Political Environments, Cohesive Social Groups, and the Communication of Public Opinion*

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Theory: A theory of political communication is employed which stresses the importance of citizen discussion beyond the boundaries of cohesive groups for the dissemination of public opinion.
Hypotheses: If the social communication of political information is bounded by cohesive social groups and strong social ties, we should expect the social flow of political information to be independent from opinion distributions in the larger environment. In contrast, when social communication extends beyond socially cohesive groups, the flow of information should reflect these opinion distributions.
Methods: We analyze a 1992 election survey which includes a battery of questions regarding the construction of respondents' social networks. The analysis is undertaken with respect to opinion distributions in the larger environments (counties) where the respondents reside.
Results: Individuals are differentially exposed to larger environments of opinion depending on micro environmental patterns of social interaction and political communication. Hence, the construction of a citizen's social network serves as a filter on the macro environmental flow of political information. In this way, the consequences of the larger environment of opinion depend on the existence of micro environments which expose citizens to surrounding opinion distributions.

The social flow of political information is produced as a consequence of individual preference operating within larger environments of opinion. Citizens obtain political information from other citizens in the context of politically divergent and environmentally specific opinion distributions. They also impose their own preferences in selecting information sources. Neither

individual preference nor the environment is solely determinate, and thus the information that citizens ultimately obtain through social channels of communication is contingent on the particular intersection between the individual and the environment. The nature of this intersection, in turn, depends on the construction of the citizen's social network—a micro environmental filter that might expose individuals to, or seclude them from, these larger environments of information.

Thus, while citizens select information sources on the basis of their own political preferences, the supply of political information varies across environments in systematic ways, with potentially important consequences for the information that many citizens ultimately obtain. This paper examines one source of information and one source of environmental variation—the extent to which the social communication of political information is structured by the geographic distribution of support for presidential candidates in the 1992 election. Thus the focus is on communication rather than influence, and our particular concern is with how social networks of political communication serve as micro environmental filters on the macro environmental flow of information (Granovetter 1973; Burt 1986). To what extent do cohesive social groups and weak social ties serve to advance or retard the communication and dissemination of public opinion in the larger environment?

These issues are addressed as one part of a national study focusing on how citizens became politically informed during the 1992 presidential election campaign. Before turning to this analysis, we examine the political significance of communication occurring within and beyond the boundaries of socially cohesive groups and strong social relationships.

Beyond the Boundaries of Cohesive Social Groups

The implicit or explicit assumption that underlies many studies of social influence in politics is that the truly important social communication of political information takes place within closed social cells, among kindred spirits whose mutually high regard makes them trusted sources of political advice and information. According to such a view, politics is a crucial and private matter that can be best discussed with those who are closer and more intimate associates—interpersonal trust becomes a defining ingredient of effective political discourse.[1]

[1]For points of contrast, see Putnam (1966), Segal and Meyer (1974), Cox (1969), and Fuchs (1955). Putnam shows that individual partisanship is *more* affected by the county environment among respondents who are organizationally active. Segal and Meyer show that respondent partisanship is *less* affected by the neighborhood environment among those who are organizationally active. Cox (1969) reconciles these findings by pointing out that, on average, most organizations are more reflective of the county environment than the neighborhood environment. Perhaps the work of Fuchs is most illuminating on this point. Based on field work conducted in an earlier era typified by one wage earner per family, he argued

That influence is often conceived in terms of such strong ties is not surprising, particularly because some of the most important and influential research on social influence in politics comes from the landmark work on political socialization within families. Jennings and Niemi (1968, 1974, 1981) and others have convincingly demonstrated the crucial roles played by families in the development of political identities and the evolution of political involvement. Thus it was perhaps natural to adapt such a model to social communication outside families as well. Indeed, even before the bulk of progress in developing the socialization model had occurred, the Columbia sociologists (Lazarsfeld, Berelson, and Gaudet 1944; Berelson, Lazarsfeld, and McPhee 1954) had articulated a process of social influence during an election campaign in terms which Burt (1987) calls the social cohesion model.

The social cohesion model portrays social influence in politics as occurring within small groups of close associates who share common understandings that are fostered within the same normative climate of opinion. Such a model portrays social influence as the product and residue of close and intimate ties, and thus intimacy becomes a precondition for influence. In other words, I am more likely to trust your opinion and the information it conveys if I hold you in high personal esteem, both as a friend and as a knowledgeable informant (Katz 1957).

What is wrong with such a view? Nothing is wrong for many behaviors in many circumstances. We do not intend to suggest that the strength of a relationship is an unimportant consideration, or that it is without consequence for political communication. A tightly defined focus on intimate ties, however, may unnecessarily impede a more thoroughgoing analysis of the consequences that arise due to the social communication of public opinion. Particularly in the high stimulus setting of a presidential election campaign, when candidate preferences are widely held and frequently communicated, a narrow focus on individual citizens and closely defined social cells may ignore an important dimension of public opinion.

The social cohesion model has, moreover, been questioned on empirical grounds. A noteworthy difficulty arises—even for studies of political socialization—in demonstrating the heightened efficacy of intimate ties. Jennings and Niemi (1966, 1974) and Tedin (1974) demonstrate a number of contingencies that amplify or diminish the effect of the parental family, but they find no intimacy effect. Burt (1986) reanalyzes evidence from the medical innovation study (Coleman, Katz, and Menzel 1966), and thereby

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that Jewish men were less subject to neighborhood influence than Jewish women because the men experienced contacts beyond the intimate boundaries of the neighborhood when they went off to work.

calls into question the social cohesion model's ability to account for the adoption of a new drug among doctors in four Illinois communities. Returning to politics and election studies, Huckfeldt and Sprague (1991, 1995) show that South Bend residents engage in discussions of the campaign with others who are less than intimate associates. Once the accuracy of perceived preference is taken into account, intimacy among non-relative discussants has no effect on the extent of influence.[2]

A more fundamental limitation of the social cohesion model is directly relevant to the purposes of this effort. If a strong tie is a precondition to social influence in politics, then an individually fragmented and atomistic analysis of politics is not seriously called into question. We should merely relax our tightly constructed focus on individual citizens to accommodate the small social cells that surround individuals. But what if political information is conveyed through casual discourse and communication that lies beyond the boundaries of socially cohesive groups? In such a circumstance, important implications arise for both the arenas and the reach of social communication in politics. Indeed, if political information is conveyed through casual interaction, the macro consequences of micro communication patterns are wholly transformed. At the very least, we would be forced to understand individual preference and choice neither as a function of individually defined circumstance nor as a consequence of the normative climate within small social cells, but rather as a complex product of the multiple, intersecting environments where social interaction and communication take place: workplace, church, neighborhood, and so on.

