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# Use of Microblogs in Grassroots Movements in China: Exploring the Role of Online Networking in Agenda Setting

King-wa Fu  
Michael Chau

**Abstract.** This study examines the role of online networking in a grassroots movement in China. Drawing on Manuel Castells's theory of communication power in the network society, we argue that microblogs can facilitate China's mass self-communication in a network environment, even under authoritarian control, and are able to challenge the power of agenda setting, which has been mainly dominated by the state and the state media. We study a grassroots movement in China and examine the ways in which messages were communicated and people were connected into a network. Thus we investigate the role of online communication in reconfiguring the balance of power between the authority and Chinese citizens. Using systematic data collection and social network analysis, we characterize the microbloggers who contributed to the process, the network configuration, and the interplays between different stakeholders.

**KEYWORDS.** Agenda setting, China, microblogging, network society, social network analysis

The political implications of the Internet can be traced back to early applications such as e-mail, distribution lists, or discussion forums (DiMaggio, Hargittai, Neuman, & Robinson, 2001; Ronfeldt, 1992). As the technology emerges and new forms of online applications are developed, microblogging, a popular social-media application, is regarded as a new form of public-opinion sharing (Jansen, Zhang, Sobel, &

Chowdury, 2009) and political communication (Lassen & Brown, 2011). Similar to blogging, microblogging allows users to regularly publish brief textual content that can be read by a group of followers. It can play important roles in mass communication during a variety of social incidents (Efron, 2011; Thelwall, Buckley, & Paltoglou, 2011), including time-critical situations (Liu, Liu, & Li, 2012; Palen, Vieweg, &

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Anderson, 2010), natural disasters (Mendoza, Poblete, & Castillo, 2010; Qu, Huang, Zhang, & Zhang, 2011; Vieweg, Hughes, Starbird, & Palen, 2010), general elections (Adamic & Glance, 2005; Burns & Eltham, 2009; Larsson & Moe, 2012), political uprisings (Grossman, 2009, and more examples in Egypt, Libya, and Yemen), and personalized communication in grassroots movements (Bennett & Segerberg, 2013; Segerberg & Bennett, 2011).

There has been much recent attention to the role of the Internet in China, an authoritarian state where news media are strictly controlled and public information is censored. But the country's online media appear to have enabled the Chinese people to have a greater degree of autonomy than before to speak on social affairs and sensitive political topics (Fu, Chan, & Chau, 2013). Chinese microblogs, or *weibo* in Chinese, are believed, especially by Western observers, to be a significant "free speech platform" (Richburg, 2011). This citizens' use of newer technology has been rapidly growing, evolving, and becoming an all-embracing social phenomenon in China. Many scholars are relatively optimistic about the enabling power of China's Internet in the sociopolitical process. For example, the online platform can play an overarching role in constructing China's public sphere, empowering civil discourse, and helping citizens in grassroots movements to raise their concern onto a public agenda (Qian & Bandurski, 2011). Yang (2009) asserts that the Internet in China serves as a powerful channel to support citizen activism, even though his view is criticized as too optimistic (Kluver et al., 2010). While agreeing that the Internet in China plays a supporting role in social change, many critics believe that it may require a long time before its full impact is apparent.

Most previous research on the role of blogging or microblogging about public incidents in China has employed the descriptive case study approach, for example Yang (2009). Our approach in this article remains descriptive but is supported by an empirical and systematic data analysis of how Chinese citizens make use of microblogs in grassroots movements. Specifically, we seek to examine the ways in which Chinese microbloggers

are communicating about grassroots movements in an online network and to understand the social consequences, i.e., building a public agenda under authoritarian control and media regulation. These queries can help examine whether there would be fundamental and systemic change in the overall landscape of social interactions between citizens, online media, and the state in China. Our aim is to enrich the body of research with insights from a country where the sociopolitical environment is markedly different from the West and other authoritarian states, and provides indicative cases to inform future research.

### **MICROBLOGGING IN CHINA**

With Twitter blocked in China, Weibo (using a capital letter for the commercial service), which is a direct translation of the word "microblog" into Chinese, is a microblogging service in China. Its users post and share short messages with 140 Chinese characters or less and an optional attached picture. Weibos share many similarities with Twitter, providing mechanisms to "follow" a user or to repost (or "retweet," in Twitter parlance) another user's post to one's own readership. Despite having clearly been started to mimic Twitter, Weibo does feature a number of distinct characteristics, such as the ability to repost a post attached with the original post and to comment as separate entities (Twitter allows only 140 characters for the retweeted post and user comment together).

Currently, the two leading microblog platforms in China are Sina Weibo and Tencent Weibo. Sina Weibo (weibo.com) started its services in August 2009, and Tencent Weibo (t.qq.com) was launched in April 2010. Both claimed to have more than 500 million registered accounts at the end of 2012 (Mozur, 2013).

### **COMMUNICATION POWER IN A NETWORK ENVIRONMENT**

Human communication via the Internet has long been understood as a form of social

network (Wellman, 2001). According to Castells (1996), widespread use of information and communication technology has given rise to the formation of “network society” as a basic mode of social organization, along with the state and the capitalist market. Castells (2009) further illustrates the role of communication networks in changing the balance of power relationships within the society. He posits that network formation involves processes of power-making in which the dominant actors in the society enforce their power by establishing and programming a set of networks; and correspondingly, a countervailing power, also in the form of a network, is generated to resist and “reprogram” the established network and social order (Castells, 2009).

At a micro level, Castells (2009) describes this mechanism of power-making in the mode of communication as mass self-communication, through which a self-generated message can potentially reach a wide spectrum of audience and can have the capacity to “provide the technological platform for the construction of the autonomy of the social actor, be it individual or collective, vis-à-vis the institutions of society” (Castells, 2012, p. 7). Specifically, power-making in the network is exercised through two basic mechanisms: (1) the ability to constitute (program/reprogram) the network(s) and (2) the ability to connect and coordinate different actors in the network by sharing common interests, values, goals, resources, or cultural materials (Castells, 2009). Using Castells’s (2009) terminology, the holders of the first power position are called programmers, and people who exercise the second kind of power are called switchers; they “are those actors and networks of actors who, because of their position in the social structure, hold *network-making power*, the paramount form of *power in the network society*” (Castells, 2009, p. 47; italics in original).

Networking is therefore thought of as a social process that extends human capacity and facilitates community formation. Citizens, when using social media applications, are situated within an interconnected web of social networks. The networked individuals (Rainie & Wellman, 2012) are those who are able to

take advantage of one’s social network—close friends, acquaintances, and friends of friends—to extend their ability to reach broadly beyond a densely knit group, communicate effectively with the community and the globe at large, and become ubiquitously accessible. This process of “glocalization” (a neologism representing a combination of local and global interactions) via networking is characterized by Rainie and Wellman (2012, p. 14) as one in which “the lines between information, communication, and action have blurred; networked individuals use the Internet, mobile phones, and social networks to get information at their fingertips and act on it, empowering their claims to expertise.”

