Weibo to the Rescue? A study of social media use in citizen–government relations in China

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Abstract

Purpose – In this study, the authors explain citizens' adoption of social media in citizen–government relations in China, a country that blends an authoritarian governance regime with limited tolerance of and responsiveness to online citizen participation.

Design/methodology/approach – Original survey data were gathered using a vignette survey among 307 respondents living in the People's Republic of China. Multivariate analysis of the data was used to test four hypotheses and identify antecedents of Chinese citizens' social media adoption for "thin" participation purposes.

Findings – Citizens' perceived impact of "thin" participation, citizens' skills and capabilities and citizens' trust in institutions are significantly associated with citizens' social media adoption. Social media anxiety was found not to be associated with Chinese citizens' social media adoption.

Research limitations/implications – This study demonstrates how vignettes can be used to study adoption of technological and institutional innovations in an authoritarian governance regime and how in this context existing adoption theories can be extended with notions of institutional trust to adequately explain citizens' adoption of technological and institutional innovations in citizen–government relations.

Social implications – Although some argue that social media activity could potentially mitigate democratic deficits caused by the state, in the case of China, the intertwinement of state and social media platform renders this argument unsustainable.

Originality/value – This study is one of the few systematic survey studies focusing on Chinese citizens' adoption of social media in citizen–government relations.

Keywords Social media, Thin participation, Digital engagement, China, Adoption, Innovation

Paper type Research paper

1. Introduction

Throughout the world, we find social media platforms being used for online conversations between governments and citizens (Mergel, 2013; Feeney and Porumbescu, 2020; Silva *et al.*, 2019). A systematic review of studies on social media use in citizen–government relations showed that most studies focus on explanatory accounts of governments' presence on social media and on social media management issues, although citizens' motivations for using social media to engage in conversations with government rarely being reported (Medaglia and Zheng, 2017). With few exceptions (Lu *et al.*, 2016; Homburg *et al.*, 2020; Medaglia and Zhu, 2017; Gintova, 2019), researchers are yet to empirically study why citizens publicly voice concerns on governments' social media accounts. This article aims to fill this gap by focusing on which factors determine citizen-initiated exchange of information with government on public social media platforms, and it does so by empirically focusing on the People's Republic of China. Apart from its massive user base (close to 1 billion users of domestic social media platforms, 600,000 party and government social media accounts (Qin *et al.*, 2017)), China is of interest because central and local governments have adopted electronic channels for administrative communication for decades (Qin *et al.*, 2017; Harwit, 2014; King *et al.*, 2013); furthermore, it has been argued that in countries lacking strong democratic institutions, social media platforms may serve as alternative platforms for participation and public accountability (Reuter and Szakonyi, 2015; Schlæger and Jiang, 2014). In this respect, China's blend of the following generally (Zhang and Zhu, 2020) make China a relevant point in case:

- an authoritarian governance regime with relatively low scores on democracy indices (ranked on position 153 out of 167 countries in the Economist's Democracy Index and on position 153 out of 163 countries on Transparency International's corruption index);
- encouragement and appreciation of "beta-version" local digital grassroots initiatives (Homburg *et al.*, 2020; Schlæger and Jiang, 2014; Ma, 2013); and
- government investments in electronic channels and services.

Our aim with this article is to contribute to an explanation of citizen-initiated digital participation in China's political and societal context by confronting hypotheses derived from innovation theories, political theory and institutional theories with original survey data that was gathered in the People's Republic of China.

