Online and Offline Communication and Political Knowledge and Participation in Presidential Campaigns: Effects of Geographical Context

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Political campaigns employ segmenting and targeting strategies to reach voters, which result in a differential distribution of campaign resources across the whole nation. This study investigates how the resulting differences in information availability influence an individual's political learning and behaviors in relation to geographical locality. Data for this study come from three separate studies conducted during the 2004 U.S. presidential election. The results from a series of multilevel modeling analyses show that newspaper use had a greater impact on political knowledge and participation in localities with more political advertising or more candidate appearances than in localities where these were less frequent. The impact of offline political discussion did not follow the same pattern. The findings relating to Internet use were mixed. This study demonstrates the importance of geographical contexts in understanding communication effects. Also, the Internet functions to both extend and diminish unequal information availability in the offline world.

Keywords: geographical analysis, multilevel modeling, communication contexts, communication geography, mass media, political discussion, Internet use

Although the relationships among various types of media use and political knowledge and participation have been tested in many studies, not much research in this area has incorporated macrocontextual, geographical factors into the existing models. In particular, if those relationships are tested in the setting of presidential elections, it is important to consider a campaign's geographical variations in terms of the nature of campaign resources and the resulting differential information availability across geographical contexts. For studies undertaken with the intention of generalizing findings to broader population segments, it is particularly important to consider geographical contexts. Therefore, research is warranted to examine the role of geographical factors in studying these communication effects. Such research is important because geographical context is an important and yet understudied theoretical and methodological perspective in communication science. Of the studies that do discuss geographical dimensions, most explain effects within a specific context rather than theorizing and modeling the effects of

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macrocontextual or social structural factors. Although scholars (e.g., Adams & Jansson, 2012; McLeod & Blumler, 1987; McLeod, Kosicki, & McLeod, 2010) have long called for studying factors beyond those at the single, individual level, empirical research in communication science has not kept up with advances in theories and methods.

In this study, I explore the geospatiality of strategic political communication. I investigate how the differential distribution of campaign resources and the resulting differences in information availability bring about differential informing and mobilizing effects of communication among geographical localities in political campaigns. By endeavoring to incorporate geographically informed theories and methods into the existing framework of communication research, this study extends beyond the single psychological level by looking at factors at two levels—the individual level and the geographical communication context level—and in cross-level interactions. More specifically, I assess whether and in what ways geographical variables moderate relationships between media use and political discussion on the one hand, and political knowledge and participation on the other.

Presidential campaigns have become more and more complicated in recent years, particularly with the addition of Internet media. In 2004, the Internet played a more important role in presidential campaign communication than in previous years. From that point onwards, candidates were able to use the Internet to reach more segments of the population because people were no longer physically confined by their immediate geographical environment, in which the use of campaign resources and campaign intensity varied. This study follows up on and extends Liu (2012) by investigating (1) effects of Internet use, which do not have geographical boundaries, in addition to traditional, offline media use and discussion, which do have clear geographical boundaries; and (2) political participation in addition to political knowledge.

Geographical Communication Contexts

Political campaigns employ two critical strategic marketing communication concepts—segmenting and targeting—to reach and engage voters (Maarek, 2011). *Segmenting* means dividing and categorizing a large heterogeneous population by variables such as party affiliation, political ideology, demographics, psychographics, and recent poll results into small segments with homogeneous characteristics sought by candidates (Maarek, 2011). *Targeting* means focusing campaign resources and tools, such as advertising, candidate visits, grassroots efforts, and news publicity, to only those voter segments that have the greatest impact on a party's chances of winning the election (Maarek, 2011; Shaw, 2006). Targeting in presidential campaigns at the national level generally means targeting voters in highly contested swing states or battleground states, but not in relatively safe, uncontested, or noncompetitive states (Shaw, 2006). Owing to the segmenting and targeting strategies, it is certain that campaign resources, campaign intensity, and the influence of these on voters are far from uniform across the country. To some extent, political campaigns shape the communication context in which a person is geographically conditioned (Cho, 2008, 2011; Liu, 2012). Accordingly, both individual-level personal characteristics and contextual-level campaign factors within this geographical context interact to exert a synergistic influence on a person's responses to an election, such as his or her political learning and behaviors.

Contexts in general (Kosicki, McLeod, & McLeod, 2011; Przeworski & Teune, 1970) and geographical contexts in particular have been conceptualized differently by scholars. Contexts can be defined in geographical or areal terms such as neighborhood, community, county, city, and state (Books & Prysby, 1988, 1995; Prysby & Books, 1987) and/or considered as "nongeographical environments surrounding the individual, such as the family, voluntary associations, and the workplace" (Books & Prysby, 1988, p. 214). Communication phenomena cannot be fully understood without considering contexts given their close relation as discussed in research (Adams & Jansson, 2012; McLeod & Blumler, 1987). Contextual effects generally refer to effects arising from contextually varied characteristics that influence individuals in a context (Dalton & Anderson, 2011; McLeod, 2001). The information flow approach to contextual effects (Books & Prysby, 1988, 1991, 1995; Orbell, 1970; Prysby & Books, 1987) suggests four primary sources of information—personal observation, social interaction, organizationally based interaction, and mass media—which with somewhat different conceptualizations also represent the essential components of communication infrastructure theory (Kim & Ball-Rokeach, 2006).

Geographical context has also been explored in online media settings, such as in the conceptualization of hyperlocal media (Metzgar, Kurpius, & Rowley, 2011). Geographical proximity has been found to be a key determinant of online audiences' use of global media (Taneja & Webster, 2016). Empirical studies have demonstrated the importance of geographical contextual factors (Cho, 2008, 2011; Liu, 2012). In particular, media and communication contexts can influence people's political knowledge, participation, and other aspects of their civic and political lives (Delli-Carpini, Keeter, & Kennamer, 1994; Kim & Ball-Rokeach, 2006; Liu, 2012; Liu, Shen, Eveland, & Dylko, 2013). A specific geographical contextual variable of this kind is candidates' public appearances and visits, which influence local news media coverage (Shaw & Gimpel, 2012) and local voters (Herr, 2002; Jones, 1998; Liu, 2012; Shaw & Gimpel, 2012). This study focused on broadly defined contexts and contexts with geographical parameters in particular: The assumption was that campaign communication varies by geographical units (i.e., state and media market) and underlying nongeographic units (i.e., multiple information sources).

