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Social Media and Civic Engagement in China:

The impact of social network ties on environmental protection engagement

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by

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ABSTRACT

This study seeks to investigate whether social media – as a form of informal institution – play a key role in civic engagement in China. The study begins with the insight that online social network ties may lead to cooperative behaviors of Chinese citizens in civic engagement. I argue that social media may have differential impacts on civic engagement, depending on whether such platforms are conducive to maintaining social network ties. Furthermore, online relationships may be mediated by offline relationships in social media use and civic engagement. I test my hypotheses using large-N analysis and develop regression models

with a large national dataset on social media and public opinion in China. There are three main findings. First, social media designed to maintain social network ties and increase their customer base through network ties seem to have a positive impact on civic engagement. Conversely, social media designed for entertainment and instant gratification tend to have no impact or even negative impact on civic engagement. Second, the more people interact online with people whom they know offline, the more likely they will be engaged in civic activities. Third, the closer the offline relationship is, the more civic engagement interests there will be.

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Chapter 1 Introduction

In 2011, a well-known case on Weibo plagued a high-profile Chinese organization—the Chinese Red Cross. Guo Meimei, a twenty-year old girl, claims to be the general manager of Red Cross Commerce on her social media Weibo page. Her subsequent display of pictures showing a lavish lifestyle driving high-end luxurious cars and owning big mansions drew skepticism from people who questioned if her wealth came from the Red Cross Society of China and if the charity had misused its public donations.

Although subsequent events uncovered the truth, the damage had been done. Further investigations revealed that Meimei was working for a company that is affiliated with a commercial organization under the China Red Cross in which her boyfriend was a major shareholder. She also exaggerated her position within the organization. Following the incident, a *News Week* survey showed that 82 percent of netizens claim that they would not donate to the Chinese Red Cross anymore.

Fifteen percent indicated that they would like to know exactly where money goes before they would donate again. Only 2 percent said they would still donate.

This very first high-profile social media case that was directed at the public service sector of China serves as a double-edged sword in the study of civic engagement in China. On the one hand, social media are powerful tools for collective action, which could benefit public goods provision. On the other hand, there are high reputational costs of the organizations involved in such scandals and it takes time to regain the confidence of the public. As the new deputy chairman of the Chinese Red Cross commented in November 2011, “the work on social media for three days could ruin the work of 100 years of the organization.”

Similar cases have piled up in recent years and it begged the question: do social media play a significant role in civic engagement in China? The existing literature, largely drawn from western countries, shows a mixed effect of social media on political participation and civic engagement. Scholars who are devoted to this issue have not reached consensus regarding the link between social media and an increased, or decreased, level of political participation. This study sets out to reconcile the divergence and debate in the existing literature by examining the secondary conditions which determine the relationship between social media and

political participation. When, and under what conditions, will social media have a positive impact on civic engagement?

Overall, China lacks the common variables that explain civic engagement, such as institutional checks and balances, civil society organizations and the presence of NGOs (Berman, 1997; Boulding, 2010; Encarnación, 2003).

More specifically, this study will be focused on civic engagement in basic public services – especially engagement in environmental protection. These common, or collective, benefits enjoyed by citizens are usually defined as "public goods" by economists (Olson, 1965). As these public goods are usually provided by the government, the literature generally recognizes the role of formal institutions in public goods provision. Earlier theories of economic redistribution tended to focus on the role of formal institutions—such as the role of the state (Evans, 1995), mechanisms of checks and balances in democratic institutions (Keefer, 2004) and electoral systems (majoritarian vs PR systems) (A. Alesina & Glaeser, 2004) – to explain variations of public goods provision. Theories of institutional design argue that democratic institutions impacted public goods provision through the mechanism of accountability by devolving power to local levels so that citizens can monitor and sanction officials effectively (e.g., Dahl 1971; O'Donnell 1996; Rose-Ackerman 2005; Seabright 1996).

However, when formal accountability is absent, citizens may at times be left to themselves to generate these essential public services. In fact, understanding how individuals are incentivized to participate in public services may help explain why scholars have found that many democracies fell short compared to some autocracies in the provision of public services or the protection of human and economic rights (Keefer, 2007; Baum and Lake, 2003).

Additionally, understanding how individuals participate in these services is important in the current backdrop of increasing democratic backsliding, as the survivability of democracies highly correlates with economic performance (Haggard & Kaufman, 1997, 2016; Teorell, 2010), including growth and redistribution. To this extent, individual level participation in civic engagement in basic public services may help communities in autocracies and democracies alike.

Essentially, civic engagement in public services is a tough question due to the classic “free riding” problem in collective action. In fact, the public services in question can be consumed and enjoyed by everyone in a community irrespective of whether they contribute to their provision. Powerful individual incentives to shirk these contributions undermines collective action necessary for providing these goods and thus reduces everybody’s well-being (Habyarimana et. al., 2007). For example, the Chinese bicycle-sharing programs failed in many places because

individuals felt that it was inconvenient for them to return bicycles to designated locations, and as a result bikes were abandoned and eventually destroyed.

Therefore, the result of public goods provision at the community level depends on the cooperative capacity of a community – the ability of individuals to work collectively in a community and bring about better public goods. This type of collective action and political participation is what scholars term “civic engagement”, which is the focus of this paper. This research will emphasize the mechanisms that will incentivize individuals, and thus, hold individuals accountable for civic engagement in a web of social networks. To this extent, I will depart from normative discussions of individual-level values and preferences that are not readily transferrable to the community level. It is done this way so that attention to properties of behavioral spread in a network can help translate the individual level insights to the aggregate level (Siegel, 2011). In other words, mechanisms confronting collective action will be the central analysis of this research.

In short, I argue that social network ties operating through social media facilitate cooperative behavior that leads to local-level civic engagement around public services and especially in environmental protection. Furthermore, this study will explore whether online relationships are mediated by offline relationships in civic engagement.

The dissertation proceeds as follows. Chapter 2 discusses theories regarding how social media foster cooperative behaviors and collective action through social network ties. In particular, social media may have a positive impact on civic engagement through reputational costs, facilitating communication and monitoring, and strengthening reciprocity of trust among social network ties. Additionally, online relationships may be mediated by offline relationships when it comes to participation in environmental protection. Based on these theoretical discussions, testable hypotheses are laid out in Chapter 2. Chapter 3 introduces research design and data used to test the postulates. Chapters 4 and 5 serve as the primary substantive analyses of the dissertation. Chapter 4 contains the results of Large-N analyses. Social media that help develop social network ties will see a positive impact on civic engagement while social media that are similar to traditional media will not have a significant impact on civic engagement. Using large-N analysis from survey research, Chapter 5 further addresses the hypothesis that online relationships on social media are mediated by offline relationships. More frequent online interactions on social media will have a greater impact on civic engagement if the relationships are facilitated by offline interactions. Finally, I conclude the dissertation in Chapter 6 by discussing the implications of the results, the limitations of the current study, and suggestions for future research.

Chapter 2 Theory and Hypotheses

In this chapter, I present the main theories and hypotheses. This chapter proceeds as follows. First, I review the literature of social media and civic engagement. Then, I discuss the affordance theory that I use to develop the propositions. Here, I argue that different types of social media may have differential impact on civic engagement. More specifically, social media that are designed to build social network ties may have a positive impact on civic engagement while social media that are designed for entertainment may not have an impact on civic engagement. Additionally, offline relationships matter: the more people interact online with people whom they know offline, the more likely they may be engaged in civic activities. This chapter concludes with the hypotheses proposed based on these arguments.

The theoretical development in this dissertation is mainly based on literature in the west due to a lack of relevant original literature in China.

2.1 Social Media and Civic Engagement

Social media is a web 2.0 technology-based application that serves multiple purposes including information dissemination and social networking, featuring user-generated content and virtual social network communities (Obar & Wildman, 2015). Facebook and YouTube are among the top two websites worldwide with Twitter and LinkedIn creeping in at the eighth and thirteenth positions, respectively (Alexa, 2014). Social media differ from traditional media mainly in three aspects: social media represents a new technology; social media is characterized by user-generated content; social media feature social network ties.

The existing literature of social media and civic engagement, largely drawn from western countries, shows a mixed effect of social media on political participation and civic engagement. On the bright side, there are two threads of literature theorizing how social media increase participation, occurring respectively through the mechanism of political learning and those that focus on social network ties.

First, social media use is expected to develop citizens' knowledge of political issues, which then facilitates participation in civic and political life (Boulianne, 2015, 2018). The theory follows the literature of traditional media effect, which shows that exposure to current events is likely to increase a citizen's political knowledge and civic engagement (Arnett, 1995; McLeod, 2000; Mcleod et al., 1996, 1999). These

studies relate to the advantages of social media over traditional media, including persuasiveness, lower costs, and efficient information dissemination (Bimber et al., 2005; Heiss & Matthes, 2017; Swigger, 2013). Additionally, digital media can provide online spaces in which citizens can obtain skills necessary for participating in civic life (Kahne & Bowyer, 2018). The effects seem to be more prominent among non-whites and young people. For example, the access to information provided by social media, along with strong group-based identities – especially racial – seem to positively influence political interest for otherwise disadvantaged populations, like non-whites (Thorson et al., 2018). Similarly, scholars have found that historically observed participatory deficits in younger cohorts fade with access to the internet and social media use (Schlozman et al., 2010), and the effects are across western countries (Xenos et al., 2014). Overall, the nature and extent of these effects following the studies of traditional media were partially decided by social and political context.

Second, scholars propose that social media enlarges social networks that can be mobilized, increasing exposure to mobilizing information (Boulianne, 2015; Gil de Zúñiga & Valenzuela, 2011; Tang & Lee, 2013). More specifically, social ties to activist organizations or peer groups increase the chance of civic or political participation. On the one hand, online social network ties to political or activist organizations increase the chances of being asked to participate in civic or political

events (Bode et al., 2014; Musick & Wilson, 2007; Tang & Lee, 2013) . On the other hand, an echo chamber effect of exposure to like-minded individuals and homogeneous commentary have shown to encourage participation (Mutz, 2006; Stroud, 2008; Knobloch-Westerwick & Meng, 2009).

It is worth noting that the existing literature on social networks ties emphasizes individual ties to organizations and groups; therefore, not enough attention was paid to how individuals can bond on social networks and the mechanisms by which such ties are mobilized.

Recent studies of social media in the west, on the other hand, tend to focus on their destructive effect on political outcomes, such as failure of epistemic editing (Benkler et al., 2018), fake news and the disrupted public sphere (Bennett & Pfetsch, 2018). In part, these studies are in response to recent democratic backsliding in advanced democracies in terms of political culture, civic engagement and the public sphere crisis.

The public sphere has been at the center of discussions in facilitating democratic communication processes, and thus, the increase civic engagement among citizens. According to Habermas, in the public sphere, citizens engage in critical and rational discourse around matters important to the public at large (Habermas, 1964, 1989). The purpose of this discourse is to have free and open political discussions, appeal to some form of common ground of public consensus, which could then spur

political action, and counter more autocratic forms of decision-making (Calhoun, 1992; De Zuniga, 2015).

The changing political communication process – such as technological changes and the rise of social media that relate to the disruption of this public sphere has been conceptualized by scholars to be related to the weakening of democratic institutions. To this point, scholars contend that the rise of digital media contributed to the disrupted and dysfunctional public sphere, characterized by fragmented public and media systems, proliferation of information networks, which shape and disrupt public discourse and debate (Papacharissi, 2010; Lunt & Livingstone, 2013).

The disrupted public sphere argument, which centers on structural changes of media proliferation and fragmentation, tends to blame technology as either a direct or indirect culprit in the weakening of democratic institutions. However, technology may not have played a direct role in democratic backsliding, and thus, not have had a deterministic disruptive effect on political outcomes.

This dissertation supports a middle-path framework known as 'technology as affordances' (Hutchby, 2001; Bimber and Gil De Zuniga, 2019). This framework posits a structural relationship between technology and political outcomes but is indeterministic; it heightens actors-as-agencies who play a major role in the different path-dependency historical trajectories. In this vein, technology itself is not an important cause of epistemic failure but is deeply embedded in the path-dependent

political fabric of a particular place and time (Bimber and Gil De Zuniga, 2019). For example, social media affordances may be obscuring the provenance of information, facilitating deception about authorship, and manipulating social signals (Bimber and Gil De Zuniga, 2019). However, while technology makes some actions such as falsehood dissemination easier than others, agency of this framework comes from actors that use these affordances and they can be constrained by context that has nothing to do with technology (Bimber and Gil De Zuniga, 2019). To this extent, technology plays an important role but by no means, a deterministic one.

Therefore, situated in the theoretical background of technology as affordances, it stands to reason that the effect of social media on civic engagement may vary under different scope conditions. The affordances theory gives a new perspective that allows such differences among social media platforms. There are different kinds of social media, and their functionalities differ; therefore, not every kind of social media use will generate greater civic engagement.

For example, in China, scholars found discrepancies among urban residents in the level of civic engagement and that such inequality may be resulted from varying degrees of social capital (Hu & Chan, 2012). In this vein, trust, especially particularized trust in terms of personal ties, makes a difference in addressing civic engagement (Liu & Shen, 2021; Uslaner & Conley, 2003). These findings suggest

that social media that are designed to maintain social network ties may have a positive impact on civic engagement by expanding residents' personal community networks.

I concede that observational studies are not adequate to address causation and therefore, it is theoretically possible that people inclined toward civic engagement and large social network size will be more drawn to social media use in the first place. Nonetheless, it is unlikely that this would be the case for all people on social media platforms across time and space, and not all social media are the same. People are drawn to social media for a variety of reasons other than an interest in civic engagement; once they experience social media, they are likely to experience beneficial effects on their social networks. Such network ties may be the link between social media use and civic engagement in China.

Therefore, I consider maintaining social network ties among individuals as the primary mechanism of how social media affect civic engagement. I argue that social media which are designed to maintain social network ties may enhance civic engagement and those not designed to maintain social networks may have little impact. That is to say, not all social media are the same and they may have differential impact on civic engagement, which explains the mixed findings in the literature.

Furthermore, the results may be more prominent in China due to a constraint of the formal channel of participation. Digital media may be most important for those who lack access to formal political institutions and institutionalized methods of participation (Boulianne & Theocharis, 2020). Besides, traditional media play a different role in China than in the west, and therefore, there is room for social media to fill in gaps of a “public sphere”.