Moreover, if political communication occurs through casual forms of social interaction, we might invoke the analysis of weak ties put forward by Granovetter (1973). Information that is communicated through weak social ties typically travels farther because it is less likely to feed back to the point of origin. That is, the close friends of my close friends are quite likely to be my friends too. As a consequence, if political communication only occurs through close friends, the social reach of political information is likely to be quite limited. Alternatively, the casual acquaintances of my casual acquaintances are *not* so likely to be my associates, and thus information conveyed through such patterns of interaction is likely to travel farther.

When social communication occurs through weak ties, beyond the

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[2]Kenney (1993) shows discussant effects on main respondent abortion opinions that are conditioned on intimacy, but he is not able to determine whether the main respondent perceives the discussant's opinion accurately. Thus, intimacy might actually be a disguise for an increased accuracy of perception. If so, the correlation between intimacy and accuracy might actually be the consequence of a third factor—frequent and sustained interaction.

boundaries of cohesive groups, public opinion becomes more fully public. That is, it becomes problematic to conceive of public opinion as the simple aggregation of opinions that are held either by private individuals or by small intimate groups of associates. Rather, public opinion grows and declines as a consequence of complex patterns of social communication in the public at large (see Stimson 1991). This is not to suggest, of course, that individuals play no role in these public opinion dynamics. In particular, some individuals are more likely to be exposed to public opinion than others, and a crucial consideration involves the micro environmental patterns of social interaction that serve to expose individuals to the supply of political information in the larger environment. Two questions become especially important: Does the social communication of political information occur beyond the boundaries of socially cohesive groups? Does such communication expose individuals to the larger environment of public opinion?

Study Design and Methodology

Individual exposure to particular viewpoints is subject both to environmental supply and to the citizen's own political preferences. The relationship between exposure and individual preference runs both ways—exposure affects preference and preference affects exposure. Our main concern is to understand the relationship between individual exposure and environmental supply not only in terms of individual preference, but also in terms of the construction of social networks and groups. We want to determine whether the impact of the macro environment is mediated by the particular construction of the micro environment. As a consequence, the data requirements of this undertaking are quite demanding. We need information on individuals, their networks of social communication, and the partisan composition of their surrounding environments.

The field work for this study was designed to implement such a model of citizen communication by allowing us to investigate the acquisition of political information at the intersection between individual citizens and the environment. In this paper we focus on individuals, the socially communicated information to which they are exposed, and the larger environment from which the information is drawn. Measurement thus occurs at three levels. First, a survey is conducted with a nationally representative sample of the American population immediately after the 1992 presidential election. Second, social network data are collected for each of the respondents in order to characterize the political bias of socially communicated information to which the respondent is exposed. Finally, individuals and their networks are measured with reference to distinctive environments that are external to the individual. For the purposes of this paper, the external

environment is measured at the county level, based on a stratified cluster sample design with 40 separate county samples.[3] (Study design details are available in the appendix.)

Patterns of Interaction and Communication

The design of the name generator for collecting the social network data is particularly important to the research reported here. Each of the main respondents was asked: "Looking back over the last six months, I'd like to know the people you talked with about matters that are important to you. Can you think of anyone?" We used this probe to compile a list of no more than four first names. At the point when either the respondent could offer no more names, or the respondent had provided four names, a follow-up question asked for the first name of someone else with whom they discussed the election: "Aside from anyone you have already mentioned, who is the person you talked with most about the events of the recent presidential election campaign?"[4] This name generator, which builds on the work of Burt (1986), is designed to identify patterns of political communication that occur beyond the boundaries of cohesive social groups. By asking for a total of five names we increase the likelihood of identifying discussants to whom the main respondent is less strongly related. Moreover, by asking the respondent to name an explicitly political discussant at the end of the sequence, we are better able to identify respondents who engage in political discussion that lies beyond the boundaries of strong relationships.

The relationship between the main respondent and each discussant is

[3]We have adopted levels of observation and measurement which allow us to examine the consequence of micro-environmental filters on the individual's relationship to the macro-environment, where the macro-environment is measured at the county level. The shape of the micro-environmental filters and the experience of the macro-environment also depend on environments at multiple intermediary levels (Huckfeldt and Sprague 1987). Indeed, we have measured that macro-environment at the level of counties, but our counties include the most populous in the nation, as well as little Tom Green county in rural Texas. Citizens do not reside in a single environment of public opinion, but rather in a series of nested, cascading, overlapping environments that are both larger and smaller than the county unit. A real challenge of political analysis is to understand individual citizens within this variety of settings (Huckfeldt and Sprague 1995), and hence our analysis of counties is not intended to preclude analyses at other levels.

[4]For the design and anlysis of other name generators see: Laumann (1973), Burt (1986), Marsden (1987) and Huckfeldt and Sprague (1995). For ease of exposition, we refer to this last named discussant as a "political discussant" and to the earlier named discussants as "important matters discussants." But this language is not meant to suggest that the discussants identified in response to the important matters probe are necessarily less important sources of political information than the discussants generated by the political discussion probe. Indeed, these are matters that must be addressed empirically.

Table 1. Relationship of Discussant to Main Respondent, by Sequence Named

	Important Matters Discussants				Political Discussant
	#1	#2	#3	#4	
Spouse	26.6%	12.4	5.9	3.8	22.5
Relative	25.3	37.7	43.5	37.5	29.4
Non-relative	48.1	49.8	50.6	58.7	48.2
Total =	100.0%	99.9	100.0	100.0	100.1
N =	(1066)	(885)	(614)	(395)	(787)
Percentage of the 1318 Respondents Naming Discussant	80.9%	67.1	46.6	30.0	59.7

cross-classified in Table 1 by the sequence in which each discussant is named. The marginals to the table indicate that main respondents experience increasing difficulty in identifying discussants through the fourth position, but when the question is rephrased in terms of discussing the political campaign, the response frequency increases. Approximately 75% of the main respondents who name a first discussant also identify a political discussant, and about 10% of the sample was unable to identify an "important matters" discussant but did identify a "political" discussant. Why does the relative frequency of response increase? "Important matters" are not necessarily political, and the political campaign is not necessarily important to all people. Moreover, when the question wording changes, the issue is reframed, and a new set of considerations is brought to the forefront for many of the respondents (Zaller and Feldman 1992). In short, these results support an argument that political communication is, at least in part, a specialized form of social communication, and thus politics is not simply an undifferentiated residue of social life more broadly considered (see: Key and Munger 1959; Katz and Lazarsfeld 1955).

Table 1 also shows systematic variation in the nature of the relationship between the main respondent and the discussant across the five choices. Main respondents are more likely to name a spouse as either the first named important matters discussant or as the (last-named) political discussant.[5] Overall, half of the discussants are non-relatives, one-third are relatives, and one-sixth are spouses. Other analyses show that one-third of the non-

[5]This somewhat curious result is primarily due to the substantial number of respondents who failed to name any important matters discussants and then named a spouse as a political discussant.

relatives are workplace associates, nearly 20% are fellow church members, and another 20% are from the neighborhood. In total, more than 80% of all the discussants come from four sources: family, work, church, and neighborhood.