### ***Grassroots Agenda Setting as Countervailing Power in a Network Environment***

As suggested by Farrell (2012, p. 36), “We should stop thinking about the ‘Internet’ as a proper name, and instead start thinking of it as a bundle of mechanisms that we can in principle disentangle from each other.” Following the previous section in which a communication network is theorized as a process of power-making, we limit our scope to a specific mechanism through which such power is situated within a network environment and operates in a wider sociopolitical setting, i.e., building a public agenda in a grassroots movement using communication networks. To emphasize the mechanism in which microblogging plays its role in the sociopolitical landscape, we draw on the conceptual tool of *bottom-up agenda setting* (Farrell & Drezner, 2008), which generally refers to a communication process through which grassroots, nonmainstream, or citizen media, usually enabled by online media such as blogging, discussion forums, or social networking sites, serve as significant agenda setters to transfer issue salience from non-mainstream to mainstream media and as a result build the public agenda. Without the aid of the Internet, a citizen’s voice rarely becomes prominent in the public domain. This can also be known as an amplification process (Agre, 2002), through which the Internet serves as a magnifier to facilitate existing forces to make societal change.

That is to say the sociopolitical landscape is modified by social and institutional forces that are amplified by the use of the Internet. The amplified voice per se may not alter the sociopolitical environment, but it can reinforce existing social dynamics to create social change.

A number of empirical studies have drawn evidence of the characteristics of online media's function of bottom-up agenda setting. For instance, Delwiche (2005) compares the blogging agenda and the mainstream media's agenda, suggesting that bloggers' negative comments on the Bush administration in 2003 were an early indicator of eroding support for the war in Iraq. Using media content analysis of the political agenda during the 2004 American presidential election, Sweetser, Golan, and Wanta (2008) find strong correlation between candidate-controlled blogs and the mainstream media agenda. Zhou and Moy (2007) investigate a sociopolitical incident in China, suggesting how online media could transform a local event into a nationally prominent media issue.

Farrell and Drezner (2008) study the conditions under which blogs could amplify the voice from the "bottom" and could have real influence on politics, characterizing an imbalance of readers among bloggers, namely the power law distribution of the number of incoming links, as well as a considerably higher readership of blogs among journalists and political elites. Consequently, a small percentage of famous bloggers is placed in a more salient position within their own circle and may frame the issues of concern in a way that creates points of attention for journalists and political elites. Both Haas (2005) and Hindman (2009) notice that only a small portion of influential bloggers function as agenda setters, while the vast majority of blog writers rely on mainstream media for information about social topics.

### RESEARCH QUESTIONS

While a range of recent studies on the use of Internet network during protests and social movement, such as Arab Spring and Occupy Wall Street, is available (Breuer & Groshek, 2013; Christensen, 2011; Jensen & Bang, 2013),

most of the existing studies were performed in the setting of democratic Western societies. The role of the process of bottom-up agenda setting through online media may be therefore culturally sensitive and conditioned by cultural factors and institutional settings. It may not be generalized to other cultural contexts, such as authoritarian regimes in which free media and democratic government do not exist and where media censorship and strong surveillance systems are in place. For example, in China the government has successfully implemented a sophisticated system of Web censorship, allowing blockage of messages and online surveillance of users. As MacKinnon (2008, p. 31) puts it, blogging in China is just "a tool and not a cause of political change," and it may help "to enlarge the space for collaboration and conversation on subjects not directly related to political activism or regime change." Against such a background, we attempt to contextualize our inquiry within a specific research setting in China, which is governed by an authoritarian state where citizens' public engagement is forcefully restricted.

A growing amount of scholars argues that political implications of the Internet for civil empowerment, including the recent development of social media and social networking, have often been overstated. As noted by Curran, Fenton, and Friedman (2012, p. 180):

Social media are more often about individual than collective emancipation, about presenting self (frequently in consumerist or individualising terms) rather than changing society, about entertainment and leisure rather than political communication (still dominated by old media) and about social agendas shaped by elites and corporate power rather than a radical alternative.

Moreover, authoritarian regimes often develop strategies to regulate the Internet and to suppress dissidents' activities (Morozov, 2011). In acknowledging these skeptics, we contend that Chinese microblogs can play a laudable role, notably in a network environment, in facilitating networked individuals' power in setting the public agenda in the contexts

where mainstream media and democratic systems are both dysfunctional. The bottom-up process would not have been feasible when microbloggers were not connected in such a network.

Drawing on Castells's conception of power-making in a communication network, retweeting microblogs is understood as a power-making process through which a message is disseminated and an idea/value/goal is shared among microbloggers in a network, whereby it amplifies and empowers a local voice and challenges political power. Using a grassroots movement in China as an example, this study aims to examine the way in which a network is built by the reposting behavior of microbloggers. So the first and second research questions (RQ) are as follows:

RQ1: How can a Chinese grassroots group's voice be amplified into a public agenda through the use of an online networking tool?

RQ2: How is the network formed by individual microbloggers when reposting messages? What is the nature of such a network when reporting about a high-profile incident when compared to a less widely known event?

Moreover, this study aims to investigate the role of microbloggers in such a network environment, or "switchers" in Castells's parlance. It seeks to characterize the process of agenda-setting by describing the nature of microbloggers who participate in disseminating information about the incident, their position in the network, and the ways in which messages are reposted within the network. Messages that originated from a small number of microbloggers are reposted by multiple followers, and the readers of these followers may repost the messages again. By assuming a repost to be a link between the microbloggers and their followers, it is possible to construct a network of microbloggers based on these links (Chau & Xu, 2007). Research questions are framed to assess the characteristics of the microbloggers (*switchers*) and their positions in the (*switching*) network:

RQ3 What are the characteristics of switchers in the network, i.e., microbloggers who participate in disseminating information? Do they differ from normal users?

RQ4 Who are the major switchers (microbloggers) contributing to the agenda-setting by weibos? What are their positions in the network?

### **RESEARCH SETTING: THE QIAN YUNHUI INCIDENT (2010)**

On December 25, 2010, Qian Yunhui, a former village representative for Zhaiqiao in Zhejiang Province who had lodged petitions with the central authorities about local land disputes for many years, died under the wheels of a construction truck. The incident happened around 9 a.m. in Yueqing City, Zhejiang Province. The news of Qian's death evolved quickly through online bulletin boards, blogs, and microblogs in China, which were attached with a number of gruesome pictures taken of Qian's body by witnesses (Yang & Wong, 2010). This local incident in China eventually became a significant breaking-news item that attracted international media attention.

While speculating that Qian's death might not have been an accident but rather an alleged murder, Qian's relatives and the villagers organized a protest, and some protesters were eventually arrested later because of their "attempt to pick a quarrel and make trouble," according to the local police. On the same day, the local party paper *Wenzhou Daily* posted a news item on its Web site that described this incident as a traffic accident leading to a death, and reported that the local senior officials paid high attention to the incident.