2. Chinese citizens' social media use decisions

2.1 Citizens' "thin" participation on social media platforms

To develop hypothesis regarding citizens' adoption of social media in citizen-initiated contact with the government in China, we extend generic innovation theories such as the technology adoption model (TAM) and unified theory of adoption and utilization of technology (UTAUT) (Hooda Nandal *et al.*, 2019; Alkraiji, 2021; de Araujo *et al.*, 2018; Venkatesh *et al.*, 2016; Rana *et al.*, 2016; Kurfalı *et al.*, 2017) with social media adoption theories (Homburg *et al.*, 2020; Al-Debei *et al.*, 2013), theories on digital participation (Landemore, 2015; Leighninger, 2014; Sjoberg *et al.*, 2017) and studies of social media use in China (Qin *et al.*, 2017; Harwit, 2014; King *et al.*, 2013). In terms of types of conversations on social media platforms, we focus on "thin participation" (*ad-hoc* sourcing and discussion of issues that affect primarily narrower interests, such as temporal, local infrastructure failures (Leighninger, 2014)), as our deductive research design necessitates a relatively unambiguous and time–place independent phenomenon as the basis for

hypothesis development and testing. In the subsequent subsections, we briefly review the more encompassing literature to develop hypotheses with which the occurrence of "thin" forms of participation on social media networks can be explained.

2.2 Perceived impact and effectiveness of digital participation

Innovation theories such as UTAUT (Rana *et al.*, 2016; Kurfalı *et al.*, 2017; Venkatesh *et al.*, 2003) present individuals' perceived effectiveness as the most important antecedent of adoption of e-services (Venkatesh *et al.*, 2016; Mensah and Adams, 2020) In the participation literature, it is reported that citizens' expectations on whether it pays off to voice concerns on social media platforms affect the likelihood that citizens initiate digital conversations (Culver and Howe, 2004). Combining this, we find that only if citizens think digital participation yields personal or civic benefits and value they will spend precious time and energy on using social media to initiate a conversation with government (Venkatesh *et al.*, 2016; Al-Debei *et al.*, 2013; Culver and Howe, 2004; Longo, 2017). Whereas in various empirical studies, a positive association between perceived effectiveness of e-services and intended use was observed (Rana *et al.*, 2016; Kurfalı *et al.*, 2017; Mensah and Adams, 2020; Carter *et al.*, 2011). This leads us to our first hypothesis that relates to the impact, defined as the citizen's belief that social media use helps to solve real-world problems:

H1. The more a citizen feels her or his social media use helps in solving real-world problems, the higher the likelihood a citizen uses social media to address concerns or issues in citizen–government relations (impact).

2.3 Capabilities and skills

In technology adoption studies, elements of the capability approach have been used by hypothesizing that a technology's ease of use is related to adoption; capability was generally found to predict citizens' intentions to use e-government services (Rana *et al.*, 2016; Carter *et al.*, 2011; Carter and Bélanger, 2005), whereas no support was observed in the study by Kurfalı *et al.* (2017). In this study, we define capabilities and skills as the degree to which citizens believe that they possess the required capabilities and skills to use social media to initiate contact with their government (de Araujo *et al.*, 2018). This leads to the formulation of the following hypothesis:

H2. The more advanced a citizen's social media capability, the higher the likelihood a citizen uses social media to address concerns or issues in citizen–state relations (capabilities and skills).

2.4 Social influence

Literature also states that social influence, the norms held by one's nearest and dearest, influences citizens' decisions to adopt technology (Homburg *et al.*, 2020; Kurfalı *et al.*, 2017; Venkatesh *et al.*, 2003; Venkatesh *et al.*, 2016; Yang *et al.*, 2018). This statement was supported in e-services studies (Rana *et al.*, 2016; Kurfalı *et al.*, 2017; Carter *et al.*, 2011) and social media adoption studies (Homburg *et al.*, 2020; Al-Debei *et al.*, 2013). This leads to the formulation of the following hypothesis:

H3. The more a citizen perceives social influence, the higher the likelihood a citizen uses social media to address concerns or issues in citizen–state relations (social influence).