2.2 Social Network Ties and Civic Engagement

Table 1 shows three plausible mechanisms through which social network ties impact civic engagement: fear of reputational costs, increased connectivity and findability, and reciprocity of trust among social network members (see Table 1).

Reputational costs

First, social network ties influence individual civic engagement in public goods by social influence because individuals may be afraid of reputational cost, or loss of reputation. In this case, reputational cost relates to social pressure, where individuals are afraid of gaining a bad reputation or losing reputation when it comes to civic duties. Reputational cost was found to be a prominent mechanism of social influence offline (Gerber et al., 2008).

Earlier literature in public goods provision speculated that the different levels of engagement in public services may be due to different tastes and preferences among individuals (A. F. Alesina et al., 1999). However, these studies largely pose a direct causal link between individual preference and public goods provision through the mechanism of accountability while overlooking the collective action problem (Olson, 1965). In other words, it is unclear how personal preferences converge at the aggregate level. In fact, one cannot make assumptions that the individual level of preference holds at the aggregate level, without considering the problem of free riding in a large group in public goods provision (Olson, 1963). Therefore, it is important to understand what motivates individuals to participate in civic engagement in public services to overcome the collective action problem and have their interests converge at the aggregate level.

Recent studies using experimental designs and new survey data have indicated that in societies where formal democratic accountability is absent, individuals are better able to generate public goods where social ties among participants are strong (Habyarimana et al., 2007; Tsai, 2007). This is because findability (the ability to find people) and social sanctioning that help to hold people accountable may help solve the collective action problem through co-ethnic (Habyarimana et al., 2007) or informal institutions, such as solidary groups (Tsai, 2007).

At the individual level, fears of reputational cost may help hold individuals accountable among social network ties, reduce defection, and thus, increase one's contribution to public goods. This mechanism is consistent with the latest findings in the literature of political economy on "social sanctioning" and reputational punishment to minimize free-riding and maximize contributions to pubic goods (Habyarimana et. al., 2007).

Social media as technology

The possible solutions to the collective action problem are providing selective incentives, reducing group size and reducing the costs of coordination and monitoring (Olson, 2012). Among the three possible solutions, providing selective incentives by providing private goods defeats the purpose of public goods provision; reducing group size is not a viable solution in many contexts. The only viable solution may be reducing the costs of coordination and monitoring by using new technology. This brings us to the second mechanism of social media impact on civic engagement: new technologies of social media may reduce the cost of communication while making communicating to a large number of people possible.

Social networks are characterized by user-generated content, which provides an alternative channel for communication among citizens. Social media as technology brings about two distinctive features on social networks: facilitate information flow

and increase findability among social network members. Social networks are platforms for efficient information dissemination. Such platforms have a set of advantages.

Social media as technology provide channels for its members to communicate more frequently. As game-theory literature indicates, in multiple prisoner's dilemma games, more frequency of interaction reduces the chances of defection because the short-run benefits of defection may not be justified as cooperative behaviors may pay off in the long run with multiple frequent interactions (Axelrod, 1984).

Additionally, the increased information flow also helps with "findability" (Habyarimana et. al., 2007) among its members and thus facilitates monitoring and coordination for public goods provision. The findability mechanism may work even without the frequency of connectivity among its members as the ability to find people may increase recruitment for collective action.

Social capital and trust

A third way that social media have an impact on civic engagement is due to the trust established among social network ties. This mechanism relates to the social capital literature. Scholars define social capital as features of social organization such as networks, norms and social trust that can improve the efficiency of society

by facilitating coordinated actions and cooperation for mutual benefit[1] (Putnam et al., 1993, p. 67). In a community that has inherited a substantial stock of social capital, in the form of norms of reciprocity and networks of civic, they are more likely to benefit from lower crime figures, better health, higher educational achievement and better economic growth (Putnam et al., 1993). Trust and reciprocity are crucial aspects of social capital because of their role in stability, cooperation, political order, and collective voluntary behavior (Newton, 1997). In the literature, trust may consist of both "interpersonal," the trust that individuals place upon each other, and "generalized," understood to represent a social endowment of trust (Encarnación, 2003).

The presumed link to civic engagement rests in the contention that individuals cannot work collectively for a common good unless they trust each other. Online social media communities may help maintain social ties, establish trust and reciprocity among citizens, and thus motivate individuals to engage in maintaining the well-being of their fellow community members. The rationale of social capital to overcome the collective action problem is that they use "pre-existing social

[1] In the literature, there are two kinds of social capital: bonding and bridging social capital (Putnam, 2000). Bonding social capital occurs among homogeneous populations. It is often parochial and only benefits those with internal access. Bridging social capital, on the other hand, is a form of inclusive social capital that may pave the way for acquiring other forms of capital such as financial or human capital (Leonard, 2004). Since the present study will be focused on China, which is largely a homogenous society, it is the author's intention not to address the issue of ethnicity in public goods provision. Therefore, this paper will be employing the idea of bonding social capital instead of bridging social capital.

connections between individuals to help circumvent problems of imperfect information and enforceability" (Besley et al., quoted in Putnam 1993). Reciprocity of trust is important in a community because the expectation that others will contribute may motivate individuals to also contribute. Such membership in social networks also maintains trust and this trusting relationship can be considered a norm within a community of online network ties. Therefore, reciprocity and trust reduce transitional costs and uncertainty, and minimize defection.

In this regard, online social network ties facilitate social capital by maintaining and extending trust, which fosters cooperative behaviors and helps minimize defection.

Table 1: Mechanisms linking social network ties to civic engagement.

Social Influence Mechanism	
Reputational Cost	Individuals may be afraid of reputational cost in a network of known communities.
Technology Mechanism	
Connectivity	Social media represent new technology that reduces transaction costs, facilitates information flow, increases communication frequency and thus easier to monitor and coordinate.
Findability	It is easier to track each other down on social media networks.
Social Capital Mechanism	
Trust and Reciprocity	Social media help maintain and extend trust and reciprocity, which leads to cooperative behavior.

It is beyond the scope of this dissertation to tease out the exact pathways that social media use leads to greater civic engagement. However, it is sufficient to establish such an effect of social network ties on civic engagement in public services.

2.3 Chinese Social Media and Social Network Ties

Past research suggests that affordances and functionality of each platform yield a unique set of motivations and gratifications sought and obtained through platform use (Alhabash & Ma, 2017). For example, earlier research pointed to the connection between Facebook use and social trust, extending social capital, and civic engagement (Ellison et al., 2007; Valenzuela et al., 2009). Twitter, on the other hand, does not fulfil the motivation of social interaction as it was designed for sharing information and not for the function of interacting with friends (Liu et al., 2010). Scholars also found that passive content consumption in the form of video viewing was most strongly predicted by a relaxing entertainment motive for YouTube users (Khan, 2017). Snapchat's recordability affordance enables more self-expression (Waddell, 2016). Similarly, Instagram users place less emphasis on

connecting with other people and more on personal identity and self-promotion (Sheldon & Bryant, 2016). Additionally, scholars have suggested that Snapchat use affords more personal and private communication and sharing spontaneous experiences with trusted ties, such as close friends and family (Bayer et al., 2016; Piwek & Joinson, 2016; Vaterlaus et al., 2016).

Therefore, different kinds of social media networks supported by their affordances have different implications for participation and civic engagement (Vaccari & Valeriani, 2021). To this point, an individual's experience on social media matters; incidental exposures to politically relevant messages on social media may motivate individuals to be more civic engaged (Kahne & Bowyer, 2018; Vaccari & Valeriani, 2021). In contrast, nonpolitical uses of digital media — especially entertainment or leisure oriented activities — do not necessarily mobilize individuals for civic or political action (Boulianne & Theocharis, 2020; Quintelier, 2008; Van Der Meer & Van Ingen, 2009).

The following discussion of social media in China follows such a theoretical tradition and expands to specify the affordances that different Chinese social media provide.

Chinese social media fall into these two major categories, those whose affordances are oriented toward maintaining social ties, and those oriented toward mass audiences, as well as some intermediate or heterogeneous groups.

The first type of social media is conducive to maintaining social network ties. In this study, these media include Baidu Post Bar and Weibo. The affordances of these platforms are conducive to political learning, spreading knowledge and information sharing. In what follows, I will first introduce each of these Chinese social media.

Baidu Post Bar

Launched in November 2003, Baidu Post Bar (also known as Tieba in Chinese) is an online forum for users to communicate and voice opinions online. Baidu Post Bar is one of the largest social networks in China powered by the Baidu search engine. Baidu Post Bar has over 1.5 billion users and over 3.5 billion topics discussed. Since 2015, although Baidu Post Bar users can choose a pseudo-name online in public, registration requires a real name and registration must be approved by the platform. Different from many other online forums, Baidu Post Bar users tend to carry out more in-depth discussions of very specific topics, such as highly analytical movie reviews. Although Baidu Post Bar as a platform never restricted its discussions within specific topics, Baidu Post Bar tends to attract users who are knowledge-seeking and focus on cultural and political learnings.

Weibo

Somewhat like Twitter, Weibo (a Micro-Blog) is a platform where users can share short messages. Researchers often consider Weibo the equivalent of Chinese twitter (Fuchs, 2015). It is a social media platform where users can re-tweet and share information by 'liking' messages and making comments.

The second type of social media is similar to traditional mass media. These platforms differ from traditional media in that they obscure the providence of information, allow deception of authorship, allow manipulation of social signal and allow unedited mass communication (Bimber & Gil de Zúñiga, 2020). These social media differ from traditional media in their affordances; however, their basic communication strategy is similar to traditional mass media. These social media platforms tend to be video-based and are designed for entertainment, which encourages instant gratification. Bloggers use this type of social media to reach the mass audience, enhancing individual blogger's exposure, accumulate as many "views", "likes" and "followers" as possible so that they could sell advertising spots, which is their main source of revenue.

In terms of communication, there is no difference between this type of media and traditional media, except that social media allow ordinary people to broadcast their own viewpoints, as opposed to being dominated by TV personas and professional journalists. Although these social media platforms usually allow

comments, there is indeed little room for audiences to communicate and bond with each other. It will be highly dependent on bloggers to determine the purpose of its usage, whether it is knowledge sharing or entertainment. But this type of media tends to be skewed towards entertainment.

In this study, these media platforms include YouKu (similar to YouTube), TikTok and other similar streaming service platforms, such as the Little Red Book and KuaiShou.

Youku

Similar to YouTube by design, YouKu is one of China's top online video and streaming service platforms. The company initially emphasized user-generated content but has since shifted its focus to professionally produced videos licensed from over 1,500 content partners (Poujol, 2019). As of January 2010, Youku.com was ranked #1 in the Chinese Internet video sector according to Internet metrics provider CR-Nielsen. Among similar platforms, I choose YouKu as the main focus.

TikTok

The TikTok mobile app is designed for users to make and share short videos that can be circulated and accessed by TikTok users or through a generated link. They can also film short lip-sync videos to popular songs. The "For You" page on

TikTok is a feed of videos that are recommended to users based on their activity on the app. Users can also choose to add to favorites or select "not interested" on videos for their page. TikTok combines the user's enjoyed content to provide videos that they would also enjoy. TikTok users often engage in challenges whereby people are requested to post videos of themselves doing something—sometimes funny, sometimes weird, sometimes difficult, sometimes dangerous. TikTok was one of the fastest-growing social media, topping 800 million users in April 2020 (Montag et al., 2021).

Some media platforms cannot be distinctively categorized into one of the above-mentioned categories as social network ties may very well be the by-product of such designs. In this analysis, I would consider such platforms that fall under the grey area to be included in the first category as long as social network ties can be built through such online platforms, albeit limited or in a small circle. Overall, I would assume such media platforms may still have an impact on civic engagement to a lesser extent or lower magnitude.

These platforms include Sina Blog and DouBan Movie Reviews. These two social media are mainly designed for bloggers to reach a majority of the population, but the “comment” section is more active and open to friends such that they allow some opportunity for social networking and maintaining friendships.

Sina Blog

Launched in 2005, Sina Blog was one of the earliest blog sites in Mainland China. Today, Sina Blog is still one of China's most popular blog sites as many celebrities set up their official Sina account and consider it one of their main channels of communication with their fans. Similar to other blogs, Sina Blog allows users to communicate with friends and strangers who have access to the public domain of such sites. Most bloggers allow comments so their followers can communicate with each other as well.

DouBan Movie Review

DouBan is a similar platform to Rotten Tomatoes, which allows discussion topics organized by movies and TV shows. Bloggers may post movie reviews for discussions and comments. To some extent, DouBan is a similar platform to Baidu Post Bar; however, Baidu users tend to be more knowledge seeking and DouBan is more entertainment oriented.

WeChat

WeChat was launched in 2011 by Chinese company Tencent. WeChat is a special case when it comes to social media affordance since it is a mix of affordances of many other social media platforms. WeChat was described as a

“better WhatsApp crossed with the social features of Facebook, and Instagram, mixed with Skype and a walkie-talkie” (Svensson, 2013). In fact, WeChat also features short video affordance like TikTok. Distinctive features on WeChat include group chat, public account platform, and moments (similar to Facebook’s Wall) (Tu, 2016). Popular functions on WeChat include sending voice and text messages, making video calls, posting photos and blogs on personal pages known as “moments”, making payments, and discovering nearby users and connecting with them. According to a Tencent quarterly report, there are 1.2 billion WeChat users globally as of December 2021.

Overall, the two main broad categories of social media will have differential impact on civic engagement. The impact on civic engagement is related to the type of social media use and their main functions. This leads to Hypothesis 1.

Hypothesis 1: Use of social media that are designed to maintain social network ties is positively related to civic engagement, while use of social media that are designed to reach a mass audience (as with traditional media) is not significantly related to civic engagement.

Additionally, the literature has found that social network size has an effect on political participation and participation in contentious collective action (Huckfeldt et al., 2004; Jenkins, 2019; Mutz, 2011). One would expect that these results hold when it comes civic engagement. This leads to Hypothesis 2.

Hypothesis 2: Larger social media network sizes will be positively related to civic engagement.

