

# The Network of Celebrity Politics: Political Implications of Celebrity Following on Twitter

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With the rise of networked media such as Twitter, celebrities' ability to speak on policy matters directly to the public has become amplified. We investigate the political implications of celebrity activism on Twitter by estimating the political ideology of thirty-four South Korean news outlets and fourteen political celebrities based on the co-following pattern among 1,868,587 Twitter users. We also had a rare opportunity to match their following behavior with individual-level attributes by relying on supplementary survey data on 11,953 members of an online survey panel. Our results reveal that celebrity following on Twitter is ideologically skewed; a vast majority of Korean Twitter users following politically influential celebrities are liberal. Additionally, survey results show that political celebrities are more likely to attract those lacking the ability to process one-sided information in a balanced manner.

*Keywords:* celebrity politics; Twitter: network analysis; polarization; news; political knowledge

We live in an age in which the press pays close attention to celebrities speaking out on complicated policy matters. Although they arguably hold little expertise, celebrities' popu-

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NOTE: This research was partially supported by the Korea Research Foundation (NRF-2012S1A5A2A 03034703) and the ICT R&D program of MSIP/IITP (2013-005-002-013, How to Create an ICT-Based Ecosystem for Content Industry). All correspondence should be sent to Kyu S. Hahn.

DOI: 10.1177/0002716215569226

larity, for example that of Bruce Springsteen or George Clooney, allows their views to be heard when speaking on policy matters. This phenomenon has been dubbed “celebrity politics” (West and Orman 2003). Although celebrity politics is not a new phenomenon, with the rise of networked media such as Twitter, celebrities are equipped to directly reach large audiences.

## Celebrity Politics and Social Media

Examining the network of political celebrities and their followers on Twitter, we estimate the political ideology of celebrity followers based on the structure of their co-following pattern. Additionally, by jointly examining Twitter followers’ characteristics with their following data, we explore the possible ramifications of celebrities’ political engagement via social media. For clarification, it should be noted that our findings cannot be generalized to those who attend to the same celebrities offline.

Although many celebrities attach themselves to a charity or a cause, “political celebrities” more specifically endorse a particular issue position, a political party, or an electoral candidate. For these political celebrities, social media has become a particularly useful platform. Due to its unique “follow” and “retweet” features, Twitter is not only a social networking tool, but it also possesses broadcaster-like network characteristics, allowing it to function as a conveyer of news (Marwick and boyd 2011; Kwak et al. 2010). Unlike noncelebrities, celebrities have large groups of followers who are also connected to their own followers. Accordingly, the reach of political celebrities can be comparable to major broadcasters (Hu et al. 2012; Bakshy et al. 2011).

Normatively, the democratic implications of celebrity politics have been hotly debated. West and Orman (2003) showed that celebrity activism stimulated public involvement and demands greater transparency among policy-makers. Using the 2000 National Election Study, Baum and Jamison (2006) found that politically inattentive individuals who consumed daytime talk shows were more likely than their nonconsuming inattentive counterparts to vote for the candidate who best represented their self-described preferences.

Other scholars have raised concerns over the growing influence of political celebrities. One frequently evoked concern is whether celebrity politics allows ordinary citizens to gain a balanced diet of information. In today’s media environment, audiences selectively attend to agreeable views while avoiding the disagreeable counterparts (Stroud 2008; Sunstein 2007). In light of this, Conover and his colleagues (2011) showed that the network of retweets was politically segregated with extremely limited connectivity between partisans of both sides (also see Adamic and Glance 2005). Accordingly, celebrity politics may contribute to creating an “echo chamber” where only the partisan information congenial to the celebrities’ followers’ political ideology is circulated.

In the context of South Korea, one of the major sources of political polarization is generational conflict (Kim 2006; Yoon 2009). To illustrate the severity of generational conflict in South Korea, when measured in a 10-point scale ranging between 1 (*most liberal*) and 10 (*most conservative*), South Koreans in their 20s describe

their ideology as 4.82 on average and those in their 60s as 7.94. On the other hand, the equivalent groups score 5.30 and 5.96, respectively, in the United States (Lee 2011). Social media is predominantly used by young users. Young users are primarily liberal in Korea. Social media is, therefore, likely to breed liberal celebrities.