On the following day, the first weibo mention about Qian's death was posted at 10:25 a.m., but it drew little attention. At 9:26 p.m., another weibo was made by Blogger Z, which read:

This was a post written by Mr. Qian Yunhui at the tianya.cn (a popular online forum). Nobody had replied to this post in the past

4 months since he was crushed by a truck, being forced by several people. The CCTV system alongside the road was removed on exactly the date of accident. This is a murder! This is horrible! This is miserable! The history will remember this man! The history will remember this incident!

Within a short time, this message was widely reposted, over 22,000 times. Many Chinese people knew of this incident via the microblogs.

On December 27, 2010, the Yueqing City government claimed in a press conference that this incident was purely a “normal traffic accident.” But local and international media, including Chinese Central Television’s online news and the U.S.-based *New York Times*, reported stories that cast doubt on the Yueqing City government’s explanation.

On January 4, 2011, the truck driver was arrested by the local police for causing a traffic accident. On 1 February 2011, the Yueqing City court sentenced the truck driver to three and one-half years in prison. His charge was the “crime of causing traffic casualties.”

Table 1 illustrates the chronology of the Qian Yunhui incident. The table columns show the reactions of different actors and consequences.

## METHOD

We used the Sina Weibo Open API to collect the required microblogs. By using the keyword search function, we obtained the earliest original posts containing the term “Qian Yunhui” (in Chinese characters: 钱云会) published close to the date of the incident. Once the posts we wanted to study were obtained, we traced their propagation and collected various statistics on the contributors. To gather the reposts of these original posts, we obtained an exhaustive list of the posts reposting any given original status. We wrote a computer program to automate the process and stored the data in a database.

We then extracted the user names contained in the user reposts. When reposting an original weibo message, a reference in

the format of “@DISPLAY\_NAME,” where DISPLAY\_NAME is the displayed user name of a microblogger being referred to, is offered by default alongside the reposting text and is preserved if it is not deleted by the reposting microblogger. We took advantage of this property to construct the reposting network.

The reposting network is represented by a directed graph of interconnections between microbloggers in which a link between two nodes signifies a repost sent from one microblogger to another. We used R (R Development Core Team, 2010) to analyze the graph using social network analysis with the support of the library package igraph (Csardi & Nepusz, 2006), and evaluating the node-level parameters such as in-degree, out-degree, and betweenness centrality measures, which are used to represent the importance and the centrality of each individual node (in this case, microblogger) within a network (Chin & Chignell, 2006; Freeman, 1978).

For instance, each individual node represents a microblogger who reposts a message, say microblogger M with a list of followers  $F_M = [F_{M1}, F_{M2}, \dots, F_{Mf}]$ , where f is the total number of followers of M. The out-degree centrality of M means the number of M’s followers who eventually repost the message after receiving it from M. Therefore, if M has 20 followers and followers  $F_{M1}, F_{M3}, F_{M8}, F_{M9},$  and  $F_{M15}$  repost the message sent by M, the out-degree centrality of M is five. The out-degree centrality serves as an indicator of the effectiveness of M in propagating the message. Besides out-degree, the in-degree centrality of M represents the number of times that M reposts the message received from other microbloggers. When following other microbloggers, M may receive the same message from multiple sources and thus M can repost more than one time. The betweenness centrality of M represents the total count of pairs of nodes in the network whose shortest path between them consists of M, denoting the relative importance of the position where M is located as a bridging tie to link up different clusters within the network (Freeman, 1978).

TABLE 1. Chronology of the Qian Yunhui Incident

Date	Triggering incident	Citizen's/public's responses	Microblog/weibo	Mainstream media	Local/city government	Consequences
December 25, 2010	Around 9 a.m., Qian Yunhui, an officer of village government, was knocked down and crushed by a heavy-duty truck. He died immediately.	Shortly after, the villagers nearby spontaneously organized to protect the body of Qian.		Party media <i>Wenzhou Daily's</i> Web site first reported a traffic accident in Yueqing leading to a death, which was concerned by local top officials.		
December 26, 2010			The first weibo was posted at 10:25 a.m. The most popular message, posted at 9:26 p.m., was widely reposted.			
December 27, 2010				Beijing-based Chinese youth newspaper reported the accident and pointed out some doubts.	Yueqing city government held the first press conference, claiming this incident was a "normal traffic accident".	
December 28, 2010				Many local and international media, including CCTV Web site in China and U.S.-based <i>New York Times</i> , cast doubt on the government's explanations.		
December 29, 2010					Wenzhou City police held a second press conference, claiming again that it was just a normal traffic accident.	

(Continued)



TABLE 1. (Continued)

Date	Triggering incident	Citizen's/public's responses	Microblog/weibo	Mainstream media	Local/city government	Consequences
January 4, 2011						Fei Liangyu (truck driver) was arrested by the local public security organ for causing traffic accident.
January 18, 2011				Xinhua news reported that Qian's family received 1.05 million RMB compensation.		
February 1, 2011						Yueqing city court sentenced the driver of the truck in prison for 3.5 years. After the verdict, the judge answered questions raised by a reporter from Xinhua News Agency in a written reply.

Moreover, network-level topological measures, such as degree distribution, diameter, average path length, and global cluster coefficient (Lewis, 2009; Wasserman & Faust, 1994), were deployed for network comparison. The degree distribution of a network denotes a degree sequence, either out-degree or in-degree, of all nodes in the network. If a network follows a power law distribution, its degree distribution can be represented by the equation  $h(k) \sim k^{-q}$ , where  $k$  is degree and  $q$  is an exponent (Lewis, 2009). The diameter of a network represents the longest path between any two nodes in the network. A network's average path length is equal to the average number of shortest paths over all direct paths connected between nodes in the network. The global cluster coefficient is an indicator of the extent to which a network's nodes cluster together. Network visualization by employing the Fuchterman and Rheingold graph layout algorithm was provided by the *igraph* package.

Aside from obtaining the pattern of reposting per single post, we collected various statistics, such as gender, the number of followers, the number of friends (i.e., the number of people followed by the user), and the province and city of origin of any given user. For comparison, 1,000 random samples were collected according to randomly generated user codes using previous procedures (Fu & Chau, 2013). These samples were collected to represent the whole population of Sina Weibo users (about 100 million accounts as of the end of 2010).

In this study, we selected a post by a Blogger Z that referred to the Qian Yunhui incident. Blogger Z created the post on December 26, 2010, at 9:26 p.m. (the date and time reported in this article are based on the local time in China.). It was rapidly reposted 24,031 times, according to the count recorded on Blogger Z's timeline. The post was censored from Blogger Z's user timeline at the time of our data retrieval; however, it was still retrievable through the API. Using the method described above, we obtained all reposts that were originated from Blogger Z's post. Finally, we collected 24,053 reposts. The extra 22 posts might be a software glitch in Sina's counting of the advertised number, or they could be deleted reposts. Among the whole

set of reposts, Blogger Z's original post was reposted by 22,803 distinct microbloggers.