2.4 Online and Offline Relationships

In this section, I propose that the outcome of online interactions may be mediated by offline relationships. Online social networks may extend and maintain relationships established offline, and online ties among friends, coworkers and acquaintances may impact cooperative behavior through reciprocity of trust.

Offline interpersonal network discussions were long found to help facilitate social capital, establish trust and thus increase civic engagement (Putnam et al., 1993). According to Putnam (1993), interpersonal trust is generated by general reciprocity, which is a function of face-to-face interactions, afforded to ordinary citizens by civil society associations. In contrast, time spent on social networking sites could displace the formation of social capital and discourage youth from participation (Putnam, 2000). In this case, face-to-face interactions are thought to be key components of social capital. Other scholars have suggested that social media may allow users to build social capital and connect with others (Donath & Boyd, 2004;

Ellison, Steinfield, & Lampe, 2007; Subrahmanyam & Greenfield, 2008, Valenzuela, Park, & Kee, 2009).

I maintain such a position that social capital is produced through face-to-face interactions, not through online interaction. However, I attempt to extend the current literature by examining the interactions between face-to-face (offline) interaction and online interactions on social media. In particular, I argue that offline relationships – trust and reciprocity – can be sustained by online interactions on social media among social network ties.

Online social media networks may be good platforms to maintain and strengthen social ties and reciprocity of thin trust, as they are thought to be generating cooperative behaviors in modern societies. The literature considers two types of ties: strong ties and weak. Strong ties are generally considered as the relations among families, relatives and close friends, whereas weak ties refer to social connections between co-workers and acquaintances.

Scholars argue that modern society is based on “thin” trust, which is associated with the organic solidarity of looser, secondary relations (Newton, 1997). Thin trust is the product of “weak” ties and constitute a powerful and enduring basis for social integration in modern, large-scale society (Castells, 2011; Granovetter, 1983).

This idea corresponds to studies on weak ties in political communication. Due to the different level of intimacy, the content of conversations differ between different

social ties (Schmitt-Beck, 2004). The strength of weak ties lies in the provision of non-redundant, diverse information that stimulates learning and offers new opportunities (Garton et al., 1997; La Due Lake & Huckfeldt, 1998) for mobilization. Additionally, individuals who have more frequent contact with weak ties have a higher probability of being recruited to participation (Gil de Zúñiga & Valenzuela, 2011).

Political communication scholars have found that online weak-tie communication on social media, facilitated by off-line relationships among acquaintances and co-workers, has a positive impact on civic engagement (Gil de Zúñiga & Valenzuela, 2011). Weak-tie discussion is the strongest predictor of civic behaviors. However, Gil de Zúñiga and Valenzuela's study shows that if political discussion was restricted to offline strong family ties, and even if the offline network discussion size is large, it may not predict civic engagement. Conversely, online network discussions with weak-tie relationships, such as co-workers, do significantly increase civic engagement (Gil de Zúñiga & Valenzuela, 2011).

To this extent, social media do not seem to enlarge social network size but facilitates interactions among weak-ties, and thus, creates an alternative platform to interpersonal relationships, similar to those that appear in sports clubs. Therefore, an online platform provides context that provides a previously non-existing channel

to increase discussions of public affairs and possibly maintain trust among weak ties that already existed offline.

If this is the case, then maintaining such thin-trust social capital through online social media helps solve the collective action problem in civic engagement by fostering individual cooperative behaviors. To this point, the interaction between online and offline weak ties further strengthens trust initially established through offline interactions, and thus, benefits civic engagement (see Figure 1 below).

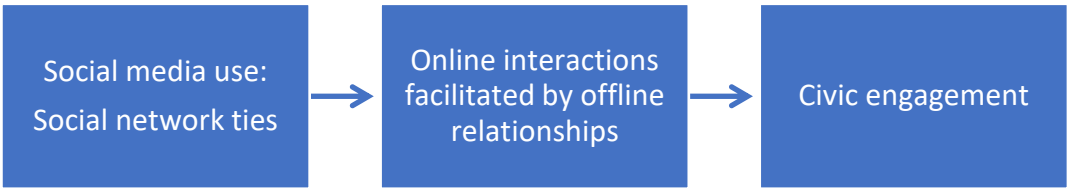

Figure 1: Mechanism of online/offline interactions on civic engagement.

This is not to say that strong family ties do not exert an influence on participation in basic public services. Families are the primary units of political socialization and thus shape the values and political orientations of individuals (Jennings & Niemi, 1974). However, there are a few expectations. First, I focus on adult individuals, among which, relationships with friends and co-workers may exert more influence in civic engagement. Furthermore, the mechanism through which an individual's values are shaped in the family may not be transferrable to the online environment, whereas online social networks somehow resemble offline weak tie relationships.

Therefore, in this study, I will depart from the terminologies in literature of "strong ties" and "weak ties". There are two problems with these terminologies. First, there are diverging thoughts among scholars as to which ties may exert stronger social influence, partially due to the conceptual murkiness of these terms. Second, these relationships do not translate well online. Thus, I will shift from conceptualizing ties as a binary variable to conceptualizing closeness of ties and frequencies of interactions online (Bond et al., 2012), as opposed to simply adopting the qualitative debates between weak ties and strong ties. I will consider three types of relationships: family (people considered relatives), friends (non-family members known to the participant, coworkers and acquaintances) and strangers. In the following discussions, Hypotheses 3a and 3b focus on the difference between

family and non-family relationships, including friends and strangers. Hypothesis 4 focuses on non-family relationships only.

Hypothesis 3a: Participation in online discussion networks with friends is a stronger predictor of participation in civic engagement than participation in social networks among family ties.

Hypothesis 3b: Participation in online discussion networks with friends is a stronger predictor of participation of civic engagement than participation in social networks with strangers.

With regards to the three types of relationships, the following hypothesis focuses on relationships outside of one's family. Among friends and strangers, I expect that the closeness of ties positively relates to the outcome of civic engagement, if these online interactions are facilitated by offline relationships. Past research indicates that close friends have a stronger behavior effect on each other than do acquittances or strangers (Christakis & Fowler, 2009, 2013). Scholars measure closeness of ties by frequency of interactions (Bond et al., 2012). This leads to Hypotheses 4, which looks at how closeness of ties may affect civic engagement by measuring frequency of interactions.

Hypothesis 4: Frequency of interactions on social media networks facilitated by offline relationships increases participation in civic engagement.

In the next chapter, I will describe the methodologies, data and analytical methods used to develop the testable hypotheses.

Chapter 3 Methodology

In this chapter, I describe the methods used to evaluate the theories developed in chapter 2. This chapter proceeds as follows: I first give a brief overview of the data and the analytical methods. Here, I address methodological deficiencies in current social media studies. I then elaborate on the method of observational survey studies to test the hypotheses developed in Chapter 2. I use survey data to test two main relationships advanced in this dissertation. The first analysis is designed to test the relationship between different types of social media use and civic engagement. The second analysis is designed to test online and offline social network ties and civic engagement. These discussions will be the focus of Chapter 4 and Chapter 5. Following this, I present the definitions, measurements, and detailed indicators for both dependent and independent variables used in the study.

3.1 Data and Analytical Method

This study uses the 2018 China Internet Survey [2] (CIS) on political communication to evaluate the propositions advanced in Chapter 2. The CIS used more advanced geo-spatial iterative and PPS (probabilities proportional to size) sampling to reduce non-random sampling errors. In addition, the multi-stage probability spatial sample is especially advantageous to capture migrant workers, which makes it suitable in representing the entire Chinese Mainland (Landry & Shen, 2005). The CIS was fielded from July to September 2018 via face-to-face interviews conducted by trained enumerators affiliated with the Beijing University Survey Center.

The CIS is a nationally representative survey of adult Chinese (aged 18 to 65). The survey focused on internet use, social media use, discussions on public affairs, civic participation, and participation in public goods provision. With a response rate of 67.1%, there is a final sample size of 3,144 out of 4686 eligible respondents, distributed across 75 counties and 63 cities.

The survey data will be used to test individual-level relationships between social media use and civic engagement. The dataset will help tease out whether social

[2] The survey was administrated by the Public Opinion Research Centre of Perking University in China, led by Yan Jie. I obtained permission to use this dataset through Daniela Stockmann of Hertie School, who is the Principal Investigator of the CIS funded by the European Research Council.

network ties, social media network size, the amount of weak-tie communication online and the interaction between online/offline relationships have effects on civic engagement in China.

3.2 Dependent Variable – Civic Engagement

Civic engagement in this project refers to the ways in which citizens participate in the life of a community in order to improve conditions for others or to help shape the community's future (Adler & Goggin, 2005). As I focus on civic engagement in environmental protections, civic engagement is particularly pertinent to the study of public goods provision. The common, or collective, benefits provided by governments are usually called "public goods" by economists, and the concept of public goods is one of the oldest and most important ideas in the study of public finance. In this dissertation, public goods is defined following these common economic terms: The basic and most elementary goods or services provided by government, like defense and police protection, and the system of law and order, are generally such that they benefit as many as possible (Olson, 1965). When formal accountability of the government is absent, I consider public goods provision to include community-funded public services or services sponsored by individual donations and initiatives.

Scholars tend to study each type of public goods separately as opposed to studying a composite of goods. For example, in a prominent study, Banerjee et al. (2005) used census data to measure public goods in 26 categories, including six primary categories of education institution, communication infrastructure, transportation facilities, health care, and a variety of water resource availability and electric power. In this dissertation, I follow this tradition and measure civic engagement in three categories of public services: housing issues, environmental protection, and waste management. Detailed measurements will be the focus of the next section.

Measurement of Civic Engagement

The 2018 CIS data has the advantage of defining multidimensional thick concepts such as political participation as well as identifying their indicators. As mentioned, civic engagement in public goods is assessed through three categories, including questions regarding individual participation in environmental protection, housing issues, and waste sorting and recycling (see Table 3.1 below). Types of participation include seven categories of contentious and non-contentious politics. Indicators of contentious politics include boycotting, protesting, and petition signing. Indicators for non-contentious politics include attending hearings, complaints to the government, posting problems online, and joining organizations. Each of these

behaviors represents a different type of involvement. Questions also extend to both real actions and future intentions, both online and offline.

Individual level political participation data were also collected on three levels of cognitive, evaluation and participatory actions in civic engagement. They were measured by knowledge of, attitudes toward, and individual participation in public goods provision (see Table 3.1). Questions used to create the variables are reported in Table 3.1.

Individual cognitive level examines the knowledge of civic engagement. For example, Question C5 asks “On environmental protection, do you think you know more than most people, less, or do you know about the same?”

Evaluations of civic engagement enquires about whether individuals care about public goods provision in order to test their preferences towards public goods provision. For example, Question C7 asks: “How much attention do you pay regarding housing issues?” and Question C2 askes “How much attention do you pay regarding environmental protection?”

Regarding participation of civic engagement in public goods and services, respondents were asked: “Did you join in the donation activities (Facing problems like housing reform and environment pollution, did you participate in the following activities)? (Question C15)?” Another example is question G7: Will you join in educational activities about waste sorting and green consumption?

Table 3.1 provides questions regarding the indicators of civic engagement in four domains of public goods provision. These questions are used to construct indices that will be used to measure the dependent variable of civic engagement.

Table 3.1: Construction of Indicators of Civic Engagement by Survey Questions

Three categories of DV		
Environmental protection	Housing issues	Waste sorting and recycling
Knowledge about Civic Engagement		
C5. On environmental protection, do you think you know more than most people, less, or do you know about the same?	C10. On housing condition and policies, do you think you know more than most people, less, or do you know about the same?	G2. Have you heard about activities or reports on waste sorting and recycling in urban and rural areas?
Attitudes toward Civic Engagement		
C2. How much attention do you pay regarding environmental protection?	C7. How much attention do you pay regarding housing issues?	G1. Do you pay attention to the issue of life waste sorting and recycling?
Civic Engagement: Non-Contentious Politics		
Non-Contentious Politics: Past actions		
C15. Did you join in the donation activities (Facing problems like housing reform and environment pollution, did you participate in the following activities)?		N/A
C16. Did you attend hearings on the project organized by local governments?		
C17.Did you complain regarding the project directly to the government?		

C18. Did you complain regarding the project directly to local congress representative, media/press, social and political organizations?	
C19. Did you write about the problem online for example, in social media platforms or bbs et?	
Non-Contentious Politics: Future intentions	
C25. Will you join in the donation activities?	G8. Will you join in sorting life waste and throwing into corresponding garbage cans?
C26. Will you attend hearings on the project organized by local governments?	
C27. Will you complain regarding the project directly to the government?	G12. Will you raise complaints and report waste recycling and sorting problems to the governments?
C28.Will you complain regarding the project directly to local congress representative, media/press, social and political organizations?	G13.Will you raise complaints and report waste sorting and recycling problems to local congress representative, media/press, social and political organizations?
N/A	G7. Will you join in education activities about waste sorting and the green consumption?
	G9. Will you register the social media groups of environmental volunteer groups? (register with real name)
	G10. Will you help the relevant department to hang banners and layout propaganda slogans?
	G11. Will you organize

	relevant education activities?
Contentious Politics	
Contentious Politics: Past Actions	
C 20. Attending a protest or demonstration	NA
C 21. Did you participate in boycotting products?	
C 22. Did you sign in the petition?	
Contentious Politics: Future intentions	
C 30. Will you participate in protest and demonstration?	NA
C31. Will you participate in boycotting products?	
C 32. Will you sign in the petition?	

3.3 Independent Variable - Social Media Use

In the literature, social media is understood as a web 2.0 technology, featuring user-generated content and serve as cost-effective tools for disseminating information (Obar & Wildman, 2015). Social media services facilitate the development of social networks online by connecting a profile with other individuals and groups.

This research will use Howard and Parks's (2012) definition of social media. Social media consists of (a) the information infrastructure and tools used to produce and distribute content that has individual value but reflects shared values; (b) the content that takes the digital form of personal messages, news and ideas that become cultural products; and (c) the people, organizations and industries that produce and consume both the tools and the content. In this study, social media is

further understood as an alternative platform to traditional media (such as television, print and radio). In this study, traditional media is also referred to as ‘mass media’.

