Hidden Information and Public Support for Social Credit Systems in China*

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Abstract

Created in a civil-law tradition, China's social credit systems (SCSs) may shape citizens' social and political life in a dangerous direction. Yet opinion surveys find overwhelming public support for SCSs. We explain this puzzle by arguing that citizens are inherently uninformed about SCSs' repressive potential because of the secret nature of targeted repression that SCSs entail and government information control through propaganda and censorship. Using a survey experiment with a sample of 750 college students in three regions in China, we show that revealing SCSs' repressive potential significantly reduces support for SCSs, but emphasizing SCSs' social-order-maintenance function does not increase support. Evidence from the field survey and a nationwide survey of over 2,000 Chinese netizens further shows that state media increases support for SCSs. Overall, our findings imply that the hidden information concerning SCSs' repressive nature makes citizens more vulnerable to government power abuse.

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1 Introduction

While the technological advancements in metadata collection and artificial intelligence (AI) have made people's life much more convenient, they provide governments and big tech companies with powerful new tools to intervene in society. Over the past decade, the Chinese government and e-commerce companies have developed various forms of social credit systems (SCS) that reward and punish citizens, organizations, and companies based on the assessments of their "trustworthiness". Through advanced surveillance technologies, an SCS collects tremendous information on citizens' personal, financial, behavioral, and even political conduct to construct social scores for citizens (Wang 2017).[1] Low-credit citizens are banned from flights, high-speed trains, hotels, good schools, social benefits, government jobs, etc. The SCS has raised a concern that China is turning into an Orwellian surveillance state because this system enables the government to monitor and shape every aspect of citizens' life.[2] Yet, opinion surveys find incredibly high levels of public support for the SCS in China (Kostka 2019). Why Chinese citizens support a powerful surveillance tool that could potentially impose substantial political costs on them? This paper argues that citizens in an authoritarian regime are inherently uninformed about the SCS's repressive potential due to the secret nature of repression through social scoring and government information control.

A weak rule of law is common in authoritarian systems because dictators are reluctant to tie their own hands with independent judiciaries and legislatures. It often results in widespread corruption, incivilities, violations of contracts, and social distrust in authoritarian societies.[3] Because citizens and dictators all desire better law and order, a social-scoring

[1]Note that different local governments and e-commerce platforms have different social credit systems in China, but hereafter we use "the social credit system" to represent government-run social credit systems in general.

[2]Numerous academic and news articles expressed such a concern. See, for example, Hoffman (2017); Liang et al. (2018); Jiang and Fu (2018).

[3]The link between institutional checks on executive discretion and rule of law is a canonical

system that rewards law-abidance and punishes violations seems to be a viable option. With the help of big data technology, China's social credit system was created to promote social order and foster trust in society. This order-maintenance function is an important reason behind public support for the SCS in China. However, despite its promised social-order-maintenance function, the SCS is of great repressive potential. The SCS follows a civil-law tradition because the social score "judges" are sovereign-controlled entities such as courts, state-owned banks, police, and various government bureaus. Besides, most of these social-score "judges" are extralegal entities (except for courts), which means violations are punished outside the legal system. Precisely for the reason behind the weak rule of law in dictatorships, these entities have unconstrained power to abuse the SCS for political repression. For example, Chinese local governments have used the system to blacklist journalists and repress protesters (Gan 2019; Wang 2017). Abundant evidence suggests that repression through the SCS is common. What makes the SCS particularly attractive to an authoritarian government is that repression under the SCS is intrinsically secret.

The SCS is essentially a digital surveillance system because generating social scores for individual citizens requires massive information concerning citizens' social, personal, financial, and political activities. With the detailed information collected, the government can more easily identify political opponents for targeted repression. Punishment through the SCS is easy because the government can simply lower an individual's score to restrict her access to a variety of services and benefits or to elicit social sanctions.[4] Unlike overt, indiscriminate repression that often causes citizen backlash, targeted repression under the SCS

argument in political science and economics (e.g., Hayek 1973; North and Weingast 1989; Olson 1993). Empirical evidence also finds that democracy is associated with better rule of law when economic inequality is lower (Sunde, Cervellati and Fortunato 2008).

[4]Way and Levitsky (2006) define low-intensity repression broadly to indicate the state's various efforts to suppress opposition activity. Punishment through the SCS clearly fits into this category.

takes low-intensity forms and is usually *invisible* to the public and hence less provoking.[5] Moreover, citizens' information problem is further exacerbated by information control in dictatorships. Censorship helps the government conceal targeted repression even if repression cases are revealed. Government propaganda portraits the SCS as an effective tool for fostering trustworthiness in society. Both types of information control can prevent citizens from knowing the SCS's repressive potential. As a result, citizens are severely impeded from knowing the SCS's repressive potential.

The hidden information concerning the SCS's repressive potential is of crucial importance for understanding public opinion about the SCS because it affects citizens' calculation of *perceived* benefits and costs. In other words, citizens support the SCS because they know its social-order-maintenance benefits but lack information about its repressive potential. Thus, revealing information concerning the SCS's role in political repression should decrease public support, but reminding citizens the SCS's role in social order maintenance should not further increase their support because such information is dominant in media and society. We conduct a field survey experiment with a sample of over 750 college students in three regions of China to test this information argument. Individuals are randomly assigned to different information treatments about the roles of the SCS: social order maintenance, political repression, or both. The findings from the experiment are consistent with our predictions.

To further test this information mechanism, we examine the heterogeneous effects of the repression information treatment among citizens with different levels of information. Because the social credit system has not been implemented nationwide, a majority of citizens only know about the SCS from state media outlets and/or other indirect sources. This allows us to construct a proxy for citizens' informativeness. We find that the treatment effect of repression information is larger on less informed citizens, i.e., citizens who obtained information *only*

[5]Unless the government want to publicize some cases to discourage future violations, which are often not related to political repression.

from state media.

One might be concerned that the repression information treatment may not reflect the reality of SCS practice in China. Had the government not used the SCS for political repression, the reason behind the reduced support in our experiment would not be citizens' lack of information but this unrealistic framing. We address this concern from three aspects. First, we discuss the logic behind potential power abuse through the SCS and argue that preventing local governments from using the SCS for repression is almost impossible (Section 2). Second, we provide anecdotal evidence that the repression of journalists, protesters, human rights lawyers, and political activists through the SCS is quite common among Chinese localities (Section 3). Third and more importantly, we show that revealing the SCS's repressive potential has a weaker effect among better-informed individuals (Section 4.2), which suggests that some citizens may have already known the SCS's repression function. These heterogeneous effects highlight the role of information in public opinion formation concerning the SCS in China.

We further explore the role of information on citizen's support for the SCS by looking at state information control and citizens' tendency to isolate discredited peers. State media, China's propaganda outlets, provides abundant information on the SCS's social-order-maintenance functions but conceals its repressive potential. Using the field survey and a nationwide survey of over 2,000 Chinese Internet users, we find that citizens are more likely to support the SCS if they obtained information about the SCS from state media. The finding is not driven by individuals' risk preferences, insecurity, obedience, and social desirability bias. We further find that citizens' support for the SCS is positively associated with their tendency to isolate discredited friends. After testing against individuals' credulity and risk preference, we tentatively interpret this relationship as caused by individuals' lack of information about repression under the SCS because staying away from low-credit peers make individuals less likely to discover repression behind those low credits.

This paper contributes to a growing body of literature on state surveillance and re-

pression. In the past two decades, the world has witnessed a rapid expansion of digital surveillance in dictatorships such as Russia (Haraszti et al. 2010, p. 27), Turkey (Çelik 2013), Egypt (Gohdes 2014, p.34), Bahrain (Marczak et al. 2014), and Syria (Gohdes 2014, p.91). Technologies such as spyware, metadata collection, high-resolution cameras, facial recognition, and artificial intelligence have empowered dictators to identify demonstrators and political opponents for targeted repression (Gunitsky 2015; Xu 2020). While previous studies have examined the various impacts of digital surveillance on state and society, we know much less about citizens' attitudes toward surveillance. This paper shows that citizens in dictatorships may actually support digital surveillance (e.g., the social credit system) when its repressive potential is invisible to the public. This invisibility partially explains why in authoritarian countries digital surveillance has rapidly expanded without encountering much resistance from citizens.

Since the onset of the big data era, there has been voluminous literature on how data and AI technologies transform people's economic, social, and political lives (e.g., Jones and Tonetti 2019; Liu 2018; Beraja, Yang and Yuchtman 2020). More recently, China's social credit systems have received considerable attention in both media and academia (e.g., Engelmann et al. 2019; Kostka 2019; Wang 2017). From a theoretical perspective, Tirole (2020) develops a comprehensive model to explore the good and evil aspects of social score systems. A particular insight from Tirole's model is that social score systems enable the state to leverage social sanctions to suppress dissent or force citizens to conform to its rules. Empirically, Kostka and Antoine (2019) find that citizens reported behavior changes in response to the SCS in China, suggesting that the SCS is a powerful tool of social engineering. This paper contributes to the literature by highlighting the SCS's civil-law tradition and the hidden information concerning its repressive potential. These are important reasons why the SCS can be easily abused for political control, which attracts lots of attention but has yet to be explained in the existing literature.

The theory and evidence from this paper speak to the massive literature on the liberty-

security trade-off (e.g., Davis and Silver 2004). Recently, Bryant and Esarey (2019) find that voters do not punish elected officials for violating human rights in the U.S. Conrad et al. (2018) show that American support for torture increases with repression. Dietrich and Crabtree (2019) suggest that citizens are willing to support the state violating their rights in exchange for the promise of greater security. A common argument in this literature is that citizens sacrifice freedom for security and thus support state coercion, especially when they do not consider themselves victims of state coercion. This paper adds to the existing literature in three important ways. First, it highlights that citizens may have insufficient information about the political costs of state coercion. Second, it finds that citizens decrease support for coercion even if the information revealed that *other* citizens (not themselves) suffer the political costs. Third, the evidence in this paper suggests that public opinion on state coercion is prone to state information control.

This paper is also related to the large literature on state repression in dictatorships. Scholars distinguish between "high intensity" repression such as publicly visible acts targeting elite opposition leaders, larger groups of citizens, or opposition organizations and "low intensity" repression targeting individual dissidents with physical, financial, or psychological coercion (Way and Levitsky 2006). In stable dictatorships, low-intensity, targeted repression is more frequently used as an everyday tool of repression to control dissent (Dragu and Przeworski 2019; Truex 2019) than "high intensity" repression due to the latter's huge costs (Way and Levitsky 2006; Sullivan 2016). Recent studies have established the link between digital surveillance and low-intensity repression (Gohdes 2015; Xu 2020). This paper contributes to the literature by highlighting the role of social scoring systems in state repression and emphasizing the secret nature of this type of repression.