We selected a comparison case that happened to generate a large amount of weibo reposts that did not "bottom-up" a local incident to widespread public concern, i.e., no mainstream media followed and reported this news item. A case was chosen that occurred very close in time to the Qian incident, i.e., late December 2010, with message content concerning a socially unjust issue at the Chinese grassroots level and including a sensational picture. We sought an incident that was also censored shortly after publication. The selected case was posted on December 24, 2010, and triggered a huge number of reposts. Blogger Y, whose Sina Weibo account was deleted shortly after this incident, posted a picture of an elderly woman vegetable hawker kneeling in front of a group of uniformed men, seemingly being bullied by a few urban management officials who had been well known in China for their notorious behavior and violent treatment of underprivileged citizens and protesters. We call this the "vegetable hawker" incident hereafter. All reposts that originated from Blogger Y's post were generated using the same method described above, but only the first 22,803 distinct reposters were included for comparison. The number 22,803, the total amount of microbloggers involved in the Qian's incident, is chosen so that both graphs have an equal number of nodes. The first repost was made at 12:42 p.m. Moreover, a set of graphs was randomly generated by using the Barabasi–Albert algorithm for network comparison (Csardi & Nepusz, 2006). While being generated to be scale-free, which is equivalent to the Qian network, the edges of a random network are purely connected by chance. A random network usually served as a reference for graph comparison (Chau & Xu, 2007).

## RESULTS

### *Characteristics of the Switchers in the Network*

Figures 1–5 show the 22,803 distinct users' self-reported genders and locations, their

FIGURE 1. Characteristics of the reposters: gender.

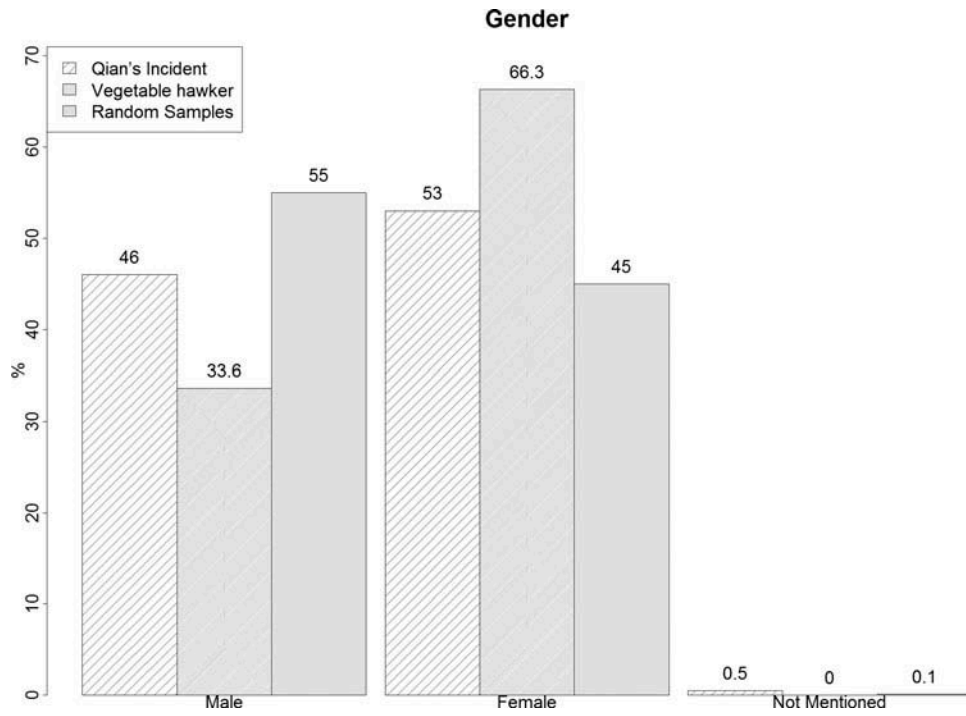


FIGURE 2. Characteristics of the reposters: location.

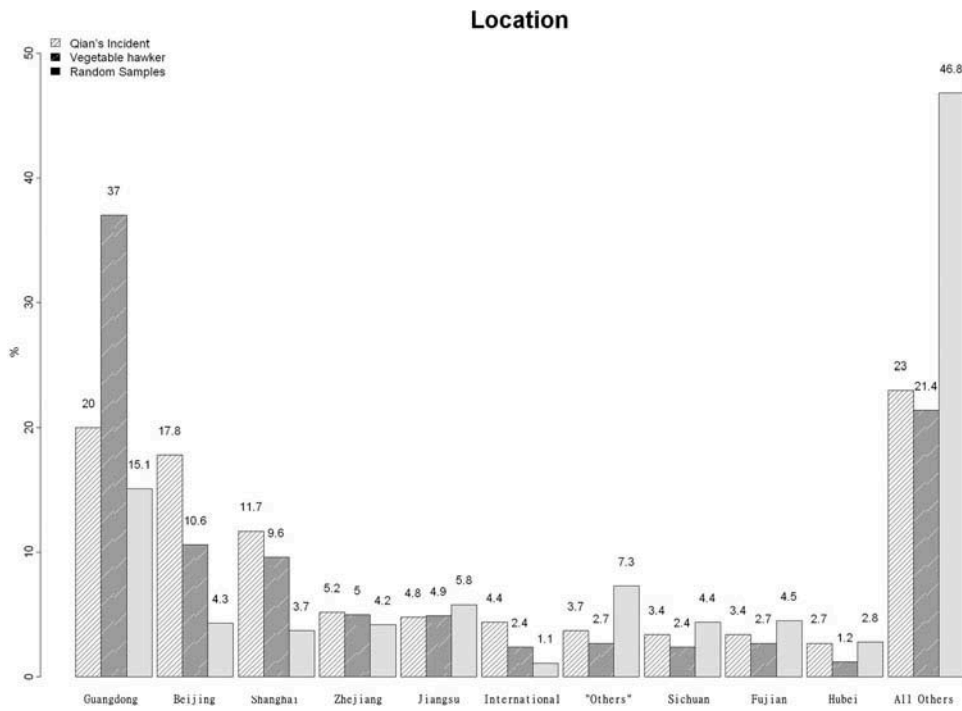


FIGURE 3. Characteristics of the reposters: number of followers.