Online and Offline Political Communication

Most studies provide evidence showing that both newspaper use and TV news use can contribute to political knowledge. Numerous research studies have found that newspaper use is positively related to political knowledge (e.g., Kwak, Williams, Wang, & Lee, 2005; Scheufele & Nisbet, 2002; Sotirovic & McLeod, 2004). Research has also found that TV news use contributes to political knowledge (e.g., Sotirovic & McLeod, 2004; Weaver & Drew, 2001). Newspaper use is positively related to political participation (e.g., Kwak et al., 2005; McLeod et al., 1996; Scheufele & Nisbet, 2002; Sotirovic & McLeod, 2004; Weaver & Drew, 2001). However, unlike findings reported for newspaper use, studies have often found that television news use is not related to political participation. When a relationship is reported between these two, some studies have found it to be positive (e.g., Sotirovic & McLeod, 2004), whereas others have found it to be negative (e.g., McLeod et al., 1996).

Research has generally concluded that televised political advertising and political knowledge are positively related, although the findings are relatively inconsistent compared with those for aforementioned traditional news sources. Most studies have found that people learn from televised political ads (e.g., Ridout,

Shah, Goldstein, & Franz, 2004; for exceptions, see, e.g., Drew & Weaver, 2006; Weaver & Drew, 2001). Some studies (e.g., McLeod et al., 1996) have found that attention to televised political ads is positively associated with the likelihood of voting. However, other studies (e.g., Drew & Weaver, 2006; Weaver & Drew, 2001) have found that attention to televised political ads is not associated with the likelihood of voting in presidential elections. Interpersonal political discussion is also an important information source of political campaign messages. Empirical research generally asserts that the more frequently people discuss politics or news in traditional offline ways, the more knowledgeable they are about politics (e.g., Eveland & Hively, 2009; Kwak et al., 2005), and the more likely they are to participate in political activities (e.g., Eveland & Hively, 2009; Kwak et al., 2005). In the present study, the Internet was treated as an extra communication platform so that the above research findings pertaining to offline media can be applied to online media to some extent. It was beyond the scope of this study to study numerous factors contributing to the complexity of the Internet's effects on democratic politics. Overall, research findings on relationships between Internet use and political knowledge and voting/political participation are inconclusive (e.g., Dimitrova, Shehata, Strömbäck, & Nord, 2014; Drew & Weaver, 2006; Scheufele & Nisbet, 2002; Sotirovic & McLeod, 2004; Weaver & Drew, 2001).

Cross-Level Theoretical Framework

The cross-level mechanisms between individuals and their macrogeographical communication contexts should be established by auxiliary theories of the processes (Hannan, 1971; Kosicki et al., 2011; McLeod et al., 2010; see, e.g., Cho, 2008; Liu, 2012) that explain the linkage between the individual level and the contextual level. In this study, political knowledge—the primary dependent variable—refers to respondents' knowledge of the candidates' positions on political issues and policies, and people's communication contexts are defined and constructed by geographically varied televised political advertising and candidate appearances. They represent the critical contextual influences of mass media and interpersonal communication on voters in a presidential election. Campaigns' multifaceted and interconnected communication efforts mean that there are multiple submechanisms at work in communication processes. The information-seeking and surveillance motivation for media use in the uses and gratification approach (Katz, Blumler, & Gurevitch, 1974; Katz, Gurevitch, & Haas, 1973) help explain why geographical contexts would influence people's motivation, and thereby their political knowledge and participation. In addition to motivation, repetitive campaign messages communicated through multiple channels can also enhance individuals' message reception, retention, and comprehension. Studies have found that moderate levels of message repetition could lead to more cognitive processing (i.e., greater elaboration of message arguments), which ultimately influences persuasion (Cacioppo & Petty, 1979, 1989). Frequent repetition can keep information fresh and more easily retrieved from memory (Graber, 2001). Elaboration can increase learning because it increases the strength of memory storage and recall by using more mental pathways (Eveland, 2001).

The contents of the newspapers, TV news, and political discussion that people encounter in an environment of intensive campaigning should carry more campaign information conveyed through televised political ads and candidate appearances than do the contents in an environment with less campaigning. Individuals immersed in the former context should be more motivated to seek campaign information because they are more likely to encounter campaign messages in many different ways. Also due to message

repetition, they have more opportunities to encounter the same relevant information multiple times, to engage in elaborative processing, and to develop a knowledge base in memory, which make learning new, relevant information easier. As a result, people would learn more and participate more from reading a newspaper, watching TV news, and/or discussing politics. The following hypotheses were proposed:

H1a: *An increase in televised political advertisements will be positively associated with increases in political knowledge and participation.*

H1b: *An increase in candidate appearances will be positively associated with increases in political knowledge and participation.*

H2a: *The relationships between newspaper use and political knowledge and participation will be stronger in localities with more political advertising than in localities with less political advertising.*

H2b: *The relationships between newspaper use and political knowledge and participation will be stronger in localities with more candidate appearances than in localities with fewer candidate appearances.*

The literature shows that the relationships between TV news use and political knowledge and participation are weak, and the findings of Liu (2012) supported this argument. Therefore, the following research question was posed:

RQ1: *Will geographical variations in the nature of political advertising and candidate appearances explain the variations in the relationships between TV news use and political knowledge and participation across localities?*

H3a: *The relationships between offline political discussion and political knowledge and participation will be stronger in localities with more political advertising than in localities with less political advertising.*

H3b: *The relationships between offline political discussion and political knowledge and participation will be stronger in localities with more candidate appearances than in localities with fewer candidate appearances.*

Finally, there is no strong evidence indicating that online communication through Internet use, including political information use and political discussion, follows the same theoretical mechanisms as offline communication. The assumption of this study is that all offline news media use and political discussion should provide geographically based content. Compared with offline communication, the content of various types of Internet use, including information acquisition, reading, and discussion, should be less geographically based because Internet users are not limited by either spatial or temporal distance. Therefore, the theoretical mechanisms could work based on the opposite logic: Because there is a gap in campaign information available in the immediate communication context in the areas with limited campaigning, people use the Internet to compensate. This study focused on determining whether and in what ways the Internet (1) extends unequal information availability in the offline world, thereby reinforcing

the effect of geographical targeting and/or (2) offsets unequal information availability in the offline world, thereby mitigating the effect of geographical targeting. The following research question was proposed:

RQ2:   Will geographical variations in the nature of political advertising and candidate appearances explain the variations in the relationships between Internet use and political knowledge and participation across localities?

Method

Data Sources

This study analyzed data from three separate studies conducted during the 2004 presidential election in the United States: the National Annenberg Election Survey (Romer, Kenski, Winneg, Adasiewicz, & Jamieson, 2006), the University of Wisconsin Advertising Project (Goldstein & Rivlin, 2007), and data on candidate travel collected by Daron Shaw (2006) at the University of Texas at Austin. This study used data gathered during the time closest to Election Day (November 2, 2004) to investigate communication effects around the general election. The timeframe for all data files was made as comparable as possible. There were two levels in this study—the individual level and the geographical level. All of the individual-level variables were determined by analyzing the data gathered as part of the 2004 National Annenberg Election Survey. This data file is part of the national rolling cross-section study conducted between September 21 and November 1, 2004, with phone interviews, and contains a total of 14,728 interviews in 48 states and Washington, D.C., and 203 media markets (Designated Market Areas). The two geographical-level variables were from two different sources. The first variable—televised political ads—came from the University of Wisconsin Advertising Project. The second variable was candidate appearances. This data file tallied the number of appearances of both the presidential candidates and the vice presidential candidates of the two major parties (i.e., George W. Bush, John Kerry, Dick Cheney, and John Edwards). In this study, communication context was the theoretical unit at the geographical level. It was either a state or media market because campaign resources varied by these two kinds of geographical units. Thus, both units were used, and all the data files were aggregated and analyzed with these two units.

Measures

Individual-Level Variables

Independent variables. Newspaper use was measured by attention to newspaper articles about the presidential campaign in the past week ($M = 2.85$, $SD = 0.92$). Network and cable TV news use was measured by the respondent's attention to presidential campaign stories on national network or cable TV news in the past week ($M = 3.02$, $SD = 0.90$). Local TV news use was measured by the respondent's attention to presidential campaign stories on local TV news in the past week ($M = 2.78$, $SD = 0.91$). These three items were measured on a 4-point Likert scale: 1 = none, 2 = not too much, 3 = some, and 4 = a great deal. Online political information use was measured by the number of days in the past week on which the respondent had accessed and read information about the presidential campaign online ($M = 1.39$, $SD = 2.29$, range = 0-7). The offline political discussion variable was measured by the number of days in the past

week on which a respondent had discussed politics with people at work (M = 1.85, SD = 2.31, range = 0-7). The online political discussion variable was measured by the number of days in the past week on which a respondent had discussed politics online with people in various ways, including e-mail, chat room, listserv, and instant messaging (M = 0.57, SD = 1.52, range = 0-7). The cases of "don't know" and "refused" responses were extremely few, so they were treated as missing values in each of the items used to construct the six variables.

Control variables. Age ranged from 18 to 97 years old (M = 48.75, SD = 16.35). Gender was coded with male as 1 (44.6%) and female as 0 (55.4%). The education measure, which asked respondents to give the highest level of formal academic education they had completed, was an ordinal variable with nine categories ranging from Grade 8 or lower to a graduate or professional degree (Mdn = 5 [some college, no degree]). Income was an ordinal variable with nine categories ranging from less than $10,000 to more than $150,000 ($Mdn$ = 6 [$50,000 to $75,000]). The political participation model controlled an additional variable—campaign interest—that was constructed from two items: how much the respondent followed government and public affairs (M = 3.18, SD = 0.87) and how much the respondent followed the 2004 presidential campaign (M = 3.30, SD = 0.80, r = .56). Both items were measured on a 4-point Likert scale: 1 = hardly at all, 2 = only now and then, 3 = some of the time, and 4 = most of the time; and 1 = not closely at all, 2 = not too closely, 3 = somewhat closely, and 4 = very closely.

Dependent variables. Political knowledge was constructed from the seven items designed to elicit the respondents' knowledge of the candidates' positions on political issues and policies (M = 59.55, SD = 27.77, α = .66). The respondents were given 1 point for placing the two candidates in the correct absolute position on an issue and for providing correct answers to other types of questions. "Don't know" and "refused" were treated as incorrect answers and given no points. The respondents' responses to the seven items were tallied, and the average of the points earned was computed. Finally, a percentage index was constructed. Political participation was constructed from the seven items asking respondents whether or not they had tried to influence other people's vote choices; attended any political meetings or events; performed any other work for candidates; donated money to candidates; registered to vote; voted in primary elections or caucuses; or used campaign buttons, stickers, or signs (M = 58.22, SD = 34.68, α = .62). A "yes" response to any of these questions was given 1 point, whereas a "no" was given no points. "Don't know" and "refused" were treated as missing values. The respondents' responses to the seven items were tallied, and the average of the points earned was computed. Finally, a percentage index was constructed.

Geographical-Level Independent Variables

Televised political ads. This variable indicated the magnitude of political advertising a state or a media market received during the campaign. It included ads sponsored by candidates, parties, and interest groups, and coordinated ads. Ads that ran between September 3 and November 1, 2004 were analyzed so that the timeframe would be the same as that of the other geographical variable. Two types of measures were used: the total number of spots aired and the total estimated cost of the spots that aired in a state or

a media market.[2] For each media market, these two values were obtained by aggregating the number of ads broadcast or the amount of money spent within each media market. In the final data file, a total of 335,092 ads and a total of $200,490,778 in ad expenditure were grouped according to media market. The file contained data for advertising frequency (M = 4,787.03, SD = 4,563.21) and expenditure (M = 2,864,153.97, SD = 3,945,933.21) for 70 media markets. Because the Wisconsin data did not provide information about the state where an ad was aired, a special formula (Liu, 2012) was used to calculate the state-level advertising values.[3] The values of these 70 media markets were used to obtain the value for advertising frequency (M = 2,707.17, SD = 3,415.05) and expenditure (M = 2,013,453.33, SD = 3,091,644.18) for each of the 46 states and Washington, D.C. The final data file contained a total of 127,237 ads and $94,632,306 in ad expenditure at the state level. Values for four of the states were missing.