2.5 Trust in government and trust in social media ecology

A number of innovation studies have added the variable "trust" in addition to the more generic theories such as UTAUT. In general, citizen's trust in government is an individual citizen (A)'s belief that government (B) will act competently, fairly, benevolently and with an eye on integrity and generating public value (Zhang and Zhu, 2020; McKnight *et al.*, 2002; Pavlou and Gefen, 2005). Trust in government has been found to be the most important determinant of e-services adoption (Carter *et al.*, 2011; Zhu *et al.*, 2021). This leads to the formulation of *H4*:

H4a. The larger a citizen's trust in government, the higher the likelihood a citizen uses social media to address concerns or issues in citizen–state relations [trust in government].

A second connotation of trust in relation to social media refers to trust in the larger ecology of internet service providers (in China, 263.net and China Telecom, for example), social media businesses (Sina Weibo, Tencent, People's Net and Xinhua Net, for instance) and regulatory agencies that govern privacy and safety of transactions (in China a myriad of bodies, including Central Leading Groups, the Ministry of Industry and Information, the State Council Information Office and the Cyberspace Administration of China [Miao *et al.*, 2018]). Social media platforms are not necessarily designed and built to strengthen democracy, especially so in a Chinese context (Qin *et al.*, 2017; Harwit, 2014; Cairns and Carlson, 2016). In our study, we define trust in social media ecology as the degree to which an individual believes that although there are potential risks in using social media, he or she will not be confronted with negative consequences. This leads to the following hypothesis:

H4b. The higher a citizen's trust in social media ecology, the higher the likelihood a citizen uses social media to address concerns or issues in citizen–state relations (trust in social media ecology).

2.6 Social media anxiety

The political theory shows insights relating to social media anxiety, defined as citizen's general negative affective emotion of arousal that results from consequences of individual citizens' use of social media that are beyond the control of that particular citizen. According to Qin, Strömberg and Wu, Chinese officials, agencies and Chinese Communist Party cadres use social media to monitor public sentiments and use them as a propaganda space through which citizen discontent is contained within tolerable limits (Qin *et al.*, 2017). Authorities' responsiveness to citizen voice on social media platforms continues to exist up to the point where authorities suspect social protests are gaining traction (Sullivan, 2014) then they will most likely intensify censorship and trolling through occupying social media in an attempt to clip ties of emerging social organization (King *et al.*, 2013; Cairns and Carlson, 2016; Meng *et al.*, 2017). Thus, Chinese citizens, who are described as relatively wild and outspoken in their online behaviors (Hassid, 2012), are individually free to express themselves on social media platforms such as Sina Weibo, but collectively, they are chained to a practice of surveillance, censorship and possibly prosecution (King *et al.*, 2013; Meng *et al.*, 2017). In Homburg *et al.*'s study, anxiety was found to be negatively associated with social media use in China (Homburg *et al.*, 2020). This leads to the final hypothesis:

H5. The more a citizen experiences social media anxiety in citizen–state relations, the lower the likelihood a citizen uses social media to address concerns or issues in citizen–state relations (social media anxiety).

Before empirically testing our hypotheses, we have identified gender (Venkatesh *et al.*, 2000), age (Liébana-Cabanillas *et al.*, 2014) and education level (Liébana-Cabanillas *et al.*, 2014; Yera *et al.*, 2020) as controls.

3. Methodology
3.1 Vignette Survey
Taking into account the deductive character of the research objective, we chose a *large-n* online survey research design to gather data among Chinese citizens. In a questionnaire, we presented respondents with vignettes in which a protagonist speaks up on issues linked to relatively uncontested government tasks that appeal to a target audience as wide as possible without specifying a specific time frame or locality (infrastructure maintenance, tax assessment and public health). More specifically, we described a situation in which a protagonist observes a pothole on a public road, is confronted with an obvious mistake in a tax assessment and has missed out on a vaccination summon (the vignettes are included in Appendix A). To prevent a respondent's preference for specific platforms to interfere with the measurement, we refrained from mentioning specific platforms in the vignettes. Respondents were asked to score the perceived realism of the situation (using a two-item Likert scale that is only used for validation purposes) and the degree to which he or she would react in the same way when confronted with such a situation (a proxy for the adoption of social media in citizen–government relations). The use of vignettes in survey research over more generic and abstract survey items such as "I would use social media to speak up about public issues" brings with it the advantage that validity is increased as responses are embedded in a more concrete, realistic context; furthermore, the impact of social desirability is limited (Wallander, 2009; Steiner *et al.*, 2017). Reported levels of realism are presented in Table 1. As levels of perceived realism were satisfactory, we found no reason to exclude specific vignettes on the basis of these reported realism levels.

