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Social Isolation in America: Changes in Core Discussion Networks over Two Decades

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Have the core discussion networks of Americans changed in the past two decades? In 1985, the General Social Survey (GSS) collected the first nationally representative data on the confidants with whom Americans discuss important matters. In the 2004 GSS the authors replicated those questions to assess social change in core network structures. Discussion networks are smaller in 2004 than in 1985. The number of people saying there is no one with whom they discuss important matters nearly tripled. The mean network size decreases by about a third (one confidant), from 2.94 in 1985 to 2.08 in 2004. The modal respondent now reports having no confidant; the modal respondent in 1985 had three confidants. Both kin and non-kin confidants were lost in the past two decades, but the greater decrease of non-kin ties leads to more confidant networks centered on spouses and parents, with fewer contacts through voluntary associations and neighborhoods. Most people have densely interconnected confidants similar to them. Some changes reflect the changing demographics of the U.S. population. Educational heterogeneity of social ties has decreased, racial heterogeneity has increased. The data may overestimate the number of social isolates, but these shrinking networks reflect an important social change in America

There are some things that we discuss only with people who are very close to us. These important topics may vary with the situation or the person—we may ask for help, probe for information, or just use the person as a sounding board for important decisions—but these are the people who make up our core network of confidants. How have these discussion networks of close confidants changed over the past two

decades? We address that question here with data from a high-quality national probability survey that collected parallel data in 1985 and 2004. We find a remarkable drop in the size of core discussion networks, with a shift away from ties formed in neighborhood and community contexts and toward conversations with close kin (especially spouses). Many more people talk to no one about matters they consider

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important to them in 2004 than was the case two decades ago.

Why is this question (and its disturbing answer) significant? Social scientists know that contacts with other people are important in both instrumental and socio-emotional domains (Fischer 1982; Lin 2001). The closer and stronger our tie with someone, the broader the scope of their support for us (Wellman and Wortley 1990) and the greater the likelihood that they will provide major help in a crisis (Hurlbert, Haines, and Beggs 2000). These are important people in our lives. They influence us directly through their interactions with us and indirectly by shaping the kinds of people we become (Smith-Lovin and McPherson 1993).

Much of what we know about these core confidants comes from surveys that measure ego-centered networks—relationships from the point of view of a single person. These data describe the interpersonal environment of an individual. They allow us to measure the degree to which that person is directly connected to different parts of a social system and integrated into it at the individual level.

Building on earlier network surveys (e.g., Fischer 1982; Verbrugge 1977; Wellman 1979), the General Social Survey (GSS) measured the national U.S. social system of ego-networks for the first time in 1985 (Burt 1984; Marsden 1987). Since then, our description of the core interpersonal environment for Americans has been frozen in the mid-1980s. Of course, one expects major social indicators to change slowly, if at all. There is evidence, however, that the structure of social relationships in the United States has shifted in recent decades. Putnam (1995; 2000), in particular, has heightened interest in networks by emphasizing links among interpersonal ties, voluntary association membership, community well-being, and civic participation. He follows a rich tradition, dating back to de Tocqueville, in arguing that Americans' ties to other members of their communities help enhance our democratic institutions and personal well-being. While his ideas and evidence have generated much debate (Fischer 2005; Sampson 2004), Putnam's emphasis on the importance of networks joins a wider literature implicating social relationships in virtually every important arena of life, from cultural tastes (McPherson 2004) to health (Bearman

and Moody 2004) to crime (Sampson and Laub 1990).

To assess social change in American discussion networks, we replicated the 1985 network questions in the 2004 GSS, using the same question wording and highly similar data collection procedures. In this article, we first outline what we know about the characteristics of the GSS questions—what kinds of networks they tap, with what reliability and validity, and what kinds of issues they leave unanswered. We then compare the basic characteristics of these core discussion networks at the two time points, 1985 and 2004.¹ Given that the differences, especially in network size, are very large, we consider methodological factors that might be biasing our results, and we provide data on these issues when possible. Finally, we decompose the differences in major network characteristics into meaningful methodological and substantive sources. We conclude with a discussion of the potential importance of our findings.