The Social Communication of Political Information

The primary task of this paper is the identification of communication patterns that serve to create and transmit public opinion. In particular, we are interested in the extent to which the dissemination of public opinion depends on political communication that occurs across the boundaries of cohesive social groups—political communication that occurs through weaker, less intimate ties. At the same time, we do not intend to suggest that intimacy and strong social ties are unrelated to political communication within dyads. Indeed, our own data show otherwise.

The respondents to our survey do not restrict their political communication to the last-named political discussant, and thus it is important to consider a wide range of factors that might give rise to more frequent political discussion with all the discussants.[6] The regression coefficients shown in Table 2 suggest that main respondents discuss politics *more* frequently with: spouses, other relatives, coworkers, close friends, men, discussants with whom they report more frequent political disagreement,[7] discussants whom they judge to be more knowledgeable politically, *as well as with the last-named political discussant.* Hence this analysis supports a model of political discussion as a form of communication that is fostered among intimates, but even when the various indicators of intimacy are taken into account, discussion is still more frequent with coworkers, politically knowledgable associates, and the last-named political discussant, *quite independently of relationship strength.*

Political discussion is likely to occur among intimates, but at least

[6]In order to avoid complications that arise due to main respondents who only name a political discussant, this analysis is carried out solely for the discussants of respondents who name both general and political discussants. Because the analysis includes multiple discussants (and hence observations) for single main respondents, the analysis was also carried out as a pooled analysis in which the main respondent's perceptions of the discussant's political knowledge, the frequency of discussion, and the frequency of disagreement were measured as deviations from the means for that main respondent. The results closely parallel those reported here.

[7]In one sense it is perhaps surprising that frequency of political discussion and frequency of political disagreement travel together. But people who seldom discuss politics seldom have the opportunity to disagree, even though people may avoid discussion entirely in situations where they expect disagreement. Indeed, a simple cross-classification of disagreement frequency by discussion frequency suggests that the relationship is driven by the absence of disagreement among people who never discuss politics.

Table 2. Reported Frequency of Political Discussion With Each Discussant for Respondents who Name Both Important Matters Discussants and Political Discussants

Independent Variables	Coefficient	Standard Error
Constant	1.688	.071
Spouse	.384	.050
Other relatives	.112	.046
Coworker	.085	.036
Member of same church	.006	.041
Neighbor	.032	.040
Close friend	.096	.040
Male	.067	.023
Political disagreement frequency	.091	.014
Extent of political knowledge	.376	.020
Last-named "political discussant"	.094	.029
N = 3355 discussants		
R^2 = .14		
Standard error of estimate = .64		

Political Discussion Frequency: 4 = often, 3 = sometimes, 2 = rarely, 1 = never.
Political Disagreement Frequency: 4 = often, 3 = sometimes, 2 = rarely, 1 = never.
Political Knowledge: 3 = a great deal; 2 = an average amount; 1 = not much at all.

Ordinary least squares model.

among some people, political communication also occurs across the boundaries of cohesive social groupings, between people who are less intimately connected.[8] In this paper we are less interested in the effect of intimacy and dyadic information flows for the formation of individually held opinions than we are in the structure of social networks and communication patterns for the exposure of individuals to larger environments of opinion. While political discussion occurs frequently within socially cohesive groups, communication that occurs across the boundaries of cohesive groups may be more crucial to the dissemination of public opinion. Indeed, at least for these purposes, even relatively *infrequent* political communication beyond cohesive groups may be more important than frequent communication within them.

[8]Sixty percent of those main respondents who respond to the social network battery report that they discuss political matters "sometimes" or "often" with at least one non-relative discussant, and 16% report that they discuss "sometimes" or "often" with at least one non-relative who is less than a close friend.

Individual Perception and the Flow of Information

We have seen that political discussion occurs beyond the boundaries of cohesive groups, but what are the consequences of such interaction for the flow of political information? The respondents to the survey named more than 3,700 discussants, and the remainder of this paper is devoted to an examination of respondent perceptions of these discussants. We are particularly concerned with respondent perceptions regarding each discussant's candidate preference in the presidential election campaign. We take this perception as an indicator of information flow: respondents who perceive a discussant as supporting Clinton are presumably being exposed to information that is favorable to Clinton. For purposes of this paper, the main respondent perceptions create the reality that is most important—reality as it is experienced and perceived by the citizen.[9]

Before proceeding, however, it is important to address two preliminary questions. To what extent do main respondents and their discussants actually disagree with respect to presidential vote choice? To what extent do main respondents accurately perceive disagreement with their discussion partners? In other words, are the main respondents exposed to alternative viewpoints through social communication, and do they recognize such variation when it occurs? If citizens exercise lock grip control over the information to which they are exposed, we might expect there would be no disagreement to misperceive. Alternatively, if citizens selectively misperceive discussant preferences on the basis of their own political viewpoints, we might expect main respondent perceptions to create a false picture of political homogeneity and agreement. In either event, respondents would be spared the experience of political disagreement. The consequence of environments for the flow of information would be a moot issue due to the simple fact that the collection and perception of information would be entirely the product of individual preference, quite apart from environmental supply.

We asked the main respondents for their perceptions regarding which presidential candidate each discussant supported, and we interviewed a substantial subset of the discussants and asked for whom they voted in the general election.[10] On this basis we can assess the accuracy of the main respondents' perceptions of the discussants who were interviewed. This

[9]At the same time, however, it is entirely possible that main respondents fail to receive the political message that the discussants intended them to receive. For more on the nature and quality of communication see MacKuen (1990) and Huckfeldt and Sprague (1995).

[10]After we obtained a list of first names, a subsequent battery of questions solicited various social and political information regarding each discussant. Finally, we asked the main respondents for the discussants' last names and phone numbers. Approximately one-half of the main respondents provided phone numbers and last names, and on this basis we completed snowball interviews with 271 spouses and 841 non-spouse discussion partners.

Table 3. Accuracy in Perception of Discussants' Votes by Agreement and Disagreement in Self Reported Voting Preferences

Main Respondent Perception is:	Self Reported Votes of the Discussant and Main Respondent Are:	
	Same	Different
Accurate	91.0%	63.5
Inaccurate	9.0	36.5
$N =$	346	219

Note: This table omits spouses, as well as main respondents and discussants who did not vote.

is carried out for the non-spouse discussants in Table 3, where the accuracy of the main respondent's perception is cross-classified by whether the main respondent and the discussant were in agreement with respect to their *self-reported* vote preferences.

As Table 3 shows, the main respondents are less likely to recognize discussant preferences accurately when disagreement is present in the dyad, and hence the extent of actual disagreement tends to be underestimated by the main respondent perceptions. At the same time, it would appear that disagreement is fairly widespread—39% of the Table 3 dyads involve disagreement in self-reported preferences, and this level of disagreement is only partially obscured by misperception. The likelihood of disagreement is magnified for main respondents with multiple discussants, and thus it is a mistake to believe that the typical citizen is spared the experience of political disagreement and mixed messages.