It is important to note that although repression practice through China's SCS is quite evident, it has yet to become an Orwellian-style repressive tool. We do not advance that a big-data enabled social scoring system inevitably leads to dystopic outcomes. Besides, department conflicts, data quality and standardization issues, and firm interests in data

protection may hamper the government's effort in developing an integrated nationwide SCS in China. Nevertheless, our findings imply that the government can take advantage of citizens' lack of information and use the SCS for more intensive repression without encountering much resistance from society. The risk of abuse is substantial because the SCS is an extension of a "civil-law" system in which most social score "judges" are government entities with unconstrained power. In authoritarian regimes where the government constantly faces the threat of mass mobilization and constraints on the executive are ineffective, the secret nature of repression under the SCS and the enormous power of social scoring in shaping citizens' behavior would make the SCS an ideal tool for political control.

2 Theory and Hypotheses

In this section, we focus on some key theoretical concepts of the SCS in China while leaving its policy background to the next section. Although China's SCS is relatively recent and unique, examining it is important for understanding social scoring systems in authoritarian settings.

The SCS's Civil-Law Tradition and Repressive Potential

A weak rule of law is an intrinsic feature of authoritarian regimes. Unlike Western democracies where legal development involved legislatures and independent judiciaries that ultimately constrain executive discretion, authoritarian regimes are reluctant to create well-functioning legal infrastructure since an independent legal system likely makes the dictator worse-off (e.g., by threatening the dictator's privileges or raising the likelihood she will be replaced) (Liu and Weingast 2017). Consequently, authoritarian societies are struggling with incivilities, corruption, fraud, contract enforcement problems, high transaction costs, and widespread mistrust among citizens. From the dictator's perspective, the weak rule of law stagnates economic growth, makes tax collection harder, and hence reduces her economic rent. It also encourages citizens' non-compliance and increases the costs of governance. Citizens and the dictator in authoritarian regimes thus all crave better law and order and

must look for alternatives to the Western-style legal development.

In the digital age, the development of big data and artificial intelligence provides authoritarian governments with new opportunities to improve law and order. Scholars argue that the dictator could delegate market-preserving legal infrastructure to the private sector, particularly large e-commerce platforms such as Taobao in China (Liu and Weingast 2017). Taobao's crowd-sourcing jury system mimics a common law system in which disputes between traders are resolved by *independent* juries randomly selected from a pool of nearly two million volunteer Taobao users. Yet, as Liu and Weingast (2017) point out, this institutional innovation merely applies to the traditional areas of private law—property, contracting, and torts—and to online e-commerce platforms only. This is because independent judiciaries from the common-law tradition would eventually challenge the authoritarian government had the system expanded to the areas of public law, especially administrative law and citizen rights. Thus, the authoritarian government must look for solutions beyond the common-law tradition to improve order in society. China's social credit system is created in a *civil-law tradition* with the help of big data and mass surveillance to enforce the law and maintain social order.

Glaeser and Shleifer (2002)'s seminal study on legal origin distinguishes between the (English) common law system and the (French) civil law system by *independent juries* versus *sovereign-controlled judges*, with the latter imposing less constraint on executive discretion. As detailed in the following section, the "social-score judges" (i.e., court judges and officials in various bureaus) in the SCS are similar to *sovereign-controlled* judges in civil law systems but with even more discretionary power. The essence of the SCS is to reward and punish citizens through social scores that are evaluated by *state entities*, such as courts, banks, police departments, and local bureaus. Although local courts can assign credits based on court judgments, *extra-legal entities* (e.g., bureaus) are in charge of a variety of other credits such as traffic violations, outstanding debts, firms' failing to pay wages, and even minor rule violations like using expired tickets, smoking on a train, and jaywalking. Empowered by

mass surveillance and AI but lacking independent "juries" to constrain government officials, the SCS has great potentials to be abused for political repression.

The Secret Nature of Repression under the SCS

Political repression is the act of a state entity controlling a citizenry by force for political reasons (Davenport 2007). But repression does not come without costs. It may undermine regime legitimacy, reduce citizen cooperation, and cause anti-regime backlash (Aytaç, Schiumerini and Stokes 2018; Daxecker and Hess 2013). To mitigate these costs, dictators around the world often conceal or legitimize the use of repression against citizens. For example, the authoritarian governments framed the protest crackdowns of Rabiaa al-Adawiya Square in Egypt and Fergana Valley in Uzbekistan as counterterrorism to gain public support for bloody crackdowns (Edel and Josua 2018). Here we argue that the secret nature of repression under the SCS and government information control could greatly impede citizens from knowing its repressive potential.

First of all, a social scoring system combines information collection and individualized punishment that allows the state to conduct invisible, targeted repression against individuals. To generate a social score for each citizen, the system gathers tremendously detailed information from a variety of sources such as banks, courts, police departments, transportation bureaus, communities, commercial firms, and even social media platforms. The detailed information allows the government to identify regime opponents for targeted repression (Xu 2020). In addition, individualized punishments such as a ban on air travel can help the government efficiently tailor targeted repression for each dissident. As we shall discuss in the next section, Chinese local governments frequently use the SCS to restrict the movement and actions of dissidents and political activists. Unlike overt, indiscriminate repression against a large population that often provokes anti-regime sentiments, the individualized, targeted repression facilitated by the SCS can be easily hidden from the public. It is this invisibility that makes the uncovering of the SCS's repressive potential particularly difficult.

In addition, information control in authoritarian regimes could further exacerbate the

citizens' information problem. Nearly all dictatorships engage in some sorts of information control. A great number of authoritarian regimes censor online and offline expression (Gunitsky 2015); information that could stimulate collective action, including targeted repression against opposition leaders, is often singled out for censorship (King, Pan and Roberts 2013). With the implementation of the SCS, it is very likely that the government will censor information related to targeted repression under the SCS. In addition, dictatorships often employ propaganda to influence public opinion (King, Pan and Roberts 2017). It is natural for the government to frame the "social credit" system as a tool for social order maintenance instead of political control. As scholars show, framing significantly alters people's beliefs (Chong and Druckman 2007) because individuals often base their opinions on available and accessible considerations without conscious deliberation (Tversky and Kahneman 1973). Thus, government information control through censorship and propaganda will make citizens even more uninformative about the repressive potential of the SCS.

The secret nature of repression under the SCS has important implications for public opinion toward the SCS. Citizens may support a coercive tool such as the SCS when it helps maintain social order but disapprove of it when it enhances the regime's political control. Whether citizens support the coercive tool depends on its social benefits against potential political costs. However, studies of public opinion have long questioned citizens' competence in understanding complicated political discourse due to limited information available to them (Converse 1964). Citizens' attitudes toward a particular coercive tool are actually based on their "perceived" benefits and costs, which is subject to citizens' information problem. Our key argument is that citizens in authoritarian regimes are unlikely to uncover the repressive potential of the SCS because repression under the SCS is targeted and largely invisible as well as is concealed by government censorship and propaganda. On the other hand, citizens are very much aware of the SCS's trust-fostering and social-order-maintenance functions as they have been clearly stated in the SCS plan's objectives and widely covered in Chinese media (Kostka 2019). Perceiving very low political costs but high social benefits, citizens

thus strongly support the SCS in China.

To sum up, citizens in authoritarian regimes are well aware of the social benefits of the SCS but are unlikely to uncover state repression behind the system. Thus, they should be sensitive to information revelation concerning the SCS's repression function instead of its social-order-maintenance function.

H1. *Information Hypothesis: Revealing the SCS's repressive potential decreases citizens' support, but providing information on the SCS's social-order-maintenance role should not further increase citizens' support.*

As we discussed, citizens' support for the SCS is likely due to the invisibility of targeted repression, which can be exacerbated by government information control. This leads to the following testable prediction.

H2. *Propaganda Hypothesis: Citizens are more likely to support the SCS when their information about the system is obtained from state media outlets.*

3 Social Credit Systems in China

The Chinese government has long realized the potential of social credit systems in steering citizen behavior. An early concept of the SCS emerged in 1991 as a government strategy to address problems in the financial sector (Liang et al. 2018). Later, several local governments initiated local SCSs to experiment with various credit systems. In 2014, the Planning Outline for the Construction of a Social Credit System was published by the State Council. This 2014 plan outlines a legal and regulatory framework for implementing a national SCS by 2020.

The functions of the social credit systems in China reach far beyond financial regulation.[6] After the publication of the 2014 Planning Outline, many local governments responded by

[6]Several well-known commercial social credit systems (e.g., the Zhima Credit and Tencent Credit) were introduced by private firms to facilitate economic transactions following the China Central Bank's Notice on the Preparation of a Personal Credit Service.

devising pilot SCSs in their precincts. By 2018, 43 city governments had implemented SCS pilot programs (Figure 1). These government-run SCSs are intended to be mandatory for all citizens or targeted groups (Kostka and Antoine 2019). To steer the behavior of individuals, businesses, and organizations, local governments publish redlists to reward "trustworthy" behavior and blacklists to punish "untrustworthy" or illegal behavior. The criteria for "social credits" are based not just on the lawfulness, but also on the morality of citizens' actions, covering economic, social, and *political* conduct (Creemers 2018). Potential punishment of the SCSs includes banning blacklisted individuals from flights and fast trains, throttling their Internet speeds, banning them (or their children) from the best schools, stopping them from getting jobs, banning them from the best hotels, and/or publicly shaming them as bad citizens.