CORE DISCUSSION NETWORKS: WHAT KINDS OF TIES ARE WE MEASURING?

THE QUESTIONS

When researchers study interpersonal environments, a key issue is what type of relationship they want to measure. The ideal, of course, would be to assess several types of relationship (e.g., friend, coworker, advisor) and then to use those multi-layered data to find common patterns (see Fischer 1982 for an excellent example). Given the time constraints of a national face-to-face survey, the 1985 GSS instead

¹ The GSS asked the same question in 1987 as part of a module on political participation. In 1987, however, the survey did not ask sociodemographic characteristics and interconnections among network alters. The only network tie characteristics assessed were political party affiliation and whether or not the respondent discussed government or political matters with the person mentioned. Therefore, while we note findings from the 1987 data in a few comparisons, we base our primary analyses on the comparison between 1985 and 2004. (For a more extensive analysis of 1987, see Online Supplement on ASR Web site: <http://www2.asanet.org/journals/asr/2006/toc051.html>)

focused on a relation that was general, cognitively definable, and significant: it asked people with whom they discussed personally important topics.

In his earlier study of California communities, Fischer (1982) used a similar question about discussing personal matters. He found that this relationship elicited relatively strong personal ties with a good representation of both kin and non-kin. These close relationships have theoretical importance because they are central in social influence and normative pressures (Burt 1984:127), and have strong conceptual connections to earlier survey measures of best friends and other close socio-emotional ties. Different ways of asking about important, close interpersonal relationships (often called *strong ties*) tend to be convergent.² Many ways of asking such questions get the same close ties.

These close ties are only a small subset of a person's complete interpersonal environment, which also includes a much larger array of *weak ties*, which are more distant connections to people. Weak ties may occur in just one institutional context or may connect us to people who are less like us in many ways (demographically, politically, or culturally; see Granovetter 1973; McPherson and Smith-Lovin 1981). Estimates of the larger network of weak ties range between 150 (Hill and Dunbar 2003) to more than a thousand (see review in Marsden 2005).

In 2004, we replicated a substantial subset of the network questions. Specifically, the 1985 and 2004 GSS asked the following questions:

From time to time, most people discuss *important matters* with other people. Looking back over the last six months—who are the *people* with whom you discussed matters important to you? Just tell me their first names or initials. IF LESS THAN 5 NAMES MENTIONED, PROBE: Anyone else?

Please think about the relations between the people you just mentioned. Some of them may be total strangers in the sense that they wouldn't recognize each other if they bumped into each other on the street. Others may be especially close, as close or closer to each other as they are to you.

² Ruan (1998) reported that the wording was shifted from the "personal matters" of Fischer's Northern California Community Study to "important matters," because respondents varied greatly in their understanding of "personal" and sometimes interpreted this term in very narrow ways.

Are they especially close? PROBE: As close or closer to each other as they are to you?

The survey then asked about demographic characteristics of the discussion partner: whether the partner was male or female, his or her race, his or her education and age, and some aspects of the respondents' relationship with the discussion partner. Then, the interviewer asked more about the character of the relationship:

Here is a list of some of the ways in which people are connected to each other. Some people can be connected to you in more than one way. For example, a man could be your brother and he may belong to your church and be your lawyer. When I read you a name, please tell me all of the ways that person is connected to you.

How is (NAME) connected to you? PROBE: What other ways? (The options were presented on a card: Spouse, Parent, Sibling, Child, Other family, Co-worker, Member of group, Neighbor, Friend, Advisor, Other).