In particular, I focus on social media sites that are designed to maintain interpersonal communication and network sizes in China, similar to Facebook, Twitter, WhatsApp, etc. However, since the two functions are not mutually exclusive, I will include sites that serve the purpose of maintaining social networks, while not excluding other functionalities. In fact, some social media may be designed for other functions such as entertainment; however, social networking may come as a by-product.

To construct the indicators for analysis, I consider three types of social media in China. First, social media that are designed for social networking. Prominent sites and apps that are similar to Facebook and Twitter are WeChat, Weibo and Baidu Post Bar. Second, there are various types of specialized blogs that are similar to traditional Billboard Services (BBS). Third, other sites that are designed for entertainment.

I will measure social network ties by social network size, the level and type of communication, and strength of network ties among network members. More specifically, tie strength refers to the frequency of communication and interactions through online activities and whether the discussions are carried out among strong-tie families, weak-tie co-workers and acquaintances or among strangers.

Measurement of Social Media Use

The CIS included a battery of 10 types of social media (including popular Chinese social media such as Weibo, WeChat, QQ, etc.), their participatory level, and the types of relationships they have in online discussion forums (see Table 3.2). There are three levels of measurement regarding social media use in the 2018 CIS dataset.

First, the CIS included many different kinds of social media. I include both social media that are designed to maintain social network ties and those that are designed for alternative functions while maintaining social network ties as a by-product. Social media that are designed to maintain social network ties include Weibo, WeChat and Baidu Post Bar. For other blogging social media, I chose Sina Blog and Douban Movie Reviews. For streaming services, I chose Youku and TikTok for analysis.

Examples of questions about social media types are as follows. Question A14 asks, “Which social media have you ever used?” Questions also include: “What types of media are used to carry public affairs discussion (B8)?” This helps test Hypothesis 1, in which social network ties are considered the mechanism linking social media use and participation of public goods provision. Furthermore, social media discussion network sizes are measured: Question B7 asks, “In the last political discussion online that you followed or participated in, how many people participated in this discussion?” This question will help test Hypothesis 2.

Second, the CIS has indicators of social network ties. Network tie options are relatives, friends, acquaintances, and strangers. (Question B11. “How well do you know the participants of this online discussion?”) And whether these online ties are facilitated by offline ties, refer to (Question B12: “Do you have contact with the participants of this online discussion in real life?”) These questions will help test Hypotheses 3a and 3b.

Third, the CIS measure frequency of online activities, such as discussion, reading, publishing, reposting and commenting. For example, Question B5 asks, “Did you discuss current political and social topics through the following online channels in last three months?” Question EC9e asks, “Please tell us the frequency of you doing the following things on WeChat?” and question EC9k identifies if there are offline interactions among these social network ties. Answers to these questions will help test Hypothesis 4a, 4b and 4c.

Table 3.2: Construction of indicators regarding social media use by Survey Questions

Social media use			
Social network function (binary variable)	A14. Which social media have you ever used? Social media that are designed to maintain social network: options BCDI; Non-social networking media: all else.		
	A15. To what extent do you agree with the following statement about the reasons of using social media?		
	B8. What types of media are used to carry public affairs discussion? Social media designed for social network ties vs other types of social media		
	A8. Have you done the following activities by mobile phones or computers? Option 10: Use WeChat、Weibo、QQ and etc.		
Social media network size	B7 asks, “In the last political discussion online that you followed or participated in, how many people participated in this discussion?”		
	EC9b. How many friends do you have?	EB9b.How many followers do you have on Weibo?	ED9a. How many fans do you have at the moment?
	EC9a.个In Wechat, how many accounts have you subscribed?	Eb9a. On weibo, how many accounts have you subscribed?	ED9b. How many Tieba friends are you following now?
	EC9c. How many chat groups are you in?		
Social network ties			
Closeness of Social network ties	B11. How well do you know the participants of this online discussion? Network tie options are relatives, friends, acquaintances, or strangers.		
	EB9e. In last three months, whose posts on political and social hot issues you have ever read？ Relatives, friends and strangers		

Discussion of public affairs on social networks	B5. Did you discuss current political and social topics through the following online channels in last three months? (multiple choice)		
Whether participants have offline relationships	Question B12: “Do you have contact with the participants of this online discussion in real life?”		
Frequency of activities			
Frequency of reading, publishing, reposting and commenting.	EC9e. Please tell me the frequency of you doing following things on WeChat.	EB9d. Please tell me the frequency of you doing following things on Weibo.	ED9d. Please tell me the frequency of you doing following things on Baidu Tieba.
Whether participants have offline relationships	EC9k. In general, do you do the following thins on Wechat often, sometimes, seldom or no? c. Suggest/organize/participate in an offline activity	EC9k. In general, do you do the following thins on Weibo often, sometimes, seldom or no? c. Suggest/organize/participate in an offline activity	EC9k. In general, do you do the following thins on Tieba often, sometimes, seldom or no? c. Suggest/organize/participate in an offline activity

3.4 Control Variables

The analysis will control for common demographic variables found in the literature that may shape the relationship between social media use and participation of public goods provision, including age, education, gender, socio-economic status and rural/urban divide.

Additionally, in each model, this study will further control variables that may have an impact on civic engagement at the community level (see Table 3.3). These variables include the level of economic development (questions C1) and the severity of public goods issues at the institutional level (Question C1: How serious do you think the following issues are in your place of residence?" 0 indicates that in your place of residence there is no problem with this issue while 10 indicates that in your place of residence the problem of this issue is quite serious).

Table 3.3: Construction of Control Variables by Survey Questions

Control variables			
Economic development: C1D.How serious do you think the following issues are in your place of residence?			
Security: C1B. How serious do you think the following issues are in your place of residence?			
Seriousness of the problems			
	Environmental Protection	Housing Issues	Waste Recycling and Management
	C1a. How serious do you think the following issues are in your place of residence?	C1c. How serious do you think the following issues are in your place of residence?	C1a. How serious do you think the following issues are in your place of residence?
	C6. Has environmental protection issue ever made you feel: angry, disgusted or sad?	C11.Have housing condition and policy issues ever made you feel: angry, disgusted or sad?	
	C4 How strong is your criticism of environmental issue in your city or area?	C9. How strong is your criticism of the housing condition and policies in your city or area?	
	C12a. In past three years, have you ever	C12b. In past three	G3. In the past year, did the

	met any problems like housing reform and environment pollution which were needed to seek for the government's help (Yes or No) C13a. Which type of problems you met the last time?	years, have you ever met any problems like housing reform and environment pollution which were needed to seek for the government's help (Yes or No) C13b. Which type of problems you met the last time?	community you live or your work place/ the village you live organize waste sorting and recycling activity? Yes: n = 431
Demographics			
Rural/urban	Defined by looking at the administrative unit of the sampled town. If a town name contains "xiang", it is rural; if a town name contains "zhen" and it falls below 75% cutoff (urban==0), it is rural. If a town name contains "zhen" and it falls above 75% cutoff (urban==1), it is urban; if a town name contains "jiedao" banshichu" or "jiedao" or "qu", it is urban.		
Education	A4. What is the highest academic degree you hold now?		
SES	A4. Proxy of education: What is the highest academic degree you hold now? Or, K12A. Your family income in 2017		
Age	A1. In which year were you born?		
Gender	A10. Gender F or M.		

In the following chapters, I will combine items presented here to form indexes and construct variables in the next Chapter. The dependent and independent variables will be categorical variables treated as continuous as I assume equal distance within the internal properties of the variables. The next chapter will present the result of ordinary logistic regression to estimate the effects of social media on civic engagement.

Chapter 4 Differential Social Media Effects

In this chapter I focus on evaluating hypotheses 1 and 2 by formulating and testing the relationship between social media and civic engagement. Drawing on public opinion data of 2018 in China, I show that different types of social media do indeed have heterogeneous impact on civic engagement. Additionally, social network size does have a positive impact on civic engagement.

4.1 Hypotheses

As readers may recall, in Chapter 2, I made the following arguments regarding social media affordances and social network size. They are presented here again.

Hypothesis 1: Use of social media that are designed to maintain social network ties are positively related to civic engagement, while use of social media that are designed to reach mass audiences (as with traditional media) are not significantly related to civic engagement.

Hypothesis 2: Larger social media network sizes will be positively related to civic engagement.

In this chapter, I will analyze two types of social media platforms that are different in nature and may make differential impacts on civic engagement. In this analysis, social media platforms are divided into two categories, those designed to maintain social network ties and those designed to reach mass audiences, similar to traditional media.

As discussed in Chapter 2, three relationships are postulated among the six media platforms[3] chosen to test Hypothesis 1 (see Table 4.1).

Table 4.1: Use of social media platforms and civic engagement postulated

Social Media Platforms	Social network ties	Relationships with Civic Engagement
Baidu Post bar Weibo	Designed to maintain social network ties	Positive
Sina Blog Douban Movie Reviews	Designed to maintain limited social network ties	Positive relationship with non-contentious politics Unclear relationship with contentious politics
YouKu Tiktok	Not designed to maintain social network ties	No significant relationship with civic engagement

[3] As discussed in Chapter 2, WeChat is a powerful platform that features different affordances of many other social media platforms. Therefore, WeChat is not included when testing Hypothesis 1 since the functionality of supporting social network ties may be confounded by other affordances.

4.2 Method of Analysis and Results

Model Specification for H1

I test H1 by using multivariate regression analysis. The model can be specified by the equation below.

$$Civic\ Engagement = \beta 0 + \beta 1 SocialMedia + \beta 2 Age + \beta 3 Male + \beta 4 Urban + \beta 5 Education + \epsilon,$$

（Model 4.1）

In this model specification, the dependent variable *Civic Engagement* is operationalized by asking respondents whether they have participated or will participate in a list of contentious and non-contentious politics when faced with problems like housing reforms and environmental pollution. In the survey, contentious politics include demonstrations, boycotts and signing petitions. Non-contentious politics include attending a hearing, complaining to the government and posting a problem online. *Civic Engagement* is a dichotomous variable that measures participation, with “1” representing participation, and “0” no participation. These six different kinds of civic engagement will be tested individually and presented in Table 4.3 and 4.4.

Since this is the first step to distinguish the typology of social media affordances, I have included four control variables that theory and previous research suggest may also explain civic engagement. These variables include age (H. Chen & Adamek, 2017; Ge, 2015), the urban/rural divide (Fu, 2019; Verdini et al., 2017), education (Niemi 1998, Mettler and Welch, 2004) and the role of gender (Fox & Lawless, 2014). SES is also found to have a significant impact on civic engagement. However, for the purpose of the present analysis, I use education to infer SES as done in some previous studies on China (Cheng et al., 2015; Wen & Wei, 2018).

The measurements of the socio-demographic variables are as follows.

Age is measured in years and takes on the value between 18 and 65. *Male* is a dummy variable that takes on male (coded as “1”) and female (coded as “0”). *Urban* is a dummy variable that takes on urban (coded as “1”) and rural (coded as “0”). *Education* takes on the value between 1 and 9, which measures 1 (lower than primary degree), 2 (primary school), 3 (middle school), 4 (high school), 5 (secondary vocational school education), 6 (college degree), 7 (Bachelor’s degree), 8 (Master’s degree) and 9 (Ph.D).

Results for Model 4.1

Table 4.2 shows the distribution of users among all six media platforms in this analysis. Table 4.2 reinforces the typology of Table 4.1 and its rationale, as platforms in the same category share a higher amount of user overlap. As can be seen, there is a fair amount of overlap between users among Baidu, Weibo, Sina and Douban, with Baidu and Weibo having more users than Sina and Douban. For social media platforms that help maintain social network ties, there are 182 users who are using both Baidu and Weibo, thus, they share over 50% of the same users. 142 users use both Sina Blog and DouBan so they share about 70% of the same users. By contrast, for social media that are not designed to maintain social network ties, YouKu and Tiktok have an outstanding number of users who are not using the rest of the platforms. These two platforms share 497 users, which is about 70% of their user base. The majority of Baidu users (203 respondents) are also TikTok users.

Table 4.2: Users of Different Social Media Platforms

	Baidu Post Bar	Weibo	Sina Blog	DouBan	YouKu	Tiktok and similar platforms
USERS (LAST 3 MONTHS)	248	350	205	193	707	827
TOTAL RESPONDENTS	3144	3144	3144	3144	3144	3144
PERCENTAGE	7.89%	11.13%	6.52%	6.14%	22.49%	26.30%

Table 4.3 shows the demographic features of the control variables.

Table 4.3: Demographic Characteristics of the Sample

Demographic	*Percentage*
Location	
Rural	17%
Urban	73%
Age	
18-19	3%
20-29	14%
30-39	15%
40-49	21%
50-59	28%
60-65	19%
Gender	
Female	52%
Male	48%
Education	
Lower than primary degree	18%
Primary school	27%
middle school	25%
high school	13%
secondary vocational school	4%
college degree	6%
Bachelor's degree	7%
Master's degree	0%
Ph.D.	0%

Table 4.4 and Table 4.5 on the next pages show results of regression analysis of seven different types of participation in environmental protection and housing issues, including four non-contentious politics, three contentious politics and voting. Users are defined as having used the social media platforms in the previous three months. Overall, the frequency of usage (three months vs last week) on the platform does not make a significant impact on the level of participation. These results are after controlling for age, gender, education, rural/urban dwelling, social economic status, and seriousness of environmental problems in each region. Since the design of this dissertation is oriented towards non-contentious politics[4] in public goods related participation, I will focus on the results of non-contentious politics but will include contentious politics and voting for discussion.

Non-contentious politics

Table 4.4 shows the results for the test of Hypothesis 1. These results are supportive of H1 in that use of social media designed to maintain social network

[4] The author believes that contentious politics requires a different level of participation in China considering the stakes at hand. This presents a challenge; we may not be able to get the right results due to social desirability bias and citizens' concerns of the threat it poses when it comes to contentious politics.

ties, such as Baidu Post Bar, Weibo, Sina Blog and Douban, is all significantly engaged in non-contentious politics. However, use of social media designed to reach mass audiences, such as YouKu and TikTok, is not significantly engaged in non-contentious politics.

One caveat is that all social media use tends to be associated with participating in online and offline organizations. Most users on all platforms are significantly engaged in joining a group or organization online or offline. This is not surprising as respondents may consider themselves joining an online topic group as one way of joining an ‘organization’.

Contentious politics

It is worth noting that while use of Baidu Post Bar and Weibo are significantly engaged in contentious politics as well (except for boycotting), uses of Sina and Douban are not significantly engaged in contentious politics except for signing petition (Table 4.4). Use of Sina and Douban are further negatively associated with boycotting.

To some extent, this can help distinguish the level of engagement in building social network ties across different social media platforms. In other words, for social media that are designed to build social network ties (such as Baidu Post Bar and Weibo), such ties can extend to contentious politics. However, social media of

which social network ties are a by-product of the social media design (such as Sina and Douban), such tie-based engagement are not extended to contentious politics.

Similarly, signing petitions could be the mildest form of contentious politics compared to demonstrations and boycotts. Tie-based engagement is extended to such mild activities as signing petition, but not to more demanding activities such as demonstrations which may be riskier in authoritarian regimes.

Use of TikTok is not significantly engaged in non-contentious politics for the platform is not designed to maintain social network ties. Interestingly, use of YouKu is significantly associated with engaging in non-contentious politics except for demonstrations. However, this might be a spurious relationship that resulted from video watching and a tendency of contentious behaviors, especially when these results are studied closely and compared to non-contentious politics.

Table 4.4: Social media use and non-contentious politics

Social Media	Non-contentious Politics								
	Attend a hearing			Complain to the government			Post a problem online		
	Beta	P Value	Adjusted R^2	Beta	P Value	Adjusted R^2	Beta	P Value	Adjusted R^2
Baidu Post Bar	0.341	0.000***	1.105%	0.153	0.000***	1.710%	0.109	0.000***	9.959%
Weibo	0.128	0.000***	1.480%	0.128	0.000***	1.480%	0.105	0.000***	10.240%
Sina Blog	0.130	0.000***	1.367%	0.130	0.000***	1.472%	0.032	0.033**	8.389%
Douban Movie Review	0.189	0.000***	1.786%	0.130	0.000***	1.441%	0.042	0.007**	8.474%
YouKu	0.034	Not Significant	1.009%	0.031	Not Significant	1.067%	0.037	0.000***	8.663%
TikTok and other treaming services	-0.021	Not Significant	0.969%	-0.072	**0.003	1.314%	0.005	Not Significant	8.259%

Note:
* P<0.1 ; ** P<0.05; *** P<0.01
Negative results highlighted in red

Table 4.5: Social media use and contentious politics

Social Media	Contentious Politics											
	Demonstration			Sign petition			Boycott			Many forms of Contentious Politics		
	Beta	P Value	Adjusted R^2	Beta	P Value	Adjusted R^2	Beta	P Value	Adjusted R^2	Beta	P Value	Adjusted R^2
Baidu Post Bar	0.046	0.000***	1.050%	0.078	0.000***	4.888%	0.038	0.042**	3.981%	0.154	0.000***	5.468%
Weibo	0.050	0.000***	1.253%	0.110	0.000***	5.539%	0.019	Not Significant	3.894%	0.164	0.000***	5.680%
Sina Blog	0.000	Not Significant	0.598%	0.056	0.009***	4.648%	-0.036	0.065*	3.958%	0.025	Not Significant	4.966%
Douban Movie Review	-0.008	Not Significant	0.610%	0.056	0.000***	5.145%	-0.048	0.016**	4.035%	0.040	Not Significant	4.983%
YouKu	0.014	Not Significant	0.682%	0.050	0.000***	4.821%	0.041	0.001**	4.175%	0.101	0.000***	5.412%
TikTok and other treaming services	-0.002	Not Significant	0.600%	-0.006	Not Significant	4.435%	-0.009	Not Significatn	3.865%	-0.015	Not Significant	4.964%

Note:

* P<0.1 ; ** P<0.05; *** P<0.01

Negative results highlighted in red

Model Specification for H2

$$\textit{Civic Engagement} = \beta 0+\beta 1\textit{SocialNetworkSize}+ \beta 2\textit{Age}+ \beta 3\textit{Education}+ \beta 4\textit{Urban} + \beta 5\text{Gender} + \beta 5\textit{SES}+ \beta 6\textit{Environment}+ \beta 7\text{EconomicDevelopment} + \epsilon,$$

(Model 4.2)

In this model specification, the dependent variable *Civic Engagement* is a continuous variable that measures the numbers of different types of participation that takes on a value between 0 to 9 and measures the forms of participation individuals are willing to engage in or had engaged in, offline, online or both. Such participation includes contentious and non-contentious politics, such as attend a hearing, complain to the government, complain to congressmen, post a problem online, join an organization, make a donation, demonstration, a boycott or signing petition. *SocialNetworkSize* measures respondents' social network size on WeChat social media platform.[5]

[5] Social network size data were also collected for Sina Blog and Baidu users. However, the questions are how many followers you have and how many people do you follow. These questions do not detect their social network size under discussion for this dissertation. This is because people

For social network size, I used the data of WeChat users. WeChat is a suitable platform for this analysis because WeChat friends tend to have an offline relationship as it is common to obtain a WeChat QR code by scanning in person. Whereas business QR codes are advertised differently, an individual's WeChat ID is often obtained by scanning it offline or getting a telephone number through previously established relationships. Such relationships are what I believe will have a significant impact on participation. Similarly, WeChat group members tend to find each other through mutual hobbies, topics or local communities.

I used two different types of social network size data on WeChat for Table 4.6 and Table 4.7. For Table 4.6, social network size was measured by the number of friends on WeChat. "Friends" is a continuous variable that measures 0 (0 friends), 1 (1 to 25 friends), 2 (26 to 50 friends), 3 (51 to 75 friends), 4 (76 to 100 friends), 5 (101 to 200 friends), 6 (201 to 300 friends), 7 (301 to 500 friends) and 8 (501 or more friends).

For Table 4.7, I used the number of groups people join to operate social network size. "Groups" measures 0 (0 group), 1 (1 to 3 groups), 2 (4 to 5 groups), 3 (6 to 10

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who have many followers tend to be opinion leaders, and such data would help distinguish the impact of opinion leaders as with traditional media. On the other hand, I also do not believe that people who tend to follow many other users would necessarily participate more. Therefore, the only social network size data chosen are those for WeChat users.

groups), 4 (11 to 15 groups), 5 (16 to 20 groups), 6 (21 to 30 groups), 7 (31 to 100 groups), and 8 (101 and more groups).

Results for Model 4.2

Table 4.6 shows the impact of the number of friends on WeChat on political participation including contentious and non-contentious politics[6]. Table 4.6 indicates that one group increase social network size is associated with 5.9 percentage points change in political participation. Take social network size of groups 1 and 2 for example, on average, an increase of 13 more people in one's social network is

[6] Regression criticism and goodness of fit: Residual plots for model 4.5 show that there might be a violation of the normality assumption. In both Shapiro-Wilk and Anderson-Darling normality tests, it shows departure from normality indicated by a p-value less than 0.001. These tests confirmed the problem of the normality assumption unsatisfied. However, normality is not a big concern due to a large sample size in this case. The formal Studentized Breusch-Pagan test is conducted and suggests a heteroscedasticity problem (with p-value = 1.2e-06). To fix the problem, heteroskedastic-consistent robust standard errors that are also more robust against departure of normality are calculated and compared in Table 4.5. The White/Huber Heteroskedastic-consistent (HC0) is considered appropriate in this case because we have a reasonably large sample size. However, the HC3 standard error that tends to perform better in small samples (usually less than 250) is also reported here for comparison. Multi-collinearity holds as all variables pass the VIF test (VIF<2) and all correlation among betas are under 0.4. There are no high leverage cases inour data with "hat statistics" over 0.2. There are also no high influential cases with extreme Y values with Cook's distance over 1 or
DFbetas over 2. Breusch-Goldfrey test (returned test = 0.6126, p-value = 0.4338) and Durbin-Watson two-sided test (returned DW = 1.9527, p-value = 0.3963) show that there is no auto-correlation problem with the model. Model 4.5 returns R-squared of 0.056, which means about 5.6% of the dependent variable can be explained by this model. When taking the number of independent variables into account, an adjusted R-squared is about 0.050, which is reasonable.

associated with one more form of political participation.[7] Taking groups 6 and 7, an average increase of 150 people in one's social network size is associated with about one eight more forms of political participation[8]. Therefore, this result is both statistically and substantively significant.

Table 4.7 shows the impact of the number of groups people join in WeChat on civic engagement in all kinds of political participation including contentious and non-contentious politics in the issue area of environmental protection and housing issues[9]. Results in Table 4.7 indicate that every one group increase of social network size (measured by eight groups) is associated with 13.9 percentage points

[7] Use the average of group 1 of 0 people (=0) and group 2 of 1 to 25 people (=13), the difference between the two groups on average would be13 people. (13-0)*5.2%=0.676≈1

[8] (400-250)*5.2%=7.8≈8

[9] Regression criticism and goodness of fit: Residual plots for model 4.6 shows that there might be a violation of the normality assumption. In both Shapiro-Wilk (W = 0.88691, p-value < 2.2e-16) and Anderson-Darling (A = 37.492, p-value < 2.2e-16) normality tests, they show departure from normality indicated by p-values less than 0.001. These tests confirmed the problem of the normality assumption unsatisfied. However, normality is not a big concern
due to a large sample size in this case. The formal Studentized Breusch-Pagan test is conducted and suggests a heteroscedasticity problem (with BP = 45.772, df = 7, p-value = 9.68e-08). To fix the problem, heteroskedastic-consistent robust standard errors that are also more robust against departure of normality are calculated and compared in Table 4.6. The White/Huber Heteroskedastic-consistent (HC0) is considered appropriate in this case because we have a reasonably large sample size. However, the HC3 standard error that tends to perform better in small samples (usually less than 250) is also reported here for comparison. Multi-collinearity holds as all variables pass the VIF test (VIF<2) and all correlation among betas are under 0.4. There are no high leverage cases in our data with "hat statistics" over 0.2. There are also no high influential cases with extreme Y values with Cook's distance over 1 or DFbetas over 2. Breusch-Goldfrey test (LM test = 0.221, df = 1, p-value = 0.639) and Durbin-Watson two-sided test (DW = 1.972, p-value = 0.607) show that there is no auto-correlation problem with the model. Model 4.6 returns R-squared of 0.071, which means about 7.1% of the dependent variable can be explained by this model. When taking the number of independent variables into account, an adjusted R-squared is about 0.065, which is reasonable.

increase of political participation in non-contentious politics. Taking groups 1 and 3 at the average level, for example, participating in 8 additional discussion groups on WeChat is associated with one additional form of political participation in politics. Taking the average value[10] from groups 6 and 7 shows that participating in 40 more groups on WeChat is associated with six more forms of civic engagement in politics. At this level, every 7 additional groups joined is associated with one additional form of civic engagement[11]. Therefore, this result is both statistically significant and substantively significant.

[10] (65-25)*0.139=5.56≈6
[11] 40/6=6.67≈7

Table 4.6: Social Network Size (Number of WeChat Friends) and Civic Engagement

Regressor	*Original Model*	*Model with Robust Standard Errors (HC3)*	*Model with Robust Standard Errors (HC0)*
Network Size: Friends	0.052** (0.027)	0.052** (0.029)	0.052** (0.028)
Age	-0.013*** (0.004)	-0.013*** (0.004)	-0.013*** (0.004)
Education	0.118*** (0.030)	0.118*** (0.034)	0.118*** (0.034)
Rural/Urban	-0.104 (0.105)	-0.104 (0.105)	-0.104 (0.104)
Gender	0.294*** (0.088)	0.294*** (0.090)	0.294*** (0.090)
Seriousness of Environmental Problems	-0.004 (0.020)	-0.004 (0.022)	-0.004 (0.022)
Economic Development	0.052** (0.022)	0.052** (0.023)	0.052** (0.023)
Constant	1.320*** (0.274)	1.320*** (0.272)	1.320*** (0.270)
R^2	0.056	0.056	0.056
Adjusted R^2	0.050	0.050	0.050
F statistics	10.62***	10.62***	10.62***
N	1255	1255	1255

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*
Standard error in parenthesis.
Residual Standard Error: 1.556 on 1255 DOF

Table 4.7: Social Network Size (WeChat Discussion Groups) and Civic Engagement

Regressor	*Original Model*	*Model with Robust Standard Errors (HC3)*	*Model with Robust Standard Errors (HC0)*
Network Size: Groups	0.139*** (0.029)	0.139*** (0.032)	0.139*** (0.032)
Age	-0.011*** (0.004)	-0.011** (0.005)	-0.011** (0.005)
Education	0.098*** (0.030)	0.098*** (0.033)	0.098*** (0.033)
Rural/Urban	-0.101 (0.105)	-0.101 (0.103)	-0.101 (0.103)
Gender	0.323*** (0.088)	0.323*** (0.090)	0.323*** (0.089)
Seriousness of Environmental Problems	-0.005 (0.020)	-0.005 (0.022)	-0.005 (0.021)
Economic Development	0.054** (0.021)	0.054** (0.023)	0.054** (0.023)
Constant	1.161*** (0.257)	1.161*** (0.275)	1.161*** (0.273)
R^2	0.071	0.071	0.071
Adjusted R^2	0.066	0.066	0.066
F statistics	13.870***	13.870***	13.870***
N	1265	1265	1265

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*
Standard error in parenthesis.
Residual Standard Error 1.556 on 1265 DOF

4.3 Chapter 4 Discussion

The results of this chapter have three main implications for discussion. First, the results are supportive of H1 in that use of social media that are designed to maintain social network ties have a positive impact on civic engagement while social media that are designed for entertainment have no direct impact on civic engagement. Second, the extent to which social media maintain such network ties does matter. For social media that are designed to maintain social network ties, the level of civic engagement extends to include contentious and non-contentious politics. For social media that maintain limited social network ties, the level of civic engagement is limited to non-contentious politics where the risk of participation is low. Third, similar to what has been long found in the literature, the results further confirm that social network size is positively related to civic engagement. The impact of having more friends on WeChat seems to have a bigger impact than joining participating in additional groups on WeChat. More specifically, on average, while an increase of 13 friends on WeChat is associated with one additional form of civic engagement, participating in 8 more discussion groups on WeChat is associated with one additional form of civic engagement. Participating in 8 more groups on WeChat may be a much more demanding task than gaining 13 more friends. This finding indicates that a direct one-on-one friendship may be more

effective in motivating civic engagement than group discussions. Additionally, in my analysis, I put emphasis on the offline relationships among online users as WeChat is a platform that often requires some offline interaction to add a friend. Therefore, it is indicative of the importance of social network size when it comes to online users who have offline relationships. These findings further reinforce the importance of personal relationships which will be further discussed in Chapter 5.