Candidate appearances. The value of the total candidate visits in each state or in each media market was obtained by aggregating the candidate appearances in each state or media market and reflected the four candidates' travel between September 3 and November 1, 2004. The original file contained data for 50 states and the District of Columbia, of which 21 had a value of zero (M = 9.08, SD = 16.66). The file also provided data for a total of 155 media markets, of which 69 had a value of zero (M = 2.74, SD = 4.25). Missing media markets in the original file were treated as missing values. Figure 1 consists of sample maps created by ArcMap 10.5 showing the geographical distribution of the geographical variables and the respondents' political knowledge and participation. As can be seen from the maps, these variables varied from state to state and from media market to media market.

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[2] The measure of the total estimated cost of the spots was the "estimated cost of airing (dollars), based on normal cost of timeslot within market" (Goldstein & Rivlin, 2008, p. 2). A TV ad's cost is generally determined by the size of the audiences it may reach, which incorporates such factors as the time, the show, and the media market in which the ad is aired; the cost also varies by type of buyer (Goldstein & Freedman, 2002). Therefore, this measure is a good proxy for exposure to campaign information, as it roughly means that the greater the value of the measure, the greater the number of exposure opportunities or viewers.

[3] The information about population for each media market in 2004 was obtained from Polidata LLC, a demographic and political research firm based on the Nielsen Media Markets. Similar formulas for calculating statewide advertising values based on media market values with population adjustments can be found in other studies (e.g., Hill & McKee, 2005; Shaw, 1999a, 1999b).
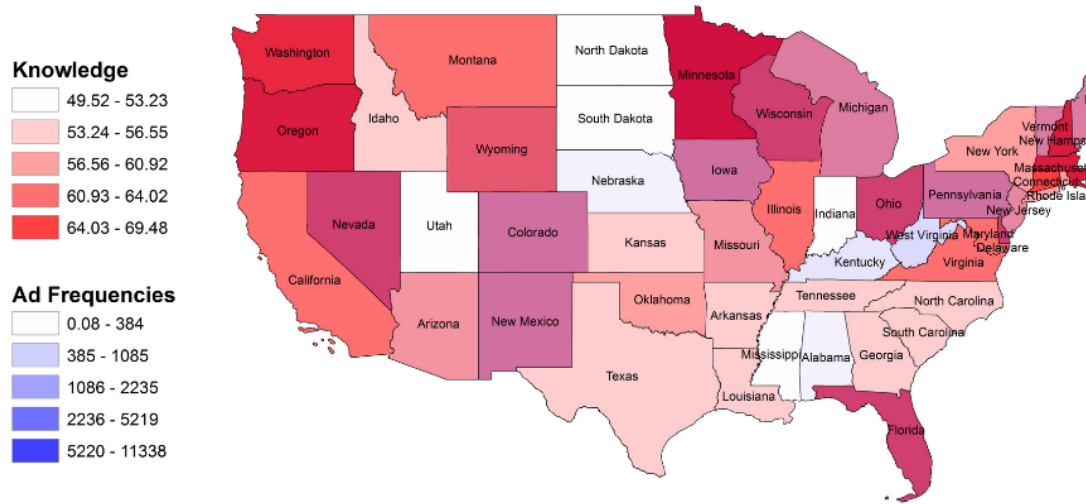
State Advertising Frequencies and Political Knowledge
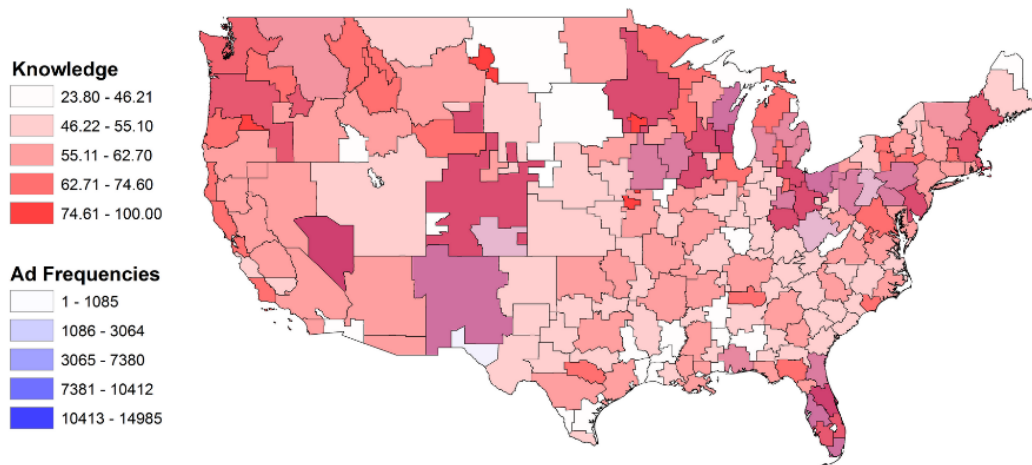
DMA Advertising Frequencies and Political Knowledge
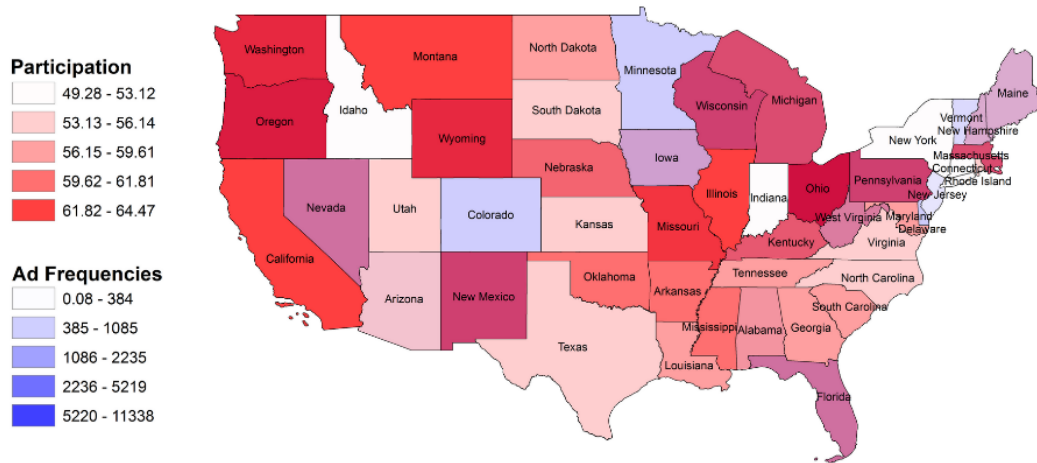
State Advertising Frequencies and Political Participation
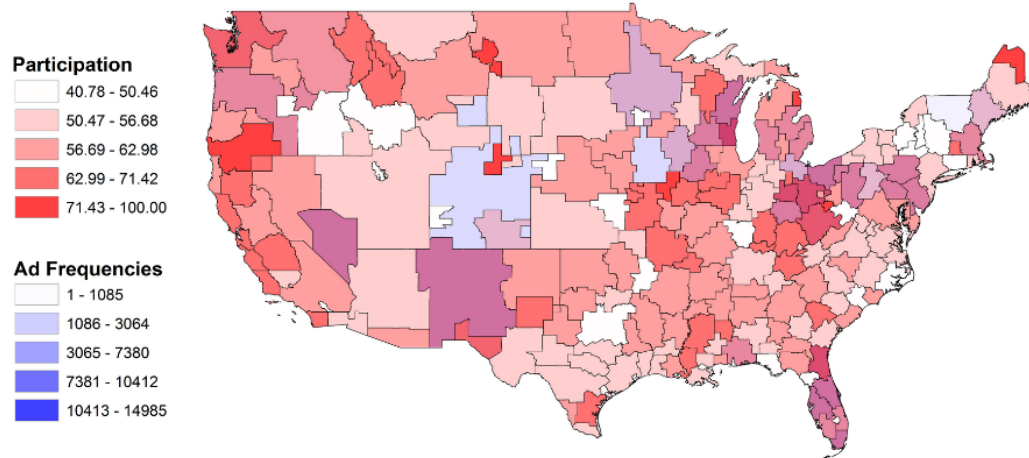
DMA Advertising Frequencies and Political Participation