WHAT THESE QUESTIONS MEASURE (AND MISS)

People's reports of their connections with other people are not perfect reflections of their actual interactions (Bernard, Killworth, and Sailer 1982). On the other hand, people are quite good at remembering long-term or typical patterns of interaction with other people (Freeman, Romney, and Freeman 1987). Therefore, answers that respondents give to network questions on surveys often represent their typical interpersonal environment rather than whatever researchers specifically asked them. As one might expect, respondents report frequently contacted, close, core network ties with those whom they have many types of relationships more reliably than they do more distant, simple relations (Kogovšek and Ferligoj 2004). These close ties are also more accessible in memory and tend to be listed first in a survey response (Brewer 1995; Burt 1986; Verbrugge 1977). Socio-emotional ties tend to be named more reliably than strictly instrumental relationships (Burt 1986).

Several studies have explicitly compared the GSS "important matters" question to other types of network measures to see what types of people respondents are mentioning in response to this very general inquiry. For example, Marin (2004) compared the GSS question with a more

complete network list generated with the help of extensive probes. The people most likely to be mentioned in the GSS question are strong, close ties who are more connected to others in the network (because one name helps the respondent to recall others). Ruan (1998) examined the overlap of names generated by the GSS question and other network questions based on exchange relations in China. She found that the GSS discussion question accounted for an important part of a Chinese personal network. The people with whom the Chinese respondents discussed important matters were also likely to spend leisure time with the respondents and to be their confidants for personal matters. The respondents expected them to offer substantial help or to possess important social resources. Similarly, Burt (1997), in a study of managers, found that the GSS question elicited high overlap with people whom the managers socialized with informally and considered their most valued contacts, and who they would want to ask for advice if they were considering a job change. These findings reinforce our sense that the important-matters question elicits the core, frequently accessed interpersonal environments that people use for sociality and advice, and for socio-emotional and instrumental support.

While clarifying what the GSS question measures, we should also be clear about what it does *not* measure. Most obviously, it does not measure *what* people talk about in their relationships. Several studies have asked this interesting question to help fill in the content behind these discussion networks (Bailey and Marsden 1999; Bearman and Parigi 2004; Straits 2000). The studies agree that important matters vary dramatically from respondent to respondent, encompassing relevant personal matters (intimate relationships, finances, health, hobbies, and work problems), as well as more general topics such as political issues. They also agree that there are significant respondent–alter interactions in what types of topics are considered important (Bearman and Parigi 2004; Straits 2000). Not surprisingly, respondents talk about different things with their spouses (children, education, finances) than with their coworkers and neighbors (community, politics, work). Indeed, Bailey and Marsden (1999) found that a sizable minority of their sample interpreted the question in terms of frequency or intimacy of relationships, rather than

about a specific instance of discussion of a particular important matter. Reinforcing this view, Bearman and Parigi (2004) found that some people cited apparently mundane matters like *getting a hair cut* when asked the topic of their latest discussion about important matters. Luckily, Bailey and Marsden (1999) also found that measures of key network characteristics (e.g., density, range, heterogeneity) tended not to vary across different interpretations of the question.

In summary, the GSS network question about those with whom one discusses important matters elicits a close set of confidants who are probably routinely contacted for talk about both mundane and serious life issues, whatever those might be for a given respondent. They represent an important interpersonal environment for the transmission of information, influence, and support. We would be unwise to interpret the answers to this question too literally (e.g., assuming that a specific conversation about some publicly weighty matter had occurred in the past six months), but these answers *do* give us a window into an important set of close, routinely contacted people who make up our respondents' immediate social circle.

DATA AND ANALYSES

The GSS is a face-to-face survey of the non-institutionalized United States adult population.³ The 1985 and 2004 surveys used the same questions to generate the names of confidants and identical procedures to probe for additional discussion partners. Therefore, the survey responses represent a very close replication of the same questions and procedures at two points

³ The GSS uses a multistage probability sampling design, based on the U.S. Census. Therefore, the 1985 survey was based on the 1980 Census data, while the 2004 survey was based on the 2000 Census. In both years, an interviewer administered the survey in English. Therefore, respondents who did not have adequate language skills to cope with verbal English are effectively eliminated from the population. The 1985 survey used a paper questionnaire, while the 2004 survey used CAPI (computer-aided) technology. In both cases, however, the interviewers recorded all answers for the respondent.

in time, representing the same underlying population in 1985 and 2004.

