; 2 = somewhat not support; 3= somewhat support; 4 = fully support
Support DS: online speech	Do you support the government's use of digital technology to monitor internet speech?	1 = not support at all; 2 = somewhat not support; 3= somewhat support; 4 = fully support
Support DS: surveillance camara	Do you support the government's use of surveillance camara?	1 = not support at all; 2 = somewhat not support; 3= somewhat support; 4 = fully support
Support DS: face recognition	Do you support the government's use of camera face recognition technology?	1 = not support at all; 2 = somewhat not support; 3= somewhat support; 4 = fully support
Support DS: health code	Do you support the government's use of Health code to monitor personal health?	1 = not support at all; 2 = somewhat not support; 3= somewhat support; 4 = fully support
Support DS: trip code	Do you support the government's use of Trip Code to track individual's movement?	1 = not support at all; 2 = somewhat not support; 3= somewhat support; 4 = fully support
Discuss protests online	If some netizens were discussing the previous covid lockdown policy on the Internet, would you participate in the discussion?	1 = certainly not; 2 = probably not; 3 = maybe yes; 4 = definitely will
Repost	Will you repost WeChat or Weibo articles related to these discussions?	1 = certainly not; 2 = probably not; 3 = maybe yes; 4 = definitely will
Reasonable: arrest protesters	Do you think it is reasonable for the police to arrest the anti-lockdown protesters?	11-point Likert scale. 0 = absolutely unreasonable; 10 = completely reasonable.
Support antilockdown protesters	If some netizens called for support for these arrested anti-blockade activists, would you be willing to express support on social media?	1 = willingly; 2 = unwillingly.
Support DS: track protesters	Do you support the police to use digital surveillance to identify and track down anti-lockdown protesters?	11-point Likert scale. 0 = not support at all; 10 = fully support.
Estimate: lockdown percent	Please estimate, in the situation you had just read, what proportion of residents in your community are forced by the government to quarantine at home? [Please slide the percentage slider]	[0-100]
Estimate: probability close contact	Please estimate, in the situation you had just read, how likely do you think you are indeed a close contact?	11-point Likert scale. 0 = absolutely unlikely; 10 = completely likely.
Estimate: crackdown percent	Please estimate, in the situation you had just read, what proportion of the people at the scene were taken away by the police for questioning? [Please slide the percentage slider]	[0-100]

Table A15: Variable Definitions - WVS and Experiment

Variable Label	Question	Variable Coding
Total # of high and midrisk areas in 10k	NA	
Total # of highrisk areas in 10k	NA	
Total # of midrisk areas in 10k	NA	
Population in 10k	NA	
GDP in 10k	NA	
Mobile users in 2022	NA	
Age	NA	
Sex	NA	1=male; 2=female
Educ: primary school and below	NA	1=yes; 0=no
Educ: highschool, above primary, below college	NA	1=yes; 0=no
Educ: college and above	NA	1=yes; 0=no
Social Class	People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging one of them?	5=highest; 1=bottom
Respect for human rights	How much respect is there for individual human rights nowadays in this country?	4=very much; 3=respect; 2=not much; 1=not at all
Trust in central government	I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? The government (in your nation's capital)	4=very much; 3=trust; 2=not much; 1=not at all

Appendix References

Davis, Darren W and Brian D Silver. 2004. "Civil liberties vs. security: Public opinion in the context of the terrorist attacks on America." *American journal of political science* 48(1):28–46.