The Decline of the Politically Informed Electorate and the Survival of Political Disagreement within Communication Networks

Frank C. S. Liu
National Sun Yat-Sen University

Paper prepared for the 2009 AESCS annual meeting (November 13-14, 2009), National Cheng-Chi University, Taipei, Taiwan

Abstract

This article, using the agent-based modeling approach, investigates the conditions under which the society-wide perception of heterogeneity in voter preference increase. The simulation results show that, first, the decline of accessing political news results in a decrease in the number of individuals who perceive heterogeneity voter preference. This result corresponds to a broad concern about the consequence of decreasing TV news viewership and newspaper readership. In contrast to a common expectation that stimulating political discussion during a campaign season cultivates deliberation, the second finding shows that this involvement in
political discussion decreases a society-wide perception of heterogeneity in voter preference.

Keywords: heterogeneity; agent-based modeling; political disagreement; media effect; communication networks; political discussion
One important characteristic of a democracy is the prevalence of political discussion (i.e., talks among individuals about politics and public affairs in both formal and informal settings). Given freedom of speech, voters in a democracy are free to access news media and self-selected contacts for political information. Recently, an empirical puzzle emerging in democracies shows that the public, especially the younger generation, becomes less interested in accessing electoral news. This phenomena lead scholars to wonder if it hurts democracy (e.g., Bennett, 1998; Mindich, 2004; Robinson and Levy, 1996). For example, Witnessing the decline of interest in political news, some scholars concerns about its influence on political knowledge. Since the newspaper is the major source of the electorate to become politically informed, when newspaper readership drops, "the overall public may be gradually become less well-informed" (Robinson and Levy 1996, 135). “We should [worry] if we believe that democracy depends upon an informed citizenry and that being knowledgeable about public affairs is a key ingredient of democratic citizenship” (Bennett, 1998, p. 540).

The declining of the politically aware is one of possible consequences of the decline of propensity to access political information. Nevertheless, the former is not yet the best indicator about how healthy a democracy is. One may argue that democracy functions even when voters become less interested politics, when turnout rate remains low, and when the majority of the electoral body continue to be politically unaware. If the decline of propensity to access political information, as scholars have identified, is a problem threatening the health of a democracy, a better indicator will be whether or not it affects the environment that cultivates democratic citizenship.

Scholars studying the environment that cultivates democratic citizenship, such as political participation and political tolerance, have come to focus on heterogeneous communication networks, in which an individual perceives diverse political
preferences and confronts political disagreement (e.g., Huckfeldt et al., 2002; Mutz, 2002; Scheufele et al., 2006). As a growing literature on the role of heterogeneity of communication networks suggest, the level of network heterogeneity is an effective indicator for the health of democracy. To see whether or not the decline of propensity to access political information hurt micro-level democracy, we need to redirect our focus from the concept of democracy in general to network heterogeneity.

The present article uses the agent-based modeling approach to investigate this inquiry: When more and more voters become less interested in acquiring political information through political discussion and/or watching campaign news, will there be any change in their perception about the heterogeneity in their networks? Specifically, this question can be divided into three “what-if” questions or scenarios: (1) What if voters become less interested in political discussion but still turn to the mass media for political information? (2) what if voters become less interested in watching, reading, or listening to political news but still habitually discuss politics? (3) What if individuals become indifferent to both communication networks and news media and dive into electronic entertainment? The findings of the present article will expand the scope of literature on communication networks to the subject about the antecedent conditions of heterogeneous network.

The present research uses the agent-based modeling (ABM) approach to explore the relationship between the decline of interest in political information and the survival of disagreement. This approach allows researchers to go beyond three constraints of the current method. First, it is difficult to answer these questions with empirical data analysis because the unit of analysis for voter research needs to be consistently individual voter across chosen variables. Second, it is difficult to use statistical analysis to deal with the effect of dynamic changes at the aggregate level (e.g., all voters become less interested in political news) on individual voters. Third, it is costly, time-consuming, and not realistic to conduct society-wide experiment.
to examine the effects of certain conditions on voters.

Simulations results generated from a laboratory, hence, are informative and suggestive for future empirical research. As simulations of the present research are not based on empirical datasets but on behavioral rules and conditions suggested by empirical research, they are not aimed to be applied directly to the empirical world. Even though, the robust findings derived from 100 runs for each condition will provide theoretical implications: a society-wide decline of interest in accessing political news can harm the survival of political disagreement within communication networks.
The Declining Interest in Political Information

A growing number of evidence suggest that American voters are less interested in politics and in obtaining political information. Smith (1989) gives little hope of major changes in the electorate’s qualifications for thoughtful voting. He thinks that the American public has not become more politically sophisticated since the 1950s and is not likely to become more sophisticated in the future. Moreover, there is little evidence suggesting that the majority of American voters have become more involved in politics and elections or more capable of developing stable and coherent belief systems (Campbell et al. 1960; Converse 1964; Smith 1989, see also, Nie et al. 1976). Even though the use of the Internet has expanded dramatically, the trend of "bowling alone" continues—the overall percentages of the electoral body that consume political news and political discussion are declining (Kaid 2003; Patterson 2002; Putnam 2000).