MEASURES

We use the same measures of network characteristics that Marsden (1987:123–24) used in his description of the structure of 1985 American interpersonal environments. *Size* is the number of names mentioned in response to the “name generator” question. Since family members and non-kin are fairly distinct institutional bases of connectedness, Marsden (1987) focused his analysis on the kin and non-kin composition of these networks. We present these comparisons, and the distribution of ties across the entire range of possible relationships measured by the GSS question (Spouse, Parent, Sibling, Child, Other family, Coworker, Member of group, Neighbor, Friend, Advisor, Other).

Marsden (1987) also was concerned about the range or concentration of the interpersonal environment, recognizing the well-known fact that tightly connected, closed interpersonal environments tend to be made up of similar others and to provide fewer independent sources of information. The contrast between range and concentration also affects normative pressures—both in terms of pressure to conform and the responsibility for support in times of need. Like Marsden, we use *density* of the interpersonal network as an indicator of network concentration (the inverse of range). It is defined as the mean intensity of tie strength among the discussion partners mentioned. The GSS data are coded 0 if the respondent reports that two of his or her confidants are total strangers, 1 if they are especially close, and 0.5 otherwise. We also include additional measures of tie strength, *duration*, and *frequency of contact* with the person mentioned. Tie duration was measured with a question about how long the respondent had known his or her confidant. Frequency of contact was measured by asking how often the respondent talked to the alter. Marsden (1987) also measured diversity of the interpersonal environment along several sociodemographic dimensions—age, education, race (Black, White, and Other), and sex—by taking the standard deviation of the confidants in the case of age and education and the Index of Qualitative Variation (IQV) for race and sex.

ANALYSES

We begin with an analysis that directly parallels Marsden (1987), the much-cited description of the interpersonal environments published in the *American Sociological Review* for the 1985 data. In each case, we first replicated Marsden’s (1987) analyses on the unweighted 1985 GSS data. We then applied weights to make the data representative of the national population.⁴ To describe the basic parameters of discussion networks, we replicate the Marsden (1987) tables using appropriate weights for both 1985 and 2004. Then, we decompose the difference in core discussion network size using analyses that allow us to control for demographic changes across the two decades, to examine some possible changes in reactions to the survey process, and to check for interactions of these variables with year. The negative binomial regression analysis (a change from Marsden 1987), acknowledges the fact that our dependent variable is a count variable. Finally, we use logistic regression analysis to distinguish social isolates and those who report at least one discussion partner.

RESULTS

NETWORK SIZE

The major finding of this study is in the first two columns of Table 1: the number of discus-

⁴ We note that the 1985 results in our tables differ very slightly from those of Marsden (1987). The GSS sampling frame actually selects households within blocks; the survey therefore must be weighted by the number of adults in the household eligible for the survey in order to constitute a representative sample of individuals in the population. Marsden (1987) presented statistics based on an unweighted sample. In 2004, the weighting scheme was slightly more complicated. After an initial round of data collection was completed, half of the non-contacted respondents were selected for intensive follow-up. These cases must therefore be weighted twice what the first round respondents are weighted. Since we are most interested in a representative description of the discussion networks of individual Americans in 1985 and 2004, we use the appropriate weights in both years. The weighting issues, while complex, do not influence the substantive conclusions of our analysis.

Table 1. Size of Discussion Networks, 1985 and 2004^b

Network Size	Total Discussion Network		Kin Network ^a		Non-Kin Network ^a	
	1985	2004	1985	2004	1985	2004
0	10.0%	24.6%	29.5%	39.6%	36.1%	53.4%
1	15.0%	19.0%	29.1%	29.7%	22.4%	21.6%
2	16.2%	19.2%	21.0%	16.0%	18.1%	14.4%
3	20.3%	16.9%	11.7%	9.4%	13.2%	6.0%
4	14.8%	8.8%	5.8%	4.0%	6.8%	3.1%
5	18.2%	6.5%	2.8%	1.3%	3.4%	1.4%
6+	5.4%	4.9%	—	—	—	—
Mean	2.94	2.08	1.44	1.12	1.42	.88
Mode	3.00	.00	.00	.00	.00	.00
SD	1.95	2.05	1.41	1.38	1.57	1.40

Note: N (1985) = 1,531; N (2004) = 1,467.