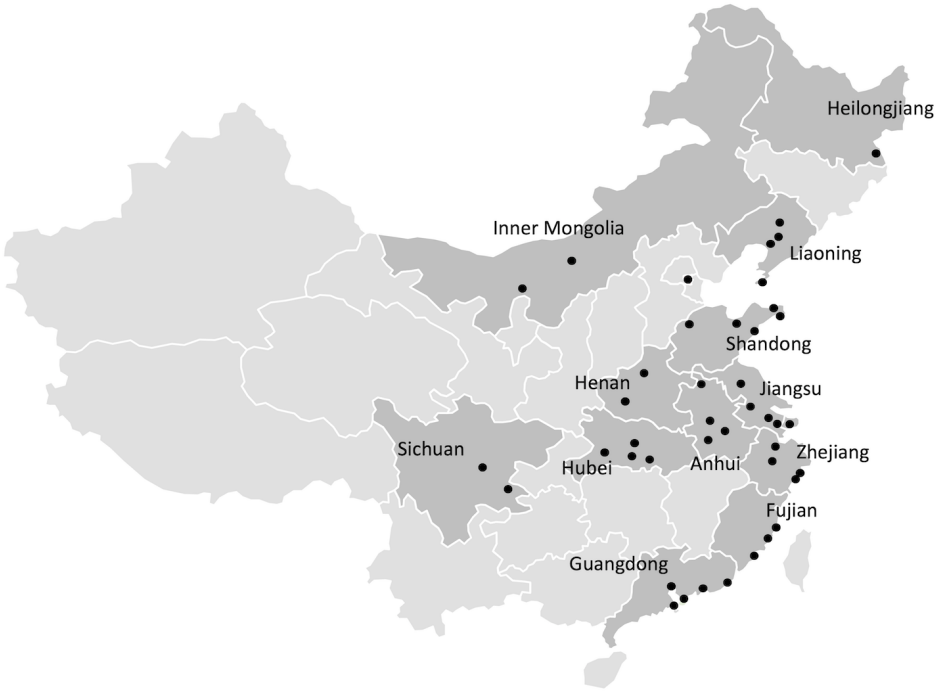

Figure 1: The Distribution of SCS Pilot Counties/Cities
Source: Chinese National Development and Reform Committee.
The map is made by the authors.

There is an ongoing debate concerning the motivations behind the Chinese government's promotion of social credit systems. Much of the media coverage and scholarly work on the

SCSs are negative, criticizing the government's political motives and calling the SCSs a sign of "digital dystopia" with a potential for totalitarian control. But some scholars tend to view the SCSs as the government's efforts in maintaining social order and building trust in society. Despite these competing views, scholars agree that Chinese society does have many trust issues, be it contract failures, unpaid debts, food safety scandals, pollution, corruption, or employers not paying their workers. The aforementioned 2014 plan has many parts that aim to construct government sincerity, commercial sincerity, social sincerity, and judicial credibility. If properly implemented, as suggested by Chorzempa, Triolo and Sacks (2018), the plan will raise governance transparency, foster trust in the government and among citizens, as well as increase economic growth. From the plan and the early development of the SCSs, it looks like the Chinese government indeed considered this system a tech-enabled solution to social problems caused by the weak rule of law in China.

Although the current pilot SCSs are claimed to regulate financial and social behavior, political repression through the SCSs is particularly worrisome because most categories in social scoring are decided and evaluated by government entities with largely unconstrained power. Records of contract violations and unpaid debts come from local courts and banks (these entities are part of the government in China's political system). Investigations of food safety, drug safety, pollution, traffic violation, and employment disputes are the responsibilities of various local government bureaus. Journalists' and lawyers' behavior is judged by the police, courts, and probably propaganda departments. Petitioners' and protesters' records are also tracked by local police, street offices, and local bureaus of Letters and Calls. In addition, local SCSs are often managed by local branches of the Political and Legal Affairs Commission—local governments' powerful coercive apparatus in charge of law enforcement and judicial systems. Moreover, most of these bureaus and departments are extralegal entities (except courts). When violations are punished outside the legal system, there is no presumption of innocence, no judges, no legal representation, no due process, and often no appeal.

A snapshot of the Zhenjiang Government's social credit blacklist shows that all the cases are based on the judgments of government bureaus or other state entities.[7] Like sovereign-controlled judges in a civil-law system, these state entities have sufficient discretionary power to abuse the SCSs for repression. Observers of China's social credit systems have long expressed concerns over government abuse of the systems for various types of political repression (Hoffman 2017; Liang et al. 2018; Jiang and Fu 2018). Even had optimistic commentators such as Chorzempa, Triolo and Sacks (2018) warned that "based on China's record of regulating political speech and other activities, there is no doubt that it could also be abused for social control, prying into every aspect of Chinese citizens' lives and automatically punishing those who don't toe the party line."

In fact, after the launch of the 2014 plan, the Chinese government soon realized the SCSs' great potential for political control. It uses social credit systems to blacklist journalists and human rights lawyers who criticized the government (Wang 2017). Local governments also use the SCSs to repress protesters and petitioners. There are records of blacklisted petitioners on some local social credit system websites.[8] Evidence suggests that repressing dissidents through SCSs has been widely implemented among Chinese local governments as many of them have incorporated petition rules into their social credit systems.[9] In those

[7]See: http://cxyz.yangzhou.gov.cn/gjbslist.do?channelId=sxhb.

[8]For example, Yangzhou Government initially listed several petitioners on its social credit website, see http://cxyz.yangzhou.gov.cn/detail.do?contentId=ffcdee870364484fafb5e13951cbea54&channelId=sxhb, which can be found through Google Search but were removed from the index of the government's online blacklist for some unknown reasons.

[9]See, for example, the Rule for Managing Seriously Untrustworthy Petitioners through Social Credit issued by Zhenjiang Government at the link: http://www.zjna.gov.cn/ycapp/nrglIndex.action?catalogID=4028d0dd4b4904ee014b529e75de02ae&type=2&messageID=297edff865b20bb20165b2fa1cb50054. Also see a similar rule in Rongcheng City from a news

localities, petitioners who fail to follow local governments' "procedures" will be stripped of social credits or even downgraded. Violations of "procedures" include petitioning near the site of big meetings at the central or local government level, pleading one's case in "sensitive areas" in Beijing, "making trouble" on the Internet, and getting contacted with foreign media, etc. Some local governments further include "Falungong", a religious practice that has long been repressed by the Chinese government, into the punishment scheme of their social credit systems.[10] As the SCSs are getting implemented widely in China, evidence of political repression under the SCSs is paramount.

To many observers' surprise, the SCSs enjoy a high level of domestic support in China. Opinion surveys find that almost 80% of respondents either somewhat approve or strongly approve SCSs (Kostka 2019). Scholars attribute this high level of support to the lack of social trust in China: 76 percent of respondents indicated that a general lack of trust in Chinese society was problematic (Kostka 2019). Indeed, Chinese citizens likely see social credit systems as a helpful tool to increase trustworthiness in society. Yet, an overlooked fact is that they know little about the repressive potential of the SCSs. The following sections provide quantitative evidence on how this information asymmetry influences public opinion toward the SCSs in China.

4 Informational Cause of Support for the SCS: Experimental Evidence

Our key argument is that citizens support the SCS because they are uninformed about its repressive potential but merely consider it as a tool for social order maintenance. This implies that revealing the SCS's repressive potential in an experimental setting should re-

report (Gan 2019).

[10]See Rongcheng Municipal Measures on the Management of Members of Society's Credit Points and Credit Assessments at https://www.chinalawtranslate.com/en/rongeng-society-members-credit-scoring-and-credit-appraisal-management-measures/.

duce citizens' support for it, but showing its order-maintenance function should not further increase the support because the government has already done so in real life (H1). We use a field survey experiment to test this hypothesis.

4.1 Field Survey Experiment

Field Survey in Three Universities

In March 2019, we conduct a field survey among students in three universities in East, North, and West China. We choose three regions to broaden sample representativeness. Figure 2 plots the sample distribution by students' home provinces. The fact that college students come from different provinces all over China further increases the regional representativeness of our sample.

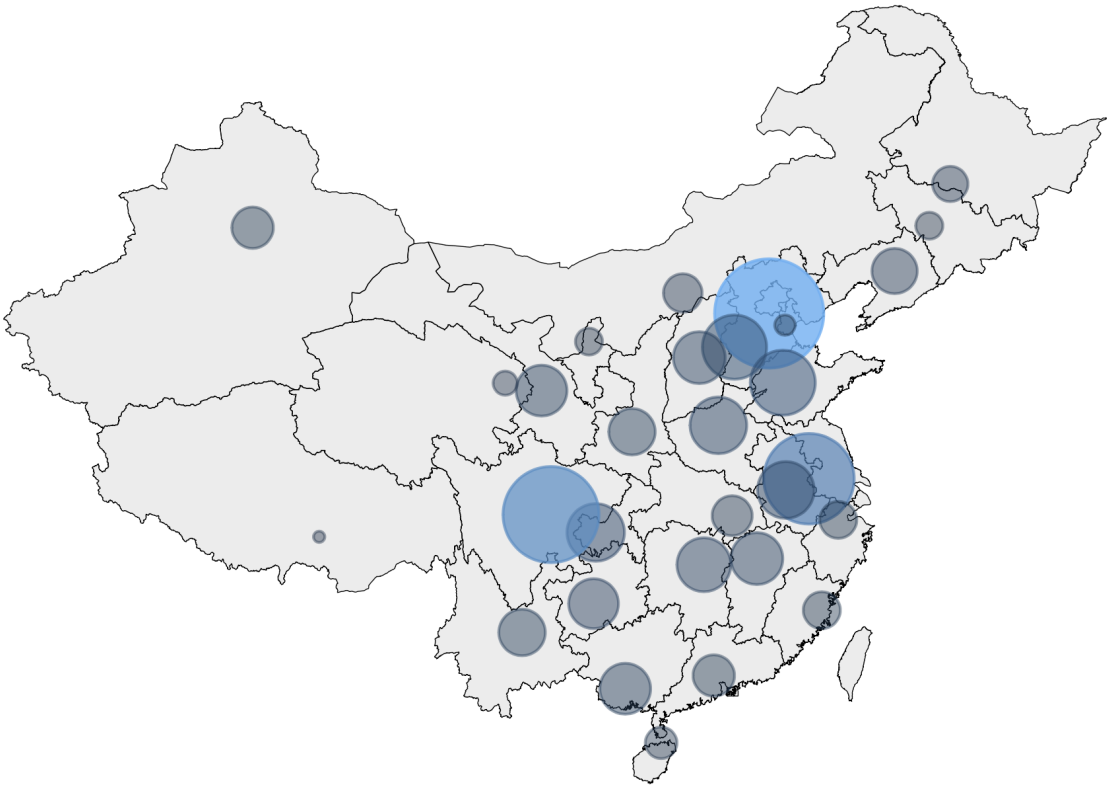

Figure 2: Sample Distribution by Respondents' Home Provinces

Among the three universities, two are top-ranked and one is ranked slightly lower. We choose elite college students because this demographic group best fits our purpose to examine

the impact of information on support for SCSs. Elite college students in China are selected to be technologically savvy and intellectually curious. Besides, many of our study participants come from advantaged backgrounds with more knowledge about government policies and politics in China. Thus, the students in our sample are likely more informative about SCSs than other demographic groups even prior to the experimental intervention. Moreover, students from advantaged backgrounds may benefit more from the regime at its status-quo so that they are more likely to support a tool that may protect the status-quo. Previous studies indeed find that education is positively associated with support for SCSs (Kostka 2019). Thus, if we find that revealing SCSs' repressive potential decreases support from the student sample, the effect would be even larger for other Chinese citizens. Nonetheless, one should be cautious when generalizing our results to other demographic groups in China.

In this survey, we ask questions regarding the repressive nature of the SCSs, but the level of sensitivity is within the range of government tolerance because we use the information found on state media websites. Conducting the survey experiment on a potentially sensitive topic in the field circumvents censorship that may be present in China-based online survey platforms. It also helps create trust and cooperation from respondents. More importantly, since we plan to ask individuals' attitudes toward the repression of *online* criticism, respondents answering surveys online may self-censor to avoid state surveillance. An anonymous field survey avoids this problem because respondents answer questions on paper questionnaires that do not record any identifiable information. Section A.1 in the Online Appendix addresses ethical concerns in detail.

The enumerators conducted the survey in dining halls and main roads between classroom buildings and residential halls. For a convenience sample, respondents were recruited in those areas to represent the student population better than in dormitories or classrooms because all students come to dining halls and main roads regardless of their major, gender, and grade level. In addition, enumerators actively walked around all areas of the survey locations to increase sample representativeness.

Survey questionnaires require five to ten minutes to complete. Respondents were requested to complete the questionnaire independently to minimize potential spillover effects of the treatments. Each student received five Chinese Yuan (about 0.75 USD) as compensation for their time. The enumerators first asked students whether they were willing to participate in an *anonymous* survey, and, if they agreed, the enumerators then presented the five-Yuan compensation to them and gave them the questionnaires in random order. Roughly 50% of the students approached by enumerators agreed to participate. This response rate is within the normal range for a field survey. In addition, most of the non-respondents refused to participate even before the enumerators explained the survey topic to them – their unwillingness to participate was thus not due to the content of the survey.[11] Thus, it is unlikely that the non-responses are related to potential outcomes that would bias our results.

Experimental Design

We employ a factorial design that randomly assigns respondents into the control condition or one of the three treatment conditions, each with a different framing of the SCS. In treatment scenarios, respondents may receive information about the SCS's roles in social order maintenance (i.e., punishing a drunk driver who caused traffic accidents), political repression (i.e., punishing a citizen who criticized the government), or both. In the control scenario, respondents receive no information about the role of the SCS. See Section A.2 in Online Appendix for more details about the treatment vignettes. Table B.3 in Online Appendix shows that the randomization is successful and the four groups are well-balanced.

Table 1: Experimental Design for Attitude toward the SCS

	Group 1	Group 2	Group 3	Group 4
Assignment:	Control	Treated	Treated	Treated
Information Treatment:	No Info.	Social Order Maintenance	Political Repression	Order & Repression
N:	201	162	192	178

[11]The reasons for nonresponses include "no time", "hungry and need to have lunch", "too busy", etc.

This factorial design (Table 1) allows us to utilize the entire effective sample of 733 respondents for statistical analysis. Specifically, we estimate the following equation:

$$Y_i = \alpha + \delta\, order_i + \pi\, repression_i + \lambda\, order\,\&\, repression_i + \alpha_u + \epsilon_{iu} \quad (1)$$

where Y_i indicates individual i's support for the SCS; $order_i$ is the information treatment regarding social order maintenance; $repression_i$ is the information treatment regarding political repression; $order.repression_i$ is the treatment with both types of information; α_u indicates university fixed effects.[12] We also compare means with two-sample T-Test and find similar results (Table B.6 in Online Appendix).[13]

4.2 Experimental Findings

Total Effects

Our theory suggests that revealing information about the SCS's role in political repression should decrease citizens' support, whereas framing it as a tool to maintain social order should not increase individuals' support. Evidence from Figure 3 is consistent with this prediction. The upper panel of Figure 3 reports the point estimates of Model 1. The lower panel reports the total effects of the two main treatments. Note that the total effect of the repression information treatment reflects the fact that half of the respondents received the social-order information treatment, while the point estimate of repression information treatment indicates its effect on respondents who did not receive the social-order information treatment. In particular, reminding respondents of the SCS's role in maintaining social order has little impact on their support for the SCS, but revealing information about the SCS's role in political control largely reduces respondents' support for the SCS. Given that the average level of the support is 7.5 (out of 0–10), the repression information treatment reduces

[12]We also include controls as robustness checks, see Section 4.3 for more details.

[13]Because treatments are randomized at individual level, we use robust standard errors for all experimental analyses.

individuals' support by 12%, which is quite substantial.

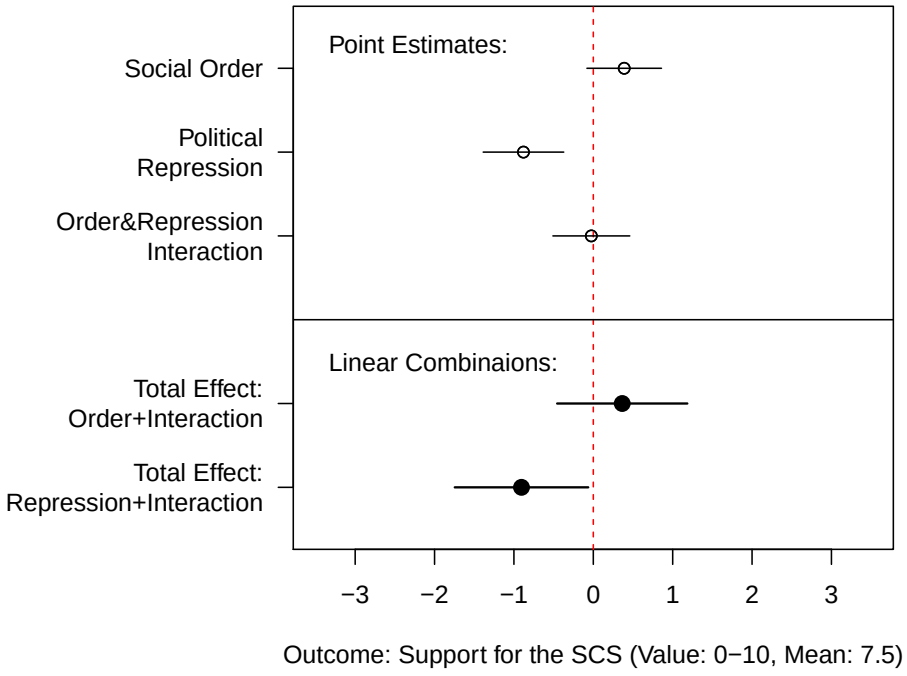

Figure 3: Information Treatment Effects: Full Sample

The upper panel of Figure 3 shows that the joint treatment of social order maintenance and political repression information has little impact. Figure 4 reports the marginal effects of repression information treatment conditional on the social order treatment. The results suggest that, regardless of the social order treatment, revealing information about repression reduces individuals' support for the SCS by around 12% and the effects are statistically significant. These findings imply that individuals are probably well-informed about the SCS's order maintenance function but largely lack information about its repressive potential.

Heterogeneous Effects by the Levels of Informativeness

To provide further evidence for the information mechanism we proposed, we examine the heterogeneous effects of information treatments among citizens who have different levels of information. If our information argument holds, this treatment will have a smaller effect on individuals who are better-informed about the SCS's repressive potential.

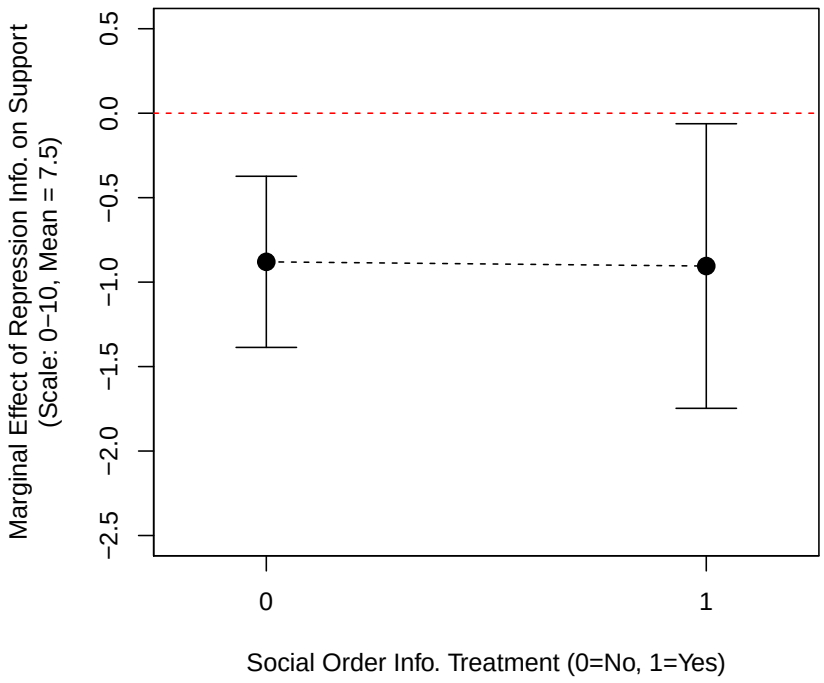

Figure 4: Marginal Effects of Repression Info. on Support for the SCS

We use the sources where individuals obtain information about the SCS to construct a proxy for how informative they are. Individuals who obtain information from *only* state media outlets are considered less informative and categorized into the "less informative" sample, while all other individuals are considered more informative and categorized into the "more informative" sample. The reason is that Chinese state media rarely reports negative news concerning the SCS whereas other information sources such as social media and non-state media outlets are more likely to reveal the SCS's repressive potential. Thus, if an individual only obtains information from state media, her knowledge about the SCS's repressive potential will be very limited.

We identify 178 less-informative respondents and 547 more-informative respondents and then estimate Equation (1) on these two samples respectively. The lower panel of Figure 5 shows that the repression information treatment has a negative and statistically significant *total effect* on individuals' support for repression in the less-informative sample. In contrast,

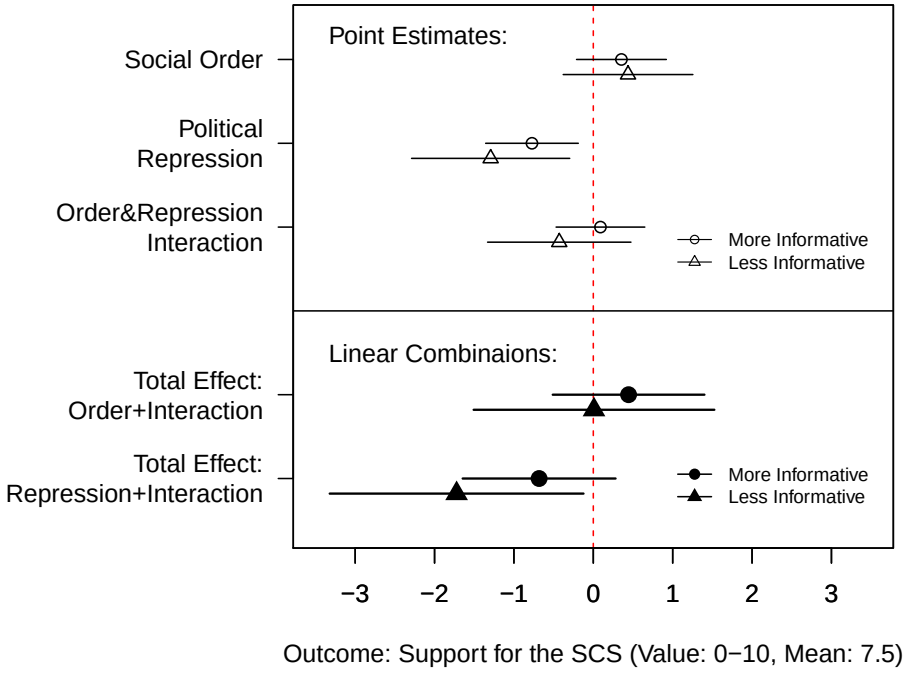

Figure 5: Information Treatment Effects, By Information Sources

the total effect of this treatment among more informative respondents is much smaller and statistically insignificant. These heterogeneous effects suggest that the repression information poses a greater shock to less-informative respondents, which provides further evidence for our information argument.

4.3 Discussion

One may be concerned that revealing the SCS's repressive potential decreases individuals' support not because they lack information but because they simply dislike repression. But if citizens' distaste for repression were the only reason, we would not expect the repression information treatment to have heterogeneous effects on individuals with different levels of information. As shown above, the repression information has a larger effect on less informative individuals (Figure 5). This finding suggests that citizens indeed have limited information, though we cannot completely rule out the distaste mechanism.

One may argue that citizens are probably aware of the SCS's repressive potential. They support the SCS because they underestimate the prevalence of government abuse. The evidence from our experiment is not consistent with this argument. Our treatment is a simple information revelation that the SCS could be used for political repression, which does not emphasize the prevalence of government abuse. We show that our simple information revelation has a strong, negative effect on support for the SCS. To challenge our findings further, it is likely that the priming in our experiment made repression a salient issue that may not reflect the real-world prevalence of government abuse. But we show that priming the SCS's social-order-maintenance function does not further increase people's support. More importantly, we find that the repression information treatment has a smaller effect on more informative individuals. Thus, even if there is a priming effect, citizens' lack of information is still an important reason behind their support for the system.

One may also argue that citizens probably know the SCS's repressive potential but just lack monitoring power to hold the government accountable. But if this were the case, information revelation would not influence citizens' support. The finding that revealing the SCS's repressive potential reduces support is more consistent with an information story than with an accountability story.

We further control for a number of other variables that could influence citizens' support for the SCS. As shown in Table B.4 in Online Appendix, the results remain robust after controlling for social distrust, self-reported social rule violations, family income, gender, age, and party membership. We also use individuals' support for the government to manage the SCS as an alternative measure and find similar results (Table B.5 in Online Appendix).

5 Information and Support for the SCS: Evidence from Observational Data

In this section, we further explore the role of information in citizens' support for the SCS by focusing on another two channels: government information control and citizens'

tendency to isolate discredited peers. We first use observational data from the field survey to explore the relationships and then use a nationwide survey of over 2,000 Chinese netizens to broaden the scope of our information-based argument regarding citizens' support for the SCS in China.

5.1 Two Surveys and Explanatory Variables

In addition to the survey experiment, we asked a series of questions related to social credit systems in our field survey, which allow us to conduct observational studies. We further use a large-scale nationwide online survey with broader demographic representativeness to complement our college field survey. The online survey was conducted between February and April 2018 through a foreign-based survey company. The sampling process of the online survey accounted for the distributions of age, gender, and region of China's Internet-based population based on recent statistics from the International Data Base of the U.S. Census Bureau (2016), Pew Global Attitudes Survey (2015), and Statista (2016). See Section A.3 in Online Appendix for details about this nationwide survey.

We are interested in whether citizens' support for the SCS is influenced by state information control (H2). We fit OLS models with the two survey datasets to explore this relationship. We measure government information control as to whether an individual obtains information about the SCS from state media because state media is the most important channel through which the Chinese government conducts propaganda and thought work (Brady 2009). This question also partially captures government censorship because citizens who are exposed to censorship or conduct self-censorship are more likely to consume information from state media (Simonov and Rao 2018). In the field survey, we specifically ask whether respondents obtained information about SCSs from *state* media outlets, including *state* TV channels, newspapers, websites, and the public accounts of state media outlets on social media platforms. In the online survey, we asked individuals from which information sources they knew about SCSs, such as TVs, newspapers, social media, commercials, etc.

We code TVs and newspapers as a proxy for state media because most TV channels and newspapers in China are state-owned.

Although not discussed in the theory section, citizens' tendency to stay away from low score peers could potentially exacerbate their information problem and lead to support for the SCS. The logic is that, as an individual distance herself from low-credit peers, she will be less likely to question the reasons behind their low credits and hence less likely to know about the SCS's repressive potential. To measure respondents' tendency to isolate low-credit peers, we use the question: "Imagine a good friend of yours has a sudden drop in their social credit score. Would you start to think differently about him/her?" We did not directly ask whether they are willing to stay away from them because such wording would induce preference falsification. This question was only asked in the nationwide survey.

Several other factors could also influence support for the SCS. As discussed in Section 2.1, citizens' desire for law and order (due to the weak rule of law in dictatorships) will increase their support for the SCS. An individual's desire for law and order is reflected by the extent to which she generally believes people are untrustworthy. In fact, the SCS was created as a solution to the lack of trustworthy and moral conduct resulted from rule violations by citizens and government entities (Creemers 2018). Thus, we include this important variable. Besides, an individual may be more likely to support the SCS if he or she obeys social rules and contributes to social goods. Thus, we ask several questions to capture individuals' social conformity and social service in the field survey. Moreover, being a state employee or a communist party member may increase individuals' support for government policies. Thus, we control for these two variables. We also include individual controls such as age, education level, gender, income, and urban-rural status.

5.2 Observational Evidence on the Causes of Information Problem

Government Information Control

Our theory suggests that people's support for social credit systems is associated with

government information control. Figure 6 provides initial evidence using the college survey data. We standardize all variables to make coefficients comparable. As predicted, a one standard deviation increase in government information control increases support for the SCS by 0.22 standard deviations and the effect is statistically significant even after we control for a number of covariates. This strong positive effect provides evidence consistent with the theoretical argument.

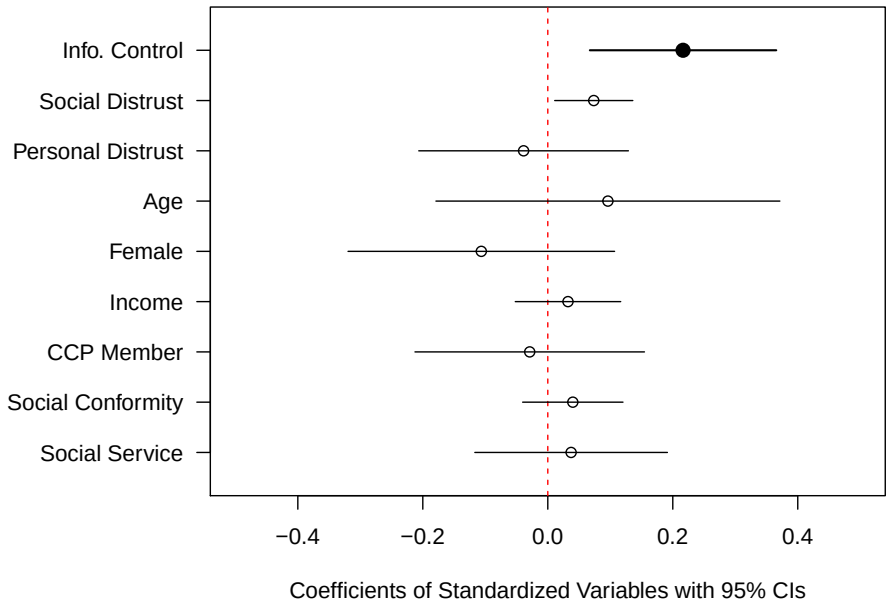

Figure 6: Sources of Support for SCSs: University Survey

Note: Number of observations is 664. University fixed effects are included. Robust standard errors are clustered on universities.

Individuals may support SCSs if they conform to social norms and contribute to public goods. But conformative and well-behaved individuals may be more likely to accept state propaganda. We control for these two variables to address this concern. Figure 6 shows that the main effect of government information control remains robust even if we control for social conformity and social service.

Figure 7 provides further evidence from the nationwide survey data. It shows that gov-

ernment information control has a positive and statistically significant effect (0.07 standard deviations). The magnitude is smaller than that of the field survey, likely due to the measure we used: we asked respondents where they obtained the information about *commercial* SCSs (e.g., Tencent or Sesame SCSs) instead of state-run SCSs. Besides, we use TV and newspaper as a proxy for state media. Nevertheless, the statistical significance suggests that government information control is an important reason behind public support for the SCS in China.

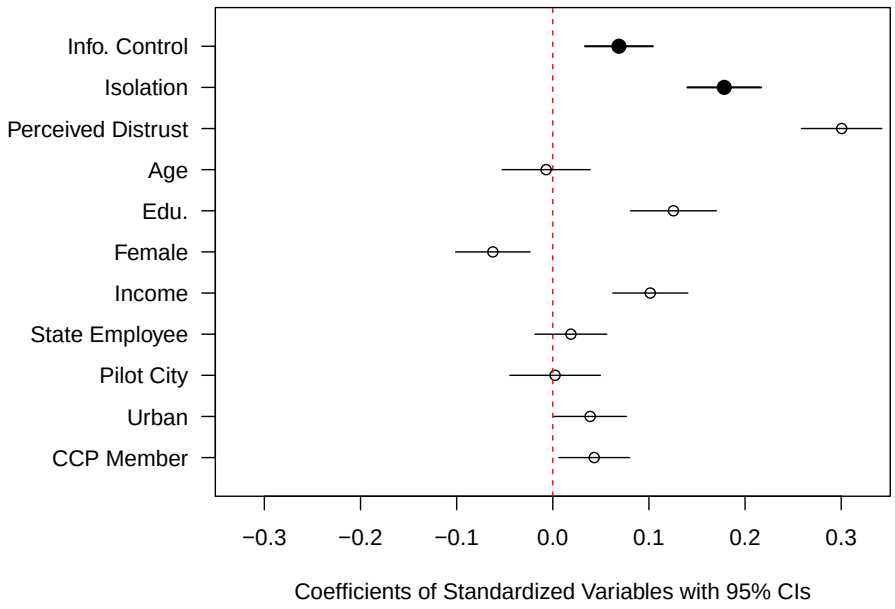

Figure 7: Sources of Support for SCSs: Nationwide Survey

Note: The effective number of observations is 1,948. Region fixed effects are included. Robust standard errors are clustered on provinces.

Tendency to Isolate Low-Score Peers

An interesting finding is a positive relationship between social isolation and individuals' support for the SCS (Figure 7). Recall that we use individuals' changing attitude toward a friend with a credit drop as a proxy for their tendency to stay away from discredited peers. Figure 8 shows that, among 2,028 respondents, 62.1 percent of them will either think of the friends differently or hesitate to hold a positive attitude. Figure 7 shows that a one

standard deviation increase in this social isolation measure increases support for SCSs by 0.18 standard deviations and the effect is statistically significant.

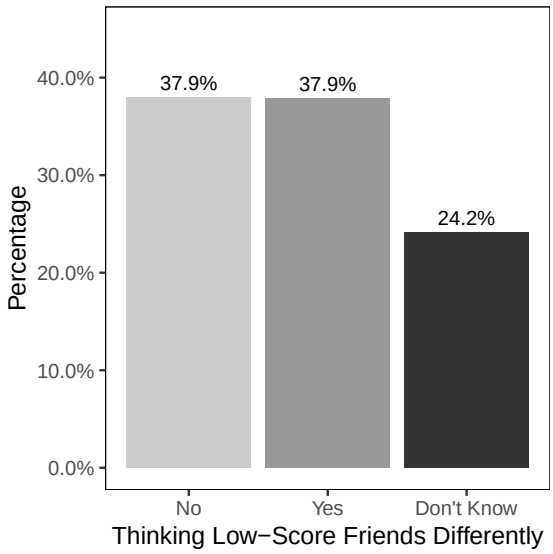

Figure 8: Attitude toward Low-Credit Friends

Several factors could explain this relationship. First, more credulous individuals may be more likely to isolate low-score peers and support the SCS. To capture credulity, we control for individuals' opinions about the fairness of social credit scores because more credulous individuals will be more likely to consider social credit scores fair. Second, Individuals' risk preferences could explain the relationship between their tendency to isolate and support for the SCS. Risk preference is the propensity to engage in behavior with the potential for loss or harm. Risk-averse individuals may be more willing to isolate low-score peers and, meanwhile, care more about safety and hence support the SCS. We include a variable based on the question: "Have you ever decided to not use a website or app because you did not want to share personal information?". This privacy-related question captures individuals' propensity to take risks. However, we find that the relationship between individuals' tendency to isolate and support for the SCS remains strongly positive and statistically significant even after controlling for these two variables (Column [2] and [3] in Online Appendix Table B.7).

The robust positive relationship between social isolation and support for the SCS prob-

ably suggests an information story: socially isolating low-credit peers makes individuals less informative about SCSs' repressive potential so that they will be more supportive of SCSs. A social rating system lumps citizens' dissenting acts and other behavior together under a unified score of trustworthiness (as most SCS pilot programs in China do). When encountering a low-credit citizen, people tend not to question whether her score was reduced for her dissenting acts against the government or something else. Instead, they may hesitate to interact with this person because low "social credits" signal untrustworthiness. When each individual's total score is common knowledge but reasons behind lowered credits are not publicized, social isolation exacerbates individuals' information problem. In China, millions of discredited citizens have been blacklisted on websites, on billboards at public spaces, in social media apps, or even through their phones' ringtones for social sanction. Although a majority of the cases are publicized for specific violations (e.g., unpaid debts) instead of aggregated low scores, many cases are listed without specific reasons.[14] Besides, it is not unusual for the government to use non-political reasons as disguises for political repression, as illustrated by the recent persecution of Ren Zhiqiang.[15] Nevertheless, we should interpret this positive relationship with caution.

5.3 Discussions

Social desirability bias poses a particular challenge to the study of the SCS because it might be socially desirable to consume state media, sanction discredited peers, and, meanwhile, support the SCS. To mitigate the potential influence of social desirability bias, we control for respondents' self-scoring of social credits. The logic is that individuals with

[14]See, for example, "2018 Feicheng Court's list of the twelfth batch of untrustworthy persons subject to enforcement" at https://www.sohu.com/a/242856352_687296

[15]See, "China's 'Big Cannon' Blasted Xi. Now He's Been Jailed for 18 Years." at https://www.nytimes.com/2020/09/22/world/asia/china-ren-zhiqiang-tycoon.html. New York Times, 2020.

stronger social desirability bias will be more likely to rate themselves higher than the average. Thus, including this self-scoring variable can control for potential social desirability bias. Column (4) in Table B.7 and Column (2) in Table B.8 in Online Appendix show that our main findings are robust when self-reported social scores are controlled for.

Another concern is that the relationship between state media exposure and support for the SCS could be due to some unobserved personal traits. For example, obedient, insecurity, and risk-averse citizens are more likely to consume state media and support the SCS. In the field survey, we ask respondents how often they comment or repost political events or breaking news on the Internet. We control for this variable to account for individuals' risk preferences. Individuals' obedience can be measured by their willingness to petition an unfair policy proposed by the university authority. To capture insecurity, we asked respondents to what extent they believe others will take advantage of themselves when occasion serves. Table B.8 in Online Appendix shows that the effect of state media exposure is statistically significant even we control for these three variables.

It is also worthwhile to examine the relationship between social distrust and support for the SCS because the SCS is created to improve social trustworthiness. As shown in both surveys, social distrust is positively associated with support for the SCS. The field survey shows a smaller effect because we asked a more specific question about social distrust: to what extent respondents believe that people take advantage of each other and violate social rules. Nevertheless, this result implies that citizens' support for the SCS is largely due to their desire for trustworthiness in society.

6 Conclusion

The explosion of data in the new century have dramatically shaped people's economic and social life. Yet, it also opens new doors for governments to exercise political control. China's social credit system is such a new development that could tremendously affect citizens' social and political behavior. Although the SCS was created to enforce the law and

maintain order, it could be abused for political repression given its civil-law tradition and the unconstrained power of score-evaluating entities. This paper argues that public support for the SCS is partly due to citizens' lack of information concerning the SCS's repressive potential. This information problem is exacerbated by invisible, targeted repression under the SCS and government information control. We conduct a survey experiment to show that respondents are not more supportive of the SCS when receiving information about its order-maintenance role but become much less supportive when knowing the SCS's function in repression. Observational evidence from two original surveys further shows that citizens' exposure to state media and changing attitude toward discredited friends are positively associated with their support for the SCS. These findings are consistent with our argument about hidden information and public support for the SCS.

The theory and findings have several important implications. First, the secret nature of repression under the SCS is attractive to repressive apparatus who may use the SCS for political repression. Second, the finding that citizens know much about the SCS's social-order-maintenance role but little about its repressive function implies that digital surveillance can be easily disguised to garner public support. Third, the strong effect of exposure to state media on support for the SCS suggests that government information control can substantially influence public opinion about state coercion. Fourth, the relationship between social distrust and support for the SCS implies that the government can exploit citizens' demand for law and order to enhance its control over society, particularly in dictatorships where law and order are inherently weak.

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Online Appendix

Hidden Information and Public Support for Social Credit Systems in China

Xu Xu, Genia Kostka, & Xun Cao

Contents

A Survey and Experimental Design

A.1 Ethical Considerations

We take extra cautions to minimize any potential risks on respondents, field staff, and the researchers. Both online and field surveys are anonymous. In the online survey, we made the questions as non-sensitive as possible to protect respondents and to mitigate self-censorship. The field survey is a five-minute opinion survey with minimal risk, which is granted an IRB exemption.[1] In particular, we take the following efforts to protect the rights and wellbeing of research participants and field staff in the field survey.

First, for the political repression scenario, we use the information available on state media website.[2] In fact, there were debates about whether the SCS should be implemented national-wide, and any netizens in China could find the information on the Internet about the SCS's role in political control if they want. Thus, the information revealed by our survey is tolerable by Chinese government. Second, we state earlier in the questionnaire that scenarios are hypothetical, which mitigates the potential risk of information revelation even if the information might change some students' belief. Third, we interviewed some of the respondents (for evaluating the questionnaire design) and they were not scared of the revealed information. During the recruitment and survey procedures, no student refused participation because of the content of the questionnaire. Fourth, we use an online criticism of the government instead of other political actions because online criticism is less sensitive and safer for respondents, field staff, and the researcher. Fifth, in each university, we consulted with several faculty members and students to proofread the questionnaire to ensure it did not incur any risk to respondents. Finally, the survey is anonymous and the enumerators were requested to stay away when respondents answered questions. A questionnaire that does *not* collect personal information reduces the risk of a loss of confidentiality and any other risks

[1] The exemption is granted by the Institutional Review Board (IRB) at Penn State University.

[2] See, for example, Credit Rating Should not Harm Citizens' Basical Rights (in Chinese): http://www.bjnews.com.cn/opinion/2014/06/20/321658.html.

related to identity. These strategies not only reduce potential risks to respondents, but also minimize respondents' social desirability bias and self-censorship in answering questions.

A.2 In-the-field Survey Experiment

Respondents were randomly assigned into on control group and three treatment groups. Due to the relatively small sample size, we use block random assignment to mitigate potential imbalances among groups. The easily identifiable variables that could predict public support of government coercion are gender and region (Conrad et al. 2018). Thus, we partition the subjects into 6 blocks (two gender groups by three regions/universities), and randomize within each block. Table A.1 shows vignettes for the control and treatment scenarios.

Note that if the levels of violations and associated punishment are different between the social order treatment and the political repression treatment, the treatment effects may not capture information revelation but reflect the differences in the levels of violation and punishment. To mitigate this concern, we fix the level of punishment for both treatment conditions and make the levels of two rule violations as similar as possible.

To measure respondents' opinion towards the SCS, we ask them to what extent they support the SCS on a 0 to 10 scale, and whether the government or third party credit organizations should manage the SCS. We also include a question that asks where respondents obtained information about the SCSs, such as state media, non-state media, commercials, self-experience, and/or friends. This question allows us to examine whether state propaganda can increase public support of the SCS. In addition, as scholars argue that the public may support a coercive tool if they are not victims but beneficiaries of state coercion, we further ask respondents to guess their future social credit levels if a nationwide SCS were about to take place.

A.3 Nationwide Online Survey

We use a nationwide online survey with broader demographic representativeness to complement our college field survey. The survey was conducted between February and April 2018

Table A.1: Control and Treatment Scenarios

Control Scenario: No Information

Many public spaces are equipped with facial recolonization and ID scanning; there are also surveillance cameras everywhere. It is very easy to record citizens' behaviors. In addition, a number of city governments are piloting Social Credit Systems that assess citizens' "creditworthiness". The SCS score can influence citizens' transportation options, school entrance, employment, social security status, and bank mortgage application, etc. Do you disapprove or approve of this trend of management?
现在很多地方都需要刷脸认证，比如火车站，飞机场，汽车站等；街道上也随处可见监控摄像头。居民的良好和不良行为很容易记录。而且目前我国不少城市的政府都正在创建社会信用体系试点，给居民的行为打分，分数会影响到居民的交通出行，入学、就业、社保、银行贷款等诸多方面。你是反对还是支持这样一种管理发展趋势？（请选择反对或支持程度）

Treatment 1: Social Order Maintenance Information

... application, etc. *Recently, one citizen in an eastern city drove drunk and caused chain-reaction accidents (although no one was hurt).*[a] *Being downgraded in social credit, this person is stopped from buying air tickets or hopping on high-speed trains. Now this person can only travel by bus or slow train.* Do you disapprove...
.....等诸多方面。比如不久前东部某试点市一位居民醉酒驾车、超速并导致连环车祸（虽无人受伤）。该居民社会信用等级被降低，以至于被禁止购买飞机票和高铁票，只能乘坐大巴和普通列车出行。你是反对.....

[a]We use the case in an *eastern* city because East China is known for its repid development of social credit systems.

Treatment 2: Political Repression Information

... application, etc. *Recently, one citizen in an eastern city often posted criticisms online to blemish the government's image. Being downgraded in social credit, this person is stopped from buying air tickets or hopping on high-speed trains. Now this person can only travel by bus or slow train.* Do you disapprove...
.....等诸多方面。比如不久前东部某试点市一位居民由于经常在网上发帖损害政府形象。该居民社会信用等级被降低，以至于被禁止购买飞机票和高铁票，只能乘坐大巴和普通列车出行。你是反对.....

Treatment 3: Order and Repression Information

... application, etc. *Recently, one citizen in an eastern city drove drunk and caused chain-reaction accidents (although no one was hurt). Another citizen in an eastern city often posted criticisms online to blemish the government's image. Being downgraded in social credit, these two persons are stopped from buying air tickets or hopping on high-speed trains. Now they can only travel by bus or slow train.* Do you disapprove...
.....等诸多方面。比如不久前东部某试点市一位居民醉酒驾车、超速并导致连环车祸（虽无人受伤），而另一位居民经常在网上发帖损害政府形象。这两位居民的社会信用等级都被降低，以至于被禁止购买飞机票和高铁票，只能乘坐大巴和普通列车出行。你是反对.....

through a foreign-based survey company. The survey company collaborates with Chinese companies that operate websites and apps to conduct the survey online through desktops and mobile applications. The participants were randomly selected from a user base of more than 350,000 Chinese netizens who use over 40,000 different apps and mobile websites, such as Line (a messaging app with 220 million active users worldwide), Design Home (an app to

simulate home decoration), Coin Dozer (a gaming app), and TVSmiles (an app for quizzes and prizes to win). The survey was displayed on app offer walls or website pages that provide users a list of actions or opportunities to complete to get rewards. Depending on the apps and websites, users were offered different, small monetary or nonmonetary rewards, including access to premium content (e.g., news articles), virtual rewards (e.g., extra time in games), gift cards, vouchers, charitable donations, and PayPal cash. Using such a variety of rewards allows the survey to reach a broad population with different preferences and demographic features.

The survey uses a blind opt-in recruitment strategy to enlarge the representativeness of the sample: users were offered to take part in a survey, but they did not know the topic of the survey before opting in. The questions are not sensitive at all in this survey because we want to reach a population as representative as possible. When the survey content is displayed, participants are notified that they can choose to drop from the survey at any time and completion of the survey constitutes a consent. In total, 64% of opt-in respondents completed the survey. Survey responses were considered invalid if respondents completed them in a very short period of time with several consecutive identical answers or inconsistent responses. After excluding invalid responses, we have a total sample of 2,028 Chinese netizens.

The sampling process accounted for the distributions of age, gender, and region of China's Internet-based population based on recent statistics from the International Data Base of the U.S. Census Bureau (2016), Pew Global Attitudes Survey (2015), and Statista (2016). Further, to represent the demographic characteristics of the census, a weight is created using age, gender, region, and demographic groups' Internet penetration based on the aforementioned surveys and censuses. Taking into account an estimate of the design effect based on the distribution of the weights, the overall margin of error for estimates is 2.22%.

A.4 Summary Statistics

Table A.2 reports the summary statistics of the selected variables in the nationwide online survey.

Table A.2: Summary Statistics (Nationwide Survey)

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Credit Systems Approval	2,027	4.29	0.81	1	4	5	5
Social Distrust	2,027	4.16	0.92	1	4	5	5
Tendency to Isolate	2,028	0.38	0.49	0	0	1	1
Info. Control	2,028	0.68	0.47	0	0	1	1
Info. Cntl. (TV/Newspaper)	2,028	0.17	0.37	0	0	0	1
Female	2,028	0.42	0.49	0	0	1	1
Age	2,028	30.63	8.91	18	24	36	64
Income	2,027	7.72	2.74	1	6	10	11
CCP Member	2,027	0.22	0.42	0	0	0	1
Public Employment	2,028	0.33	0.47	0	0	1	1
Living in Pilot City	2,003	0.46	0.50	0	0	1	1
Credit Decision Influence	2,027	0.74	0.44	0	0	1	1
Government Confidence	2,027	3.30	0.74	1	3	4	4
Credit Score Fairness	1,224	3.33	0.60	1	3	4	4
Education	1,978	3.64	0.69	1	4	4	4
Urban/Rural	2,028	0.84	0.37	0	1	1	1
Privacy	2,027	1.61	0.59	1	1	2	3

With respect to the field survey experiment, Table A.3 reports the covariate balance across control and treatment groups on a number of background questions, including age, gender, family income, income satisfaction, party affiliation, membership in official university organizations, membership in student societies, community service, interest in discussing politics, media usage, social distrust, online expression. As shown in Table A.3, randomization is successful and the covariates are balanced across all treatment groups.

Table A.3: Balance Check (Field Survey)

	obs.	Control	Social	Political	Social&Political	p-value
Age	685	21.45	21.46	21.00	21.15	0.215
Female (F=1)	722	0.51	0.49	0.55	0.47	0.466
Income (1-9)	718	6.84	6.59	6.80	6.84	0.447
Income Sat. (0-10)	727	6.72	6.71	6.74	7.03	0.515
Party (Yes=1)	727	0.16	0.16	0.17	0.13	0.670
Offical Org. (Yes=1)	728	0.48	0.44	0.51	0.46	0.638
Stud. Org. (Yes=1)	727	0.61	0.62	0.63	0.63	0.975
Commu. Serv. (1-5)	728	2.52	2.49	2.49	2.54	0.952
Speech (1-5)	726	3.15	3.13	3.17	3.14	0.963
Media: News (1-5)	714	2.04	2.10	2.14	2.11	0.681
Media: TV (1-5)	718	2.97	3.11	2.90	2.99	0.304
Media: Phone (1-5)	727	4.76	4.74	4.67	4.73	0.386
Distrust (0-10)	726	4.36	4.03	3.91	4.33	0.336
Diss. Politics (1-5)	726	2.28	2.17	2.23	2.16	0.598

B Empirical Results

B.1 Field Survey Experiment

Table B.4 shows the results of the experiments with additional controls. Because the treatments are randomized at individual level, we use robust standard errors for all model specifications. The results show that the effect of repression information on respondents' support for the SCS is strong and statistically significant even we control for a variety of variables. Note that the *Information Control* variable is generated from a variable about respondents' sources of information, which is also used to separate the State Information sample and Non-state Information sample. Thus, this *Information Control* variable is excluded the models in Column (5) and Column (6).

We further explore the effects of the information treatments on individuals' support for the government to manage the SCS. Table B.5 reports the results, which are largely similar to the results using support for the SCS. In general, information about repression decreases individuals' support for the government to manage the system and the negative effect is stronger among less informative individuals than among more informative individuals. Interestingly, information about punishing a drunk driver (the SCS's social order maintenance function) slightly decreases individuals' support for the government management, although

Table B.4: Information Revelation and Support for the SCS: Experimental Evidence

	(1) Full Sample	(2) State Info	(3) NonSt Info	(4) Full Sample	(5) State Info	(6) NonSt Info
VARIABLES	Support	Support	Support	Support	Support	Support
Social Order	0.389	0.438	0.354	0.330	0.181	0.361
	(0.239)	(0.414)	(0.288)	(0.238)	(0.400)	(0.295)
Political Repression	-0.880***	-1.293**	-0.773***	-0.859***	-1.361***	-0.784**
	(0.259)	(0.505)	(0.298)	(0.268)	(0.499)	(0.318)
Order & Repression	-0.026	-0.429	0.088	-0.047	-0.386	0.044
	(0.247)	(0.458)	(0.286)	(0.256)	(0.458)	(0.308)
Info. Control				0.531***		
				(0.102)		
Social Distrust				0.192	0.230	0.192
				(0.117)	(0.215)	(0.138)
Personal Distrust				-0.128	-0.087	-0.140
				(0.122)	(0.219)	(0.145)
Age				0.086	0.026	0.115*
				(0.054)	(0.079)	(0.067)
Female				-0.520***	-0.906**	-0.310
				(0.182)	(0.352)	(0.221)
Income				0.057	-0.075	0.130**
				(0.053)	(0.092)	(0.064)
CCP Member				-0.170	-0.060	-0.384
				(0.312)	(0.509)	(0.367)
Social Conformity				0.094	-0.058	0.164
				(0.088)	(0.149)	(0.103)
Social Service				0.186	-0.479	0.553**
				(0.201)	(0.342)	(0.248)
University FEs	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.785***	7.937***	7.716***	5.196***	8.965***	3.302*
	(0.213)	(0.438)	(0.242)	(1.375)	(2.142)	(1.683)
Observations	731	179	552	664	158	506
R-squared	0.039	0.082	0.037	0.103	0.171	0.064
Total Effects (Linear Combinations):						
Social + Interaction	0.363	0.009	0.442	0.283	-0.205	0.405
	(0.419)	(0 .774)	(0 .488)	(0.424)	(0.751)	(0.516)
Political + Interaction	-0.907**	-1.722**	-0.685	-0.905**	-1.747**	-0.739
	(0.430)	(0.815)	(0.492)	(0.440)	(0.798)	(0.526)

Robust standard errors are in parentheses. Variable values are in their original scale. Column (1) and (4) report the results from the full sample. Column (2) and (5) report the results from a subsample of respondents who obtained information about the SCS from state media only (less informative group). Column (3) and (6) report the results from a subsample of respondents who obtained information about the SCS from non-state sources (more informative group).
*** p<0.01, ** p<0.05, * p<0.1

the effects are not statistically significant across all samples. This may imply that citizens have concerns over government power abuse, even the results contribute to the good of the

society.

Table B.5: Information Revelation and Support for Government Managing the SCS

VARIABLES	(1) Full Sample Supt Gov	(2) State Info Supt Gov	(3) NonSt Info Supt Gov	(4) Full Sample Supt Gov	(5) State Info Supt Gov	(6) NonSt Info Supt Gov
Social Order	-0.079	-0.158	-0.092	-0.069	-0.169	-0.098
	(0.138)	(0.280)	(0.160)	(0.146)	(0.318)	(0.168)
Political Repression	-0.355***	-0.688**	-0.276*	-0.294**	-0.677**	-0.237
	(0.132)	(0.294)	(0.149)	(0.141)	(0.317)	(0.159)
Order & Repression	-0.014	-0.324	0.061	0.023	-0.484	0.100
	(0.136)	(0.289)	(0.156)	(0.146)	(0.320)	(0.165)
Info. Control				0.253**		
				(0.112)		
Social Distrust				-0.024	-0.062	-0.011
				(0.023)	(0.050)	(0.025)
Personal Distrust				-0.002	0.058	-0.018
				(0.029)	(0.062)	(0.034)
Age				-0.061**	-0.040	-0.066**
				(0.028)	(0.059)	(0.032)
Female				-0.252**	-0.234	-0.206*
				(0.105)	(0.230)	(0.119)
Income				-0.039	0.082	-0.061*
				(0.031)	(0.070)	(0.037)
CCP Member				0.141	0.436	0.044
				(0.156)	(0.338)	(0.176)
Social Conformity				0.014	0.046	0.008
				(0.051)	(0.100)	(0.060)
Social Service				0.078	0.090	0.109
				(0.108)	(0.231)	(0.123)
University FEs	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.244**	0.415*	0.188	1.847**	0.576	2.262**
	(0.114)	(0.222)	(0.134)	(0.766)	(1.613)	(0.882)
Observations	729	179	550	663	158	505

Robust standard errors are in parentheses. Variable values are in their original scale. Column (1) and (4) report the results from the full sample. Column (2) and (5) report the results from a subsample of respondents who obtained information about the SCS from state media only (less informative group). Column (3) and (6) report the results from a subsample of respondents who obtained information about the SCS from non-state sources (more informative group).
*** p<0.01, ** p<0.05, * p<0.1

Table B.6 reports the unconditional mean comparisons for the two by two factorial experimental design. The results are similar to the regression results in Table B.4. Revealing the SCS's social-order-maintenance function alone does not increase individuals' support but showing its repressive potential significantly reduces people's support. Note that the overall effect of social order information is positive and statistically significant. This is likely because that showing repression information alone has a stronger effect than showing both social-order-maintenance information and repression information. Nevertheless, the conditional mean comparisons in Table B.4 control for university fixed effects and other variables, which are more reliable than the unconditional mean comparisons in Table B.6.

Table B.6: Group Mean Comparisons with Two-Sample T-Tests

	No Info.	**Repression**	**Overall**	**Repression vs. No Info (P-Value)**
No Info.	7.63 [201]	6.77 [192]	7.21 [393]	-0.86 (0.001***)
Order	8 [162]	7.6 [178]	7.79 [340]	
Overall	7.79 [363]	7.16 [370]		-0.63 (0.000***)
Order vs. No Info (P-Value)	0.37 (0.123)		0.58 (0.002***)	

B.2 Field Survey

Table B.7 reports the results of the university field survey with additional controls. Column (1) shows the OLS results plotted in Figure 4 in the main paper. In Column (2), we control for self-reported score comparison to address social desirability bias. In particular, the question asks: "If the SCS will be implemented nationwide to rate every citizen, how do you estimate your own social credit score? A. Far above average ... E. Far below average." In Column (3), we use individuals' willingness to discuss politics online as a proxy for their risk preference. The question is "Do you usually discuss political affairs and trending news on the Internet (Weibo, WeChat, Blogs, etc.)? 1.Never ... 5.Very Frequently." In Column (4), we use individuals' willingness to petition an unfair university policy to control for their

tendency to obey authority. The results show that the positive relationship between exposure to state media (Info. Control) and support for the SCS remains robust after controlling for these personal traits.

Table B.7: Information Asymmetry and Support for the SCS: Field Survey

VARIABLES	(1) Support	(2) Support	(3) Support	(4) Support
Info. Control	0.218**	0.213**	0.219**	0.219**
	(0.035)	(0.026)	(0.030)	(0.026)
Social Distrust	0.073**	0.051***	0.052***	0.053***
	(0.014)	(0.001)	(0.001)	(0.002)
Personal Distrust (Insecurity)	-0.040	-0.029	-0.029	-0.029
	(0.039)	(0.040)	(0.041)	(0.042)
Selfscore (Social Desirability)		0.184*	0.182*	0.184*
		(0.050)	(0.050)	(0.049)
Discuss Politics (Risk Preference)			-0.041	-0.041
			(0.033)	(0.034)
Petition (Non-Obedience)				-0.019
				(0.044)
Other Controls	Yes	Yes	Yes	Yes
University FEs	Yes	Yes	Yes	Yes
Constant	-0.012	-0.022	-0.028	-0.027
	(0.041)	(0.034)	(0.031)	(0.031)
Observations	664	664	662	659
R-squared	0.073	0.102	0.105	0.105

Robust standard errors are clustered on provinces. Other controls include age, gender, income, CCP membership, Social Conformity, Social Service, etc.
*** p<0.01, ** p<0.05, * p<0.1

B.3 Nationwide Online Survey

Table B.8 reports the results of the Nationwide Online Survey with additional controls. Column (1) shows the main regression results as plotted in Figure 2 in the main paper. In Column (2), we include the variable SCS Fairness to control for individuals' credulity. This question asks the users of Tencent or sesame SCSs: "Do you think your credit score is fairly calculated?". In Column (3), we use a question regarding privacy protection to capture individuals' risk preference, that is "Have you ever decided to not use a website or app because you didn't want to share personal information?". The results show that the effect of

social isolation is large and statistically significant after controlling for these two variables. In Column (4), we control for individuals' social desirability by including a question that asks respondents to compare their scores with others: "Is your Sesame or Tencent score higher or lower than most of your family's and friends' scores?" The effect of Social Isolation remains large and statistically significant.

Note that the effect of information control is not very robust to the credulity and social desirability controls. As we discussed in the main paper, in the online survey, we only asked individuals from where they knew commercial SCSs such as Tencent and Sesame SCSs. We also used TV and newspaper as a proxy for state media. This imperfect measure likely correlates with individuals' evaluation of the SCS's fairness and self-reported score comparisons. In the Field Survey, we used more accurate measure of exposure to state media and the result becomes very robust (Table B.7).

Table B.8: Information Asymmetry and Support for the SCS: Nationwide Survey

VARIABLES	(1) Support	(2) Support	(3) Support	(4) Support	(5) Support
Info. Control	0.069***	0.005	0.063***	0.025	0.006
	(0.017)	(0.016)	(0.018)	(0.017)	(0.017)
Isolation	0.178***	0.112***	0.181***	0.159***	0.111***
	(0.019)	(0.016)	(0.018)	(0.023)	(0.016)
Distrust in Society	0.300***	0.176***	0.306***	0.208***	0.183***
	(0.020)	(0.032)	(0.021)	(0.027)	(0.030)
SCS Fairness (Credulity)		0.216***			0.196***
		(0.017)			(0.020)
Privacy (Risk Preference)			0.068***		0.067**
			(0.022)		(0.026)
Selfscore (Social Desirability)				0.104***	0.063***
				(0.022)	(0.021)
Other Controls	Yes	Yes	Yes	Yes	Yes
Region FEs	Yes	Yes	Yes	Yes	Yes
Constant	0.008	0.183***	0.008	0.164***	0.187***
	(0.020)	(0.035)	(0.023)	(0.022)	(0.034)
Observations	1,948	1,197	1,948	1,292	1,131
R-squared	0.229	0.213	0.233	0.172	0.220

Robust standard errors are clustered on provinces. Other controls include age, education, gender, income, public employment, SCS pilot city, urban/rural status, CCP membership, etc.
*** p<0.01, ** p<0.05, * p<0.1

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