The advocates of deliberative democracy and participatory democracy assume that, given enough channels to participate, individuals will actively get involved in their political contexts. However, a number of empirical studies challenges the assumption about the activeness of voters. The most optimistic one is that individuals who are resided in heterogeneous communication networks (i.e., networks whose members possessing diverse political preferences) are more likely to get involved in political activities (e.g., Anderson et al. 2005).

In fact, American voters become less involved in consuming news and become less interested in political discussion. A private survey shows that between Memorial Day and Labor Day in 2005, the six broadcast networks, except ABC and Fox, suffered a 13 percent decline in viewership. This decline does not imply that TV news viewers switch to the online news or newspapers for political information. According to the National Election Survey data for the 2004 presidential election

(NES2004), even during the campaign season, 84.7% of the respondents say they read online news less than three days (0, 1, or 2 days) in the week before the survey. Only 7.2% report that they read online news almost every day (6 or 7 days).

A study based on an analysis of Pew data in April 1996 and February 1997, and the 1996 National Election Study shows that young adult voters under 30, who are better exposed to expanded education than their the earlier generations, are less likely to read newspapers, watch TV newscasts, and use the news media. He worries that this would result in citizens ignorant of contemporary American politics and incapable to continue the society. “Although young Americans are normally less engaged in politics than their elders, today’s youth are more withdrawn from public affairs than earlier birth cohorts were when they were young” (Bennett 1998, 535).

Confirming this pattern, Mindich (2004) suggests that few people who are under 40 years old perceive a need for paying for good news stories. The reasons for this decline of media access include the perception of isolation from the political process, the declining of trust in the media, the decrease of social capital for public dialog, and more excuses to stay at home. Although there is a generation gap regarding political knowledge and media use, a bigger picture is that “while most young Americans are tuned out, older Americans are not exactly tuned in” (12). Consistently, those who did not watch presidential debates in 2004 are those who are younger, less educated, having lower incomes, and exhibiting lower levels of partisan attachment than those who watched the debate.

This pattern of the dropping of interest in political news also applies to political discussion. Individuals, especially the younger generations, spend more time on electronic entertainment than getting involved in political discussion. Mindich (2004) notices that the younger generation tend to claim their rights of not to think about and talk about politics. According to NES2004, the frequency of discussing politics is positively and mildly correlated to one’s level of political knowledge.
(r=.21, p<.001), the days of watching TV news (r=.11, p<.001) and days of reading newspapers (r=.10, p<.01). This is consistent with the findings that the frequency of political discussion is related to social context (e.g., close friends and relatives), media use, and personal traits, such as political interest, strong party attachment, liberal views, and newspaper readership (Anderson et al. 2005; Kim et al. 1999; Straits 1991). Even though we still lack direct evidence showing that individuals do become less interested in discussing politics, the significantly positive correlations suggest that when individuals are less interested in accessing news media, it is likely that they do not turn to discuss politics.

The Decline of Interest and the Survival of Political Disagreement

Studies of communication research suggest that individuals who live in heterogeneous communication networks are more likely to be more politically knowledgeable, politically tolerant, holding de-polarized and ambivalent preferences toward a candidate, and involved in political participation (Huckfeldt et al., 2002; Huckfeldt and Mendez, 2004; Mutz, 2002; Scheufele et al., 2006).\(^2\) Hence, the level of heterogeneity of a communication networks, or the degree of disagreement an individual perceives is an indicator of the democracy at the micro-level.

One reason that political disagreement can survives in communication networks without being eradicated through conformity is that communication networks “serve as transmitters and intermediaries that connect individuals to the events and circumstances of democratic politics” (Huckfeldt et al., 2002, p. 19). Individuals tolerate and embrace their friends’ opposite preference because they are friends rather than

\(^2\)Note that there is on going debate about whether the heterogenous networks increases political participation or not. Mutz (2006) suggests the negative relationship while Scheufele et al. (2006) suggests the opposite.
strangers. Disagreement hence is allowed to survive in one’s communication network. Besides affection between the dyads that help survive political disagreement, the decline of partisanship and the way information obtained through communication networks is distributed also matter. “whether or not the first individual is influenced by the opinion of of a second individual within the network depends on the distribution of opinions across all the other individuals within the network who are also connect to the first individual,” “individuals are less likely to be persuaded by opinions that win only limited support among the participants within their communication networks” (Huckfeldt et al., 2004, p.20). In other words, when an individual will stand against the opposite preference within their networks as long as they have supportive members.