Measuring the Communication of Public Opinion

Political communication beyond the boundaries of cohesive social groups has the potential to create a public opinion that is more than the sum of its parts: a public opinion that is more than a straightforward aggregation of its component units, regardless whether the units are individual citizens or small cohesive social cells. Such a consequence arises because patterns of political diffusion depend on channels of social communication. In particular, diffusion should occur more rapidly and completely through less intimate channels because casual interaction patterns are less likely to produce feedback that returns information to its source (Granovetter 1973).

The first step in determining whether such non-intimate opinion dynamics might be present was to determine whether political communication even occurs through less intimate channels. And we have shown that inti-

macy is not the only predictor of political communication. A second step in demonstrating the opinion dynamics of interaction with non-intimates is to determine whether those who communicate outside the boundaries of intimate social cells are more likely to experience the opinion distributions that exist in the larger environment.

If patterns of interaction and association were truly random within county borders, the proportion of Clinton support within a main respondent's network should be a direct reflection of the proportion of county residents who voted for Clinton. We do not, of course, expect to see such random patterns of interaction for the simple reason that people select associates on the basis of politically relevant criteria. In addition, they also interpret associates' preferences on the basis of their own preferences, and sometimes they project their own preferences on to their associates (Mac-Kuen 1990; Huckfeldt and Sprague 1995). In this context, two questions merit attention. Is there *any* macro environmental effect on social network composition at all? And do the effects of the macro environment depend on the particular construction of the micro environment?

Both questions are addressed in Tables 4 through 6, where we consider the effects of county support levels for Clinton and Bush on the extent to which main respondents *perceive* Clinton and Bush support in their social networks, subject to alternative constructions of the main respondents' social networks. We employ these perceptions as indicators of network political composition, and hence as measures of the political information to which citizens are exposed through social communication. The dependent behaviors of interest in all these tables are the proportions of discussants perceived by the main respondents to be Bush and Clinton supporters. For example, if the main respondent identifies four discussants and perceives three of them to be Clinton supporters, a value of .75 is assigned to perceived Clinton support. As a consequence, these perceptions are bounded above by unity and below by zero. In circumstances such as these, where the criterion variable of interest is a proportion, estimation procedures are particularly vulnerable to problems of specification error, and we adopt the corrective device of calculating the natural log of the odds for the proportion, thereby providing an unbounded left-hand side variable.[11]

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[11] Several analytic consequences arise by virtue of adopting this procedure. First, the log of the odds—$\ln(p/(1-p))$—is undefined when the proportion is either zero or one. Thus, the limiting values for the proportion are set to .01 and .99. Second, the coefficients predict the log of the odds rather than the proportion, and hence the model is nonlinear (Hanushek and Jackson 1977). In such a circumstance, it is necessary to estimate magnitudes of effects due to a single explanatory variable with respect to particular values of that variable while all other explanatory variables are held constant. This is the procedure that is adopted in Figures 1 through 3 below.

People control the flow of socially communicated political information in two ways: by selecting agreeable discussants and by misperceiving disagreeable ones. We measure main respondent control in terms of self identified partisanship, but this creates a simultaneity problem between individual partisanship and the partisan composition of the main respondents' networks.[12] A citizen's partisanship both affects, and is affected by, the partisan composition of that citizen's acquaintances. We take account of this simultaneity problem in Tables 4 through 6 by employing two-stage least squares estimation, where the additional exogenous variables used as instruments for individual partisanship are: (1) the main respondent recall of both parents' partisanship, (2) individual education, and (3) family income.[13] In the first stage, partisanship is regressed against all the exogenous variables, including these instruments. The predicted value of partisanship, which is purged of its simultaneity bias, is then incorporated into the second stage regressions.

Several other measures are included in these models as control variables. One control variable is included for the race of the respondent, measured as whether the respondent is non-Hispanic white. Quite independently of individual partisanship and the selection criterion it represents, different racial groups reside in different political worlds that make it more

[12]In order to maintain cross-national comparability, our measure of partisan identification is based on a measure commonly used in European studies. The initial probe is: "Many people lean toward a particular political party for a long time, although they may occasionally vote for a different party. Do you generally lean toward a particular party?" A follow up question that asked how strongly or weakly they lean toward the party produced a five category response. If the respondent replied independent or no party to the original probe, a follow up question asked: "If you had to choose, do you think of yourself as closer to the Republican or the Democratic party?" The result is a 13 category scale, from -6 for very strong Democrat to 6 for very strong Republican.

[13]In an effort to assess the sensitivity of the model to alternative specifications, the models shown in Tables 4 through 6 have been estimated in a number of different ways, and the findings reported here persist across a range of model specifications. In particular, we have ignored the endogeneity of party identification and estimated the models using ordinary least squares, and we have included education and income in the second stage of the two-stage estimation, but these specifications and others do not compromise the results. The second equation in the simultaneous system described in the text expresses party identification as an endogenous function of other factors, most particularly income, education, and parental partisanship. Whether or not this second equation is identified depends largely on whether county effects operate on partisanship independently from the partisan composition of the network. If county level contextual effects on party identification are wholly mediated by social networks, then the entire system is identified. If this is not the case, then the system is only partially identified (see Green 1993; Hanushek and Jackson 1977; Wonnacott and Wonnacott 1979), and we can only obtain parameter estimates for the first equation. In this paper we are only concerned with the first equation, but the underlying issues are crucial to a more general specification of contextual effects.

or less likely they will have discussion partners who supported particular candidates in the presidential election campaign. Other variables control the social network conditions that are included in the measurement of the contingent (interactive) county effects.

Our analytic strategy (in Tables 4 through 6) is to evaluate alternative model specifications. The empirical criterion we employ is not to compare goodness of fit measures—indeed there is little difference among the various measures of overall fit. Rather we engage in an analysis of coefficients, their standard errors, and predicted changes in the levels of information exposure across the alternative model specifications. This is the most appropriate way to evaluate the argument that interaction beyond the boundaries of socially cohesive groups exposes citizens to the flow of information in the larger environment.

Discussion Beyond the Family

The family is the most basic and ubiquitous of all cohesive groups, and the consequences of familial and non-familial ties are examined in Table 4. The effect of the county environment is measured contingently and separately in the table for two different groups: (1) main respondents who do not have a non-relative discussant and (2) main respondents who have at least one non-relative discussant. For each group, the respective county variable is set to the proportion voting for Bush or Clinton, and it is set to zero for the other two groups. Thus, each coefficient can be interpreted as the effect of the county environment for the particular group, where the group is defined in terms of a network structure.

The coefficients show that, among main respondents who have no non-relative discussants, the county has no statistically discernible effect on the perceived partisan composition of discussants.[14] In contrast, among those main respondents who *do* have non-relative discussants, the effect is statistically discernible and substantial in magnitude. Thus, Table 4 demonstrates a *micro environmental filter on the macro environmental flow of information.* Those citizens whose patterns and habits of social interaction are contained within the bounded, cohesive confines of the family are also secluded from socially communicated information that is distinctive to the larger environment. In this sense, then, they are cut off from the informational consequences of divergent public opinion distributions, and their own opinions are uninformed by the partisan composition of the larger environment.