Figure 1. Sample bivariate maps of state or media market geographical variables and political knowledge/participation. DMA = Designated Market Area. Darker blue indicates a higher advertising frequency and darker red indicates more political knowledge/participation. Places with high values are purple, whereas places with mismatched values are closer to blue or red. The states/DMAs in white are missing values.

Data Analysis

Individuals were nested within, or clustered by, different states or media markets so that the data provided by different individuals within either of the two geographical units were not independent. It would have been inappropriate to use ordinary least squares regression given that the data in this study were interdependent and hierarchical such that lower-level variables were nested hierarchically within higher-level geographical variables. Therefore, a series of multilevel modeling analyses was performed by using HLM 7 following the procedures described in Raudenbush and Bryk (2002; also see Luke, 2004).

Results

Multilevel analyses were employed to assess the moderating effects of geographical variations, that is, whether these individual-level relationships "within" geographical units varied significantly "between" geographical units because of geographical factors.

Main Effects of Geographical Variables

To investigate the effects of geographical variables on political knowledge and participation, I employed the means-as-outcomes regression model.[4] Table 1 shows that the geographical variables were significantly related to political knowledge in states and media markets across all of the data files. That is, in the states or media markets with higher advertising frequency, more advertising expenditure, or more candidate appearances, the mean political knowledge score was higher (see Table 1 for individual Hierarchical Linear Modeling statistics). The results show that the geographical variables and political participation were not significantly related across all of the data files. Thus, Hypothesis 1a and Hypothesis 1b were partially supported.

Table 1. Multilevel Regression Models Predicting Political Knowledge
(Effects of Geographical Variables).

Variable	State ad frequencies	DMA ad frequencies	State ad expenditures	DMA ad expenditures	State candidate appearances	DMA candidate appearances
Intercept, γ_{00}	64.9736*** (0.6108)	65.8946*** (0.6921)	64.9159*** (0.6209)	65.7325*** (0.7163)	64.6625*** (0.6670)	64.4485*** (0.6302)
Geographical variable, γ_{01}	0.0004*** (0.0001)	0.0002# (0.0001)	0.0005*** (0.0001)	0.0003* (0.0001)	0.0596** (0.0189)	0.3704*** (0.0877)

Note. DMA = Designated Market Area. Values are Hierarchical Linear Modeling coefficients of fixed effects; standard errors appear within parentheses.
#$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

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[4] The results from calculating intraclass correlation coefficients $\rho = \tau_{00}/(\tau_{00} + \sigma^2)$ indicated that about 1.42% to 2.09% of the explainable variance in political knowledge and about 1.27% to 1.47% of the explainable variance in political participation can be attributed to differences between states or between media markets.

Cross-Level Interaction Effects

To investigate the cross-level interaction effects between individual-level factors and geographical factors, I employed the intercepts-and-slopes-as-outcomes model.

Interactions Between Newspaper Use and Geographical Variables

In predicting political knowledge, Table 2 shows a marginally significant interaction effect between newspaper use and state advertising frequency (γ = 0.0002, *SE* = 0.0001, *p* = .089), a significant interaction effect between newspaper use and media market advertising frequency (γ = 0.0002, *SE* = 0.0001, *p* < .05), and a marginally significant interaction effect between newspaper use and state advertising spending (γ = 0.0002, *SE* = 0.0001, *p* = .099). In predicting political participation, Table 3 shows significant interaction effects between newspaper use and the geographical variables in four data files: state advertising frequency (γ = 0.0004, *SE* = 0.0001, *p* < .01), media market advertising frequency (γ = 0.0003, *SE* = 0.0001, *p* < .05), state advertising spending (γ = 0.0004, *SE* = 0.0001, *p* < .001), and media market advertising spending (γ = 0.0003, *SE* = 0.0001, *p* < .05). Overall, these findings mean that the difference between people with more newspaper use and less newspaper use was greater in the states or media markets with more political advertising than in the states or media markets with less advertising.[5] Hypothesis 2a was, therefore, supported.