The current list of conditions in which political disagreement survives or the heterogeneous networks increases in number is far from complete. Beyond the above factors at the intra-personal and interperonal levels, there is plenty of room to explore aggregate-level conditions that lead to the survival of disagreement within communication networks. The present research one of the conditions is the society-wide decline of interest in political information.

**Assumptions and Hypotheses**

The analysis of the present reserach is based on two core assumptions about individual voters. First, individuals tend to discuss politics with political experts (even those hoding opposite preferences) (Huckfeldt et al., 2002; Beck, 1991; Mutz and Martin, 2001; ?; Scherer and Cho, 2003; Wyatt et al., 2000) and like-minded others within their self-selected communication networks (Carmines and Huckfeldt, 1996; Huckfeldt, 2001; Miller and Krosnick, 2000). Second, compared to accessing communication networks, individuals are more likely to acquire political information
from self-selected news sources more (Mutz and Martin, 2001).

When individuals as a whole become indifferent to news reports during a campaign season but do not change their propensity to discussing politics, information will be expected to flow come from well-informed network members. If communication become highly homogenized, it is likely that the individual will conform to the majority preference. Hence, the first hypothesis will be, *when the electoral body becomes less interested in accessing news sources during a campaign season, the proportion of individuals who perceive network heterogeneity will decrease* (H1).

Following the second scenario, if individuals as a whole feel less interested in discussing politics, but keep their propensity to access the news media, the homogenizing effect of social network will decrease due to the decline of interpersonal contact. The second hypothesis, hence, will be, *when the electoral body becomes less interested in discussing politics during a campaign season, the proportion of voters who perceive network heterogeneity will increase* (H2).

The third condition is the worse scenario. If the second assumption is correct, then the homogenizing effect of communication networks is expected to be smaller. The third hypothesis will be, *when the electoral body becomes less interested in both political discussion and accessing political news during a campaign season, the proportion of voters who perceive network heterogeneity will decrease* (H3).
Method

The S-RAS model is a proper agent-based simulation program for the inquiry of this project. It is constructed with the Swarm toolkit (http://www.swarm.org) that empowers researchers to customize characteristics of agents, particularly agents’ propensities to use the media and to discuss politics. The term agents in the S-RAS model refers specifically to voters. ABM researchers design and validate a model and specify initial settings of the environment. During a simulation, researchers do not interfere in the process of the automatic actions among agents; instead, researchers wait and see if there is any meaningful patterns emerging from the simulations.

The design of S-RAS model draws on John Zaller’s (1992) Receive-Accept-Sample (RAS) model and Huckfeldt, Johnson, and Sprague’s (2004) autoregressive model. Agents of S-RAS self-select their networks members with higher level of political expertise and/or those who agree with them in voter preference or party identification. As a result, one should expect to see that networks in S-RAS will homogenize network members’ preferences.

This present research considers individual differences by varying individual agents with respect to the probabilities to access news and discussing politics, and capacity to memorize preferences obtained from past interactions with others and the media. Ordinary citizens (C1 agents) are in general less politically attentive than political experts (C2 agents). All models randomly generate the same number of C2 agents, which accounts for about 2% of the 16,000 agents. Because of the settings, C2 agents account a very small proportion of the population, it is expected that the influence of C2 agents on C1 agents to be mild.

Agents of S-RAS access self-selected news media and perform selective perception on the information. The two news media "objects" in the S-RAS model refer to two sources that broadcast preferences opposing each other (e.g., favoring John F.
Kerry vs. favoring George W. Bush in the 2004 U.S. presidential election) and can be accessible by any agent at any time. For individual agents, these news objects are better understood as their favorite news programs. One aspect on which agents differ from each other is the probability of performing selective perception when accessing news media. By design, C1 agents are less likely to perform selective perception than C2 agents. This means that C1 agents are more likely to randomly receive preferences whenever they access the news media and that C2 agents are more likely to perceive preferences consistent with their current preferences.