Figure 1 is based on the estimates of Table 4, and it shows the magnitude of individual and environmental effects on the perceived levels of

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[14]For these models a statistically discernible effect at the 95% confidence level for a two-tail test is when the ratio of the coefficient to the standard error is 1.96 or above.

Table 4. Level of Perceived Support for Clinton and Bush in Network, with County Effects Contingent on Whether Respondent has a Non-relative Discussant[a]

Independent Variables	Level of Perceived Support for:	
	Clinton	Bush
Constant	−0.016	−2.218
	(.773)	(.754)
Party identification	−0.371	0.377
	(.068)	(.067)
White respondent	−1.232	0.609
	(.306)	(.302)
1 or more non-relative discussants	−1.494	−0.839
	(.803)	(.746)
County composition effects for respondents with:[b]		
0 non-relative discussants	0.711	0.675
	(1.639)	(1.714)
1 or more non-relative discussants	3.991	3.224
	(1.052)	(1.202)
$N =$	1107	1107
Standard error of estimate =	2.908	2.866
R^2	.25	.22

Level of perceived support: natural log of odds $= ln(p/(1 - p))$, *where p is the proportion of discussants perceived by the main respondent to be supporters of Clinton and Bush, respectively*

[a]Two-stage least squares results, where party identification is endogenous. Additional exogenous variables are income, education, and respondent recall of parents' partisanship. The first stage R^2 values are .20 for the Clinton equation and .21 for the Bush equation.
[b]County composition is measured as the proportion voting for Bush when perceived Bush support is the dependent variable and the proportion voting for Clinton when perceived Clinton support is the dependent variable. Each county variable is set to zero when the specified contingency does not hold.
Coefficient standard errors are shown in parentheses.

support for Clinton and Bush within the discussant networks. County support levels are varied across their observed ranges for our sample, and hence the horizontal axis is proportionately wider for Clinton support. Individual partisanship is allowed to vary from most Democratic to most Republican. (In this and subsequent figures, race is held constant at "non-Hispanic white," and in later figures partisanship is held constant at "independent.")

In general, differences in perceptions between strongly partisan Democrats and Republicans at any particular level of county support are larger than the differences between independents across county support levels.

Figure 1. Perceived Level of Support in Network for Clinton and Bush by County Vote and Individual Partisanship, for Non-Hispanic White Respondents with at Least One Non-relative Discussant
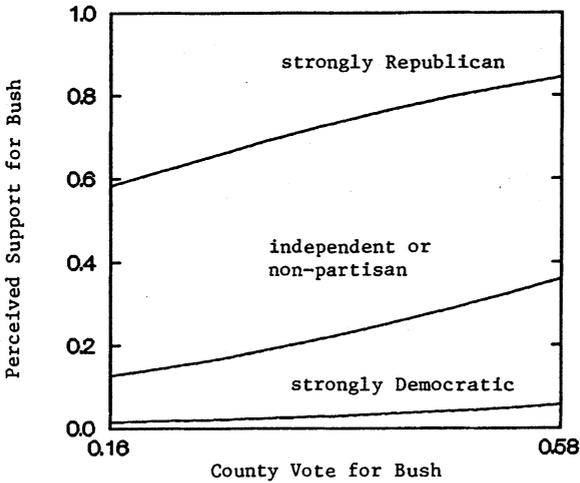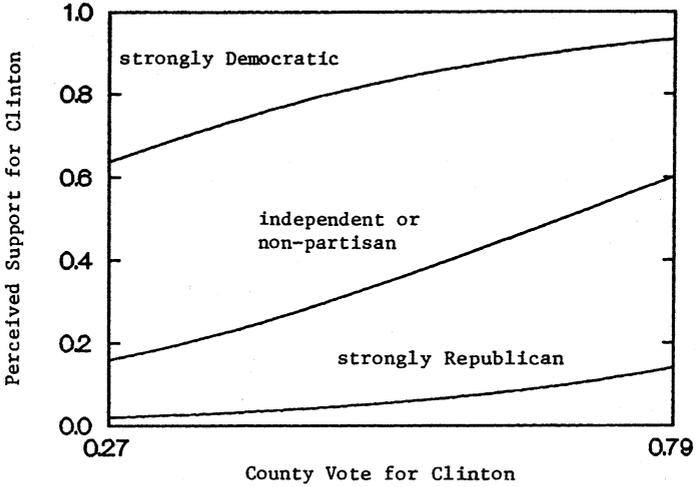
Source: Predicted on the basis of Table 4.

On this basis we might judge the effect of individual control over information to be greater than the effect of environmental supply. Such a comparison is not inaccurate, but it fails to appreciate the complex nature of the intersection between environmental supply and individual control.

While both factors have important consequences for the flow of political information, the county has an effect that is especially pronounced among weak partisans or independents. Indeed, within the most strongly partisan categories, there is a negligible county effect on levels of perceived support for the candidate of the opposite party. By putting the two parts of the figure together, we see that strongly Democratic partisans perceive lower levels of Clinton support if they live in counties with lower levels of support for Clinton, but they perceive only negligibly higher levels of Bush support if they live in counties with higher levels of support for Bush. In a similar fashion, strongly Republican partisans perceive lower levels of Bush support if they live in counties with lower levels of support for Bush, but they perceive only very negligibly higher levels of Clinton support if they live in counties with higher levels of support for Clinton. Not only is the effect of environmental supply variable across partisan categories, but among highly partisan citizens the county has asymmetrical effects on perceptions of support for the two major party candidates. In short, we see relatively complex patterns of effects as a consequence of the interdependence between political preference and environmental supply (Huckfeldt 1983).

Levels of Cohesion Among Non-Relatives

Is it only important that citizens possess a network that extends beyond the family, or are the relative extent and strength of extra-familial ties important as well? Other analyses, not shown here, demonstrate that people with more non-relative discussants were also likely to have more discussants who were not close friends—an indicator that they were more weakly tied to their discussants (Granovetter 1973), and perhaps as a consequence, more directly tied to the larger climate of opinion.[15] The question thus becomes, do people with proportionately more non-relative discussants dem-

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[15]We do not have the extensive network data that are necessary to define a weak tie in Granovetter's original argument, but we are able to arrive at several operational definitions. For example, we might assume that weak ties are more likely to be discussants who are neither relatives, spouses, nor close friends, and that all other ties—spouses, relatives, and close friends—are more likely to be strong ties. But even many close friends might be "weak ties" in Granovetter's sense of the term—social contacts who lie outside the cohesive social groups and cliques to which the main respondent belongs. As an alternative definition, we might simply define weak ties in terms of non-relative discussants—people with non-relative discussants are more likely to possess weak ties.