According to Table 2, an interaction effect was found between newspaper use and media market candidate appearances in predicting political knowledge (γ = 0.1653, *SE* = 0.0705, *p* < .05). Table 3 shows significant interaction effects between newspaper use and state candidate appearances (γ = 0.0591, *SE* = 0.0184, *p* < .01) and between newspaper use and media market candidate appearances (γ = 0.1997, *SE* = 0.0997, *p* < .05) in predicting political participation. These findings mean that the difference between people with more newspaper use and less newspaper use was greater in the states or media markets with more candidate appearances than in the states or media markets with fewer appearances. Hypothesis 2b was, therefore, generally supported.

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[5] All differences in political knowledge and political participation were calculated by 1 standard deviation above the mean minus 1 standard deviation below the mean. Percentage increase and percentage decrease were determined on the basis of the absolute values.

Table 2. Multilevel Regression Models Predicting Political Knowledge (Effects of Cross-Level Interactions).

Variable	State ad frequencies	DMA ad frequencies	State ad expenditures	DMA ad expenditures	State candidate appearances	DMA candidate appearances
Model for group means						
Intercept, γ_{00}	65.2058***	65.9929***	65.1465***	65.8615***	64.9245***	64.9394***
	(0.4985)	(0.5870)	(0.5145)	(0.6116)	(0.5527)	(0.5165)
Geographical	0.0004***	0.0003**	0.0005***	0.0003**	0.0630***	0.3100***
variable, γ_{01}	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0150)	(0.0693)
Model for newspaper use slopes						
Intercept, γ_{10}	2.7592***	2.9053***	2.7039***	2.8651***	2.6552***	2.2107***
	(0.4861)	(0.5252)	(0.4911)	(0.5593)	(0.5066)	(0.5291)
Geographical	0.0002$^{\#}$	0.0002*	0.0002$^{\#}$	0.0001	0.0186	0.1653*
variable, γ_{11}	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0202)	(0.0705)
Model for network/cable TV news use slopes						
Intercept, γ_{20}	5.4060***	5.6795***	5.3887***	5.6991***	5.3834***	5.9328***
	(0.5456)	(0.7064)	(0.5412)	(0.7309)	(0.5420)	(0.6171)
Geographical	−0.0001	−0.0002	−0.0000	−0.0002	0.0077	−0.1227
variable, γ_{21}	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0249)	(0.0942)
Model for local TV news use slopes						
Intercept, γ_{30}	−1.8284***	−2.1171***	−1.8379***	−2.1145***	−1.9270***	−1.8782***
	(0.3888)	(0.5182)	(0.3969)	(0.5248)	(0.4148)	(0.4351)
Geographical	0.0001	0.0001	0.0001	0.0000	0.0220$^{\#}$	0.0030
variable, γ_{31}	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0125)	(0.0818)

Model for online political information use slopes

Intercept, γ_{40}	1.3742***	1.2859***	1.3939***	1.3784***	1.3541***	1.4044***
	(0.1430)	(0.2088)	(0.1359)	(0.2061)	(0.1534)	(0.1833)
Geographical variable, γ_{41}	−0.0001#	−0.0001*	−0.0001*	−0.0001**	−0.0082	−0.0502
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0057)	(0.0337)

Model for offline political discussion slopes

Intercept, γ_{50}	0.2244	0.1890	0.2319#	0.1374	0.2540#	0.2119
	(0.1339)	(0.1518)	(0.1364)	(0.1528)	(0.1455)	(0.1586)
Geographical variable, γ_{51}	0.0000	0.0001	−0.0000	0.0000	0.0010	0.0151
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0038)	(0.0241)

Model for online political discussion slopes

Intercept, γ_{60}	−0.1538	−0.0842	−0.1283	−0.0508	−0.0324	−0.0228
	(0.1887)	(0.2604)	(0.1930)	(0.2627)	(0.2041)	(0.2718)
Geographical variable, γ_{61}	−0.0001*	−0.0001	−0.0001#	−0.0001	−0.0150*	−0.0186
	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0073)	(0.0427)

Note. DMA = Designated Market Area. Values are Hierarchical Linear Modeling coefficients of fixed effects; standard errors appear within parentheses.
#$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table 3. Multilevel Regression Models Predicting Political Participation (Effects of Cross-Level Interactions).

Variable	State ad frequencies	DMA ad frequencies	State ad expenditures	DMA ad expenditures	State candidate appearances	DMA candidate appearances
Model for group means						
Intercept, γ_{00}	61.2526***	61.5462***	61.2624***	61.5741***	61.0285***	62.3309***
	(0.7703)	(0.7513)	(0.7700)	(0.7421)	(0.7655)	(0.6504)
Geographical	−0.0002	−0.0000	−0.0003	0.0000	0.0113	−0.1772[#]
variable, γ_{01}	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0314)	(0.1055)
Model for newspaper use slopes						
Intercept, γ_{10}	1.6851**	1.5271[#]	1.6359**	1.3803[#]	1.3509*	1.1968[#]
	(0.5485)	(0.7727)	(0.5718)	(0.8120)	(0.5778)	(0.6859)
Geographical	0.0004**	0.0003*	0.0004***	0.0003*	0.0591**	0.1997*
variable, γ_{11}	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0184)	(0.0997)
Model for network/cable TV news use slopes						
Intercept, γ_{20}	−0.4776	0.1771	−0.4874	0.1320	−0.3572	−0.0654
	(0.5687)	(0.7159)	(0.5771)	(0.7254)	(0.5858)	(0.6814)
Geographical	−0.0001	−0.0001	−0.0000	0.0000	−0.0081	−0.0822
variable, γ_{21}	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0219)	(0.1017)
Model for local TV news use slopes						
Intercept, γ_{30}	1.3961*	0.1454	1.4548*	0.2437	1.2552*	1.7394**
	(0.5976)	(0.5879)	(0.5663)	(0.5796)	(0.5809)	(0.6221)
Geographical	−0.0002	0.0001	−0.0003	−0.0000	0.0034	−0.1227
variable, γ_{31}	(0.0002)	(0.0001)	(0.0003)	(0.0001)	(0.0372)	(0.1089)