^a Information on kinship was collected on the first five alters cited. Therefore, the sum of kin and non-kin alters is not equal to the overall network size distribution.

^bIn all tables for this paper, cases are weighted to reflect the population. Weight variable for 1985 is a function of the number of adults in the household (ADULTS), while the weight variable for 2004 is WT2004NR.

sion partners in the typical American's interpersonal environment has decreased by nearly one person (from a mean of 2.94 to a mean of 2.08). The modal number of discussion partners has gone from three to zero, with almost half of the population (43.6 percent) now reporting that they discuss important matters with either no one or with only one other person. The decrease is especially marked among those who report four or five discussion partners: these respondents have gone from a third of the population (33.0 percent) to only 15.3 percent of the population. The small number of people who report very large discussion networks (six or more) has decreased less markedly, from 5.4 to 4.9 percent.

The next columns of Table 1 show that this marked social change has occurred in both kin and non-kin discussion partners.⁵ Both have dropped from a mode of 1 to a mode of 0. Since both kin and non-kin discussion partners have gone down, the proportion kin has increased only moderately across the 19-year span. The

average proportion kin has gone up from 0.49 to 0.54). Marsden's (1987) generalization that American's core discussion networks are heavily constituted by family still holds.

All of the changes described in Table 1 are statistically significant (as is the change in proportion kin). The distributions on all three variables differ significantly from 1985 to 2004, and the means are all significantly smaller in 2004. Indeed, it is easier to list the few things that *haven't* changed: the standard deviations of all three variables have remained relatively stable, and are not different by year.

TYPES OF RELATIONSHIPS

Table 2 looks in more detail at the types of relationships that the respondents have with their confidants, to allow us to see where this large social change is occurring. The top panel shows the percentages of respondents who mentioned at least one discussion relationship of each type. Since the overall discussion network size has gone down dramatically, we expect that the representation of each type of relationship will also go down. The interesting aspects of Table 2 are the deviations from that expected pattern. Most notably, more people in 2004 report discussing important matters with a spouse (38.1 percent) than in 1985 (30.1 percent). The proportion of respondents who mention at least one parent as a core discussant has decreased

⁵ Marsden (1987) coded the respondents who reported six or more discussion partners as 6.5. We follow that practice here. Marsden based his decision on personal communications with Tom Smith, the Project Director of the General Social Survey, about the distribution of these respondents. In 2004, that information about networks above size 5 was not recorded (Smith, personal communication).

Table 2. Respondents Who Had Various Relationships with at Least One Confidant

Type of Relationship to Respondent ^a	1985, % (N = 1,531)	2004, % (N = 1,467)
No Confidant	10.0	24.6**
Spouse	30.2	38.1**
Parent	23.0	21.1**
Sibling	21.1	14.1**
Child	17.9	10.2**
Other Family Member	18.2	11.8**
Coworker	29.4	18.0**
Comember of group	26.1	11.8**
Neighbor	18.5	7.9**
Friend	73.2	50.6**
Advisor	25.2	19.2**
Other	4.5	3.1**
Spouse is only Confidant	5.0	9.2**
At Least One Non-spouse Kin	58.8	42.9**
At Least One Non-kin Confidant	80.1	57.2**

Note: The table displays, for example, “What percent of the sample mentioned a spouse/parent/etc. as a person with whom they discussed important matters?”

^a Since more than one type of relationship can be mentioned for any given discussion partner (e.g., a coworker can also be a co-member of a group, an advisor and a friend), the percentages do not sum to 100.

** $p < .01$ (two-tailed tests).

only slightly (from 23.0 to 21.1 percent). Notable for their sizeable decreases are co-member of a voluntary group and neighbor, both representing types of community ties that have been stressed in the public policy debate over civic engagement (e.g., Putnam 2000).