Table 5. Level of Perceived Support for Clinton and Bush, with County Effects Contingent on the Proportion of Discussants who are Non-relatives[a]

Independent Variables	Level of Perceived Support for:	
	Clinton	Bush
Constant	−0.194	−2.024
	(.671)	(.674)
Party identification	−0.369	0.380
	(.067)	(.066)
White respondent	−1.225	0.597
	(.306)	(.302)
Proportion of discussants who are	−1.994	−1.681
non-relatives	(.990)	(.928)
County support for candidate[b]	1.065	0.598
	(1.396)	(1.495)
County support for candidate ×	4.431	4.071
proportion non-relative discussants	(2.201)	(2.387)
$N =$	1107	1107
Standard error of estimate =	2.907	2.865
R^2	.26	.22

Level of perceived support: natural log of odds = $ln(p/(1 − p))$, where p is the proportion of discussants perceived by the main respondent to be supporters of Clinton and Bush, respectively

[a] Two-stage least squares results, where party identification is endogenous. Additional exogenous variables are income, education, and respondent recall of parents' partisanship. The first stage R^2 values are .20 for the Clinton equation and .21 for the Bush equation.
[b] County support for candidate is measured as the proportion voting for Bush when perceived Bush support is the dependent variable and the proportion voting for Clinton when perceived Clinton support is the dependent variable.
Coefficient standard errors are shown in parentheses.

onstrate larger effects due to the climate of opinion within their counties of residence?

This question is addressed in Table 5, where a new explanatory variable is introduced—the proportion of discussants who are non-relatives. County support levels are measured in two ways: A main effect is measured for *all respondents* by including a variable that is the respective proportion of the county vote cast for Clinton and Bush. In addition, a contingent effect of the county is evaluated by including a variable that is the multiplicative product of county support levels and the proportion of discussants who are non-relatives. Thus, at one extreme, if a respondent has no non-relative discussants, the county effect would simply be the same as the main effect.

Figure 2. Perceived Level of Support in Network for Clinton by County Vote and Proportion of Discussants who are not Relatives. For Non-Hispanic White Respondents who are Political Independents
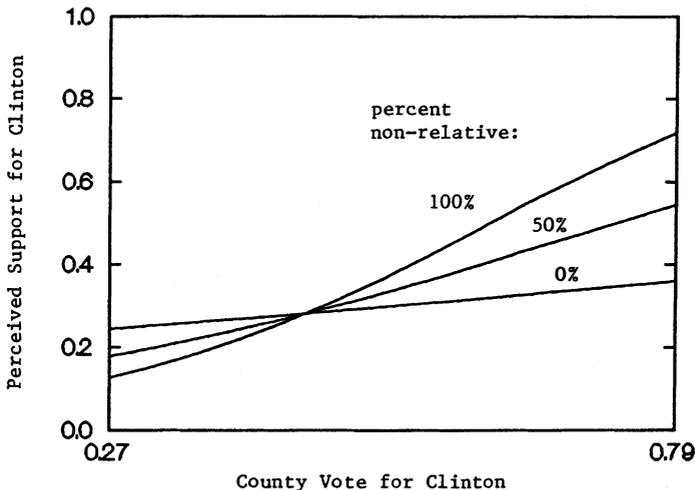
Source: Predicted on the basis of Table 5.

At the opposite extreme, a respondent with all non-relative discussants would have a county effect that is the simple sum of the main effect coefficient and the coefficient for the interaction variable. If 50% of the respondent's discussants are non-relatives, the county effect would be the sum of the main effect coefficient and one-half of the coefficient for the interaction variable.

As Table 5 shows, the main effect is statistically indiscernible both for perceptions of Clinton support and for perceptions of Bush support. This result runs parallel with the earlier analysis—respondents without non-relative discussants are unaffected by the larger climate of opinion. For perceptions of Bush support, the coefficient for the interaction variable lies in the correct direction, but fails to satisfy the 95%, two-tail hypothesis testing criterion for a statistically discernible effect. For perceptions of Clinton support, however, the interaction variable produces a statistically discernible effect lying in the expected direction, supporting the expectation that people with proportionally more non-relative discussants should be more fully integrated within the climate of opinion in the larger county environment.

How large is the effect? Figure 2 employs the model estimates of Table

Table 6. Level of Perceived Support for Clinton and Bush in Network, with County Effects Contingent on Discussant Intimacy[a]

Independent Variables	Level of Perceived Support for:	
	Clinton	Bush
Constant	−0.022	−2.224
	(.774)	(.752)
Party identification	−0.368	0.373
	(.068)	(.066)
White respondent	−1.235	0.595
	(.306)	(.302)
All non-relative discussants are close friends	−1.349	−0.373
	(.852)	(.785)
A non-relative discussant is less than a close friend	−1.758	−1.784
	(.986)	(.942)
County composition effects for respondents where:[b]		
all discussants are relatives	0.733	0.719
	(1.640)	(1.710)
all non-relative discussants are close friends	3.769	1.808
	(1.203)	(1.386)
a non-relative discussant is less than a close friend	4.436	6.129
	(1.709)	(1.881)
$N =$	1107	1107
Standard error of estimate =	2.910	2.861
R^2	.26	.22

Level of perceived support: natural log of odds = $ln(p/(1 − p))$, where p is the proportion of discussants perceived by the main respondent to be supporters of Clinton and Bush, respectively

[a]Two-stage least squares results, where party identification is endogenous. Additional exogenous variables are income, education, and respondent recall of parents' partisanship. The first stage R^2 values are .20 for the Clinton equation and .21 for the Bush equation.
[b]County composition is measured as the proportion voting for Bush when perceived Bush support is the dependent variable and the proportion voting for Clinton when perceived Clinton support is the dependent variable. Each county variable is set to zero when the specified contingency does not hold.
Coefficient standard errors are shown in parentheses.

5 to compare county effects on perceptions of Clinton support across three alternative micro environmental conditions: main respondents with no non-relative discussants, with 50% non-relative discussants, and with all non-relative discussants. These results suggest that higher proportions of non-relative discussants enhance the magnitude of the county effect on perceived Clinton support in respondents' micro environments.

Table 6 presents a final formulation of micro environmental conse-

quences for the flow of socially communicated information in the larger environment. In this model, the effect of the county is measured separately for three groups: main respondents who do not have any non-relative discussants, (25.8%), main respondents with non-relative discussants who are ''close friends'' (50.7%), and main respondents with non-relative discussants who are less than close friends (23.6%). Thus the model is an empirical effort to discriminate more fully between interaction that occurs within and beyond the more intimate confines of cohesive groups. As before, the coefficients show no effect among main respondents who do not report a non-relative discussant, either for perceptions of Bush support or for perceptions of Clinton support. For perceptions of Clinton support, the coefficients show statistically discernible county effects, both among the main respondents with close friends and among the main respondents with networks including discussants who are less than close friends, and the effect is only marginally greater among those main respondents with the less intimate discussant.