Model for online political information use slopes

Intercept, γ_{40}	0.4138$^{\#}$	0.3073	0.4342$^{\#}$	0.3614	0.4229$^{\#}$	0.3469
	(0.2239)	(0.3142)	(0.2235)	(0.2983)	(0.2418)	(0.2428)
Geographical	−0.0000	0.0000	−0.0000	−0.0000	−0.0066	0.0113
variable, γ_{41}	(0.0000)	(0.0001)	(0.0001)	(0.0001)	(0.0063)	(0.0505)

Model for offline political discussion slopes

Intercept, γ_{50}	1.3578***	1.1376***	1.3757***	1.1924***	1.3946***	1.2486***
	(0.1634)	(0.2354)	(0.1588)	(0.2384)	(0.1622)	(0.2023)
Geographical	−0.0001$^{\#}$	−0.0000	−0.0001*	−0.0000	−0.0106*	−0.0354
variable, γ_{51}	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0051)	(0.0309)

Model for online political discussion slopes

Intercept, γ_{60}	1.4127***	1.7616***	1.3845***	1.6456***	1.4210***	1.4964***
	(0.2267)	(0.4123)	(0.2289)	(0.3903)	(0.2496)	(0.3592)
Geographical	0.0001*	0.0000	0.0001*	0.0001	0.0086	0.0382
variable, γ_{61}	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0069)	(0.0692)

Note. DMA = Designated Market Area. Values are Hierarchical Linear Modeling coefficients of fixed effects; standard errors appear within parentheses.

$^{\#}p < .10.$ $*p < .05.$ $**p < .01.$ $***p < .001.$

Interactions Between TV News Use and Geographical Variables

According to Tables 2 and 3, almost no evidence was found for Research Question 1, which investigated the effects of TV news use. Table 2 shows a marginally significant interaction effect between local TV news use and state candidate appearances in predicting political knowledge (γ = 0.0220, *SE* = 0.0125, *p* = .083). Overall, these findings suggest that geographical variations in the nature of political advertising and candidate appearances generally did not account for the variations in the relationships between TV news use and political knowledge and participation across localities.

Interactions Between Offline Political Discussion and Geographical Variables

Furthermore, there were some statistically significant findings in regard to offline political discussion, but only for predicting political participation, not political knowledge. Table 3 shows a marginally significant interaction effect between offline political discussion and state advertising frequency (γ = −0.0001, *SE* = 0.0000, *p* = .072) and a significant interaction effect between offline political discussion and state advertising spending (γ = −0.0001, *SE* = 0.0000, *p* < .05) in predicting political participation. Table 3 also shows that offline political discussion interacted with state candidate appearances in predicting political participation (γ = −0.0106, *SE* = 0.0051, *p* < .05). These findings mean that the difference between people with more offline political discussion and those with less offline political discussion was greater in the states with less political advertising or fewer candidate appearances than in the states with more of these. Hypothesis 3a and Hypothesis 3b were, therefore, not supported.

Interactions Between Internet Use and Geographical Variables

The results provide evidence for Research Question 2. The first Internet use variable is online political information use. In predicting political knowledge, Table 2 shows a marginally significant interaction effect between online political information use and state advertising frequency (γ = −0.0001, *SE* = 0.0000, *p* = .095), a significant interaction effect between online political information use and media market advertising frequency (γ = −0.0001, *SE* = 0.0000, *p* < .05), a significant interaction effect between online political information use and state advertising spending (γ = −0.0001, *SE* = 0.0000, *p* < .05), and a significant interaction effect between online political information use and media market advertising spending (γ = −0.0001, *SE* = 0.0000, *p* < .01). These findings suggest that the difference between people who used more online political information and those who used less was greater in the states with less political advertising than in the states with more of it. Table 3 shows that neither political advertising nor candidate appearances moderated the relationship between online political information use and political participation.

The second Internet use variable is online political discussion. Table 2 shows a significant interaction effect between online political discussion and state advertising frequency (γ = −0.0001, *SE* = 0.0000, *p* < .05) and a marginally significant interaction effect between online political discussion and state advertising spending (γ = −0.0001, *SE* = 0.0001, *p* = .064) in predicting political knowledge. Moreover, there was a significant interaction effect between online political discussion and state candidate appearances (γ = −0.0150, *SE* = 0.0073, *p* < .05). These findings suggest that the difference between people who had more online political discussion and those who had less discussion of this nature was greater in the states

with less political advertising or fewer candidate appearances than in the states with more of these. The relationships between online political discussion and political participation were in the opposite direction. Table 3 shows that online political discussion interacted with state advertising frequency (γ = 0.0001, SE = 0.0001, $p < .05$) and with state advertising spending (γ = 0.0001, SE = 0.0001, $p < .05$) in predicting political participation. These findings suggest that the difference between people who had more online political discussion and those who had less was greater in the states with more political advertising than in states with less political advertising. Overall, these findings suggest that geographical variations in the nature of political advertising and candidate appearances account for the variations in the relationships between Internet use and political knowledge and participation across localities.

Discussion

The 2016 presidential election continues to baffle theorists such that explanations are needed. This study offers ways to understand campaign influence in an election by offering a new perspective together with an effective theoretical tool. The findings of this study contribute to the field of strategic political communication in several ways. First, this study helps further develop and refine geographical theories and methods in communication with significant findings pertaining to the effects of macro-level geographical factors and their interactions with individual-level factors in political campaigns. It also demonstrates a way to study communication effects conditioned on macro-level geographical factors, not just individual-level factors. This study shows that geography matters in terms of campaign-engineered communication richness in presidential elections even in this Internet era. The campaign created geographically varying communication contexts in which individuals were conditioned, and accordingly these variations resulted in geographically varying informing and mobilizing effects of communication. Thus, communication, both offline and online, neither erases geographical parameters nor makes them irrelevant. Instead, unevenly distributed, geographically varied communication resources highlight the importance of geospace in democratic politics.