3.2 Measurement
Adoption of social media is measured with three items, which register the respondents' likeliness of acting the same as the protagonist in the vignette did. All variables were measured using multiple Likert items based on constructs found in existing studies (Homburg *et al.*, 2020; Carter and Bélanger, 2005; McKnight *et al.*, 2002; Osman *et al.*, 1994) yet slightly adapted to fit the context of social media use in Chinese citizen–government relations. All items are reported in Appendix B.

3.3 Data gathering, data screening and sample characteristics
To gather the data, a local market research firm was commissioned to distribute the questionnaire among a panel of Chinese adult citizens. The questionnaire was phrased in Mandarin and pretested by a Chinese native speaker. Data was not gathered through river-sampling but via double opt-in,

Realism scores (scale of 1–5)	Cronbach's α (#*item*)	M (*SD*)	
"pothole" vignette ("V POTHOLE")	0.65 *(2)*	4.33 *(0.64)*	**Table 1.**
"taxes" vignette ("V TAX")	0.79 *(2)*	4.04 *(0.88)*	Perceived realism for
"vaccination" vignette ("V VACCINATION")	0.84 *(2)*	4.18 *(0.87)*	vignettes on a scale of 1–5

actively managed research panels; respondents have to sign up and provide personal information before being eligible for inclusion in randomized survey panels. This allows for the composition of a more representative panel from which data are extracted. To avoid self-selection, survey invitations did not include specific details about the contents of the survey and were kept very general. Between July 23 and July 30, 2020, responses from 307 respondents could be recorded in the data set. Data cleaning procedures did not result in the identification of unengaged respondents or otherwise suspicious data. We checked for the occurrence of common method bias by inspecting the total variance in an unrotated principal component analysis of all Likert items in data set and found that the first factor accounted for 28.6% of total variance, implying that none of the factors explain the majority of variance and common method bias, is not likely to have occurred during the process of data gathering.

Table 2 provides information of the composition of our sample and compares it to known estimates of the Chinese population. The study sample displays a fairly representative gender balance, with an overrepresentation of highly educated citizens and an underrepresentation of senior citizens. Overall, we assess this sample as adequate and useful for purposes of hypothesis testing.

4. Findings

A principle component analysis was carried out to identify the underlying structure of the measured variables in the data set and assess convergent and discriminant validity of the measurement items. All Likert items showed a correlation of at least 0.3 with at least one other item, suggesting factorability. The Kaiser–Meyer–Olkin measure for sampling adequacy was 0.874 (well above the required minimum of 0.6), and Bartlett's test of sphericity was significant (χ^2 (435) = 5244.587, $p < 0.001$). All communalities were above 0.3, further confirming that each item shared at least some common variance with at least one other item. Given the aforementioned considerations, factor analysis was deemed to be suitable with all items. With Varimax rotation, a simple factor structure could not be realized with all items included. It was concluded that the items for "trust in government" and "trust in social media ecology" loaded on a single construct, suggesting that respondents did not differentiate between trust in government and trust in the organizational ecology of businesses and regulators that allow for the operation of social media platforms. Therefore, we constructed one eight-item scale and labeled it "trust in institutions;" consequently, it was not possible to test *H4*A and *H4*B, and in the analysis we tested *H4*, relating trust in institutions with the likelihood a citizen uses social media to address concerns in citizen–state relations. Eventually, a seven-factor solution could be

Variable	This study's sample (%)	WEIBO users (Medaglia and Zhu, 2017) (%)	Total 2020 China Population[a],[b] (%)
Female	55	49	49
Higher Education	88	76	18
Age < 24	22	49	29
Age 24–33	34	39	16
Age 34–45	21	11	14
Age > 46	20	2	41

Table 2.
Comparison of characteristics of study sample, Weibo users and total Chinese population of gender, education and age

Notes: [a]https://www.populationpyramid.net/china/, last accessed Zondag, Augustus 29, 2021. [b] 2019 OECD data, https://www.oecd.org/education/education-at-a-glance/EAG2019_CN_CHN.pdf, last accessed Saturday, January 23, 2021

identified with which 69.5% of total variance could be explained. The descriptives are reported in Table 3.

Multiple regression analysis was deemed appropriate to test the hypotheses as the correlations between the independent variables, and relatively low variance inflation factor scores signal no problems with multicollinearity, a scatter plot of standardized residuals signaled no issues with homoscedasticity and Q-Q plots revealed a relatively normal distribution. Table 4 summarizes the results of the regression analysis in terms of estimated standardized coefficients for the each of the regression equations and for the regression equation in which responses to three vignettes are combined.

Regression analyses provide support for *H1* (support in all three vignettes separately and combined, $\beta = 0.178$, $p < 0.01$), *H2* (support in all three vignettes separately and combined, $\beta = 0.201$, $p < 0.001$) and *H3* (support in all three vignettes separately and combined, $\beta = 0.316$, $p < 0.001$). *H4* is not supported (no significant impact in vignettes separately or combined, $\beta = -0.029$, $p = $ n.s.). The largest impact on social media use stems from trust in institutions and the overall explained variance is 27.5%.

5. Conclusion and discussion

In this study, we have tested various hypotheses regarding citizens' "thin" online political participation efforts on social media platforms in China, a country with a large social media

	Cronbach's alpha	M (SD)				VIF
Gender (1 = female)		.55 (.49)				
Age		31.1 (7.7)				
Education (1 = higher)		0.88 (0.31)				
V pothole	0.83 (3)	4.14 (0.72)				
V tax	0.90 (3)	3.75 (1.01)				
V vaccination	0.89 (3)	4.10 (0.86)				
V all vignettes	0.88 (9)	3.99 (0.70)				
Perceived impact	0.87 (4)	3.93 (0.79)	1			1.407
Capability and skills	0.79 (5)	4.16 (0.61)	0.250***	1		1.078
Trust in institutions	0.89 (8)	3.97 (0.72)	0.518**	0.209**	1	1.380
Social media anxiety	0.82 (3)	3.10 (0.96)	0.009	−0.034	0.018	1.002

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 3.
Scale reliability, descriptives and correlations

	Pothole		Taxes		Vaccination		All	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Gender (1 = female)	−0.010	−0.039	−0.071	−0.088	−0.018	−0.036	−0.018	−0.045
Age	0.034	0.009	−0.012	−0.029	0.006	−0.009	0.002	−0.022
Education (1 = higher education)	0.072	0.046	0.075	0.036	−0.006	−0.045	0.044	0.005
Impact		0.117*		0.207*		0.126*		0.178**
Capability and skills		0.185***		0.121*		0.224***		0.201***
trust in institutions		0.389***		0.158*		0.199**		0.316***
Social media anxiety		0.008		−0.066		−0.037		−0.029
F	0.607	17.496***	0.963	7.449***	0.046	8.385***	0.209	16.151***
R^2	0.006	0.291	0.009	0.149	0.000	0.165	0.002	0.275

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 4.
Regression results

user base and in which authoritarian rule is blended with encouragement of participation at especially local levels (Schlæger and Jiang, 2014). Our findings suggest that citizens' perceived participation impact, capability and skills and trust in institutions significantly impact Chinese citizens' use of social media platforms to interact with government, whereas no significant impact was found for social media anxiety.

With these findings, we add to the emerging academic literature and to an improved theoretical understanding of adoption of social media platforms in citizen–government relations. First of all, we have theorized adoption of social media platforms beyond more or less rather inward-looking adoption and diffusion models such as TAM (Davis *et al.*, 1989) and the UTAUT (Venkatesh *et al.*, 2003). By including variables such as trust in government, trust in social media ecology (which were merged into trust in institutions in this particular study) and social media anxiety, we also address citizens' awareness of political and institutional opportunities and constraints in which social media platforms are being used and in which use of technology may have detrimental impacts for its users, especially in an authoritarian governance regime. Second, with a focus on citizens' side of the story of social media adoption, we have complemented existing literatures that focus on adoption of social media platforms by government agencies (Silva *et al.*, 2019; Bonsón *et al.*, 2012; Faber *et al.*, 2020; Bonsón *et al.*, 2019; Agostino, 2013; Hofmann *et al.*, 2013).

This study confirms a role for individual users' perceived impacts (benefits and value) yet underlines the importance of trust in institutions for the explanation of adoption of social media platforms. This conclusion is consistent with previous studies on adoption of online transactions (Gefen *et al.*, 2003) and e-government services (Rana *et al.*, 2016; Carter *et al.*, 2011). However, it must be noted that from this study, it can be concluded that the notion of trust in all institutions that enable social media platforms matter, at least in the context of China; obviously, trust in institutions – a feature of a relationship between citizens and government – may exacerbate or remedy citizens' perceived risks and uncertainties. Although some argue that interaction on social media platforms could potentially mitigate democratic deficits caused by the state, in the case of China, the intertwinement of state and social media platform makes this argument unsustainable. Perhaps, surprisingly, social media anxiety, an intuitively related yet conceptually and statistically distinct concept related to one's internalized negative affective emotion, yielded no significant impact on citizens' social media use. These notions underline policy relevance of our study: in the absence of institutional trust, the availability of social media channels does not suffice to entice citizens to initiate digital conversations with government. Further, applied policy research is suggested to identify policy measures through which institutional trust can be increased and governments can actually foster citizen inputs in policymaking.

As every study, this study does not come without limitations. First of all, a cross-sectional vignette survey of social media adoption in China can only be interpreted as a mere snap shot of digital citizen–state interactions in an evolving and sometimes rapidly changing socio-political reality of domestic and international turmoil. Second, the study of social media in citizen–state relations in China brings with it some aspects that are interpreted in China as sensitive, which limits possibilities to measure specific variables (including but not limited to "trust in government"), using survey questionnaires. Third, in this study, we have explicitly limited ourselves to "thin" forms of political participation (citizens' reactions to poor public service quality) on China's domestic social media platforms to improve our understanding of adoption and diffusion of social media among Chinese citizens. Arguably, it is also of interest or even necessary to expand the scope of studies to "thicker" forms of political participation, such as public opinion formation over diplomatic incidents (Cairns and Carlson, 2016) and environmental disputes (Li *et al.*, 2016).

Fourth, as every vignette bears with it a certain level of artificiality and there are risks of misrepresentation when vignettes are presented to respondents sampled from a rather generic population (which could apply to vignettes two and three), vignettes could also be designed in such a way that more topical and more specific time- and locality-specific characteristics are included, with the administration of the survey being limited to specific regions or segments of target populations, thereby increasing the validity of the measurement of responses to vignettes. Fifth, although our relatively small sample proved to be large enough for hypothesis testing using regression analyses and was representative in terms of age and gender distributions, future research could focus on composing larger samples with a more representative sample in terms of education level.

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Appendix A(online resource)
https://surfdrive.surf.nl/files/index.php/s/h85Su9YCJAthILO

Appendix B(online resource)
https://surfdrive.surf.nl/files/index.php/s/HjbjFR4CODW6DXQ

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