The presence of the less intimate discussant has more important consequences for county effects on perceptions of Bush support within the network. Figure 3 examines the magnitude of the county effect on perceived Bush support as a function of micro environmental variation, based on the coefficient estimates of Table 6. Main respondents with discussants who are close friends demonstrate a very modest county effect that is statistically indiscernible. In contrast, the county effect among main respondents with a less intimate non-relative discussant is statistically discernible and quite substantial, with more than a 40% difference across the range of counties.

Taken together, these results provide clear and unambiguous support for the importance of micro environments that extend beyond the boundaries of the family. Main respondents who identify a non-relative discussant demonstrate substantial county effects on perceptions of support within their discussion networks. They are, in short, plugged into the larger climate of public opinion. The empirical consequences of the distinction between close friends and other non-relatives, as well as the distinction based on the proportion of non-relative discussants, are less clear cut. But overall these results point toward the role of less intimate network ties in generating larger county effects and leading to a more complete integration of the individual within the larger climate of public opinion.

Explaining Political Integration

We have shown that the particular construction of micro environments has important consequences for the social communication of public opinion as it exists in the larger environment. In other words, those citizens who are connected socially to non-relatives are also more highly integrated polit-

Figure 3. Perceived Level of Support in Network for Bush by County Vote and Type of Network Ties. For Non-hispanic White Respondents who are Political Independents.
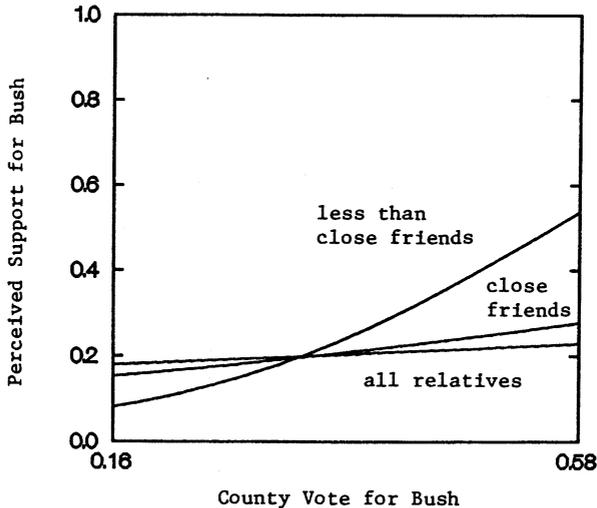
Note: ''all relatives'' = all discussants are relatives; ''close friends'' = at least one discussant is a (non-relative) close friend, but none are less than close friends; ''less than close friend'' = at least one discussant is a non-relative who is less than a close friend.
Source: Predicted on the basis of Table 6.

ically within the prevailing flow of public opinion. But who are these people? What are the defining characteristics of these more highly integrated citizens?

First, we conceive the structure of these micro environments according to a simplified recursive model: people with more social contacts are more likely to have more contacts with non-relatives, and people with more non-relative contacts are more likely to have discussants who are less than close friends. In terms of our own measurement procedures, people who name more discussants are more likely to name more non-relative discussants, and people who name more non-relative discussants are more likely to name a non-relative discussant who is less than a close friend.

The three endogenous variables in this recursive structure are considered, last to first, across the three columns of Table 7. The first column shows that people with more non-relative discussants are indeed more

Table 7. Characteristics of Discussant Networks as a Function of Main Respondent Characteristics and Involvements

Independent Variables	Discussant Who is Not a Close Friend (logit)[a]	Number of Non-relative Discussants (least squares)	Number of Discussants (least squares)
Constant	−3.497	−.369	1.586
	(.520)	(.186)	(.288)
Education	.027	.001	.081
	(.033)	(.012)	(.018)
Income	.064	−.031	.125
	(.056)	(.020)	(.032)
Number of organizations	−.048	.046	.095
	(.054)	(.019)	(.030)
Length of residence at current address	.004	−.003	−.001
	(.005)	(.002)	(.003)
Respondent is employed	.237	.173	.021
	(.184)	(.065)	(.101)
Age	.000	.002	−.010
	(.006)	(.002)	(.003)
Number of non-relative discussants	.816		
	(.062)		
Number of discussants		.566	
		(.018)	
N =	1212	1212	1212
Standard error of estimate =		.987	1.543
R^2 =		.475	.096
Likelihood ratio statistic =	241.440		
Chi-square p-value =	.000		
Correctly predicted =	79.1%		
Percentage reduction of error =	2.8%		

Number of organizations: the number of organizations to which the respondent reports belonging. Coded 0 through 5, where 5 is five or more oganizations.

[a]Because the logit model is nonlinear, the effect of each explanatory variable must be assessed with respect to a particular point on the probability distribution of the dependent variable. For example, each variable's marginal effect is equal to one-fourth of the estimated coefficient when the criterion variable probability is equal to .5.
Coefficient standard errors are shown in parentheses.

likely to have a non-relative discussant who is less than a close friend, but none of the other explanatory variables register statistically discernible effects. Moving to the second column, people with more discussants are more likely to have more non-relative discussants, as are people who belong to more organizations and people who are employed. Finally, the third column shows that younger, higher income, better educated people with more organizational involvements are more likely to name more discussants.

Where does this leave us? First, the recursive structure of the model suggests that the most politically integrated citizens are those people who are better educated, higher income, and younger, with more opportunities for extensive social interaction. But notice that these are the people who are most likely to experience the larger climate of public opinion, and this would seem to indicate that it is not the marginal citizens who are most subject to the effects of socially communicated public opinion, but rather those citizens who are best equipped for citizenship (Converse 1962; Orbell 1970).

Second, notice how little variation is explained in the third column of Table 7. Ninety percent of the variation in the dependent variable is left unexplained, and hence we are unable to nail down, with precision, the people who name more discussants. We know a great deal about these people: they are more likely to be better educated, higher income, younger, and more organizationally involved. There is an enormous amount, however, we do not know—there is a great deal of residual variation—and it is clear that the extent to which people are socially connected is not any simple function of individually defined characteristics. In other words, the basis of political integration may be idiosyncratic to the individual, but it is individually idiosyncratic in a manner that defies explanation on the basis of other, commonly employed, individually based characteristics.

Perhaps the best solution to this puzzle is to take the construction of micro environments more seriously as a basic fact of political existence. In much the same way that Downs (1957) taught us to treat individual purpose as a defining ingredient of citizenship, and Verba and Nie (1972) instructed us to treat social status as an essential element of political involvement, so also the construction of micro environments may play a fundamentally important role in the creation and transmission of public opinion.

Conclusion

Public opinion is communicated through public channels. Indeed, that is arguably what makes opinion public. People hold many opinions

regarding many important topics, but opinions that are not publicly communicated might better be understood as private opinions, secluded from the bright light of public scrutiny and socially communicated information. Some opinions are almost inescapably public: who would make the best president? Others are typically private: how should one assess the virgin birth? Still others evolve in time from one category to another: under what circumstances should abortion be permitted? In short, a crucial ingredient of public opinion is that it is publicly held and communicated, not simply that it involves topics that are important to the public.