The findings pertaining to the two geographical factors suggest that campaign practices promote learning about politics at the collective level, which is consistent with the previous study (Liu, 2012), but do not promote political participation at the collective level. This may be explained by a false consensus effect, referring to an inaccurate perception of social reality (Eveland & Glynn, 2008; Ross, Greene, & House, 1977). This effect occurs when people "see their own behavioral choices and judgments as relatively common and appropriate to existing circumstances while viewing alternative responses as uncommon, deviant, or inappropriate" (Ross et al., 1977, p. 280). People in places with heavy campaigning may perceive political participation as a matter of course, so they themselves skip it. Even if people think they should participate, they can easily withdraw with the wrong perception that many people in their immediate environment will participate. Furthermore, it could be that the mobilizing information (Lemert, 1984) as the stimulus cue in messages in the ambient environment is not strong enough to mobilize people to participate in various political activities. Finally, behavioral change is the most ambitious goal of persuasive communication. Unlike learning about politics, actually participating costs people more. Just like in commercial marketing, knowing the product (candidate) or even having a favorable attitude toward the product (candidate) does not automatically lead to the behavior, that is, purchasing the product (doing some work or voting for the candidate).

The geographical variations of political advertising and candidate appearances moderated the relationship between newspaper use and political knowledge, which is consistent with the previous study (Liu, 2012), and the relationship between newspaper use and political participation. This suggests that people's newspaper use has a greater impact on their political knowledge and participation in localities with more campaigning than in localities with less campaigning. Furthermore, this study found that the geographical variables generally do not moderate the relationship between TV news use and political knowledge, which is consistent with the previous study (Liu, 2012). Nor do these variables moderate the relationship between TV news use and political participation.

The study found that the relationship between offline political discussion and political participation is greater, or that offline political discussion has a greater impact on political participation, in localities with less political advertising or fewer candidate appearances than in localities with more of these. Similarly, the relationship between online political information use and political knowledge is greater, or that online political information use has a greater impact on political knowledge, in localities with less political advertising than in localities with more of it. Furthermore, this study found that the relationship between online political discussion and political knowledge is greater, or that online political discussion has a greater impact on political knowledge, in localities with less political advertising or fewer candidate appearances than in localities where the frequency of these is higher. As campaign intensity declines, discussing politics offline becomes more important in increasing political participation, and using online political information or discussing politics online becomes more important in gaining political knowledge. It may be that in contexts in which the overall level of campaign information is high, offline political discussion is not necessary to increase participation. Similarly, in such a context, using political information online or discussing politics online is not necessary to gain knowledge.

These findings mean that campaign information could diffuse widely through other types of channels other than by discussing politics offline, and there are more and better alternative ways to mobilize people to participate. That is, contexts with heavy campaigning do not favor those who frequently discuss politics offline. However, contexts with little campaigning favor those who discuss politics more frequently, and discussing politics with other people is necessary to participate in political activities. It can be said, therefore, that campaign practices balance the level of participation across those who discuss politics offline more frequently and those who do so less frequently.

Likewise, it may be that in contexts in which the level of campaign information is high, using political information online or talking about politics online is not necessary to gain knowledge because there are more alternative media and communication channels through which people can learn. When there is more campaigning in the communication context, the electorate is better informed about the election in the aggregate. Unlike online political information use or online political discussion, the content available via those channels should be more geographically relevant, meaning that it reflects what is happening in the immediate environment. That is, in contexts with heavy campaigning, the electorate's knowledge level is higher, which does not benefit those who use political information online or discuss politics online. On the other hand, when there is a lower level of campaign information in a given context, to gain political knowledge, it is necessary to use political information online or discuss politics online. This means that in contexts with less campaigning, the collective level of knowledge in the electorate is lower, which favors

those who use online political information or discuss politics online. People use the Internet to compensate for the information gap in terms of volume and relevance in their ambient environment. It could be said, therefore, that campaign practices not only raise the aggregate level of political knowledge, but also balance the knowledge level across those who use more and those who use less online political information, and across those who discuss politics online more frequently and those who do so less frequently. Therefore, it can be said that using Internet media mitigates the effect of geographical targeting.

On the contrary, this study found that the relationship between online political discussion and political participation is greater, or that online political discussion has a greater impact on political participation, in localities with more political advertising than in localities with less of it. It can be said, therefore, that talking about politics on the Internet reinforces the effect of geographical targeting. Based on the evidence that the geographical variables interact with the Internet use variables, it can be concluded that geography still matters in this Internet era. Moreover, the mixed findings relating to Internet use suggest that the Internet works both ways in a presidential election: It extends unequal information availability in the offline world, thereby reinforcing the effect of geographical targeting, and also diminishes unequal information availability in the offline world, thereby mitigating the effect of geographical targeting.

This study does have some limitations, and there are several directions that remain to be pursued in future research. First, neither political advertising nor candidate appearance moderates the relationship between offline political discussion and political knowledge, although the findings pertaining to the main effects of offline political discussion are consistent with previous studies. This noninteraction finding is inconsistent with the previous study (Liu, 2012); therefore, future research should control geographical-level variables that could influence these relationships. Second, future research could assess the nongeographically based and geographically based contents and forms of Internet media to further assess the obscure geographical dimension in online communication in political campaigns. Third, this study used two common general measures of Internet use. Future research could use measures of various types of Internet media, such as digital advertising, online newspapers, online TV, social media, and candidates' campaign websites, to further understand the role of Internet media in democratic politics.

In sum, the findings of this study help both to uncover important larger social and political problems and opportunities and to generate insights and solutions. By providing evidence that geographical inequality in political campaign communication violates the equality principle of democracy, this study has fulfilled its central purpose: to generate practical knowledge as a basis for effective communication capable of fostering a democratically informed and politically engaged citizenry. The segmenting and targeting strategies of political campaigns do not treat every citizen equally in the nation. Certainly, these strategies are inevitable because they are efficient and cost-effective for candidates whose purpose is to win an election rather than to involve the citizenry in a uniform way in the process of campaigning. However, the findings of this study suggest good news: Campaigns should take more advantage of the boundaryless, Internet-based new media to reach more voters, especially those who are not in the swing states and/or those who do not use traditional media or discuss politics offline.

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