Of particular concern is whether followers of political celebrities abandon other information sources. In the absence of alternative information sources, celebrity followers can be misled (Bray and Kreps 1987). For the politically knowledgeable, on the other hand, the adverse effects from exposure to skewed information can be offset because of their intellectual resources to detect the bias and counter it (Delli Carpini and Keeter 1996; Krosnick and Kinder 1990; Young 2004; Zaller 1992).<sup>1</sup> We suspect that the prevalence of political celebrities on social media can pose tangible threats to the public's ability to make an informed political judgment, by providing skewed information to audiences that lack access to substantive information from alternative news sources.

## Methods

### *A bipartite network representation of Twitter following*

The Twitter following of political celebrities' Twitter followers can be represented as a network with a link between a particular celebrity and a follower. As in our case, when a celebrity and the followers constitute two distinct sets, the data can be viewed as a bipartite network (Wasserman and Faust 1994) in which only the connections between nodes in different sets are considered. The two sets of nodes are connected when a Twitter user "follows" the particular celebrity. Similar approaches are commonly employed to estimate the ideal points of lawmakers based on their roll call voting records (e.g., Poole and Rosenthal 1984).

In the current analysis, we compare the ideological positions of celebrity followers with those of various news outlets.<sup>2</sup> Therefore, our target population is Twitter users, not the entire Korean population. Since the ideological leanings of news outlets are well known (Korean media is heavily partisan), they can serve as useful reference points. We attempted to include all major Korean news media outlets and ended up with a sample of thirty-four. Our sample encompasses twelve top daily newspapers, all three networks, all four so-called comprehensive programming channels (newly founded by conservative newspapers), and two cable news channels. For the Internet news sources, no comprehensive list was available; accordingly we did our best to include the major sources and confirmed our list by external experts (i.e., communication professors).<sup>3</sup>

Resorting to *twtkr*, a company providing an online ranking service based on its own influence index,<sup>4</sup> we attempted to include the celebrities with a significant political influence. In doing so, after selecting the top one hundred Twitter influencers (as of April 2012), we discarded professional politicians. Defining a "celebrity" is inherently subjective. We decided to be as inclusive as possible and considered all the remaining influencers as possible candidates. Subsequently, five graduate students discerned the ones who had been politically active on

TABLE 1  
The Sample of Political Celebrities in South Korea

Name ( $n = 14$ )	$N$ of Followers ( $n = 1,868,587$ ) <sup>a</sup>	Type
Jaedong Kim	806,673	Entertainer
Kyungchul Park	555,033	Medical doctor
Pool Kang	423,594	Cartoonist
Jiyoung Kong	394,797	Writer
Jooha Kim	382,314	Journalist
Jinwoo Joo	304,024	Journalist
Kook Jo	289,511	Professor
Miwha Kim	284,003	Entertainer
Joongkwon Jin	221,981	Professor
Yeojin Kim	192,489	Entertainer
Daein Sun	138,305	Researcher
Haemin	128,277	Buddhist monk
Pari Kwang	81,387	IT journalist
Kapjae Jo	12,700	Columnist

a. The total number of Twitter users following at least one of the thirty-four news media outlets and fourteen celebrities.

Twitter. In practice, this was a reasonably unambiguous task because a vast majority of influencers were pop stars. Only those influencers receiving all five coders' votes were included in our sample, and fourteen celebrities eventually qualified (see Table 1). We confirmed that their tweets containing political messages had gained public attention by retrieving the news articles in which the corresponding tweets were mentioned. It turned out that the fourteen celebrities could be classified into three groups: (1) "politainers" (e.g., comedians, actors, etc.), (2) "writers" (e.g., novelists and cartoonists, etc.), and (3) "public intellectuals" (e.g., college professors, columnists, and journalists).