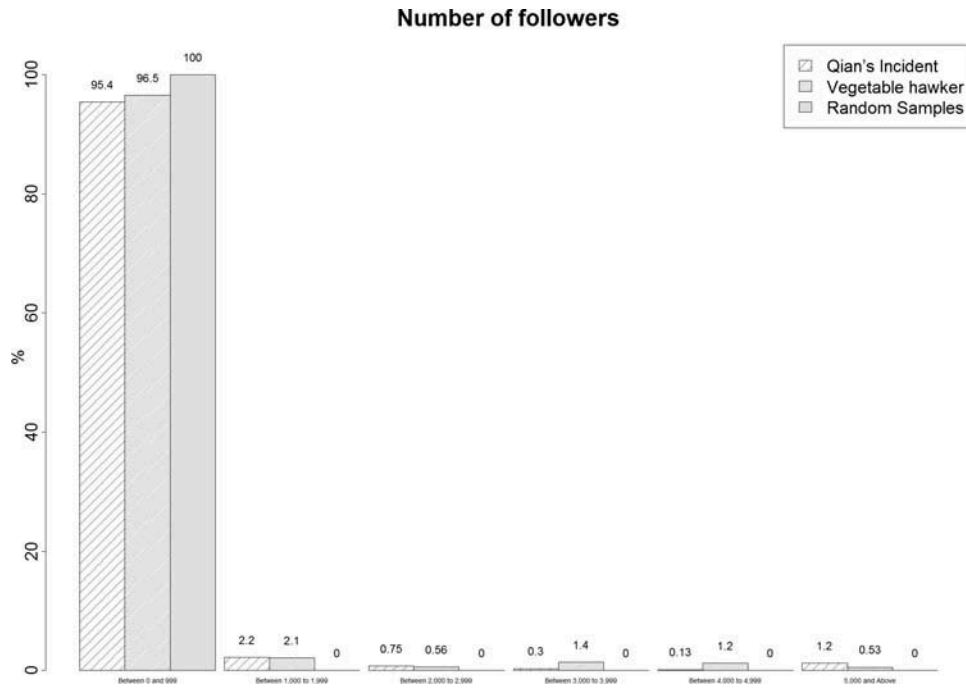


FIGURE 4. Characteristics of the reposters: number of friends.

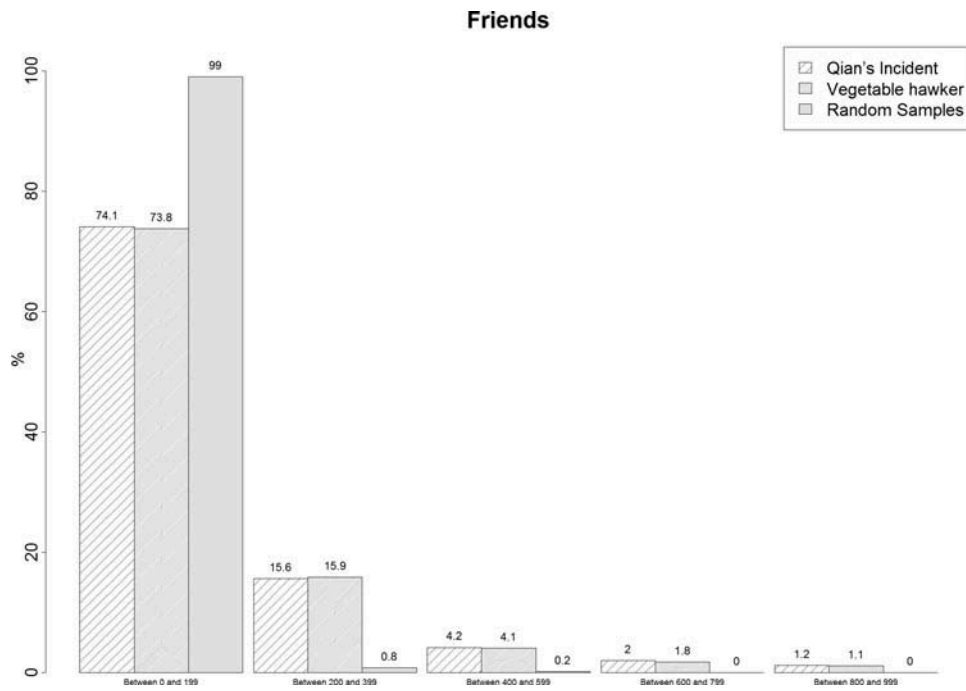
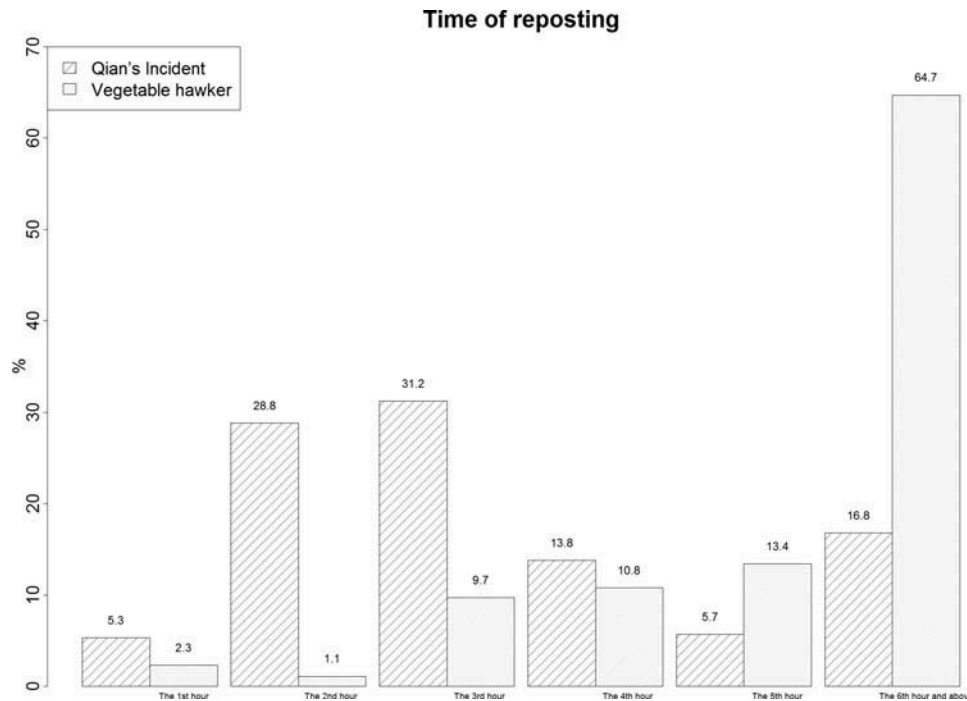


FIGURE 5. Characteristics of the reposters: time of reposting.



numbers of followers and friends, and their times of reposting. When compared to the random sample obtained from the overall user account population, the data show that people who contributed to reposting were more likely to be female as well as to have originated from major coastal cities such as Beijing, Shanghai, and Guangzhou. In addition, these reposters had a higher likelihood to have more than 1,000 followers and 200 friends.

Compared with those who reposted the vegetable hawker incident, the reposters of the Qian incident were more likely male; located at Beijing, Shanghai, or inland cities; had more than 5,000 followers; and reposted within the first five hours after the original message was posted.

Among the reposters of the Qian incident, a majority had a lower number of readers and only 1.2% had more than 5,000 followers. Figure 6 illustrates this imbalance, showing the frequency distributions of the number of followers of all reposters. Figure 7 shows the time trend of the reposts during the first 24 hours, indicating a rapid increase in the frequency of

reposts during the period close to midnight on December 27, 2010.

### Major Switchers in the Network

Table 2 displays the top-10 major microbloggers sorted by their node's betweenness centrality in the repost network. Other characteristics, including time of repost, number of followers, in-degree centrality, and out-degree centrality, are also listed in Table 2. Bloggers Q1–Q10 represent the top-10 microbloggers who participated in reposting weibos of the Qian incident. Bloggers V1–V10 denote the top-10 microbloggers who participated in reposting weibos of the vegetable hawker incident.

Most of the major reposters resent the messages to their followers within the duration of two hours after it had been posted by Blogger Z. This explains the rapid increase in the number of reposts as shown in Figure 7. Nevertheless, many major microbloggers of the vegetable hawker incident reposted the original message about four to five hours after the original message had been sent.

FIGURE 6. Distribution of the number of followers of the reposters.

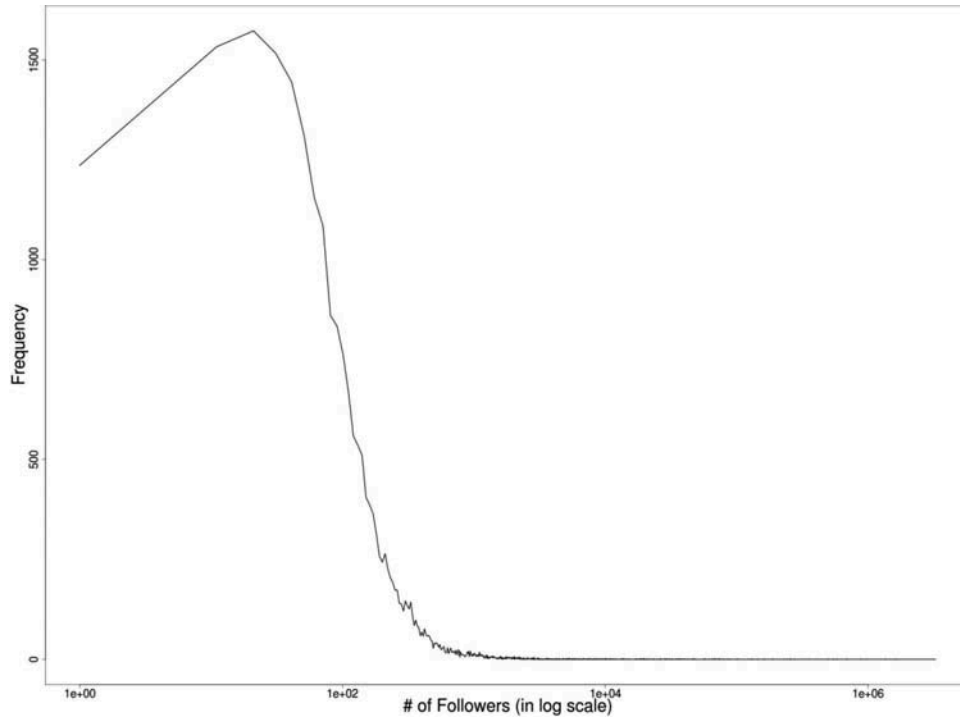


FIGURE 7. Time trend of the repost.

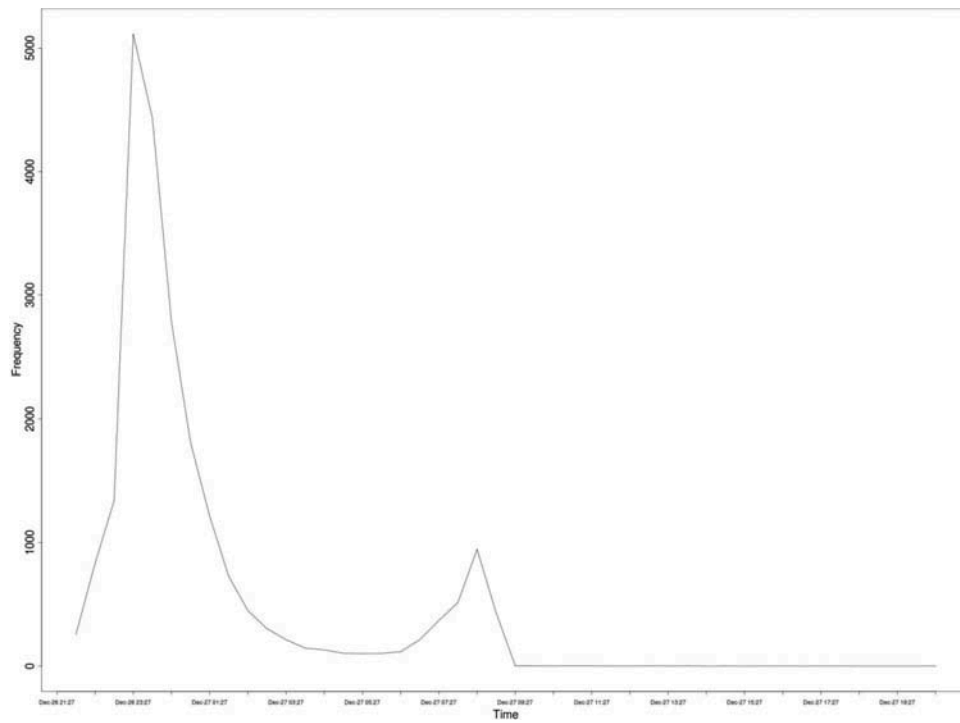


TABLE 2. Characteristics of Major Microbloggers Who Participated in Reposting the Original Message

Displayed user name	Time of repost		Number of followers	Out_degree	In_degree	Betweenness
Qian incident						
Blogger Q1	December 26	22:53:24	1,611,464	2245	1	5960
Blogger Q2	December 26	23:09:38	3,257,165	877	1	2241
Blogger Q3	December 26	22:56:39	28,308	107	1	1693
Blogger Q4	December 26	00:06:24	1,362,229	325	1	1596
Blogger Q5	December 26	23:41:47	11,096	44	1	995
Blogger Q6	December 26	23:28:39	883	4	5	973
Blogger Q7	December 26	22:35:58	84,530	116	1	774
Blogger Q8	December 26	21:58:47	44,330	52	3	641
Blogger Q9	December 26	22:14:31	216	2	1	520
Blogger Q10	December 26	22:44:29	3,793	33	1	455
"Vegetable hawker" incident						
Blogger V1	December 24	16:41:27	637,477	1406	1	11790
Blogger V2	December 24	16:19:16	135,432	220	1	11421
Blogger V3	December 24	17:49:52	128	6	10	10030
Blogger V4	December 24	15:57:09	89,625	31	1	9369
Blogger V5	December 24	15:16:51	1113	24	7	8232
Blogger V6	December 24	17:53:27	1363	12	9	7672
Blogger V7	December 24	18:25:12	1730	10	4	7657
Blogger V8	December 24	15:55:19	5976	61	1	7299
Blogger V9	December 24	15:46:08	2036	16	1	5352
Blogger V10	December 24	13:56:46	20,558	24	2	5235

From Table 2, we can see that the top-three reposters of the Qian incident, Bloggers Q1, Q2, and Q3, were media professionals, whereas those who reposted the vegetable hawker incident were mainly entertainment celebrities. Among the top three for the Qian incident, Blogger Q1 is a senior management official of an advertising agency and a famous figure in arts and culture circles in China. Blogger Q2 is a famous sports news anchor. Blogger Q3 is an editor of an international media company in China. None of them played any role in reposting the vegetable hawker incident. Bloggers V1 and V2 are pop singers, and Blogger V4 is a manager of an entertainment company (remark: the third-ranked reposer, Blogger V3, no longer existed at the time of data analysis). Moreover, the top-two major microbloggers of the Qian incident all had over 1 million followers, whereas none of the major microbloggers in the vegetable hawker incident had over 1 million followers.

Figures 8a, 8b, and 8c are graphs to visualize the three networks (Qian, vegetable hawker,

and a random network), respectively (using the Fuchterman–Rheingold graph layout algorithm), indicating how the reposters were interconnected. In both Figures 8a and 8b, major reposters were positioned at central locations of the network and linked with a huge number of other reposters. Compared with the repost network for the vegetable hawker incident, the network for the Qian incident had more clusters of reposts created by major microbloggers and fewer fragmented reposters.

### Network Characteristics

The first and the second columns of Table 3 present an array of topological network indicators for the repost graphs of the Qian and vegetable hawker incidents, respectively. They were compared with a set of randomly generated graphs. With the same number of nodes and edges as the repost graph of the Qian's incident, 500 randomly generated graphs were created, and their mean values of the network indicators were summarized in the third column of Table 3.

FIGURE 8a. Weibo reposts network (Qian incident).

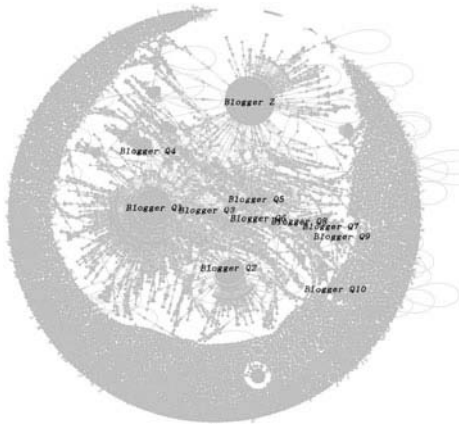


FIGURE 8b. Weibo reposts network (vegetable hawker incident).

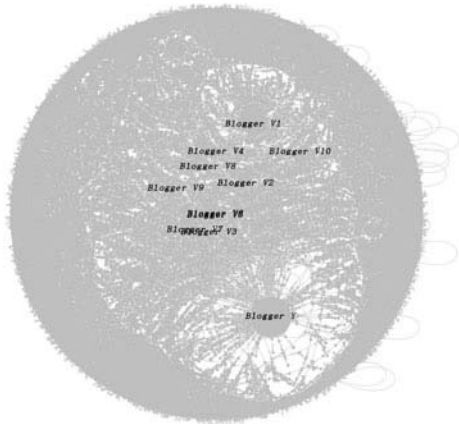
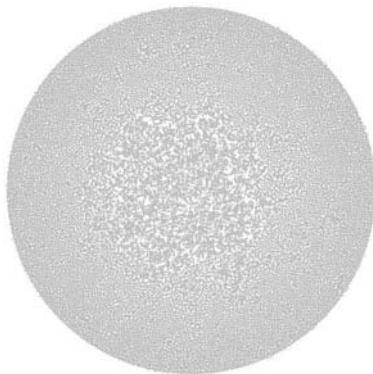


FIGURE 8c. A random network for comparison.



From Table 3, we can see that the repost graph of the Qian incident had a longer network diameter and a relatively shorter average path length than that of the vegetable hawker incident, indicating that the agenda setting via information diffusion was more far reaching and took a shorter distance between nodes on average to propagate the message. Its smaller global cluster coefficient represents the existence of fewer isolated and densely knit user clusters in the network. In addition, its diameter, average path length, and global cluster coefficient were all larger than those of the randomly generated graphs, representing its broader outreach to more layers of reposts, a longer average distance to reach the other node, and a larger number of user clusters.

The degree distribution approximately follows a power-law distribution in which a few reposters had a considerably higher frequency of out-degree centrality than the average value, indicating that they had a larger number of followers who further resent their posts. The exponent  $q$  of this distribution was found to be 2.27.

## DISCUSSION

The following three subsections are the observations arising from the findings that deserve our close attention, targeting the research questions about the role of network switchers (microbloggers) and the relationship between network formation and power-making during a grassroots movement in China. The final subsection discusses the implication of the findings.

Although the research design is a comparative study with references to another case study and random samples, we must stress that this is a single-case and exploratory study on a specific phenomenon of microblogging in China. We make no attempt to over-generalize the findings. Readers must be cautious when interpreting the results.

### *Characteristics of Network Switchers in Agenda Setting*

Castells (2009) argues that the countervailing power of the communication network is



TABLE 3. Comparisons Between the Repost Graph and a Randomly Generated Graph

	Repost graph of Qian	Repost graph of "vegetable hawker"	Random graphs*
Number of nodes	22,803	22,803	22,803
Number of edges	11,755	16,129	11,755
Density	$2.26 \times 10e-5$	$3.10 \times 10e-5$	$2.26 \times 10e-5$
Average degree	1.03	1.41	1.03
Diameter	2332.3	23	9.7
Average path length	2.42	4.35	1.92
Global cluster coefficient	$4.43 \times 10e-5$	$9.55 \times 10e-5$	0

\*These indicators for "random graphs" were obtained by calculating the mean values of 500 randomly generated graphs.

operated by a group of network switchers (microbloggers in this case) for network building, strategic cooperation, and resource sharing. This study characterizes this group of microbloggers who participated in disseminating messages about a grassroots movement in China. For example, they are mainly female, to have originated from major cities in China, and to have more followers and friends than those microbloggers who did not participate. The observed gender difference is interesting in contrast with the long-perceived, if not stereotyped, public understanding that females are less interested in traditional political or social issues (Bennett & Bennett, 1989). It may actually represent that under a specific context, for instance in a multimedia, interactive, and communicative environment, such as a microblogging platform, women would be enthusiastic participants in sharing information about a grassroots movement.

There are well known regional discrepancies in online media use and habits in China (Dou, Wang, & Zhou, 2006). But, as found in this study, such discrepancies are considerably reinforced when reposting a political weibo message, such that the majority of reposts are sent from the three major cities: Guangzhou, Beijing, and Shanghai. It is especially worth mentioning that Guangdong is the major source of weibo reposters. For example, one in every five reposters of the Qian incident and almost half of those of the vegetable hawker incident came from Guangdong. Third, they are more socially connected with markedly large numbers of followers and friends, which is understandable because socially active and networked

microbloggers may be more eager to engage with other friends or followers by means of sending or reposting messages. Similar linkages between likelihood to repost and size of friendship circle are observed in a study of retweeting behaviors of Twitter users (Kwak, Lee, Park, & Moon, 2010).