Chapter 5 Social Network Ties and Civic Engagement

In this chapter, I will evaluate the strength of social network ties and the presence of offline relationships on civic engagement. I will first review the hypotheses postulated in Chapter 2 and then present hypothesis testing with regression models and finally present their results.

5.1 Hypotheses

Recall in Chapter 2 that researchers found that weak-tie discussion is the strongest predictor of civic behaviors. However, I depart from the binary variable of weak ties and strong ties used in the literature. Instead, I consider three types of relationships: family (people considered relatives), friends (non-family members known to the participant, coworkers and acquaintances) and strangers.

Hypothesis 3a: Participation in online weak-tie discussion networks (among friends and acquaintances) is a stronger predictor of participation in civic engagement than participation in social networks among family ties.

Hypothesis 3b: Participation in online weak-tie discussion networks (among friends and acquaintances) is a stronger predictor of participation in civic engagement than participation in social networks with strangers.

5.2 Method of Analysis and Results

I test H3 by using multivariate regression analysis. The model can be specified by the equation below.

Model Specification for H3

$$Civic\ Engagement = \beta 0 + \beta 1 Closeness\ of\ Ties + \beta 2 Age + \beta 3 Urban + \beta 4 Education + \beta 5 Male + \epsilon,$$

(Model 5.1)

In this model specification, the dependent variable *Civic Engagement* denotes how much attention respondents pay to civic topics in environmental problems, helping the poor and infrastructures. Civic Engagement takes on the value between 0 and 3, which measures 0 (not at all), 1 (not that much), 2 (quite), and 3 (very much).

ClosenessOfTies is an ordinal variable (treated as continuous) that measures the closeness of ties among members in their latest online discussion, which takes on the value of 0 and 1. This variable measures 0 (strangers), 1 (People I know), 2 (Friends), and 3 (Family).

Age is measured in years and takes on the value between 18 and 65. *Urban* is a dummy variable that takes on urban (coded as “1”) and rural (coded as “0”). *Male* is a dummy variable that takes on male (coded as “1”) and female (coded as “0”). *Education* is an ordinal categorical variable that takes on the value between 1 and 9, which measures 1 (lower than primary degree), 2 (primary school), 3 (middle school), 4 (high school), 5 (secondary vocational school), 6 (college degree), 7 (Bachelor’s degree), 8 (Master’s degree) and 9 (Ph.D).

Results for Model 5.1

The results for the estimates of Equation 5.1 are shown in Table 5.1 and 5.2. As opposed to Hypothesis 3a and 3b, weak tie relationships don’t seem to be stronger predictors of attention to civic topics in this set of results. Table 5.1 shows that closeness of ties is significantly associated with interests in civic topics among family, friends, and acquaintances. More specifically, a two-level increase in the closeness of ties (i.e., from acquaintances to family) is associated with a thirty-

percentage point increase in the measurement of attention to civic topics[12]. This result is substantively significant. However, among strangers, acquaintances, and friends (Table 5.2), closeness of ties does not make a significant difference in attention to civic topics. In other words, participation in weak tie discussion networks is not a stronger predictor of attention to civic topics than closeness to strangers.

However, this might be a result of reverse causality. That is, people who are interested in politics tend to discuss with families more than with friends or strangers. To further entangle the relationship between strangers and friends, the next set of hypotheses testing for Hypothesis 4 will be helpful when it comes to offline relationships among online social media users.

[12] 0.148*2=0.296=30%

Table 5.1: Impact of Closeness of Ties on Civic Engagement

(Results for family, friends, and acquaintances)

Regressor	*Dependent Variable: Attention to civic topics in environmental problems, helping the poor and infrastructure*
Closeness of Ties	0.148**
	(0.064)
Age	0.008**
	(0.004)
Rural/Urban	-0.144
	(0.104)
Gender	0.082
	(0.082)
Education	0.003
	(0.026)
Constant	1.516***
	(0.251)
R^2	0.080
Adjusted R^2	0.051
F statistics	2.736**(df=5;157)
N	163

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*

Standard error in parenthesis.

Residual standard error: 0.508 on 157 degrees of freedom.

Table 5.2: Impact of Closeness of Ties on Civic Engagement (Results for strangers, acquaintances, and friends)

Regressor	*Dependent Variable: Attention to civic topics in environmental problems, helping the poor and infrastructure*
Closeness of Ties	0.036 (0.039)
Age	0.012*** (0.004)
Rural/Urban	-0.109 (0.099)
Gender	0.104 (0.071)
Education	0.034* (0.022)
Constant	1.399*** (0.208)
R^2	0.067
Adjusted R^2	0.048
F statistics	3.509***(df=5;243)
N	249

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*

Standard error in parenthesis.

Residual standard error: 0.551 on 243 degrees of freedom.

As discussed in Chapter 2, I expect that the closeness of ties to be positively related to the outcome of civic engagement, if these online interactions are facilitated by offline relationships.

Hypothesis 4: Frequency of interactions on social media networks facilitated by offline relationships increases participation in civic engagement.

Model Specification for H4

$$\textit{Civic Engagement} = \beta 1 + \beta 2\textit{SocialMediaInteraction} + \beta 3\textit{Urban} + \beta 4\textit{Age} + \beta 5\textit{Male} + \beta 6\textit{Education} + \beta 8\textit{Offline} + + \beta 9\textit{Environment} + + \beta 10\text{EconomicDevelopment} + \beta 11\text{SocialMedia*Offline} + \epsilon,$$

(Model 5.2)

In this model specification, the dependent variable *Civic Engagement* is a continuous variable that measures the number of activities that respondents would participate in environmental protection such as waste sorting and green consumption, online or offline. These activities include attending education activities, sorting waste, registering as a volunteer, helping relevant departments hang banners and slogans, organizing educational activities, raising complaints or

reporting waste sorting problems to the government and reporting problems to congressmen, media, or social organizations. *Civic engagement* takes on a value between “0” and “7”, with “0” measuring no engagement and “7” representing attending all seven activities.

SocialMediaInteraction is an ordinal variable that measures the frequency of interactions with others on social media, including forwarding, posting and commenting online. *SocialMediaInteraction* takes on the value of 0 to 6 by adding up (ordinal) the frequency of posting, forwarding and commenting and divided by 3. In each category, frequencies measures never (coded as “0”), occasionally (coded as “1”), once every few days (coded as “2”), one to two days per week (coded as “3”), three to five days per week (coded “4”), once every day (coded as “5”), and several times per day (coded as “6”).

The four demographic variables, including age, gender, rural/urban and education are measured the same way as described in model 5.1.

Offline measures whether respondents have offline interactions, with 1 representing offline interactions and 0 representing no offline interactions. *Environment* measures how respondents feel about environmental problems in their place of residence. “0” indicates that there are no environmental problems and “10” indicates that the problem is quite serious. Economic development is an ordinal

categorical variable that measures how respondents feel about economic development problems in their place of residence. “0” indicates that there are no environmental problems and “10” indicates that the problem is quite serious.

Results for Model 5.2

In this section, I will discuss the results of the impact of interaction terms of offline relationships and frequency of online interactions on civic engagement. Results for Baidu Post Bar are shown in Table 5.3 and 5.4. Results for WeChat are shown in Table 5.5 and 5.6.

Baidu Post Bar

Table 5.3 shows significant interaction effects between offline relationships and the frequency of online interactions. To understand the substantive significance of this relationship, further investigation of the marginal effects is shown in Table 5.4. In the group where there are offline interactions among users of Baidu Post Bar, there is a significant positive relationship between user frequency and civic engagement. However, This result if only significant at the 0.1 statistical level (Figure 5.1 and Figure 5.2). However, the result seems to be substantively significant. More specifically, every two ordinal level increase in online interaction

frequency (i.e., from never to once every few days) is associated with an increase in engaging in one more type of civic engagement activity.[13]

Among group members who have no offline relationships, more frequent online interactions seem to have a negative effect on civic engagement (Table 5.4 and Figure 5.1). This result is significant at a 0.05 statistical level. More specifically, a five-ordinal-level increase in the frequency of online interactions (i.e., from never to once a day) is associated with a reduction of engaging in one less environmental protection activities[14]. Therefore, this result is substantially significant.

[13] 0.524*2=1.048
[14] -0.216*5=-1.08

Table 5.3: The Effect of Baidu Post Bar Interaction on Civic Engagement in Environmental Protection

Regressor	*Dependent Variable: Participation in Environmental Protection*
Frequency of Interactions on Baidu	-0.216**
	(0.105)
Rural/Urban	0.211
	(0.360)
Age	0.026
	(0.020)
Gender	0.254
	(0.279)
Education	0.257**
	(0.100)
Offline Interactions	-0.606
	(0.654)
Seriousness of Environmental Problems	0.046
	(0.077)
Economic Development	0.225
	(0.089)
Interaction Terms: Frequencies of Interaction Online and Offline	0.740**
	(0.314)
Constant	0.107
	(1.021)
R^2	0.157
Adjusted R^2	0.120
F Statistics	4.261***(df=9; 206)
N	216

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*
Standard error in parenthesis.
Residual standard error: 2.024 on 206 degrees of freedom.

Table 5.4: The Marginal Effect of Using Baidu Post Bar on Civic Engagement in Environmental Protection Mediated by Offline Interactions.

	Marginal Effect of Participation in Environmental Protection	
Regressor	No Offline Interactions	Offline Interactions
Constant	0.107	-0.499
Coefficient	-0.216**	0.524*
	(0.105)	(0.299)
N	205	35

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*
Standard error in parenthesis.

Figure 5.1

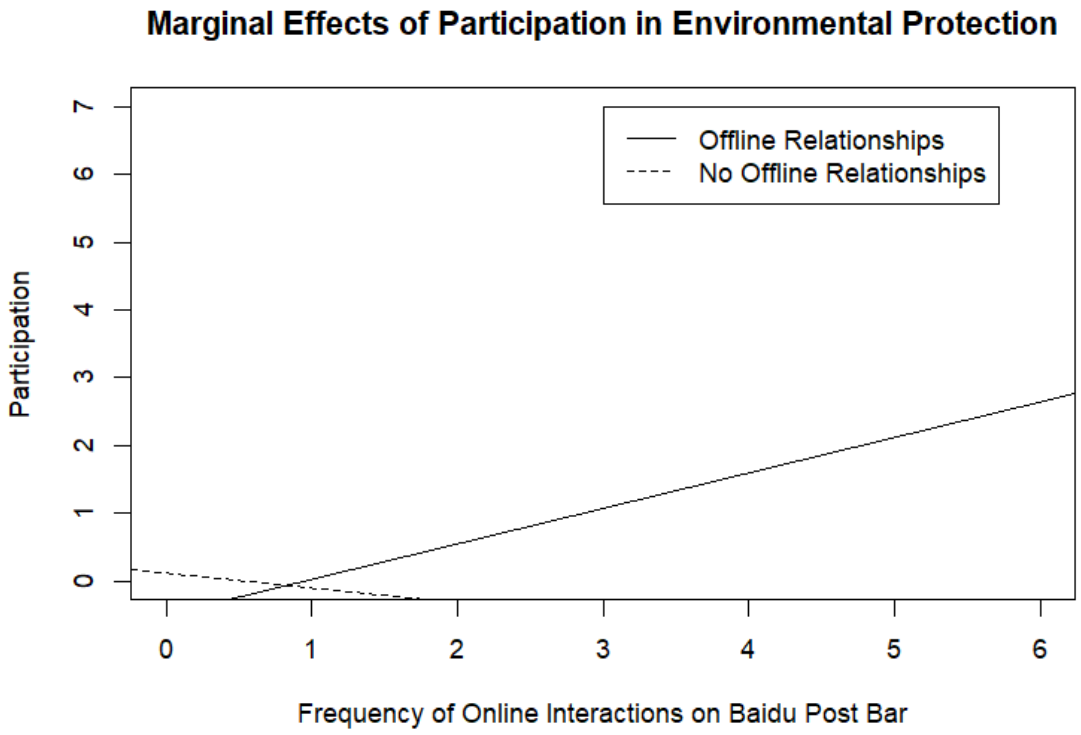

Marginal Effects of Participation in Environmental Protection
Offline Relationships
No Offline Relationships
Participation
0
1
2
3
4
5
6
7
0
1
2
3
4
5
6
Frequency of Online Interactions on Baidu Post Bar

Figure 5.2

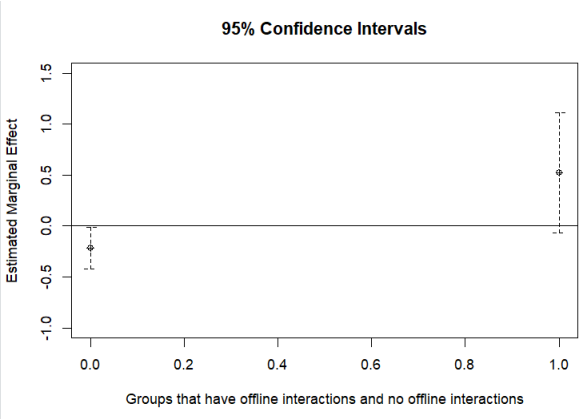
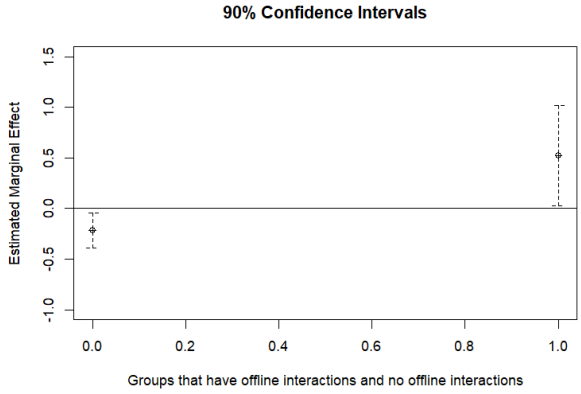


Figure 5.3



WeChat Results

WeChat returned similar results to Baidu Post Bar. Table 5.5 shows significant interactions effects between offline relationships and the frequency of online interactions. To understand the substantive significance of this relationship, further investigation of the marginal effects is shown in Table 5.6 and Figure 5.4. In the group where there are offline interactions among users on WeChat, there is a significant positive relationship between user frequency and civic engagement (Figure 5.5). This result is significant statistically and substantively. More specifically, a five-level increase in online interaction frequency (i.e., from never to once a day) is associated with an increase in engaging in one more[15] type of civic engagement activity (Table 5.6).

Among group members who have no offline relationships, no significant relationships are detected between frequency of WeChat use and civic engagement (Figure 5.4).

[15] 0.268*5=1.34

Table 5.5: The Effect of WeChat Interaction on Civic Engagement in Environmental Protection

Regressor	*Dependent Variable: Participation in Environmental Protection*
Frequency of Interactions on WeChat	-0.068
	(0.085)
Rural/Urban	-0.202
	(0.329)
Age	0.013
	(0.014)
Gender	0.082
	(0.256)
Education	0.216 **
	(0.085)
Offline Interactions	-0.852*
	(0.436)
Seriousness of Environmental Problems	0.052
	(0.072)
Economic Development	0.094
	(0.079)
Interaction Terms: Frequencies of Interaction Online and Offline	0.336**
	(0.140)
Constant	1.342 *
	(0.744)
R^2	0.060
Adjusted R^2	0.032
F Statistics	2.415*(df=9; 301)
N	311

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*
Standard error in parenthesis.
Residual standard error: 2.237 on 301 degrees of freedom.

Table 5.6: The Marginal Effect of Using WeChat on Civic Engagement in Environmental Protection

Mediated by Offline Interactions.

Regressor	Marginal Effect of Participation in Environmental Protection	
	No Offline Interactions	Offline Interactions
Constant	1.342	0.490
Coefficient	-0.068	0.268 **
	(0.085)	(0.114)
N	205	134

**P<0.1; **P<0.05(two-tailed); ***P<0.01.*
Standard error in parenthesis.

Figure 5.4

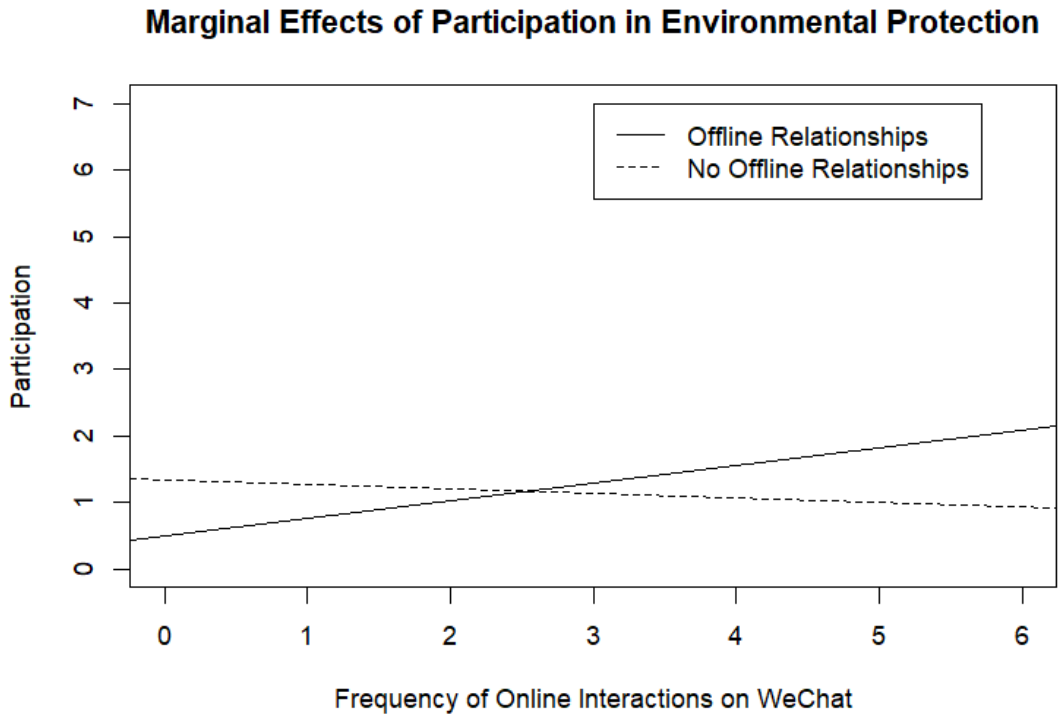
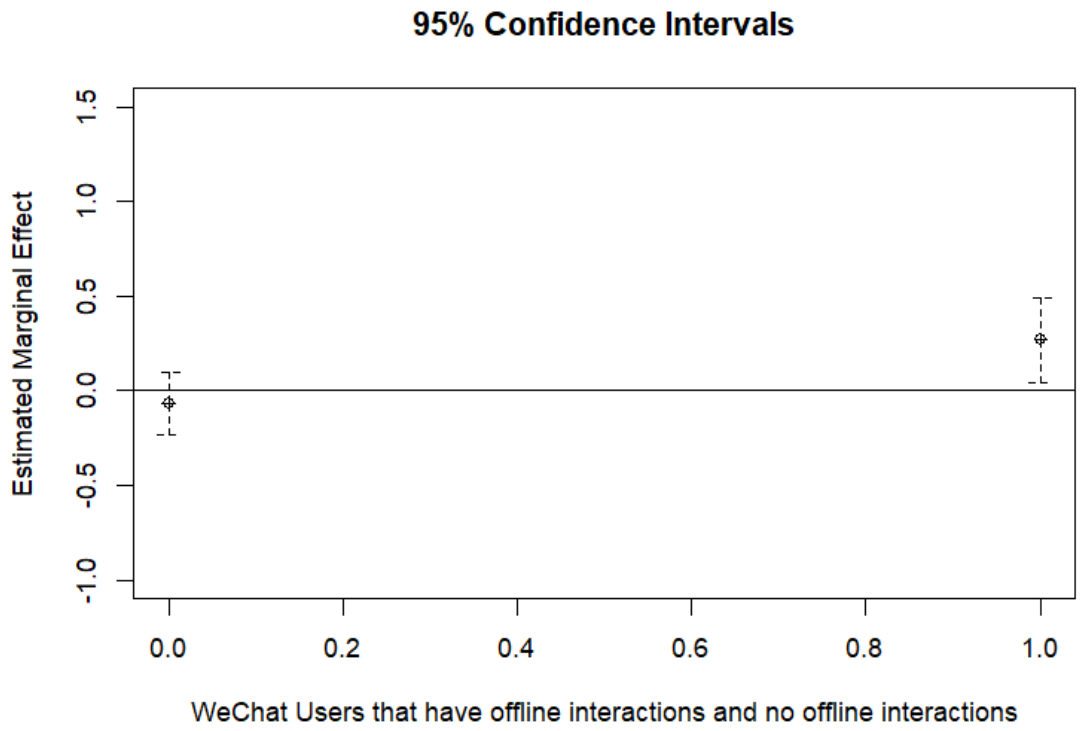

Marginal Effects of Participation in Environmental Protection
Offline Relationships
No Offline Relationships
Participation
0
1
2
3
4
5
6
7
0
1
2
3
4
5
6
Frequency of Online Interactions on WeChat

Figure 5.5: Estimated Marginal Effects at 95% Confidence Intervals



5.3 Chapter 5 Discussion

The results in this Chapter have a couple of implications for discussion. First, the results regarding closeness of ties challenged the findings in the literature about the importance of weak-tie networks. Consequently, family discussion networks seem to be a stronger predictor of civic engagement. This might seem perplexing; however, reverse causality may very well be at play here. People who are interested in politics tend to discuss with families more than with friends or strangers. If this is the case, then there is strong evidence to postulate that an offline relationship is an important moderating variable for online interactions and civic engagement, which is the basis of Hypothesis 4. In fact, results of Table 5.1 and Table 5.5 provide a good amount of support for Hypothesis 4. The more people interact online with people whom they know offline, the more likely they will be engaged in civic activities. Additionally, the closer the offline relationship is, the more civic engagement interests there will be.

Second, it is interesting to note the difference between Baidu Post Bar and WeChat when it comes to users who have online relationships only. Among users who don't have pre-existing offline relationships, while use of WeChat doesn't seem to have a significant impact on civic engagement, use of Baidu Post Bar has a significant negative impact on civic engagement at the 0.05 statistical level. This

might have to do with the different social media affordances each platform has to offer, albeit subtle. This finding may further refine more detailed typologies of social media affordances that could be developed in future studies. Whereas both WeChat and Baidu Post Bar support affordance that help maintain social network ties, Baidu Post Bar resembles a traditional BBS platform and, therefore, is less versatile than WeChat in its functionality. Although a more powerful platform with multiple affordances may lead to distraction, this study indicates that for social media users who have an existing offline relationship, a more powerful platform may lead to higher level of civic engagement.

Chapter 6: Conclusion

Social media and the public sphere crisis

In 2008, Bennett and Iyengar argued that we have entered a new era of minimal effects resulting from media abundance. They further asserted that only new theories could serve to help researchers understand today's political communication landscape, at the aggregate level. Some other scholars, on the other hand, rebutted that “a full range of effects” is not only plausible, but distinctly probable, even amidst the extraordinary socio-technical change occurring in our media system (Holbert et. al., 2010). Additionally, they argued that existing tools retain much utility for examining political media effects (Holbert et. al., 2010; Shehata et. al., 2013).

Since then, the debate regarding media abundance and public sphere disruption has carried on. Until the 2016 American presidential election, the democratic role of social media has been called into question like never before (Vaccari & Valeriani, 2021). Although the cyclical pattern of democratization weighs in, the post- 2016 tidal shift was arguably the strongest observed in the relatively short history of digital media and politics (Vaccari & Valeriani, 2021). The changing political communication process that relates to the disruption of this public sphere has been

conceptualized by scholars to be related to the weakening of democratic institutions.

Overall, scholars commonly agree that the public sphere is in crisis; however, conceptualization varies as to the nature of the crisis and how it relates to democratic institutional decay. Scholars have attributed the impact of a disrupted and disconnected public sphere to the declining democratic institutional legitimacy (Bennett & Pfetsch, 2018). These structural changes are characterized by diminished citizen attention, hybrid media systems, the rise of undemocratic movements and parties and networked, often polarized political information flow. What has emerged is a “public space” that allows people access to information and offers an outlet to discuss and engage in public affairs but falls far short of fulfilling the democratic objectives of the public sphere (Lunt & Livingstone, 2013; Papacharissi, 2010). For example, the internet is often used in a self-serving manner that is at odds with a deliberative public sphere (Papacharissi, 2010).

Therefore, in the age of disrupted public spheres, citizenries seem to be less attached to institutional politics and news media than ever before (Bennett & Iyengar, 2008). However, the disrupted public sphere argument, which centers on structural changes of media proliferation and fragmentation, might not sufficiently explain whether technology has played a direct or indirect role in the weakening of democratic institutions.

Technology and online opportunity structure

In fact, following the social movement literature, some scholars have posited a direct link between the nature of the populism movement and the online opportunity-structure for mobilization (Engesser et al., 2017). These scholars claim that the populist communication logic and online opportunity structures go hand-in-hand in various regards. First, people-centrism appears more convincing when directly addressed to the people, and anti-elitism can be more easily expressed in a media environment that favors non-elite actors. Additionally, the homophile filter bubbles and echo chambers of the Internet are fertile grounds for the idea of excluding 'others'. Furthermore, features of populist style, such as simplification, emotionalization, and negativity, are perfectly in line with the Internet's attention economy. At the same time, the populist strategies of acquiring power, securing legitimacy, and mobilizing supporters frequently target non-institutionalized masses that can be easily found on the Internet. Finally, the Internet provides populist leaders with personalized communication channels that allow them to exert charisma and suggestive power. In short, online media provide the populists with even more direct connections to the people than traditional offline media (Engesser et al., 2017).

However, a direct relationship between social media and democratic backsliding is highly contested. For example, scholars found that changes in media technologies have extended freedom of choice, opened up increasing interactivity,

and expanded opportunities for citizen and civil society to participate in the public sphere (Blumbler, 2016; Skoric, Zhu, Goh, & Pang, 2015). Other scholars who have attributed democratic backsliding to structural changes point to the epistemic crisis of fake news. Benkler et al. (2018) claim recent political events such as the rise of Trumpism may be a manifestation of a system-level epistemic failure. Benkler et al. contend that the epistemic crisis is primarily a function of the larger right-wing media ecosystem of the U.S. and the response of mainstream news business to its agenda and frames. The fragmentation of professional media (such as the propaganda loop by Fox), provided another avenue to undermining truth claims. Therefore, technology itself is not an important cause of epistemic failure (Bimber and Gil De Zuniga, 2019). Overall, the conceptualization of epistemic crises provides more refined measurements than the concept of “post-truth”. However, Benkler et al.’s political economy analysis is not sufficient in accounting for the near simultaneity-over-time trend of epistemic problems across political systems, as undemocratic communication is now seen across democracies (Bradshaw and Howard, 2017; Bimber and Gil De Zuniga, 2019). More specifically, while the right-wing media ecosystem of the U.S. is itself not duplicated elsewhere, decaying trust in media and institutions has occurred in many countries (Bimber and Gil De Zuniga, 2019).

Technology as affordances

Therefore, the disrupted public sphere itself may not be a direct function of technology; however, it may be closely related to technological change. In this vein, this dissertation takes on a middle-path theory known as technological affordances, which might provide a useful framework (Hutchby, 2001; Bimber and Gil De Zuniga, 2019). From this perspective, technological advancement tends to have “an effect” that provides political actors with either expanded opportunities or an undermined capacity. In other words, technology plays an important role but by no means, a deterministic one.