For each of the thirty-four news outlets and fourteen celebrities, we collected a complete list of all their followers. After creating a developer account with Twitter and obtaining authentication keys, we wrote a Python code to connect to the Twitter API.<sup>5</sup> For each account, we obtained a raw data file (as a text file) containing an exhaustive list of its followers' screen names and numeric IDs. Finally, using a custom written R code, we created an adjacency matrix consisting of the number of co-followers among the fourteen celebrities and thirty-four news outlets. At the time of our data collection in April 2012, the total number of Twitter users following at least one of the forty-eight accounts was 1,868,587.

### Survey data

The novelty of our approach for examining who consumes celebrity politics on Twitter stems from our ability to match the same Twitter users' following

behavior with their individual-level attributes. Despite the obvious utility of this approach, to our knowledge, this is one of the first such attempts.

Our survey data came from an online panel maintained by a major polling firm contracted by Korea Broadcasting Systems (KBS). The online panel currently consists of 101,697 members with a sampling weight computed based on the known characteristics of the Korean population. At the time of initial registration, panelists fill out a comprehensive profile questionnaire, and the collected data are used later for computing individual panelists' sampling weights. As part of this profile survey, panelists were asked to provide their Twitter screen names. The current panel includes 11,953 members with Twitter accounts, and we had the rare opportunity to identify their following behavior.<sup>6</sup>

## Analysis and Results

### *Classification of news media outlets and political celebrities*

We define the similarity  $\delta_t(i, j)$  between two celebrities (or news outlets)  $i$  and  $j$  based on the number of common followers, so that celebrities (or media organizations) followed by a similar set of "followers" are closely located:

$$\delta_t(i, j) = \left( \frac{|F_i \cap F_j|}{|F_i|} + \frac{|F_i \cap F_j|}{|F_j|} \right),$$

where  $F_x$  denotes the set of Twitter users following the outlet  $x$  and  $|F_x|$  denotes the size of the set (Hausdorf and Hennig 2003).

Based on this measure of similarity, we constructed a co-follower adjacency matrix. Since the number of followers varies greatly across the thirty-four news outlets and fourteen celebrities, the measure above can underestimate (overestimate) the proximity of a pair of outlets when either of them has a relatively large (or small) number of followers (Chang and Ghim 2011). We therefore computed dissimilarities among rows of the adjusted matrix using the Euclidean distance (Burt 1978). After obtaining a dissimilarity matrix, because the number of followers varies significantly across the forty-eight accounts, nonmetric (rather than metric) multidimensional scaling (MDS) is applied where coordinates satisfying only ranks of the given dissimilarities are obtained (e.g., Kruskal and Wish 1978). MDS is a dimension reduction method providing an accessible view of data by summarizing the relationships among a large number of objects along one or two critical dimensions (Bartholomew et al. 2008). We examined the stress values from both metric- and nonmetric MDS, and they confirmed the superiority of nonmetric MDS for our data.

### *The ideal points of political celebrities*

We first examined the distribution of celebrity followers in relation to those of news outlets. This analysis can provide useful insights into the skewedness of

information attainment through celebrity following on Twitter. Figure 1 juxtaposes the MDS scores of the news outlets and celebrities.

As can be seen from Figure 1, all news outlets are neatly classified from left to right in accordance with their known political leanings (progressive online news outlets, liberal print media outlets, three major TV networks, conservative newspapers, and conservative online outlets and conservative television channels newly founded by three conservative newspapers). These results suggest that the first dimension captures the ideological position of news outlet and celebrity followers.

When compared against the news outlets, the distribution of celebrity followers was heavily skewed to the right. To illustrate this point, all but one (Kapje Jo) celebrity were positioned on the left side of KBS, the Korean equivalent of BBC. The celebrities' median position (Jiyoung Kong or Haemin) was close to that of Ohmynews or Media Today, the liberal online news outlets. On the other hand, Daein Sun, a progressive economic columnist, was identified as the celebrity with the most liberal followers, and his followers were similar to those of the *Ddanji Ilbo*, a progressive online news outlet.

When assessing the distribution of celebrity followers weighted by the number of their followers, the severity of ideological skewedness becomes even more obvious. As shown in Figure 2, using KBS as a reference point, for the thirteen liberal political celebrities, the number of followers ranged between 81,387 and 806,673, where the average was approximately 323,261. In contrast, the number of followers for the one conservative celebrity (i.e., Kapje Jo) was only 12,700.

When examining the ideal points by three celebrity types, politainers had the most liberal followers. The median position of politainer followers corresponded to the eleventh (out of thirty-four) most liberal news outlet. The median position of public intellectuals and writer group followers corresponded to the twelfth most liberal news outlets.

### *Determinants of celebrity following on Twitter*

Next, using the profile questionnaire that survey panelists filled out, we assessed the extent to which the celebrity followers on Twitter are more or less likely to gather news via other media channels. Our dataset contained 11,953 survey panelists who had provided their Twitter screen names. Our task was to model the likelihood of following thirty-four news outlets and fourteen celebrities as a function of individual-level covariates. We compiled a panel dataset, consisting of one observation for every panelist (indexed by  $i$ ) for each outlet (indexed by  $j$ ). Accordingly, our dependent variable  $Y_{ij}$  is a binary variable scored as 1 if the  $i$ th panelist follows the  $j$ th account, where  $i$  ranges from 1 to 11,953, and  $j$  can range from 1 to 48.

Since our dependent variable is binary, we adopt the method of generalized estimating equations (GEE). With cross-sectional data, the generalized linear models (GLM) approach provides a convenient framework for modeling the relation between dependent variables from the exponential distribution family (e.g., binomial or Poisson, among others) and relevant covariates (Gill 2000; McCullagh and Nelder 1989). The GEE is an extension of the GLM (Liang and Zeger 1986)

FIGURE 1  
Classification of News Media Outlets and Celebrities

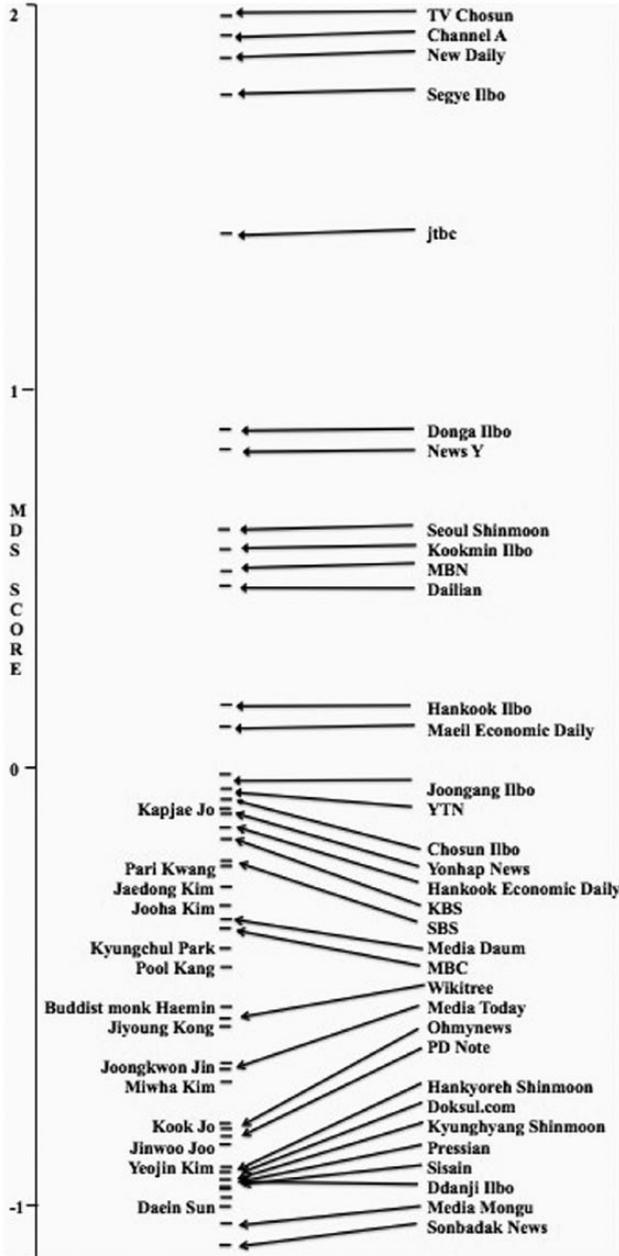




TABLE 2  
 Characteristics of People Who Consume Celebrity Politics on Twitter

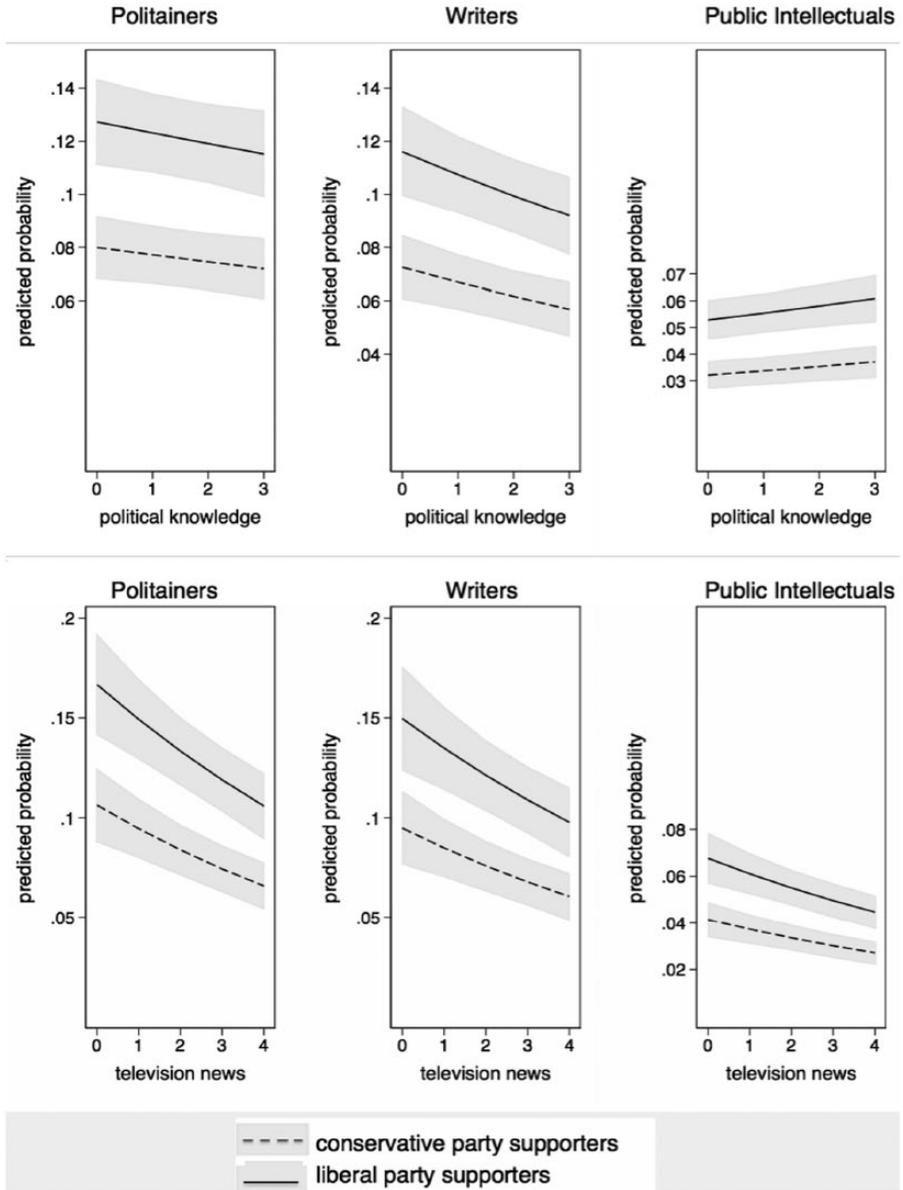
	<i>b</i>	( <i>se</i> )
Constant	-4.932	(.191) <sup>***</sup>
Female	-0.157	(.046) <sup>***</sup>
Age	0.180	(.030) <sup>***</sup>
Education	0.322	(.047) <sup>***</sup>
Viewership of TV news	0.128	(.030) <sup>***</sup>
Viewership of TV entertainment program	-0.226	(.061) <sup>***</sup>
Party identity	-0.260	(.050) <sup>***</sup>
Political knowledge	0.170	(.028) <sup>***</sup>
Politainers	1.418	(.154) <sup>***</sup>
Writers	1.506	(.176) <sup>***</sup>
Public intellectuals	0.968	(.122) <sup>***</sup>
Politainers × age	-0.006	(.025)
Politainers × education	0.125	(.039) <sup>***</sup>
Politainers × watching TV news	-0.131	(.025) <sup>***</sup>
Politainers × TV entertainment preference	0.183	(.051) <sup>***</sup>
Politainers × party identity	-0.160	(.041) <sup>***</sup>
Politainers × political knowledge	-0.038	(.023) <sup>*</sup>
Writer × age	-0.048	(.029)
Writer × education	0.100	(.045) <sup>**</sup>
Writer × watching TV news	-0.122	(.029) <sup>***</sup>
Writer × TV entertainment preference	0.150	(.058) <sup>***</sup>
Writer × party identity	-0.020	(.048)
Writer × political knowledge	-0.087	(.026) <sup>***</sup>
Public intellectuals × age	0.019	(.019)
Public intellectuals × education	0.163	(.031) <sup>***</sup>
Public intellectuals × Watching TV news	-0.110	(.020) <sup>***</sup>
Public intellectuals × TV entertainment preference	-0.095	(.040) <sup>**</sup>
Public intellectuals × party identity	-0.037	(.032)
Public intellectuals × political knowledge	0.050	(.018) <sup>**</sup>
Wald $\chi^2_{28}$	5,298.73	
<i>n</i>	11,686	

<sup>\*</sup> $p < .10$ . <sup>\*\*</sup> $p < .05$ . <sup>\*\*\*</sup> $p < .01$ .

knowledge ( $b = -.038$ ,  $p < .10$ ) turned out at least marginally significant. For example, among Twitter users belonging to the top and the bottom of the knowledge scale, approximately 7.44 percent and 9.43 percent (a 26.9 percent increase from the initial level) followed an average writer, respectively. The only exception was the followers of public intellectuals ( $b = .050$ ,  $p < .01$ ).

In a similar vein, the followers of political celebrities were not likely to acquire information via alternative news channels. The followers of politainers ( $b = -.131$ ,

FIGURE 3  
Predicted Probabilities of Following Politically Influential Celebrities



$p < .01$ ) were least likely to regularly watch television news. Likewise, even the followers of public intellectuals paid little attention to television news ( $b = -.110$ ,  $p < .01$ ). As shown in Figure 3, among Twitter users with the lowest level of TV

news viewership, approximately 13.7 percent, 12.2 percent, and 5.5 percent followed any given politician, writer, or public intellectual, respectively. In contrast, among Twitter users with the highest level of TV news viewership, the equivalent probabilities were only 8.6 percent, 7.9 percent, and 3.6 percent, respectively. They correspond to 59.4 percent, 54.5 percent, and 52.0 percent increases from the initial levels. For comparison, it is worth noting that the followers of political celebrities had a strong preference for entertainment content.

## Conclusion

Social media (e.g., Facebook, Digg, and Twitter) has exploded as a category of online discourse where people network at an unprecedented rate. Taking advantage of this new technological invention, many celebrities express their stance on various public affairs matters via Twitter.

We examined the network of celebrity following by modeling it as a bipartite network. When juxtaposing the ideological position of those following thirty-four news organizations and fourteen celebrities, news outlets lined up neatly from left to right in accordance with their political leanings. Using the news outlets as reference points, our results suggest that the Twitter followers of politically influential celebrities were predominantly liberal.<sup>9</sup>

The novelty of our current work stems from the ability to match aggregate network data with individual-level survey data. Aside from reconfirming that the followers of political celebrities consisted primarily of liberals, our results show that those who are less capable of processing the incoming information in a balanced manner are more likely to follow politically influential celebrities on Twitter. They are unlikely to have access to alternative information via other news channels and hold little political knowledge. In short, our findings strongly suggest that celebrity politics on Twitter may facilitate political polarization among Twitter users by providing one-sided information to people who are lacking a balanced diet of information.

## Notes

1. For countering evidence, see Wells et al. (2009).
2. We assume that following indicates the user is interested in viewing the messages posted by the account holder. Previous research (e.g., Parmelee and Bichard 2012) strongly suggests that it also signals preference or agreement.
3. We verified their prominence by examining the tally of daily visits.
4. The influence score is determined primarily as a function of the number of posted tweets and followers, whereas the latter is adjusted by the degree of reciprocal following (see <https://dev.twitter.com/apps> for more details).
5. We also installed “Tweepy” (<http://code.google.com/p/tweepy/>), a third-party library for Python, which makes the authentication process easier. Additionally, we opened several Amazon EC2 instances and attempted to efficiently crawl large-scale data.

6. Although our sample is not representative of the Korean population, previous research has shown that in general, liberals are heavily overrepresented on Twitter in Korea (Hahn et al. 2012; Chang and Ghim 2011). For this reason, we can anticipate that appropriate inferences about political behavior can be made from our data.

7. Gender is coded as “female” = 1 and “male” = 0. Age is coded in an ordinal scale ranging from 1 to 6. Education is trichotomized to range between 0 (“Less than high school”), 1 (“Some college or less”), and 2 (“College graduate”).

8. The TV news viewership index was constructed based on a question that asked how often the panelist watched TV news for a week: (1) “rarely,” (2) “once a week,” (3) “twice or three times a week,” (4) “four times or five times a week,” (5) “almost every day.” The profile survey asked how often the respondent watched seven types of entertainment programs on television. For entertainment preference, we added panelists’ responses to the seven questions and rescaled them to range between 0 and 1. Party identity was coded as “liberal party supporters” = -1, “independents” = 0, “conservative party supporter” = 1. Three questions measured the respondent’s political knowledge: (1) “Who is the chairman of the National Assembly?” (2) Which party is the majority party in the National Assembly? and (3) What is the name of the current Prime Minister?”

9. For clarification, our data cannot tell us about who supports the same celebrities offline. Although it is highly unlikely, the composition of their offline supporters may be completely different. Also, we suspect that this pattern may be reversed in the United States. Previous research shows that the followers of U.S. senators were predominantly conservative (Hahn et al. 2012). We believe that Twitter is more heavily used by those who feel as if their opinion is underrepresented in the mainstream media. Research has shown that conservatives are more discontent with the mainstream media in the United States, whereas the opposite is true in South Korea.

## References

- Adamic, Lada A., and Natalie Glance. 2005. The political blogosphere and the 2004 U.S. election: Divided they blog. Paper presented at the World Wide Web conference, 11–13 May, Chiba, Japan.
- Bakshy, Eytan, Jake M. Hofman, Winter A. Mason, and Duncan J. Watts. 2011. Everyone’s an influencer: Quantifying influence on Twitter. In *Proceedings of the Fourth ACM International Conference on Web Search and Data Mining*, 65–74. Hong Kong, China: ACM.
- Bartholomew, David, Fiona Steele, Moustaki Irini, and J. Galbraith. 2008. *Analysis of multivariate social science data*. London: CRC Press.
- Baum, M. A., and A. S. Jamison. 2006. The Oprah effect: How soft news helps inattentive citizens vote consistently. *Journal of Politics* 68 (4): 946–59.
- Bray, M., and D. M. Kreps. 1987. Rational learning and rational expectations. In *Arrow and the ascent of modern economic theory*, vol. 1, ed. George R. Feiwel, 597–625. New York, NY: New York University Press.
- Burt, Robert S. 1978. Cohesion versus structural equivalence as a basis for network subgroups. *Sociological Methods and Research* 7 (4): 189–212.
- Chang, Dukjin, and Gihoon H. Ghim. 2011. The structure and dynamics of the Korean Twitter network. *Journal of Communication Research, Institute of Communication Research* 48 (1): 59–86.
- Conover, M., J. Ratkiewicz, M. Francisco, B. Goncalves, A. Flammini, and F. Menczer. 2011. Political polarization on Twitter. In *Proceedings of the Fifth International AAAI Conference on Weblogs and Social Media*, 89–96. Barcelona, Spain: AAAI.
- Delli Carpini, Michael, and Scott Keeter. 1996. *What Americans don’t know about politics and why it matters*. New Haven, CT: Yale University Press.
- Gill, Jeff. 2000. *Generalized linear models: A unified approach*. Thousand Oaks, CA: Sage Publications.
- Hahn, Kyu S., Dukjae J. Lee, Juyong Park, and Hyelim Lee. 2012. Dualities of social network sites and the real world: A cross-national assessment of ideological distribution and Legislators theory. Paper presented at 2012 AEJMC Annual Conference, 9–11 August, Chicago, IL.
- Hausdorf, B., and C. Hennig. 2003. Biotic element analysis in biogeography. *Systematic Biology* 52 (3): 717–23.

- Hu, Mengdie, Shixia Liu, Furu Wei, Yingcai Wu, John Stasko, and Kwan-Liu Ma. 2012. Breaking news on Twitter. In *Proceedings of the 2012 ACM Annual Conference on Human Factors in Computing Systems*, 2751–54. New York, NY: ACM.
- Iyengar, Shanto, Donald R. Kinder, Mark D. Peters, and Jon A. Krosnick. 1984. The evening news and presidential evaluations. *Journal of Personality and Social Psychology* 46 (4): 778–87.
- Kim, Jae-Han. 2006. Understanding political conflicts among generations in Korea. *Journal of Legislative Studies* 12:135–55.
- Krosnick, Jon A., and Donald R. Kinder. 1990. Altering the foundations of support for the president through priming. *American Political Science Review* 84 (2): 497–512.
- Kruskal, J. B., and M. Wish. 1978. *Multidimensional scaling*. London: Sage Publications.
- Kwak, Haewoon, Changhyun Lee, Hosung Park, and Sue Moon. 2010. What is Twitter, a social network or a news media? Paper presented at the 19th International World Wide Web Conference.
- Lee, Naeyoung. 2011. Main source of ideological conflict in Korea: Public polarization or elite polarization? *Korean Party Studies Review* 10:251–87.
- Liang, Kyung-Yee, and Scott L. Zeger. 1986. Longitudinal data analysis using generalized linear models. *Biometrika* 73 (1): 13–22.
- Marwick, Alice, and danah boyd. 2011. To see and be seen: Celebrity practice on Twitter. *Convergence: The International Journal of Research into New Media Technologies* 17 (2): 139–58.
- McCullagh, P., and John A. Nelder. 1989. *Generalized linear models*. London: Chapman and Hall.
- Parmelee, John H., and Shannon L. Bichard. 2012. *Politics and the Twitter revolution: How tweets influence the relationship between political leaders and the public*. Lanham, MD: Lexington Books.
- Poole, Keith T., and Howard Rosenthal. 1984. The polarization of American politics. *Journal of Politics* 46:1061–79.
- Stroud, Natalie Jomini. 2008. Media use and political predispositions: Revisiting the concept of selective exposure. *Political Behavior* 30 (30): 341–66.
- Sunstein, Cass R. 2007. *Republic.com 2.0*. Princeton, NJ: Princeton University Press.
- Wasserman, Stanley, and Katherine Faust. 1994. *Social network analysis: Methods and applications*. New York, NY: Cambridge University Press.
- Wells, Chris, Justin Reedy, John Gastil, and Carolyn Lee. 2009. Information distortion and voting choices: The origins and effects of factual beliefs in initiative elections. *Political Psychology* 30 (6): 953–69.
- West, Darrell M., and John M. Orman. 2003. *Celebrity politics*. Upper Saddle River, NJ: Prentice Hall.
- Yoon, Sang-Chul. 2009. Generation politics and political cleavage: Appearance and fadeout since 1997. *Economy and Society* 81:61–88.
- Young, Dannagal Goldthwaite. 2004. Late-night comedy in election 2000: Its influence on candidate trait ratings and the moderating effects of political knowledge and partisanship. *Journal of Broadcasting & Electronic Media* 48 (1): 1–22.
- Zaller, John R. 1992. *The nature and origins of mass opinion*. New York, NY: Cambridge University Press.
- Zorn, Christopher. 2001. Generalized estimating equation models for correlated data: A review with applications. *American Journal of Political Science* 45 (2): 470–90.