The relationships labeled “other,” while small in number, are an interesting residual category. While unmarried partners are included in the spouse/partner relationship, some respondents do not consider the family of a partner to be part of the respondent’s own family. So, a boyfriend’s mother, a girlfriend’s mother, or a partner’s son-in-law appear here as an uncoded relationship type (rather than being placed by the respondent into the category “other family”). Similarly, ex-family members no longer have family status for some respondents. Respondents reported discussing important matters with ex-spouses, spouse’s ex-spouses, son’s father, and such. Several respondents mentioned support people or professional service workers (e.g., mother’s caretaker, child’s teacher).⁶

⁶ In addition, a few respondents had recently talked to people who were probably not parts of their regular core discussion network about important matters (e.g., a state senator, the previous owner of my property, a landlord, or an acquaintance).

Since our interest in these close personal contacts is driven partly by their ability to shape flows of information, influence, and affiliation, the bottom panel of Table 2 shows the percentages of respondents who have networks with different levels of *reach*. In addition to the large proportion of respondents who have no one to talk to, we find that the percentage of people who depend totally on a spouse for such close contact has increased from 5.0 to 9.2 percent. The proportion of people who talk to non-spouse kin (who are likely to reside outside their own household) has dropped (58.8 to 42.9 percent). The most striking drop, however, is in the percentage of people who talk to at least one person who is not connected to them through kinship, a decline from 80.1 to 57.2 percent. These latter ties are the most likely to bridge socially distinct parts of the community structure, since we know that marriage and family ties are more homophilous on class, religion, race, and several other social attributes than ties formed in other ways (McPherson, Smith-Lovin, and Cook 2001).

NETWORK DENSITY AND RANGE

After the dramatic social changes represented in Tables 1 and 2, Table 3 seems a picture of stability. The core discussion networks remain

Table 3. Structural Characteristics of Core Discussion Networks

	1985 (N = 1,167 ^a)	2004 (N = 788 ^b)
Network Density		
<.25	9.9%	7.3%
.25-.49	18.5%	11.8%
.50-.74	37.9%	39.5%
>.74	33.7%	41.4%
Mean	.60	.66
SD	.33	.33
Mean Frequency of Contact (days per year)		
6-12	3.7%	3.0%
>12-52	15.3%	10.6%
>52-365	81.0%	86.4%
Mean	208.92	243.81
SD	117.08	114.86
Length of Association (in years)		
>0-4.5	12.1%	10.7%
>4.5-8+	87.9%	89.3%
Mean	6.72	7.01
SD	1.34	1.00
Age Heterogeneity (standard deviation of age of alters)		
<5	25.8%	29.1%
5-<10	24.6%	19.7%
10-<15	24.3%	23.9%
>15	25.3%	27.3%
Mean	10.35	10.34
SD	6.96	8.1
Population Age Heterogeneity	20.89	18.37
Education Heterogeneity (standard deviation of alters' educations)		
0-1	31.9%	34.7%
>1-2.5	41.0%	45.2%
>2.5	27.0%	20.1%
Mean	1.77	1.48
SD	1.52	1.38
Population Educ Heterogeneity	3.59	3.17
Race Heterogeneity (Index of Qualitative Variation) ^c		
0	91.1%	84.5%
>0	8.9%	15.4%
Mean	.05	.09
SD	.18	.26
Population IQV	.34	.53
Sex Heterogeneity (Index of Qualitative Variation)		
0	23.8%	24.2%
.01-.90	39.9%	37.6%
>.90	36.3%	38.1%
Mean	.67	.68
SD	.43	.46
Population IQV	.99	1.00

^a Density and heterogeneity measures are meaningful only for respondents who mentioned more than one alter. The actual Ns for different analyses vary somewhat because of missing data, ranging from 1167 for race and sex to 1132 for education.

^b The number of respondents is considerably lower in 2004 than in 1985 because fewer respondents mentioned two or more alters. