Dreading big brother or dreading big profit? Privacy concerns toward the state and companies in China
by H. Christoph Steinhardt, Lukas Holzschuh, and Andrew W. MacDonald

Abstract
States and companies around the world have intensified their collection of personal information. China’s information state and its digital economy are particularly industrious data collectors. The resulting extensive exposure of Chinese citizens’ personal information could reasonably provoke privacy concerns. To date, the relative distribution of concerns toward government and companies, as well as the structural and ideological roots of privacy concerns in China, are not yet well understood. Concerns over personal information being combined in a big data scenario have not yet been examined in the Chinese context. Drawing on an original online survey from 2019 (N = 1,500), representative of the Chinese online population, this study reveals that concerns about data collection by government are low, albeit modestly elevated among individuals who are ideologically not aligned with the state. By contrast, concerns over data collection by companies are both extensive and consensual across key socio-structural and ideological divides. Surprisingly, the combination of government and commercially collected personal information does not multiply concerns. Thus, the Chinese authoritarian information state is perceived as a safety device for, rather than a threat to, citizens’ personal information. Extensive state interventions in the digital economy converge with broadly shared popular concerns about corporate information privacy practices.

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Introduction
Fueled by the forces of digitalization, bureaucracies and commercial actors have accelerated the collection of information about individuals (Brayne, 2017; Pasquale, 2015). This phenomenon is global, but it is particularly pronounced in China. The Chinese “information state” (Weller, 2012) has expanded the already
extensive material collected from the population through initiatives such as the Social Credit System (Arora, 2019; Dai, 2018; Liang, et al., 2018; Liu, 2022), Smart Cities (Dameri, et al., 2019; Große-Bley and Kostka, 2021; Yang and Xu, 2018), and data-driven forms of policing (Chen and Greitens, 2022) [1]. The business sector in China, with the country’s Internet giants at the forefront, also analyzes and trades its customers’ personal information at an unprecedented scale (Jiang and Fu, 2018; Liu, 2021). In addition, state-company collaboration in personal data is especially intense (Chen and Cheung, 2017; Liang, et al., 2018; Stockmann, et al., 2020; Wang, 2012). Hence, the Chinese state possesses an extraordinary capacity to produce combined and cross-referenced “big data” on individuals (boyd and Crawford, 2012).

This depth of information collection on citizens may well provoke concerns. Popular backlash could have negative consequences for China’s development model. The more pronounced privacy concerns — “individuals’ concerns about organizational information privacy practices” [2] — become, the lower citizens’ inclination is to voluntary and truthfully provide their information (Baruh, et al., 2017). Hence, from an economic perspective, privacy concerns threaten the widespread adoption of technologies on which China’s digital economy depends.

From a political perspective, the capacity to monitor citizens has long been recognized to be both a lifeline and a potential breaking point for authoritarian regimes. Extensive surveillance helps stymie opposition (Xue, 2021; Keremağlu and Weidmann, 2020), but it can also push citizens into fake compliance and inner resistance (Pfaff, 2001; Wedeen, 2015). The more the Chinese state ties its governance to information, the more privacy concerns toward government monitoring would signal a threat to regime legitimacy, and the more privacy is at risk to become a polarizing opinion that divides regime supporters and opponents.

Thus, critical questions for China’s intersecting information state and digital economy are: to what extent are Chinese citizens concerned about the state and businesses collecting their data? Does the combination of information from state and companies multiply concerns? Are citizens’ concerns broadly shared, or do they vary with closeness to the state and regime? In this study we examine these questions with an original online survey from 2019 (N = 1,500) that is representative of the Chinese online population.

Our results reveal three facts about the structure of privacy concerns in China: 1) There is much more concern regarding information collection by companies than by government; 2) concerns about government-business data combination are higher than concerns about government data collection, but lower than concerns over company data collection. Thus, concerns do not multiply; 3) ideological closeness to the state is associated with modestly lower concerns about government data collection. By contrast, the extensive concerns about companies are uniform across structural and ideological cleavages. These results are surprising in that they indicate low fear of state surveillance, and show that privacy concerns are, at best, moderately politicized.

The remainder of this article proceeds as follows: we first highlight our contribution to the literature and then develop testable hypotheses on the magnitudes and roots of privacy concerns in China. Next, we introduce our data and methods before presenting our findings on, first, the magnitudes and, second, the associations of different privacy concerns. We conclude with a discussion of our results, their limitations, and avenues for future research.

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**Literature and hypotheses**

**The research gap**

This study aims to make three contributions to the literature on privacy concerns in authoritarian regimes. First, the large majority of international opinion research on privacy concerns focuses on concerns about companies (or, *company (privacy) concerns*). Privacy concerns *vis-à-vis* governments (or, *government...
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(privacy) concerns are seldom investigated [3]. Even more rarely are they compared with company concerns [4]. However, concerns regarding state and companies can diverge widely (Auxier, et al., 2019; Steinfeld, 2017).

The small, but growing, literature on privacy concerns in China largely focuses on concern toward commercial actors. Areas of previous privacy research include social network sites (Amos, et al., 2014; Zhang, et al., 2015; Zhao, et al., 2012; Zhou, 2011; Zhou and Li, 2014), e-commerce (Chen and Zhang, 2021; Zhu, et al., 2020) and instant messaging (Cao and Everard, 2008). Research that focuses on attitudes towards government monitoring is in its infancy (Kostka, 2019; Liu, 2022; Su, et al., 2022) and studies that compare these two areas of concern are even rarer [5]. This comparison is important as it can help reconcile theoretical expectations that citizens in authoritarian regimes should be extra fearful of the state, with the existing literature that finds most privacy concerns in China focus on commercial activities.

Our second contribution is to examine whether Chinese citizens embrace the notion that collected data, which might be viewed as relatively harmless in one context, becomes a reason for concern when it is shared with the government, in a “Big Brother environment” [6]. During the COVID-19 pandemic, for example, the Chinese government has relied on the combination of detailed location data provided by private phone apps and centralized vaccination records to monitor, control and quarantine millions of people (Teng, 2022). Despite the increasing prevalence of such public-private data exchanges in a big data setting, related data combination concerns are an even more scarcely investigated issue in the literature on privacy concerns than are government concerns [7]. Influential privacy concern survey instruments were developed in the 1990s (e.g., Smith, et al., 1996) — a time prior to large-scale digitalization, which resulted in data combination becoming technically much easier and thus more often done. Recent research has indicated that, at least contextually, individuals do regard data combination as highly concerning [8]. To the best of our knowledge, concerns over data combination have never been examined in China.

Third, the literature on privacy concerns has investigated correlates of privacy with psychological and sociological variables, with political orientation getting less attention (for exceptions, see Bergström, 2015; Omrani and Soulié, 2020). There are, however, good reasons to pay closer attention to individuals’ political positionality and attitudes vis-à-vis the state in the Chinese context. Attitudes regarding state power and its role in the economy are one of the few obvious attitudinal cleavages in Chinese society (Eaton and Hasmath, 2021; Pan and Xu, 2018). Moreover, compared to democratic contexts, where the bulk of privacy concern research has been situated, the authoritarian Chinese state has a much more intrusive capacity to surveil citizens (Jiang and Fu, 2018; Liu, 2021). Presumably, respondents have greater reason to fear the potentially more dramatic consequences of such surveillance (Keremoğlu and Weidmann, 2020).

To what extent an ideological distance from the state amplifies such fears is unclear, though other research has suggested physical and ideological closeness to the state generally increases regime support (Eaton and Hasmath, 2021). If Chinese respondents’ government and data combination concerns break down along the lines of structural and ideological closeness to the state, it would imply that the ongoing expansion of information collection in China’s techno authoritarianism is politically polarizing. Moreover, a divide along these lines for company concerns would imply that parts of society do not support interventionist state policies with regard to the country’s technology firms. Both conditions, in turn, would increase the likelihood of a push-back from sectors of society that are structurally and ideologically more remote from the state. By contrast, if privacy concerns are not politically divisive, their mobilization potential is diminished.

**Hypotheses**

Existing insights lead us to five hypotheses with respect to attitudes towards privacy in China: 1) the level of concern over data collected by companies is higher than the level of concern over data collected by government; 2) the level of concern over data collected by companies being combined with data collected by government is higher than the level of concern about data collected by companies or government separately; 3) respondents’ social-structural closeness to the state is associated with lower concern over...
government data collection and data combination; 4) the alignment of respondents’ political ideology with the state is associated with lower concern over government data collection and data combinations; and 5) the alignment of respondents’ economic ideology with the state is negatively correlated with concern over government data collection and data combination, and positively correlated with concern over company data collection.

Given China’s authoritarian context, and the state’s known desire to find and punish dissenters [9], one might expect respondents to be more fearful of government surveillance compared to surveillance by companies (Keremoğlu and Weidmann, 2020). However, among the few contributions that did look at both government and company related variables, research on China has mostly found stronger concerns over commercial data collection.

Our first hypothesis emerges from insights on whether individuals are more concerned about state or corporate surveillance. Zhang, Amos and Petina found that privacy concerns regarding the commercial social media platform Sina Weibo exceeded concerns about users’ information on Weibo being open to government [10]. Zhang, Chen and Wen (2002) found that Chinese participants put less trust in companies to protect their privacy compared to their U.S. peers. Furthermore, they were more supportive of government involvement in privacy protection. Wang and Yu found that their respondents were least trusting about their data being safe from leakages during commercial activities, such as online shopping or purchasing cars, in contrast to being substantially more trusting when information had to be provided to government or hospitals (Wang and Yu, 2015). Kosta found that majorities see government entities using personal data most responsibly while minorities think companies do so (Kostka, 2019). Moreover, a well-established research finding is that Chinese survey respondents report a high level of trust in the government (Kennedy, 2009; Zhong, 2014).

Taken together, existing research suggest that the state has successfully positioned itself as the protector of the citizens against corporations that do not fully respect data privacy norms. Contrary to expectation on authoritarian regimes, we therefore expect that, in China, privacy concerns towards companies exceed those towards government.

$$H1:$$ The level of concern over data collected by companies is higher than the level of concern over data collected by government.

Our second hypothesis builds on existing knowledge about the combination of individual information. The analytical potential, the challenges to individual privacy and the very nature of big data are defined by different sets of information on individuals that are aggregated and can be cross-referenced [11]. Simulation research has indicated that the combination of big datasets raises inherent privacy issues (Acquisti and Gross, 2009), even if precautionary measures like data anonymization have been taken (Kondor, et al., 2020). In China, the state has extensive access to data collected by companies (Liang, et al., 2018; Stockmann, et al., 2020; Wang, 2012). Scholars have shown how the combination of individual data generated by government agencies and companies lies at the heart of various recent Chinese government projects ranging from the Social Credit System (Chen and Cheung, 2017; Liang, et al., 2018) to protest policing (Chen and Greitens, 2022).

In Finland, scholars found significant concern about the possible combination of driving data with other personal information in the context of modern mobility systems (Rohunen and Markkula, 2019). While such evidence from China is not yet available, the above suggests that if Chinese citizens are concerned about their privacy, data combination is what they should be most concerned about. Hence, we expect that the combination of company-collected and government-collected data will multiply privacy concerns.

$$H2:$$ The level of concern over data collected by companies being combined with data collected by government will be higher than the level of concern about data collected by
Regarding the individual variation of privacy concerns, we expect three sets of factors to play a role. First, socio-structural proximity to the state: In the Chinese party-state, the ruling Chinese Communist Party (CCP) and the state are intertwined. For many new party members an important motivation for joining is self-interest, but the party also exerts strict ideological control and mobilizes demonstrations of loyalty (Dickson, 2014). Likewise, Chinese state-owned enterprises (SOEs) and public institutions fall increasingly under direct party authority (Grünberg and Drinhausen, 2019; Leutert, 2018). Regime loyalty is a significant factor in both admission as well as promotion for government jobs (Liu, 2019). Hence, the state-sector functions as a “vertically organized location of interest-bound activities” that Bell called a *situs* [12]. Self-interest, identity and ideology converge into an amalgam of affiliation with the party-state. The same cannot be said for China’s private sector. While entrepreneurs need to seek support from the state at every level of the hierarchy, and have been encouraged to join the ruling party (Dickson, 2008), a private sector *situs* that is similarly integrated as the state-sector has not formed (Chen and Lu, 2011; Tsai, 2005). Although privacy concerns in China have not been researched with respect to socio-structural proximity to the state, recent research on support of state surveillance in China provides some inconclusive leads. Kostka (2019) found higher support for Social Credit Systems among party members, while Liu found lower support among party members. Liu also found no difference among state and private sector, but higher support among people working in the state apparatus (Liu, 2022). Su, Xu and Cao (2022) found no effect for party membership on different forms of state surveillance.

We assume that the affinity towards the state resulting from being a member of the ruling party or being employed in the government or state-sector translates into fewer concerns over handing personal information to the government. As government company data combination is primarily conducted by the state, which has extensive access to commercially collected data (Chen and Cheung, 2017; Liang, *et al.*, 2018; Stockmann, *et al.*, 2020; Wang, 2012), structural closeness to the state should also dampen the inclination for multiplying concerns due to data combination [13].

H3: A socio-structural proximity to the state is associated with a lower level of concern over data collection by government, and a lower level of concern over data combination.

Second, an alignment of political ideology with the state: On a typical left-right scale, left-orientated individuals have been found to display increased privacy concerns compared to right-orientated individuals (Bergström, 2015; Omrani and Soulié, 2020) [14]. When conceptualized as liberal and conservative, liberals have a higher level of surveillance concerns than conservatives (Nam, 2017). Looking at related research on state surveillance support, studies from China have found positive effects for political trust and regime satisfaction (Kostka, 2019; Liu, 2022; Su, *et al.*, 2022).

Hence, we expect that individuals in China favoring political authoritarianism display fewer concerns over data collection by the authoritarian state. Moreover, due to the close conceptual intertwining of the state, the nation and the CCP in the Chinese public discourse (Zhao, 1998), we also expect individuals’ extent of national pride to reduce their level of concern with government collecting their personal information. The ideological inclination towards the state through authoritarianism and patriotism should also translate into a lower inclination to see the combination of government and company data as a threat to privacy. It is less evident if or how these political ideologies translate into concerns over data collection by companies.

H4: An alignment of political ideology with the state is associated with a lower level of concern over data collection by government, and a lower level of concern over data combination.

Third, an alignment of economic ideology with the state and the private sector: While the evidence for an
integration of the private sector in China is weak in socio-structural terms, research has described a more manifest ideological differentiation between those who prefer a strong role of the state in the economy, on one end, and those who support a stronger role of the market, on the other (Eaton and Hasmath, 2021; Pan and Xu, 2018). These different preferences should affect how individuals think about data collection by both government and companies. Individuals who prefer a strong (regulatory) role of the state in the market, should be less concerned with providing their information to the government, less concerned with data combination, and more concerned about company data collection under conditions of the weak privacy regulations in the Chinese market [15].

$H5$: An alignment of economic ideology with the state is associated with a lower level of concern over data collection by government, a lower level of concern over data combination, and a higher level of concern over data collection by companies.

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**Data and measurement**

**Survey administration**

We test these hypotheses via a survey ($N = 1,500$) of Chinese Internet users. Data was collected between 6 August 2019 and 8 September 2019. Respondents were recruited by a Chinese market research firm from the firm’s online user panel of over 2.5 million individuals [16]. Registered panel members were invited to complete the online survey via e-mail, app or social media. Upon successful completion of the survey, respondents were provided nominal compensation. The provider discarded responses from users who answered the survey questions in an implausibly short amount of time or provided unnatural answer patterns.

Online survey panels in China are skewed towards younger and more educated users (see also Kostka, 2019; Pan and Xu, 2018). To mitigate sampling biases, quotas for education and age that approximate the distribution of the Internet-using population in China were applied. Appendices A to C compare the distribution of age, education and gender in the 2019 national survey of the online population and our sample. Since highly educated respondents remain over-represented, frequency analyses have been computed with post-stratification weights to approximate the education distribution of the online population [17]. It should be noted that those who respond to an Internet survey belong to a group that might well have lower levels of privacy concerns. Therefore, the results discussed below likely somewhat underestimate privacy concerns compared to the whole online population. Given that the survey operator is a company, the extent of underestimation should be larger for company concerns than for government concerns.

**Variable operationalization**

Our dependent variables *government concerns*, *company concerns* and *data combination concerns* are measured as follows (for question wording and summary statistics, please refer to Appendix D): We asked our respondents to separately indicate their “level of concern” when “government departments [ ] collect” their “personal information [ ]” and when “commercial entities [ ] collect” their “personal information.” We tap into the “combining data” [18] element of privacy concerns through an item that asks individuals to indicate their level of concern when their “personal information collected separately by government departments and commercial entities is being merged [ ].” The three variables were measured on a four-level Likert scale from “very concerned” to “not at all concerned.” We reverse-coded all three, so that higher values represent higher levels of concern.

Admittedly, we do not cover the full dimensionality of privacy concerns. Although our *government* and


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commercial concern items fall within the “collection” dimension of the seminal “concern for information privacy” instrument [19], the items do not name a more specific data collector and do not postulate a particular method or mode of data processing and management [20]. Hence, we consider this variable to tap into generalized privacy concerns vis-à-vis government and commercial entities. Given that privacy concern dimensions in the Chinese context, and their scholarly analysis, are in a state of flux (Chen and Zhang, 2021; Yuan, et al., 2013), we believe this is an appropriate approach to establish a baseline on which future research can build.

Our combining data measure covers a dimension of privacy concerns that has been identified, but found embodied by items in the “collection” and “unauthorized secondary use” in a multi-item scale design in the 1990s (Smith, et al., 1996). Given that data combination is a much bigger issue in the current era of big data than it was almost 30 years ago, it is well plausible that the dimensionality of privacy concerns would look different nowadays. Be that as it may, perhaps due to the outsized influence of Smith, et al.’s (1996) contribution, data combination concern has remained rarely investigated in subsequent research. This is at odds with its arguably high significance, particularly in the Chinese context.

Research has detected some desirability-driven over-reporting in survey questions on trust in the central government and regime support in China (Robinson and Tannenberg, 2019). We do not expect that a desirability bias has a significant impact on responses to the government concern measure. Desirability biases are generally lower in self-administered online surveys, such as this one, than in interviewer surveys (Ye, et al., 2011). There are no indications that trust in lower-level authorities is affected by similar overreporting (Li, 2016). The item wording here does not refer to the central government and public criticism of officials in the Chinese public sphere over specific issue areas is widespread (Chen, 2017; Steinhardt, 2016). Moreover, the issue of online privacy is widely discussed online and is not considered a particularly sensitive topic (Yuan, et al., 2013).

To measure respondents’ structural proximity to the state we draw on two items querying respondents on their membership in the CCP and their sector of employment (in particular the categories state-owned enterprise (SOE), public institution and government) [21]. Our variables on political and economic ideology are consistent with previous measures of such concepts from Pan and Xu (2018) and Eaton and Hasmath (2021). Each of the measures ask respondents’ agreement (measured on a seven-point Likert scale from “do not agree at all” to “fully agree”) with four statements. Political authoritarianism is tapped with the statement “what our country needs most are citizens who strictly observe discipline, unite and follow the country’s leader.” We gauge the extent of patriotism with the statement “compared to being a citizen of other countries in the world, I prefer to be a Chinese citizen.” In terms of economic ideology, state capitalism support is tapped by the extent of agreement to the statement that “it is beneficial for the common people if the government has a leading position in the most important sectors of the economy.” State regulation support is measured with the statement “it is imperative that the state sets up laws and regulations for the commercial sector to protect the public interest.” [22]

We control for our respondents’ level of formal education and family income (log-transformed). To take the respondents’ living environment into account, we draw on the 2020 version of the “ranking of cities’ business attractiveness” that divides the 337 prefecture level cities in China into six city tiers [23]. We expect that users’ frequency of engagement with data collection systems is associated with attitudes towards privacy (Chong, 2019). Hence, we measure the number of (information-intense) commercial credit systems that individuals have reported to use or have used. Respondents were separately asked about 11 major commercial credit systems. We summed the answers up into an additive index ranging from 0 to 6. We further control for respondents’ gender and age.

Findings
To test our Hypotheses 1 and 2, we first analyze the frequency distributions of our three privacy concerns. In a second step we estimate regression models to examine Hypotheses 3 to 5.

Figure 1 displays the weighted frequency distribution of government, company, and data combination concerns [24]. The plots on the left and in middle highlight a noticeable difference between government and company concerns. While only 21 percent of respondents are “somewhat” and less than 2 percent are “very” concerned about the government collecting their personal information, a striking 56 percent are “somewhat” concerned about company data collection, while 23 percent report to be “very concerned”. We expected company concerns to be higher than government in Hypothesis 1, which is thus supported. The margin of observed differences is striking.

The distribution for data combination concerns (Figure 1, right) is situated in the middle between the former two. The shares of those concerned and those not concerned are almost equal, with a slight majority (53 percent) of respondents being at least “somewhat” concerned. This runs counter to our Hypothesis 2, which expected concerns to multiply when personal information collected by state and companies is being combined. We interpret these results as suggesting that respondents view the state as a safety device, cushioning some of their concerns about companies. Hence, Chinese respondents tend to not to buy into the “Big Brother” narrative of data combination [25].

To assess our Hypotheses 3 to 5, Table 1 displays three linear regression models with the three types of concerns as the dependent variables [26]. Among the control variables, credit systems are negatively associated with government privacy concerns. Holding all else equal, a change from 0 to 6 on the number of commercial credit systems used is associated with a decrease of government concern by 0.17 points (recall, the variable is coded from 1 to 4), which is equivalent to a 0.28 standard deviation in government concern. This finding suggests that higher privacy concerns go hand in hand with a lower rate of participation in the digital economy. However, although the predictor is negative for company and data combination concern too, it does not obtain statistical significance. It appears as if commercial credit
systems are associated more with the state than with companies. Moreover, Tier 1 residents display higher concerns than those in lower tiers, although only the difference to Tier 4 is significant for government concern, reducing it by a modest 0.13 points. The other control variables do not obtain statistical significance.

Table 1: Regression models.
Note: ***p < .001; **p < .01; *p < .05. Models display unstandardized OLS regression coefficients and standard errors in brackets.

<table>
<thead>
<tr>
<th></th>
<th>Government concern</th>
<th>Company concern</th>
<th>Combination concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.126*** (0.332)</td>
<td>3.304*** (0.383)</td>
<td>4.400*** (0.381)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.003 (0.001)</td>
<td>0.001 (0.002)</td>
<td>-0.002</td>
</tr>
<tr>
<td>Female</td>
<td>0.027 (0.033)</td>
<td>0.014 (0.038)</td>
<td>0.041 (0.038)</td>
</tr>
<tr>
<td>Credit systems</td>
<td>-0.029* (0.013)</td>
<td>-0.017 (0.015)</td>
<td>-0.019</td>
</tr>
<tr>
<td>Income (log)</td>
<td>-0.051 (0.030)</td>
<td>-0.005 (0.035)</td>
<td>-0.067</td>
</tr>
<tr>
<td>Education (ref. high school)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>-0.109 (0.315)</td>
<td>0.271 (0.364)</td>
<td>0.173 (0.362)</td>
</tr>
<tr>
<td>Junior high</td>
<td>0.035 (0.086)</td>
<td>-0.004 (0.099)</td>
<td>0.044 (0.098)</td>
</tr>
<tr>
<td>University</td>
<td>0.027 (0.045)</td>
<td>0.075 (0.052)</td>
<td>0.043 (0.052)</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>-0.027 (0.044)</td>
<td>0.046 (0.050)</td>
<td>0.029 (0.050)</td>
</tr>
<tr>
<td>City tiers (ref. Tier 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tier 2</td>
<td>-0.033 (0.043)</td>
<td>-0.005 (0.050)</td>
<td>-0.009</td>
</tr>
<tr>
<td>Tier 3</td>
<td>-0.081 (0.049)</td>
<td>-0.050 (0.056)</td>
<td>0.006 (0.056)</td>
</tr>
<tr>
<td>Tier 4</td>
<td>-0.133* (0.057)</td>
<td>-0.106 (0.065)</td>
<td>-0.002</td>
</tr>
<tr>
<td>Tier 5</td>
<td>-0.080 (0.066)</td>
<td>-0.040 (0.076)</td>
<td>-0.046</td>
</tr>
<tr>
<td>Tier 6</td>
<td>0.079 (0.110)</td>
<td>-0.070 (0.127)</td>
<td>0.096 (0.126)</td>
</tr>
</tbody>
</table>
Turning to the structural variables, we find that although party membership and working for an SOE is associated with lower government and data combination concerns (expected in Hypothesis 3), the coefficients are not significant. Party membership is only significant for government concerns when the ideological variables are not included (models not displayed) [27]. This suggests that party membership and ideological alignment with the state are (as we expected) intertwined, but ideology seems to matter more than social structure (see below). The party-state situs (Bell, 1979) as a structural variable does not have a strong association with peoples’ privacy concerns toward the state or the combination of their information from companies and state. Our Hypothesis 3 is thus not supported. Somewhat surprisingly, however, working in a foreign company increases concerns over company data collection. This sector of employment seems to be associated with characteristics that make individuals particularly concerned over the data privacy practices of companies. This finding warrants further research.

Focusing on the ideological variables, we find rather strong support for our Hypothesis 4 (marginal effects

<table>
<thead>
<tr>
<th>Structural state proximity</th>
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</thead>
<tbody>
<tr>
<td>Party member</td>
<td>-0.072 (0.043)</td>
<td>-0.082 (0.050)</td>
<td>-0.055 (0.049)</td>
</tr>
<tr>
<td>Employment (ref. SOE)</td>
<td></td>
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<tr>
<td>Public institution</td>
<td>0.090 (0.073)</td>
<td>0.120 (0.084)</td>
<td>0.069 (0.083)</td>
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<tr>
<td>Government</td>
<td>0.036 (0.157)</td>
<td>0.116 (0.181)</td>
<td>0.048 (0.180)</td>
</tr>
<tr>
<td>Private sector</td>
<td>0.051 (0.062)</td>
<td>0.091 (0.071)</td>
<td>0.013 (0.071)</td>
</tr>
<tr>
<td>Foreign company</td>
<td>0.084 (0.089)</td>
<td>0.268** (0.103)</td>
<td>0.074 (0.102)</td>
</tr>
<tr>
<td>Other</td>
<td>0.083 (0.065)</td>
<td>0.147 (0.075)</td>
<td>0.020 (0.075)</td>
</tr>
<tr>
<td>Ideological state alignment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authoritarianism</td>
<td>-0.051** (0.016)</td>
<td>-0.029 (0.018)</td>
<td>-0.067*** (0.018)</td>
</tr>
<tr>
<td>Patriotism</td>
<td>-0.056** (0.018)</td>
<td>0.018 (0.021)</td>
<td>-0.040 (0.021)</td>
</tr>
<tr>
<td>State capitalism support</td>
<td>-0.052*** (0.013)</td>
<td>-0.033* (0.015)</td>
<td>-0.037* (0.015)</td>
</tr>
<tr>
<td>State regulation support</td>
<td>-0.071*** (0.015)</td>
<td>-0.015 (0.017)</td>
<td>-0.046** (0.017)</td>
</tr>
<tr>
<td>N</td>
<td>1,500</td>
<td>1,500</td>
<td>1,500</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.096</td>
<td>0.022</td>
<td>0.054</td>
</tr>
<tr>
<td>Adj. R-squared</td>
<td>0.081</td>
<td>0.007</td>
<td>0.039</td>
</tr>
</tbody>
</table>
Dreading big brother or dreading big profit? Privacy concerns toward the state and companies in China

illustrated in Figure 2), which expected that being aligned with the state in terms of political ideology is related to lower government and data combination concerns. Our models largely bear this out, although patriotism is not significant for data combination concern. When authoritarianism and patriotism change from minimum to maximum, government concern decreases 0.31 and 0.34 points, or 0.47 and 0.52 standard deviations, respectively. Likewise, authoritarianism decreases data combination concern by 0.41 points, equivalent to 0.56 standard deviations.

Figure 2: Marginal effects of political ideology on government and data combination concerns.

Note: Larger version of Figure 2 available here.
We also find partial support for our Hypothesis 5 (marginal effects illustrated in Figure 3), which expected that alignment with the state in economic ideology would be associated with lower concerns over government data collection and data combination. Both models do find significant negative associations for the two indicators of economic ideology. Changing state capitalism support and state regulation support from minimum to maximum, reduces government concern by 0.31 and 0.43 points, or 0.47 and 0.66 standard deviations, respectively. The same variables reduce data combination concerns by 0.22 and 0.37 points, equivalent to 0.30 and 0.51 standard deviations.

Figure 3: Marginal effects of economic ideology on government and data combination concerns.
However, our expectation that stronger pro-market economic ideology would be associated with lower company concerns is not supported. Conversely, we find that more support for state capitalism is (weakly) correlated with lower company concerns. It is possible that being ideologically aligned with the state (support for state capitalism) is associated with a general deference to authority, which in turn makes individuals less sensitive about data privacy, even vis-à-vis companies.

Summing up, we found very limited associations between respondents structural positionality vis-à-vis the state on government and data combination concerns (and company concerns, for that matter). Privacy concerns in China appear to be largely independent from structural proximity or distance to the state. We did reveal rather consistent support for our expectations regarding the association between an ideological alignment with the state and government and data combination concerns. The expected association between economic ideology and company concerns was not supported.

Overall, however, the effects we found were modest in size. Hence, although government and data combination concerns do break up along ideological cleavages in Chinese society, they are apparently not particularly politicized. Even among those ideologically most distant from the state, concern over data collection by government remains rather low. By contrast, company concerns are not only very extensive in magnitude, but they also cut across key structural and ideological differences in society.

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**Discussion and conclusion**

In this study we compared concerns over the collection of personal information by government and companies in China. We have found that government concerns are low, while company concerns are extensive. We have also found that the combination of government and company information does not multiply concerns, suggesting that the state is seen as a safety device that cushions some concerns about company data collection.

We then examined the role of social structure and ideology to explain government and company privacy concerns. As we expected, those who are aligned with the state in terms of their political-economic attitudes are less concerned about the state collecting their information. However, even among those who are not ideologically aligned with the state, government privacy concerns are only moderately inflated. We could not detect a strong relationship between concern for commercial data privacy, on the one hand, and respondents’ socio-structural position or their ideological views, on the other. High company privacy concerns in China appear to be consensual across key structural and ideological distinctions.

We suggest three implications based on these findings. First, the notion that Chinese citizens are not particularly worried about their privacy, articulated prominently by Baidu CEO Robin Li (Shen, 2018), seems to be more wishful thinking than reality. When it comes to companies, people appear to be very concerned about personal information collection practices. Our findings thus help to contextualize why the Chinese authorities have issued a series of privacy regulations and laws in recent years (Determann, et al., 2021; Hao, 2020). They are responding to widespread popular concerns and seek to secure the flow of information that greases the wheels of China’s digital economy. Our findings also suggest that the government’s reigning in of the country’s giant Internet companies can count on substantial popular support — in particular since it is justified with companies’ data collection activities (Ni, 2021).

Second, our findings also imply that popular concerns vis-à-vis the Chinese information state are not only...
lower than one might expect for an authoritarian regime, but are also not varying significantly with closeness to the state. Hence, the Chinese state’s various initiatives to expand its collection of information from citizens is not bound to provoke substantial popular discontent for the time being. Yet, a persistence of low concerns vis-à-vis the state will also depend on how the state’s vast information collection schemes, such as the Social Credit System or the pandemic control apparatus, will be implemented. If citizens in their day-to-day encounters with the information state get the sense that their data is not being processed fairly, that power and influence can manipulate information, or that information-intensive governance tools entrenched social inequalities and curtail hard-won liberties in the social sphere, citizens’ benefit of the doubt may well fade.

These two points, taken together, suggest a third implication: a rethinking of how citizens interpret the dangers of authoritarian state monitoring appears warranted. In contrast to the authoritarian surveillance literature that highlights the relative threat posed by the government versus corporations (Howard, et al., 2011; Diamond and Plattner, 2012), the Chinese state seems to be successful in positioning itself as the guardian of citizens’ private information. This finding suggests that the state may be able to use its perception as a safeguard of private information as a basis for regime legitimation. Rather than privacy being an area of weakness for the authoritarian state, the Chinese state seems to have turned it into a point of strength.

The results presented here suggest several avenues for future research. More fine-grained research on privacy concerns in China that help us better understand what makes citizens so anxious about company data collection is needed. Some research, for instance, suggests that there is a very high level of concern about the commercial trading of personal information by companies among Chinese respondents (Chen and Zhang, 2021). What other factors play a role and how do citizens respond to the new privacy regulations in China?

We also need to understand better what drives the low concerns about government data collection. One hypothesis is that in contrast to company data collection, which is manifested in citizens’ daily lives by, for instance, advertisement and scam phone calls, state data collection is extensive, but remained without tangible consequences for most people. This provokes the question if and how attitudes shift when the consequences of state surveillance begin to affect peoples’ livelihoods more directly, as is the case with the introduction of widespread monitoring and control technology related to the COVID-19 pandemic in China. Further survey studies, but also complementary investigations based on qualitative interviews and field research, are warranted to explore these questions.

Finally, global research on privacy concerns should investigate the differences between concerns about government and company concerns more systematically and in a broader comparative context. In the current era of big data, it is likewise necessary to improve our comparative understanding of the extent and the conditions of concerns over the combination of personal information from different actors. The present study may serve as a step in these directions.

About the authors

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Notes

1. Reflecting the importance of information for the authorities’ strategic considerations, the central government has released a national Big Data action plan in 2015 and elevated data to a basic economic production factor in 2020 (State Council, 2015; State Council and CCP Party Center, 2020).


4. Out of 205 publications sampled in a major literature review, only four were examining privacy concerns towards governments, while 99 were focusing on concerns towards commercial organizations (Yun, et al., 2019, p. 580).


9. Han, 2018, p. 29 ff.


13. The business sector is intertwined with the state and the two are not in a zero-sum game. We therefore do not expect the opposing effect that a structural proximity to the state would be associated with higher privacy concerns vis-à-vis companies.

14. These scales refer to international conventions. On the political axis of left and right in China, the left is associated with political authoritarianism, while the right is associated with political liberalism (Pan and Xu, 2018).

15. Although privacy regulations in China have recently become stricter and more coherent, key legislation such as the 2021 Personal Information Protection Law came into effect after our data collection in 2019 (Determann, et al., 2021; Hao, 2020).

16. Due to the sensitivity of the research, the firm wishes to remain anonymous.
The weighted distributions are effectively identical with the unweighted ones.


While the wording of the company concern item does not explicitly refer to “private” companies, the term is understood to refer to private business in Chinese. Among the 53 sentences the Chinese translation site Chacha provides for the term “  ” just one refers to a state-owned company. In this case, the term is modified by the word “  ” (publicly operated) https://archive.ph/LscGJ (accessed 15 May 2022). Moreover, Google searches for our term “commercial entities” ( ) modified with “  ” (privately operated), “  ” (private) produce thousands of results, while the modifications “  ” (publicly operated) or “  ” (state-owned) produce just a few dozen hits. Should some respondents nonetheless have had state-run companies in mind, it would imply we slightly underestimate rather than overestimate the extent of privacy concerns vis-à-vis private business.

See also Liu (2022) for a similar approach.

Our ideology measures are correlated at 0.20 (state regulation and patriotism/state authoritarianism) to 0.49 (patriotism and state authoritarianism). Cronbach’s alpha for all four items is 0.58. Hence, we measure related but nonetheless distinct dimensions of ideology.

The ranking is released annually by Diyi Caijing, a financial media conglomerate. It evaluates cities based on five indicators, namely: the density of commercial resources, cities’ hub character, population liveliness, life-style diversity and future adaptability. See https://www.thepaper.cn/newsDetail_forward_7635666, accessed 15 September 2021.

Differences between weighted and unweighted frequencies are negligible.


Ordered logistic regressions produce substantially identical findings.

Changing the employment reference category to public institution or government does not change the results.

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**Appendix A: Distribution of education in the Internet population and survey sample**

<table>
<thead>
<tr>
<th>Highest educational degree</th>
<th>China Internet Population 2019</th>
<th>Survey Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school and below</td>
<td>18.0%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Junior high school</td>
<td>38.1%</td>
<td>18.3%</td>
</tr>
<tr>
<td>High school</td>
<td>23.8%</td>
<td>27.2%</td>
</tr>
<tr>
<td>University/college and above</td>
<td>20.2%</td>
<td>49.9%</td>
</tr>
</tbody>
</table>

Note: Larger version of Appendix A available [here](#).

**Appendix B: Distribution of age in Internet population and survey sample**

Both distributions exclude those below 20. In CNNIC’s (2019) “Statistical report on Internet development in China” the age group below 20 is “10–19”, the survey only includes respondents 18 and over. Hence, age groups below 20 are not comparable.
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Note: Larger version of Appendix B available [here](#).

Appendix C: Distribution of gender in Internet population and survey sample

<table>
<thead>
<tr>
<th>Gender</th>
<th>China Internet Population 2019*</th>
<th>Survey Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52.4%</td>
<td>51.6%</td>
</tr>
<tr>
<td>Female</td>
<td>47.6%</td>
<td>48.4%</td>
</tr>
</tbody>
</table>

Note: Larger version of Appendix C available [here](#).

Appendix D: Variables and question wording
Dreading big brother or dreading big profit? Privacy concerns toward the state and companies in China

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question wording ENG (range)</th>
<th>Question wording CN (range)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government concerns</td>
<td>To what extent are you concerned about the following situation: government departments collect my personal information.</td>
<td>您对政府部门收集我的个人信息这种情况的担心程度：(1-4)</td>
<td>2.09</td>
<td>0.65</td>
</tr>
<tr>
<td>Company concerns</td>
<td>To what extent are you concerned about the following: Commercial entities collect my personal information</td>
<td>您对商业机构收集我的个人信息这种情况的担心程度：(1-4)</td>
<td>2.98</td>
<td>0.72</td>
</tr>
<tr>
<td>Data combination concerns</td>
<td>To what extent are you concerned about the following: My personal information collected separately by government departments and commercial entities is being merged.</td>
<td>您对政府部门和商业机构分别收集到的个人信息被整合在一起这种情况的担心程度：(1-4)</td>
<td>2.58</td>
<td>0.73</td>
</tr>
<tr>
<td>CCP member</td>
<td>Are you a member of the CCP? (1/0)</td>
<td>您是共产党员吗？（1/0）</td>
<td>0.26</td>
<td>0.60</td>
</tr>
<tr>
<td>Employment</td>
<td>Employment type (single choice)</td>
<td>就业类型（单选）：</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government (1/0)</td>
<td></td>
<td>国家机构（1/0）</td>
<td>0.01</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>State-owned enterprise (SOE) (1/0)</td>
<td>国有企业（1/0）</td>
<td>0.10</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>Public institution (1/0)</td>
<td>事业单位（1/0）</td>
<td>0.11</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>Employment type (single choice)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private sector (1/0)</td>
<td>普通企业（1/0）</td>
<td>内企业（1/0）</td>
<td>0.44</td>
<td>0.50</td>
</tr>
<tr>
<td>Foreign company (1/0)</td>
<td>外资企业（1/0）</td>
<td>外企（1/0）</td>
<td>0.05</td>
<td>0.22</td>
</tr>
<tr>
<td>Other (1/0)</td>
<td>其他（1/0）</td>
<td>其他（1/0）</td>
<td>0.30</td>
<td>0.46</td>
</tr>
<tr>
<td>Authoritarianism</td>
<td>What our country needs most are citizens who strictly observe discipline,</td>
<td>我们国家最需要的是严格遵守纪律的公民，团结一心紧随国家领导人，（1-7）</td>
<td>5.99</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td>Compared to being a citizen of other countries in the world, I prefer to be a Chinese citizen.</td>
<td>相比于世界上其他国家的公民，我更愿意当中国公民，（1-7）</td>
<td>6.36</td>
<td>1.04</td>
</tr>
<tr>
<td>Patriotism</td>
<td>相比于世界上其他国家的公民，我更愿意当中国公民，（1-7）</td>
<td>政府对主要经济领域的主导地位有利于普通百姓，（1-7）</td>
<td>5.01</td>
<td>1.29</td>
</tr>
<tr>
<td>State capitalism support</td>
<td>It is beneficial for the common people if the government has a leading position in the most important sectors of the economy.</td>
<td>政府对主要经济领域的主导地位有利于普通百姓，（1-7）</td>
<td>5.01</td>
<td>1.29</td>
</tr>
<tr>
<td>State regulation support</td>
<td>It is imperative that the state sets up laws and regulations for the commercial sector to protect the public interest.</td>
<td>国家给商业设法律法规是保护公共利益的必要手段，（1-7）</td>
<td>5.88</td>
<td>1.16</td>
</tr>
<tr>
<td>Education</td>
<td>Highest obtained educational degree (single choice)</td>
<td>取得的最高学历（单选）：</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None/primary (1/0)</td>
<td>无 / 小学（1/0）</td>
<td>无 / 小学（1/0）</td>
<td>0.05</td>
<td>0.21</td>
</tr>
<tr>
<td>Junior high (1/0)</td>
<td>初中（1/0）</td>
<td>初中（1/0）</td>
<td>0.18</td>
<td>0.39</td>
</tr>
<tr>
<td>Senior high (1/0)</td>
<td>高中（1/0）</td>
<td>高中（1/0）</td>
<td>0.27</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Note: Larger version of Appendix D, part 1 available [here](#).
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Note: Larger version of Appendix D, part 2 available [here](#).

Note: Larger version of Appendix D, part 3 available [here](#).

Note: Larger version of Appendix D, part 4 available [here](#).

<table>
<thead>
<tr>
<th>Income</th>
<th>University (1/0)</th>
<th>大学本科 (1/0)</th>
<th>0.40</th>
<th>0.49</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Postgraduate (1/0)</td>
<td>研究生/博士 (1/0)</td>
<td>0.10</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>Your monthly family income (RMB)</td>
<td>您家庭月收入（RMB）</td>
<td>16,926.8</td>
<td>13,225.21</td>
</tr>
<tr>
<td>City tiers</td>
<td>Tier 1 (1/0)</td>
<td></td>
<td>0.31</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>Tier 2 (1/0)</td>
<td></td>
<td>0.27</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>Tier 3 (1/0)</td>
<td></td>
<td>0.18</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>Tier 4 (1/0)</td>
<td></td>
<td>0.13</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>Tier 5 (1/0)</td>
<td></td>
<td>0.08</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>Tier 6 (1/0)</td>
<td></td>
<td>0.02</td>
<td>0.15</td>
</tr>
</tbody>
</table>

In recent years, many companies have established personal credit rating systems. Are you currently using, or have you used any of the credit rating systems listed below? (multiple choice) Du Xiaoman xinyongfen (Du Xiaoman)

Note: Larger version of Appendix D, part 3 available [here](#).

<table>
<thead>
<tr>
<th>Credit systems</th>
<th>Financial); Tianxia xinyongfen (Pengyuan Credit Service); Zhima xinyongfen (Sesame Credit); Tengxun zhengxinfen (Tencent Credit); Huxinfen (Qianbei Zhengxin); Wanxiangfen (CCXI); Koala xinyongfen (Koala Information); Xiebai xinyongfen (Jingdong Zhengxin); Fefan xinyongfen (Wanda Credit); Xinyaong wendu (Sinoway Credit); Yeunifen (China Youth Credit) (0-6)</th>
<th>信分 （腾讯征信）; 好信分 （前海征信）; 万象分 （中诚信证信）; 考拉信用分 （考拉征信）; 小白信用分 （京东征信）; 非凡信用分 （万达征信）; 信用分 （华道征信）; 优你分 （中青信用） (0-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td>Age</td>
<td>(18-72)</td>
<td>35.09</td>
</tr>
</tbody>
</table>
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**Editorial history**

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