It is this public sphere crisis debate that motivated this dissertation. Following the affordances framework, it is crucial for us to question the scope condition of the disruptive impact of social media found in recent western literature by asking when, and under what conditions, are we still able to rely on existing findings to understand a dynamic and progressive media environment. This dissertation is designed to rethink the scope and limitations of the classical theories of democracy and the internet and the extent to which they might be applied outside the western hemisphere. To this extent, political system matters and moreover, as Vaccari et. al (2021) argued, individual experiences on social media also matter.

Political system may influence how social media shape civic engagement because the role of traditional media in China differs from those in the West. Social media may offer an alternative channel of accountability and communication. Additionally, social media may help maintain existing social network ties established offline where trust among citizens extends. Therefore, I expect the impact of social media on civic engagement in China departs from the findings in the western literature. In what follows, I will summarize the main theoretical findings and limitations of the present work and provide suggestions for future research.

Findings and future research agenda

As I discussed in Chapter 2 and Chapter 4, different social media seem to exert differential impacts on civic engagement. This has to do with the designs, functionalities, and affordances of the business models of any particular social media. Affordances shape the kinds of content people are exposed to, the users they interact with, and the activities they are encouraged to undertake. (Vaccari & Valeriani, 2021). Recall my propositions: social media designed to maintain social network ties and increase their customer base through network ties seem to have a positive impact on civic engagement. Conversely, social media designed for entertainment and instant gratification by reaching mass audiences tend to have no impact or even negative impact on civic engagement.

Findings in this dissertation show support for these propositions in China largely in participation of non-contentious politics in environmental protections. Things are more nuanced in contentious politics as it takes higher stakes to take part in contentious politics. Furthermore, social network size has a positive impact on civic engagement as a larger social network size is correlated with more activities in civic engagement.

Additionally, I have discussed the relationship between online and offline interactions and the impact of social media in Chapter 2 and Chapter 5. Offline interactions seem to be an important prerequisite for online interactions to work. The more people interact online with people whom they know offline, the more likely they will be engaged in civic activities. Furthermore, the closer the offline relationship is, the more civic engagement interests there will be. This finding somewhat challenged the theories regarding the positive impact of thin network ties and weak-tie relationships found in the literature. However, given the limitations using cross-sectional data and lack of longitudinal studies, it is likely that reverse causality might have been at play. That is to say, people who are more interested in civic topics tend to have discussions with their families more than with friends and even more than with strangers. Thus, it is not discussions with strong-tie networks on social media that make them interested in civic topics but interests in civic topics that motivated them to discuss such topics with families on social media more than with strangers. Although my hypothesis about thin-tie networks was not supported,

this finding has important implications. Most importantly, it serves as a foundation of claiming that the existence of offline relationships matters when it comes to online interactions. In fact, this finding naturally leads to Hypothesis 4-- Interactions with people who have an established offline relationship on social media tend to have a positive impact on civic engagement. In addition, the more frequently people interact with those they know offline, the more civic activities individuals tend to participate in. These findings are presented in Chapter 5.

There are a number of limitations in this dissertation, and thus work left for future studies. First, in Chapter 2, I presented the plausible mechanisms that might be at play when it comes to social media and civic engagement. However, it is beyond the scope of this dissertation to entangle the proposed mechanisms. Future experimental designs are necessary to disentangle the reputational costs, social influence, and further social capital mechanisms of the impact of social media on civic engagement.

Second, my research design does not warrant strong causal claims, although I have enhanced my analyses with available statistical techniques and make qualitative theoretical arguments to get closer to that goal. To this point, future field experiments or at least online survey experiments might be useful research designs to detect the causal pathways between social media use and civic engagement and civic interests. This especially applies to the findings relating to Hypothesis 3, and regarding the strong-tie and weak-tie arguments. If family ties turned out to be the

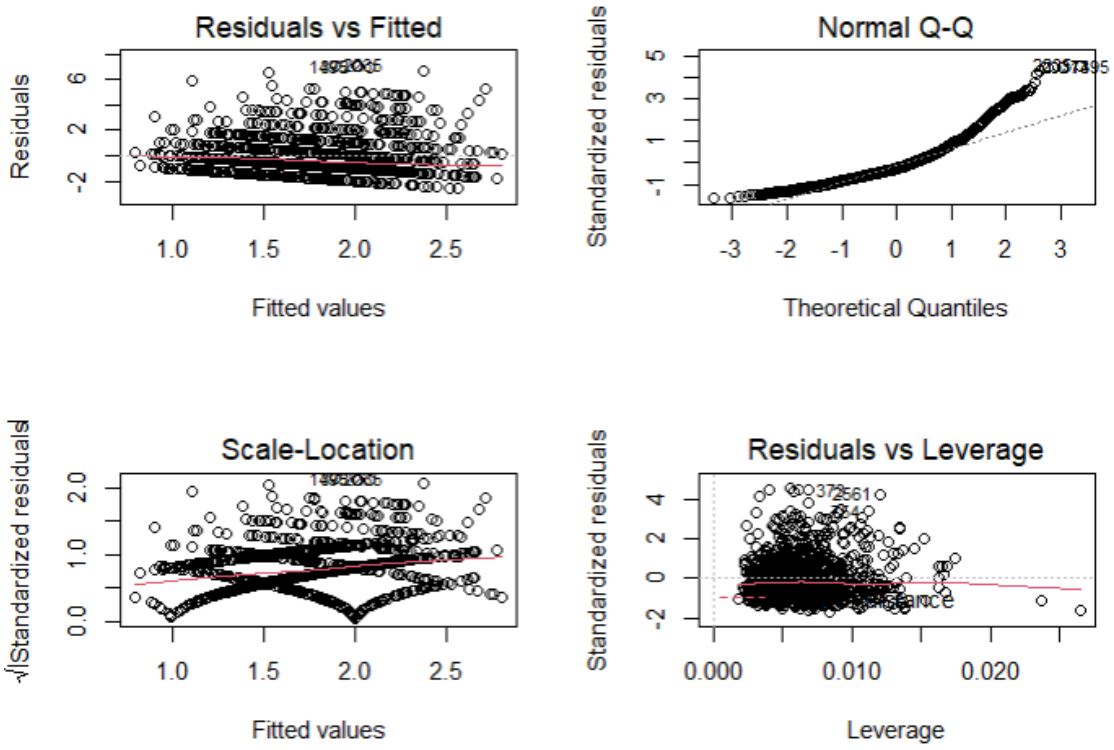
strongest predictor of civic engagement, such findings would add significant contributions to the political socialization literature as well as the political communication literature.

Third, it is important to note that this study only applies to China and its social media landscape. Comparative scholars could consider looking into the extent to which such results may be extended to other regions and areas. This may shed light on questions of the scope conditions of current relationships found in western literature and help inform the public sphere crisis debate.

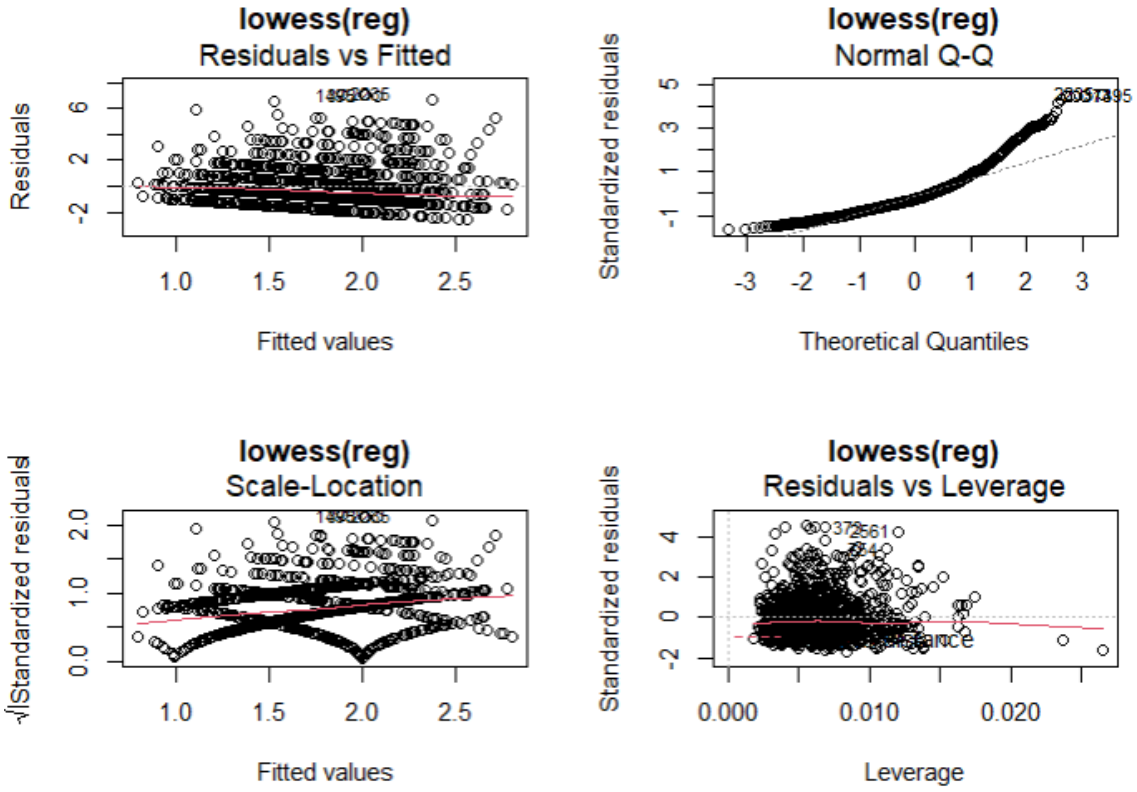
Appendix Supplemental Materials:

Appendix for Chapter 4

Appendix for Table 4.6: Number of WeChat Friends

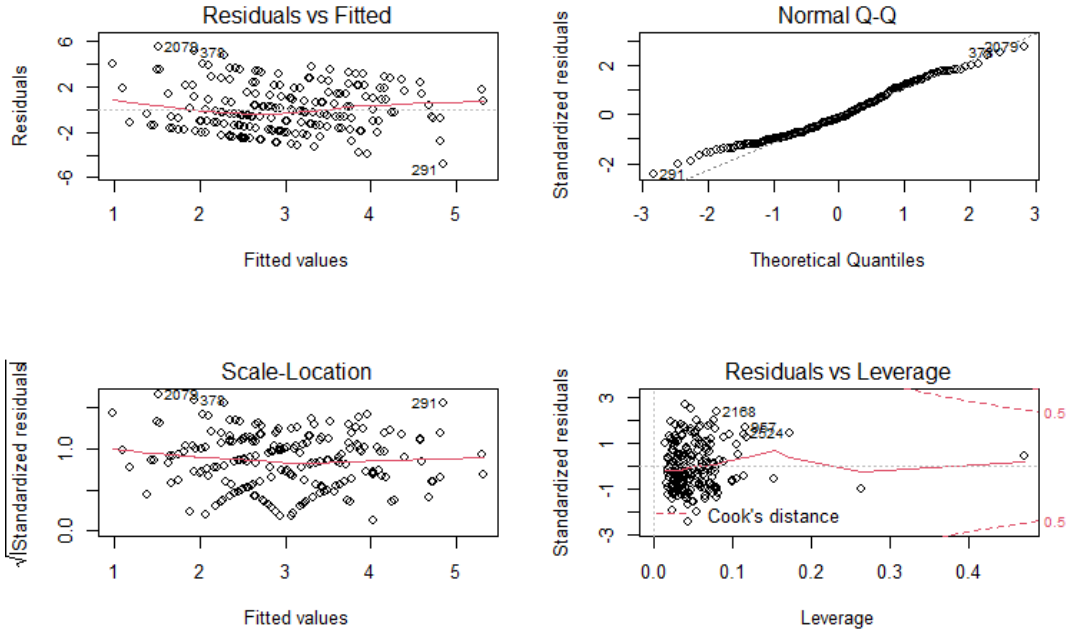


Appendix for Table 4.6: WeChat Discussion Groups and Civic Engagement

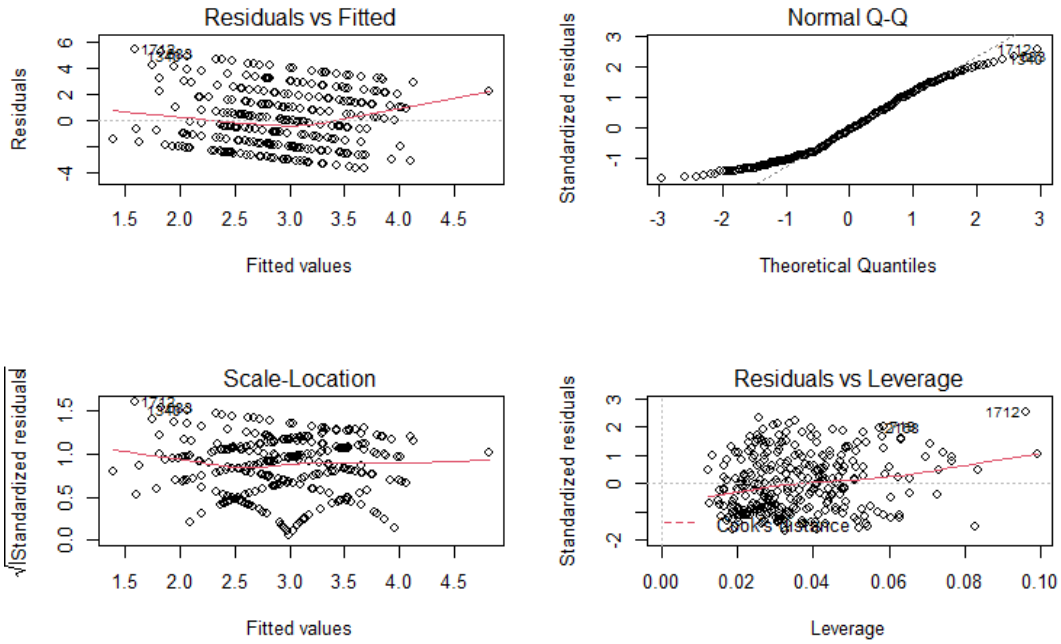


Appendix for Chapter 5

Goodness of fit plot for Model 5.2: The Effect of Baidu Interaction on Civic Engagement



Goodness of fit plot for Model 5.1: The Effect of WeChat Interaction on Civic Engagement



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