One important initial setting and constraint of S-RAS is that all agents are polarized with regard to their vote preferences. Half of C1 agents hold "YES" and the other half holding "NO," while half of C2 agents holding "YES" and the other half hold "NO". There can be numerous initial settings, such as some voters are independent or undecided, but this setting of "a polarized society" will be the simplest one that characterizes a very competitive presidential campaign season. This setting helps simplify the initial environment for cross-model comparison. Future applications of the S-RAS model can relax this polarization setting for other types of societies.
Modeling Strategy

The above points out the most important settings for the simulation; these settings were held constant throughout the simulations. This section specifies how to vary two parameter values, the maximum probability of accessing news media and the maximum probability of political discussion, to explore the questions this article addresses. The variance of values in the two parameters will result in six models. Each of the six models will run for 100 times with different random seeds and yield summary statistics. The first series of models, Models A, B, and C, will together demonstrate the effect of the decline of interest in discussing politics on the proportion of gents perceiving preference heterogeneity in their communication networks. Specifically, the maximum probability of political discussion is held constant across the three models, while the maximum probability of C1 agents to access the news media in Models A, B, and C are set to 0.5, 0.25, to 0.1, respectively. As a result, ordinal citizen agents in Model A have greater odds to access to their favorite news media than their counterparts in Models B and C. The second set of models resemble the first set, except the changes in the value of the second parameter, the propensity to access the news media. Models D and E holds constant the probabilities of accessing the news media constant and vary the second one. The maximum probability of C1 agents to discuss politics are 0.25 and 0.1 in Models D and E, respectively. The comparison between Model A, D, and E will show how the decline of interpersonal political discussion (from 0.5, 0.25 to 0.1) affects the proportion of agents perceiving political disagreement within their communication networks. Model F is the one where C1 agents are least likely to access the news media and discuss politics. The maximum probabilities of C1 agents to both accessing self-selected news source and discussing politics are set to 0.1. Hence, contrasting the results of Model F with those of the first five models will help inspect the effect of the decline of interest in acquiring political information.
Simulation Results

The first half of the article specifies how to use the S-RAS model to answer the research question; this section reports the simulation results in three perspectives. First, the summary statistics in Table 1 show general differences of the results across the models. Second, the time-series graphs in Figure 3 show the dynamics of preference change at the aggregated level.

Third, the opinion grids in Figure 4 visualize the distribution of opinion clusters and the diversity perceived in agents’ communication networks. The initial condition is represented in the top panel of Figure 4. In this grid, the black cells represent agents who say “NO” and the white cells represent the agents who say “YES.” The opinion distributions for each of the models at the 2001st time step are illustrated in the lower part of Figure 4. The same initial conditions are fed into each model, and while the models run I observed the evolution of individual opinions as well as the time paths of the summary indicators (these are all displayed in Figure 3).

If the deliberative democracy theory is correct, individuals are more likely to be open-minded to evaluate different preferences when they perceive a high level of heterogeneity in voter preference. This is to say, on an opinion grid, an communication network mixed with white and black cells cultivates political deliberation (i.e., exchanging preferences and seeking consensus through deeper conversation). Contrarily, if a communication network becomes homogeneous, which is either totally white (or light grey) or completely black (or dark grey), no preference change is likely to occur within the network.

The curves and opinion grids shown are representative of a broad set of simulations. The curves and the grid pictures are obtained from the models with means of the two variables (Opinion “YES” and Diversity) falling within 2 standard deviations from the mean of the 100 simulation results. Specifically, I pick Run 014 for Model 1, Run 033 for Model 2, Run 045 for Mode E, Run 063 for Model 4, and...
Run 087 for Model 5.

Comparing the statistics, time-series graphs, and opinion grids of Models A, B, and C outline the consequences of the decline of (C1 agents’) propensity to access the news media. Comparing these result types of Models A, D, and E sketches out the outcomes when C1 agents become less likely to discuss politics. Because the maximum probabilities of both variables in Mode E are 0.1, I treat it as a special case and compare it against the two sets of models.

Table 1 shows the summary statistics of the 100 runs of each model. The means of the variable Proportion of Agents Holding “YES” is about .50 across the board, which suggests that by the time when the simulation ends (at the 2001st time step) no dominant preference forms in any model. As described on page 12, this consequence results from the setting of polarized agents. The major two clear patterns Table 1 show are that (1) the means of perceived diversity decrease in the sequence of Models A, B, and C, and that (2) the means of perceived diversity increase in the sequence of Models A, D, and E. These two sets of models suggest that the perceived diversity increases when C1 agents become less likely to access their favorite media source, and it decreases when the agents become less likely to discuss politics.

Figures 2 on page 17 and 3 on page 18 show time-series graphs of the simula-

Table 1: Snapshot at the 2001st Time Step—Average for 100 Simulations

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Access Probability</td>
<td>[0, .50]</td>
<td>[0, .25]</td>
<td>[0, .10]</td>
<td>[0, .50]</td>
<td>[0, .50]</td>
<td>[0, .10]</td>
</tr>
<tr>
<td>Discussion Probability</td>
<td>[0, .50]</td>
<td>[0, .50]</td>
<td>[0, .50]</td>
<td>[0, .25]</td>
<td>[0, .10]</td>
<td>[0, .10]</td>
</tr>
<tr>
<td>Outcome Average</td>
<td>Proportion “YES”</td>
<td>0.503</td>
<td>0.501</td>
<td>0.499</td>
<td>0.502</td>
<td>0.502</td>
</tr>
<tr>
<td></td>
<td>(.025)</td>
<td>(.039)</td>
<td>(.039)</td>
<td>(.021)</td>
<td>(.016)</td>
<td>(.034)</td>
</tr>
<tr>
<td></td>
<td>Perceived Diversity</td>
<td>0.396</td>
<td>0.306</td>
<td>0.234</td>
<td>0.438</td>
<td>0.468</td>
</tr>
<tr>
<td></td>
<td>(.011)</td>
<td>(.013)</td>
<td>(.016)</td>
<td>(.010)</td>
<td>(.008)</td>
<td>(.011)</td>
</tr>
</tbody>
</table>

Note: Each simulation runs for 2000 time steps. Standard deviations are put in the parentheses.
Figure 1: The Graphical Interface
Figure 2: The Time-Series Graphs of the Proportion of Agents Holding “YES”

(a) Decline in the Probability of Media Access

(b) Decline in the Probability of Political Discussion
Figure 3: The Time-Series Graphs of the Perception of Network Heterogeneity

(a) Decline in the Probability of Media Access

(b) Decline in the Probability of Political Discussion
tions. The X-axis is the time step, while the Y-axis is the average proportion. The curves in Figures 2(a) and 2(b) show the dynamical changes of vote preference of all agents. They suggest the continuation of preference polarization. These two pictures also suggest that when C1 agents become indifferent in accessing their favorite news sources (but remain interested in discussing politics occasionally), change of public preference can become intensive. Compared to all other models, Model C has the greatest variance.³

Figures 3(a) and 3(b) show the dynamics of the perceived preference heterogeneity. The patterns of decreasing proportion in Figure 3(a) and increasing proportion in 3(b) are consistent with those shown in Table on page 15. The curves in these figures help compare Mode E against the two sets of the models. First, compare Model C and Mode E in Figure 3(a). Given that C1 agents are indifferent in accessing their favorite news programs, when they become less likely to discuss politics, the proportion of perceived diversity increases. Second, compare Model E and Mode E in Figure 3(b). Given that C1 agents are in different in political discussion, when they become indifferent in their favorite news programs, the proportion of perceived diversity drops dramatically. These results together imply that accessing self-selected news sources helps individuals preserve their political disagreement and increases preference heterogeneity within networks.

Figure 4 on the next page gives the snapshots of the 16,000 agents’ opinions when the simulations stop at the 2001st time step. The picture of the initial setting show the random distributions of both C1 and C2 agents. First, compare the pictures of Models A, B, and C. Distinct opinion clusters form and become more homogeneous when agents spend less time accessing their favorite news sources, spend more time spent on interacting with network fellows, or even stop interacting with their political context. This pattern suggests that little deliberation occurs in

³Figures 2 (a) and (b) do not show the curve of Mode E because, when added, it overlaps other curves and makes it difficult to identify the four curves.
Figure 4: Opinion Grids of Preferences
Models B and C. As white clusters becomes whiter and black ones become blacker, deliberation can occur in border networks where agents perceive diverse preferences.

Second, compare the pictures of Models A, D, and E in Figure 4. The line between white and black becomes blurry and opinion clusters diminish. This pattern, correspondent to the increase of perceived diversity shown in Figure 3(b), suggests that, when C1 agents become less involved in political discussion, the homogenizing effect of communication networks decreases. This results in a greater number of agents holding political disagreement and greater chances for political deliberation. Interestingly, this trend does not result in more bright white areas and more deep dark areas on the grids. Instead, grey areas expand. As a grey cell indicates that the agent’s opinion is close to 0.5 (away from 0.0 or 1.0), the emergence of the pattern like the picture of Model E suggests that, when the influence of communication networks declines, an increasing number of agents are likely to become independent.

Last, contrast the picture of Mode E against the above two sets of grids (Models A, B, and C and Models A, D, and E). The comparison between Model C and Mode E suggests that, when C1 agents become less likely to discuss politics, the homogenizing influence of social networks decreases. Additionally, the borders between black and white clusters blur and more grey areas emerge. Moreover, even though opinion clusters remain, the strength of opinion decreases, a pattern characterized by less bright white and less dark areas. Comparing Model E and Mode E leads to the same conclusion. When C1 agents become less likely to access their favorite news programs, which means that they can choose to interact with their network fellows or simply stop interacting in all political contexts, grey areas diminish and clusters form.

In sum, the patterns emerging from the series of simulation support the first and
third hypotheses: When the electoral body becomes less interested in accessing self-selected news sources during a campaign season, the number of voters who perceive preference heterogeneity declines. This implies that accessing self-selected news sources plays a critical role in sustaining political disagreement. The results do not support the second hypothesis: When the electoral body becomes less interested in discussing politics during a campaign season, the number of voters who perceive preference heterogeneity declines. Instead, the number of individuals perceiving heterogeneity in voter preference increases. This implies that political discussion plays a critical role in homogenizing the society. The findings above further suggest two conditions where individual perceive less preference heterogeneity: continuous accessing of self-selected news sources, and involvement in political discussion with self-selected network members. The next section discusses the implications of the findings for deliberative democracy.
Conclusion and Discussion

This article uses agent-based modeling to simulate a polarized society where individuals become less involved in accessing political news and political discussion. The findings about the consequence of news access correspond to scholars’ concern about diminishing political deliberation: Individuals are more likely to perceive less preference heterogeneity and conform to the majority preference. The findings, however, relieve a bit of the worry about the consequence of decreasing involvement in political discussion. As long as individuals access alternative information sources, even though such alternatives are self-selected, the number of individuals perceiving preference heterogeneity does not decrease.

An explanation about how such results emerge requires an inspection of the dynamics of the simulation. First, when individuals become less likely to access their favorite news sources, large-scale and homogeneous opinion clusters form. Within such clusters, serious reflections on different perspectives become less possible. Moreover, when individuals become indifferent to news media sources but remain interested in discussing politics occasionally, one can expect a dramatic fluctuation in public preference change. If it is true that individuals like to access people by self-selection, then self-selected news sources can be the counter-forces of the homogenizing effect of communication networks. When individuals’ preferences are consistent with the majority of their network fellows, their accessing of self-selected news programs will strengthen their preferences over time. For individuals who hold minority preference in their networks, however, accessing self-selected news sources helps preserve their own political disagreement and increases others’ awareness of the heterogeneity within networks.

Second, the increasing number of people participating in political discussion does not lead to the perception of greater preference diversity; instead, the average proportion perceiving diversity decreases across the board.
Advocates of deliberative democracy expect that citizens actively participating in political discussion, especially with randomly, rather than subjectively, selected people. Through such active, face-to-face interactions, individuals ideally will learn more about public problems, consider fairly when making voting judgements, and feel politically empowered (see, Fishkin 1995; Cohen 1989). Unfortunately, this ideal is not very possible when voters have become less informed of campaigns and less active in political participation. The idea of probing the true preference of the public through deliberative poll also encounters the fact that individuals lack strong motivations to attend a town hall meeting and compete with strangers holding opposing preferences.

This article sheds light on this issue by examining the consequences of political discussion within a more realistic settings—individuals access self-selected mass media and self-selected discussion partners. If it is true that heterogeneous political contexts facilitate political deliberation, then the findings contradicts what advocates of deliberative democracy expects: Active participation in political discussion may not increase circumstances under which individuals perceives preference diversity. Decreasing individuals’ propensity to discuss politics within their communication networks, ironically, is the way to maximize their perception of political disagreement.

This conclusion also implies that current TV news programs that aim to arouse political discussion in the living room, online message boards, and virtual forums, do not help individuals to perceive wider political views in daily life. Instead, when they are emotionally motivated, they are more likely to interact with their self-selected discussion partners and become similar-minded. The deliberation may then become, in James Madison’s term, “passion.” Perceiving a certain degree of heterogeneity in their daily interacting with political context seems to be good enough for the electorate to initiate comparisons between different vote preferences or even
to make a fair judgement of candidates. We should worry less about individuals becoming less involved in discussing politics than about consuming political information. Even if the information is biased, this article confirms the important role of multiple news sources in sustaining political disagreement at the individual level and at the aggregated level. Biased media may not directly result in biased voters as Bennett (1998) argues; this article suggests that voters’ interacting with their homogeneous networks is the major cause of voter bias.

Three issues deserve exploration in future research. First, when do voters that perceive heterogeneity initiate meaningful exchanges of political preferences? Second, what patterns can we find if agents have more than two preferences and access more than one favorite news source? The ABM approach in general, or the S-RAS model specifically, can be a new tool for researchers to explore the dynamics of the perception of polarization during a campaign season.
Appendix: The Design of the S-RAS Model

The Features of Agents

Two types of citizen agents compose the S-RAS model—the less aware citizen agents, referring to ordinary citizens who pay little attention to politics and elections, and the politically aware citizen agents, referring to the citizens with greater political knowledge. The following two subsections describes the common features shared by the two types of agents and their differences, respectively. These descriptions may seem trivial, but they help to discern how the model actually works.

The general features of agents

In the S-RAS model, all citizen agents follow four specified behavioral rules. The first two are about accessing communication networks, the third about media use, and the fourth about opinion change.

The first rule is that agents tend to discuss politics with the politically aware, i.e., agents of greater political expertise (Huckfeldt et al., 2002; Beck, 1991; Mutz and Martin, 2001; Scherer and Cho, 2003; Wyatt et al., 2000). As a result, agents are more likely to do so when they judge the discussants as trustworthy and more politically knowledgeable than themselves (Carmines and Huckfeldt 1996; Huckfeldt 2001; Miller and Krosnick 2000).

Second, every agent subjectively chooses eight contacts as communication network members. Some of the members are more frequently contacted than the others based upon the following rules: (1) An agent makes a contact list of favorable discussants according to the similarity in political predisposition (i.e., party identification) and the level of political awareness (i.e., political expertise); (2) Agents will seek those with the same party identification before turning to friends who have
high political expertise but different political party identification; and (3) The least favorable discussants in one’s network are those of different political party identification and those with lowest political expertise. Ultimately, when an agent finds an available discussant, both agents will become unavailable to the other agents (Huckfeldt and Sprague 1995).  

The third behavioral rule is that agents will think about accessing the news media (i.e., check random probabilities against their propensities) before discussing politics with their network members. The term “news media” used in this article coincides with what Zaller calls “elite discourse” because most information about an election that people watch, read, and listen to are candidates’ speeches and debates, politicians’ campaign talks, and invited experts’ analyses, etc, in the news media. This idea comes from the fact that people tend to check the news media before interacting with their communication network members (Mutz and Martin, 2001).  

The fourth rule is about opinion change. Agents’ current vote preference (0 or 1) is obtained from their opinions (varying between 0.0 to 1.0 as simulation runs). As Axiom 4 suggests, an agent’s current opinion = \( \frac{D}{C+D} \), where D denotes a dominant message (i.e., message that is more intense during the period of attitude change) and C denotes a countervalent message (i.e., the less intense message). C and D are

---

4Granovetter (1973) suggests two types of social networks: strong-tie social networks—family and close friends—and weak-tie social networks—coworkers or other friends. This categorization is straightforward but limited. In the new millennium, people can form their communication networks beyond the geographic boundary of family and neighborhood. Influential political discussants may come from weak-tie networks, such as friends met on the Internet. Although the agents in this model are described as residing in a grid, I do not mean to say that social interaction is strictly based on geographical distance. Rather, these eight possible contacts might be located in a diverse set of geographical positions. Moreover, although it is possible to vary the number of contacts, I do not let this parameter vary. That agents have eight contacts does not mean they have a fixed number of contacts. Instead, according to the design of individualized preferences, the number of an agent’s favorite contacts will be less than eight in the initial, random setting.

5Even so, flexibility is allowed. Agents vary in the probabilities of accessing the media and the probabilities of discussing politics. If they have low probability of accessing the media but high probability of discussing politics (by initial setting), they will follow the probabilities rather than the rule.
measured by the numbers of considerations.

If an agent perceives more than six dominant messages and four countervalent messages of a dominant message, his or her opinion is 0.6. Because this figure is greater than 0.5, his or her current vote preference is 1. Similarly, if another agent receives three “1”s and seven “0”s in the past ten activities (either accessing the media, talking to other agents, or doing nothing but resuming current opinion), his or her current opinion is 0.4 and his or her current vote preference is 0.

Note that the four axioms in RAS deal with how opinions originate, but not with how and when individuals change their vote preferences. Although Zaller proposes a probability function of preference change based on Axioms 1 and 2, this formulation “omits any reference to ‘considerations,’ which cannot be easily measured in most attitude change situations, and refers instead to the probability of change in a person’s summary attitude report.” As he continues, “it also omits any reference to countervalent messages, even though they will often be present in attitude change situations” (Zaller 1992, 123). Indeed, the probability formulation is good for the fitting empirical data, but it omits the details about how agents proceed perceived information.

The theory of autoregressive influence provides an alternative solution. The term “autoregressive influence” means the influence of perceived external pressure, including peer pressure. According to the theory, people tend to change their vote preferences when they perceive that they are the minority in their social context (Huckfeldt and Mendez 2004; Neuman et al. 1992). Such social influence “depends on the distribution of opinion across all other individuals within the network who are also connected to the first individual” (Huckfeldt et al. 2004, 20); therefore, when individuals perceive that messages from their social context turn to oppose their current preferences, they are likely to conform to the majority. Hence, in the S-RAS model agents will change their vote preferences from 1 to 0 (or 0 to 1)
when they perceive at least 50 percent of the messages from their context (including friends and the news media) opposing their current vote preferences.

Figure 5 on the following page is a summary of the above behavioral rules. It serves as the guidance of modeling (or programming). This chart shows how an agent accumulates information received from dyadic conversation and the mass media, and forms vote preferences. Note that before the simulation ends, agents will keep choosing between discussing politics, accessing the media, or doing nothing, at every run time (or iteration).

The differences between the politically aware and the less aware

This subsection details individual differences between the politically aware and the less aware. This categorization is important for two reasons. First, it reflects two important observation about the electorate. The first observation is that partisan voters, including political elites, have “large storage of political lore” and will be more stable in their vote preferences than ordinary voters that are less politically interested (Converse 1964, 1990). Converse suggests that elites are different from the mass public in two respects. First, because of interest in politics, elites process political information more efficiently than general voters do; these pieces of accumulated information in turn mobilizes themselves to obtain more political information, or at least to maintain the level of interest. Second and consequently, he observes that few ordinary voters with lower education level participate in political process. The second observation about the electorate is that political elites are more more polarized than ordinal voters (Fiorina et al. 2005). This suggests that the political aware are more likely to be biased, partisan, and selective in consuming news messages (see also, Oliver 2002).

The second reason for classifying citizen types is that this categorization helps associate the attributes of voters. As Zaller suggests, the politically aware are dif-
Figure 5: The Flow Chart of Information Processing

1. Holding a vote preference (1 or 0)
2. Create a list of 8 discussants according to the degree of like-mindedness and the level of political expertise
3. Choose the favorite news source (1 or 0)
4. Access it?
   - Yes: Interpret the message and get an impression (1 or 0)
   - No: Want to talk?
     - Yes: find a contact from the list
       - Available?
         - No: Obtain an impression (1 or 0)
         - Yes: Obtain an impression (1 or 0)
     - No: Obtain an impression (1 or 0)
5. Sampling current vote preference (if the average of the most recent impressions is larger than 0.5, the current vote preference is 1; otherwise, 0)
6. Change the preference
   - Minority? (< 50%)
     - Yes: Hold the preference
     - No: Hold the preference
ferent from the less aware with respect to four features: they are politically knowledgeable, likely to access political information, tend to resist political information that is inconsistent to their political predispositions, and have greater ability to store preexisting considerations.⁶

Table on the next page details how these differences are operationalized in the S-RAS model. First, the politically aware have higher levels of political expertise (from 6 to 10 on a 10-point scale) than the less aware (from 1 to 5). Second, the aware are more likely to access the news media (with probabilities of the variable Propensity to Access the News Media varying from 0.6 to 0.9) than the less aware citizens (with probabilities varying from 0.1 to 0.5). Third, the aware are more likely to discuss politics (with probabilities of the variable Propensity to Discuss Politics varying from 0.6 to 0.9) than the less aware (with probabilities varying from 0.1 to 0.5). Fourth, the aware tend to selectively perceive preferences (with probabilities of the variable Propensity to Selective Perception varying from 0.6 to 0.9) than the less aware citizens (with probabilities varying from 0.1 to 0.5). This means that the politically aware who hold the preference of “1” will likely to perceive “1” no matter what news media source they access. Finally, the aware store most recent 20 pieces of perceived vote preferences (with the value of Capacity to Store Messages set to 20), while the less aware are able to recall 10 most recent pieces of perceived vote preferences.

⁶I assume that an agent’s probability of accessing the media is independent of the probability of discussing politics, because there is not yet a conclusion about relationship between these two variables. Some scholars suggest a negative relationship. They think that individuals having weak party identification, higher education level, or feeling comfortable with discussing politics with other people are less likely to access news media (e.g., Mutz and Martin, 2001). The others suggest a positive relationship: talking to like-minded people is associated with perceiving media bias (see, ?).
Table 2: The Differences between the Aware and the Less Aware in the S-RAS model

<table>
<thead>
<tr>
<th></th>
<th>The Less Aware</th>
<th>The Politically Aware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Expertise (10-point scale)</td>
<td>[1, 5]</td>
<td>[6, 10]</td>
</tr>
<tr>
<td>Propensity to Access the News Media</td>
<td>[.1, .5]</td>
<td>[.6, .9]</td>
</tr>
<tr>
<td>Propensity to Discuss Politics</td>
<td>[.1, .5]</td>
<td>[.6, .9]</td>
</tr>
<tr>
<td>Propensity to Selective Perception</td>
<td>[.1, .5]</td>
<td>[.6, .9]</td>
</tr>
<tr>
<td>Capacity to Store Messages</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>
References