We also discover a particular group of microbloggers who were the major "switchers" in the network; they may fall under the traditional meaning of "opinion leader" (Katz, 1957) in the online context. As with the list of major microbloggers who participated in diffusing the original message about the death of Qian and eventually setting a public agenda, microbloggers with the asset of a larger amount of followers seemed to have a more profound impact on the extent to which the message was then propagated, as indicated by the frequency of their readers who were subsequently convinced to forward the original message further across the network, i.e., as measured by out-degree centrality. Many of these major microbloggers were indeed media professionals and business elites. This suggests that the role of information agent may be still essential in the online environment; particularly in the context of bottom-up agenda setting, a group of elitist microbloggers can be assigned more significant roles in agenda setting.

But when referring to a network perspective, an alternative operationalization of network centrality was chosen. As measured by the betweenness centrality, a few microbloggers, even those with relatively fewer followers, for example the Bloggers Q6 and Q9 as shown in Table 2, were found to play an indirect

but significant role in setting the agenda. As said, betweenness centrality of an individual microblogger represents, from a network perspective, the relative importance of the position where the microblogger is a bridging tie within a network. This result indicates the importance of the role of linking up the clusters of reposts in the network. In other words, the term “opinion leaders” may not be purely a matter of personal characteristics, as conceptualized in the traditional theory (Katz, 1957). Instead, while considering the perspective of online networking, position within the chain of interconnections does appear to matter to the users’ capacities to function as “information agents.” This is to say that the network position of those key Internet users is crucial in the process of bottom-up agenda setting. This finding draws a parallel with the phenomenon of “high centers” in the context of Twitter (Gruzd, Wellman, & Takhteyev, 2011) and in grassroots protest events (González-Bailón, Borge-Holthoefer, Rivero, & Moreno, 2011; Theocharis, 2013).

### *Network Formation for Agenda Setting*

Our study deploys social network analysis to make comparisons between the networks of reposting between the Qian incident, vegetable hawker incident, and a set of randomly generated networks. The observed differences in network parameters may characterize the nature of network formation during a high-impact grassroots movement in China, demonstrating the role of network formation in the countervailing power, i.e., bottom-up agenda setting. First, the degree distribution of the repost graph of the Qian incident was found to be structural, following power-law distribution and suggesting a nonrandomly distributed and scale-free network topology (Lewis, 2009). Its power law exponent ranged between 2 and 3, which is comparable to that for the Twitter social graphs. This suggests that a small group of switchers contributes the majority of the network connection. Second, the average shortest path length proved to be an indicator of the effectiveness of communication via the repost graph. This study shows that the repost graph

of the Qian incident had a shorter length than that of the vegetable hawker incident and had a slightly longer one than that of the random graph, indicating that it was an efficient network and took fewer steps on average to send a message from one node to another, but was not as efficient as the random network that has been shown to be very conducive to information flow (Watts, 2004). Third, the repost graph of the Qian incident had a markedly longer diameter, over 2,332 steps, than the other graphs for comparison, demonstrating a far-reaching network structure of information diffusion to spread out information widely through multiple steps to a diversity of readership, which may partly explain its high-profile nature and thus its agenda setting role. Finally, unlike the special interest community (Chau & Xu, 2007), the lower global cluster coefficient of the repost network suggests a nonclustered network structure, representing a lower likelihood to form a small-world type of densely-knit communities. Instead, a more evenly distributed and open distribution network (more randomness) makes its structure more efficient for propagation of messages. These results direct our research to make use of the identified features for defining grassroots agenda-setting power by using a large sample of repost networks in the future and characterize the ways in which grassroots voices are amplified in the interconnected network of microblogs, which characterizes the role of bottom-up agenda setting in the making of countervailing power.

### *Implications*

From the chronological table regarding the Qian incident, early mentions on a weibo seemed to trigger the awareness of mainstream media of the victim’s death and to cast doubt on the nature of his death, drawing and reinforcing more attention from national media outlets, media from other provinces, and online discussions of the controversy. Those mentions then had the effect of applying pressure on local governments to respond promptly to the incident, and in fact, officials consequently organized two press conferences within three days. The impact of this weibo

is consistent with the characteristics of the model of bottom-up agenda setting as described. The use of microblogs served as a magnifier of voices from the grassroots within a network of microbloggers. Thus Chinese citizens at the grassroots level may gain the capacity from the network to exercise their civil rights via microblogging to counter unjust treatment by governments and to voice their grievances. Drawing on Castells's thesis of countervailing power-making by communication networks (Castells, 2009), the formation of online networks helps establish a social force in the network society that resists the power domination of the state and the state-controlled media as that force is exercised in the public discourse. The Qian incident in China rightly exemplifies such a power-making capacity of the microblog network.

Theoretically speaking, the findings provoke our reflection to contextualize the impact of the online network on politics. As mentioned, there has been widespread skepticism among scholars surrounding the role of the Internet in politics (Curran et al., 2012). With the support of this study's findings, we argue that Chinese microblogs in a network environment can play a laudable role in facilitating the construction of countervailing power in setting the public agenda. Nevertheless, we should not theorize such a role to involve a binary outcome—empowerment or disempowerment—but rather contextualize the casual relationship in a technosociopolitical setting in China where the Internet environment is more loosely regulated than is the case with traditional media (Herold & Marolt, 2011). While agreeing with Curran et al. (2012) that building an overarching theory would not be a scholar's primary interest, we believe that our approach could contribute to contextualizing the conceptualization of the impact of the communication network in Chinese society.

### **Limitations**

Some limitations of this study deserve attention. Our data collection relied heavily on the provision of the Sina Weibo API, which is not designed for academic research purposes, and

thus its data quality is not guaranteed. Gender and location of weibo users were self-reported data, and some of them may be not reliable. The case for comparison was purposively selected. Using more cases and a larger size of samples for comparison would be more desirable.

### **CONCLUSION**

To the best of our knowledge, this study is one of the first to explore the characteristics of participants and the network structure of weibo reposts during a grassroots movement in China using systematic data collection from Sina Weibo. Several observations arise from the obtained data and analysis, which assist us to gain a better understanding of how the public agenda can be set by ordinary Internet users via online media. Drawing on Castells's (2009) argument for the power of the communication network, this work conceptualizes and elaborates the operation of bottom-up agenda setting empirically in a network environment by investigating the user profiles of weibo reposters and the structure of the repost network. The findings are useful in understanding the role of microblogging in mass communication in sociopolitical processes.

There are several directions for future research. First, we are planning to conduct more case studies to study the characteristics of reposting in microblogging. This will strengthen the main findings of the current study. Second, it is desirable to apply the analysis to the study of microblogging reposts for events in other domains, such as natural disasters. Third, we should extend the analysis to cross-cultural settings in Chinese societies, e.g., Taiwan, Hong Kong, and Singapore, in which the role of cultural values in network power can be examined. Last, we plan to apply other advanced network analysis algorithms to the data in order to strengthen the analysis.

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