If public communication is a crucial component of public opinion, then it becomes important to specify the particular manner in which it is transmitted. Our own formulation stresses the intersection between individual selectivity and environmental supply. People invoke their own political preferences when they search out sources of information—they attempt to locate a bias that reflects their own predispositions and self-perceived interests. But individually exercised control over information is stochastic and incomplete, and it collides with environmentally generated supply. The availability of alternative information sources and particular political biases is variable across environments, and hence the same informational preferences produce different consequences in different settings.

Moreover, the public communication of public opinion is incomplete because many citizens are not plugged into the mechanisms of its transmission. Private citizens who confine their interactions within the boundaries of cohesive social groups remain secluded and largely unaffected by the larger climate of opinion. In this way, the consequences of the larger environment of opinion depend on the particular construction of social networks—networks of interaction that occupy an intermediary role between the citizen and the public.

Which citizens are most affected by these larger environments of opinion? The citizens whose patterns of social interaction reach beyond the tightly defined boundaries of cohesive social groups are most exposed, and these are the citizens who tend to be more highly educated and organizationally involved. In short, it is perhaps the citizens with the highest levels of civic capacity who are most likely to encounter the larger environment of opinion within their immediately defined micro environments.

Such a viewpoint encourages us to rethink the relationships between individuals and aggregates, as well as the normative consequences of these relationships for the effective exercise of citizenship. One popular model of democratic citizenship is rooted in the concept of the

capable individual who is competent to arrive at independently informed judgments. Another popular model stresses the importance of strong social ties that connect individual citizens to durable social groups. Neither model coincides with the picture that emerges here. The most capable citizens—those who are best educated and most organization- ally active—escape the boundaries of tightly constructed social groups, but in so doing they expose themselves to a larger climate of opinion. Thus it would appear that, for many purposes, the important distinction lies not between the independent citizen and the citizen who is imbedded in a cohesive network of social relations. Rather, the more crucial distinc- tion lies between those citizens whose primary sources of information are located within closed social cells, in contrast to those who are integrated within informational networks that expose them to larger environments of opinion.

What are the normative implications for democratic politics? Perhaps most immediately, this analysis calls into question the mass society theo- rists (Kornhauser 1959) who argue that a collapse of intermediary institu- tions has led to individually isolated citizens who are exposed to the instru- ments and agents of political manipulation. We may or may not be viewing the demise of these intermediary institutions, but the integration of citizens into political communities may be more fundamental, with implications that are perhaps more profound. The mass society critique would seem to suggest that people who are cut off from intermediary institutions should be most vulnerable to the larger climate of opinion, but our own analysis suggests otherwise. People who are better educated and organizationally involved—the people who are least symptomatic of the mass society pa- thologies—are the very people who are most likely to be exposed to local climates of opinion. In short, if there is a danger to the individual isolation arising from mass society, it arises because people are *not* exposed to these larger environments of opinion.

These observations encourage us to reconsider the work of Tocqueville (1988), who recognized quite early on the radically decentralized genius of democratic politics. Our own results underline the extent to which the exercise of democratic citizenship is locally anchored. The necessary con- sequence of engaged citizenship is to be exposed to a local environment of opinion—it can hardly be otherwise. Indeed, we might even adopt a definition of the democratic citizen that is built on active political communi- cation beyond the boundaries of closed social cells. But the exemplar of such a citizen is not the Marlboro man who sits astride his horse in the splendid isolation of the western range. Rather, it more closely resembles the character from the Frank Capra movie whose political identity is forged

by extensive networks of relations within the boundaries of a political community that is defined in both space and time.

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APPENDIX

This study is one part of a five nation comparative effort undertaken in Britain, Germany, Japan, Spain, and the United States during the early 1990s. The American study design is based on a stratified cluster sample in which the primary sampling units are counties. Three strata are employed: county population size, the educational composition of the county population, and the proportional change in the county's population from 1980 to 1990. Based on these strata, the county populations of the 48 contiguous states and the District of Columbia were allocated to 20 cells, each of which included 5% of the total population. A replicate design was employed in which two counties (or the District of Columbia) were independently chosen from each cell with replacement. And the probability of selecting a particular county within a particular cell was proportional to the relative population of the county within the cell. This produced two separate representative samples of 20 counties each. Los Angeles County appears in both samples, and thus the end product is 40 county samples drawn from 39 counties. Within each county, random digit dialing was used to generate a sample of approximately 33 respondents per county sample, for a total sample of 1318 respondents.

While the main respondent survey provides the central data base for this paper, these survey data are supplemented by other data collection efforts and data sources. Shorter interviews were conducted with two snowball samples. One snowball sample includes 271 spouses of the main respondents. A second snowball sample includes 841 non-spouse discussion partners. All interviews were conducted with people identified as discussants by the main respondent. Finally, we are also able to collect aggregate data on the counties and merge these data together with the survey in order to characterize the county environments within which the respondents reside.

All survey field work was conducted using computer assisted telephone interviewing by the Polimetrics Laboratory at Ohio State University and the Center for Survey Research at Indiana University. Interviews with the 1318 main respondents began during the week after the election campaign, and except for loose ends, was completed by the end of January. The main respondent interviews lasted somewhat in excess of one hour. The response rate was 48%, calculated as the ratio of completions to the sum of completions, refusals, and partials.

In a clustered sampling design, such as the one we are employing, normally utilized procedures for calculating the standard errors of simple random samples are not theoretically justified. Clustering often creates homogeneity within clusters which compromises the amount of information gathered with the sample, thereby increasing the standard errors. These problems are reduced in our own study by two separate factors. First, since our clusters are large units (counties), there is a great deal of heterogeneity within the clusters. Second, we have employed a stratification procedure which yields benefits by increasing variation among the clusters. Replicate designs were conceived as a means of calculating standard errors for complex samples (Sudman 1976; Deming 1960). At the simplest level, statistical estimates for each independent sample can be compared to yield a central tendency as well as a standard error around the central tendency. The problem with such a strategy is that it seldom yields a high number of degrees of freedom because the number of replicates is inherently limited.

In response to this problem, a variety of pseudo-replication strategies have been developed that multiply the number of potential half samples that might be drawn from a simple replicate design such as the one we have employed. Two half samples might be drawn by treating Sample A and Sample B as separate samples. Then another set of half samples can be drawn by exchanging one county from each list, thereby producing two new half samples. And so on.

Kish and Frankel (1970) draw on the work of Plackett and Burman (1946) to produce a ''balanced replication'' procedure in which each combination of clusters is statistically independent from each of the other combinations of clusters, thereby reducing the number of replications while still exploiting the available information. While all the standard errors of this paper are calculated on the basis of a simple random sample, we have engaged in analyses which employ the Kish and Frankel procedure. Using the procedure, standard errors for both means and regression coefficients compare very favorably to those calculated on the basis of a simple random sample, with design effects that are on average only slightly greater than unity.

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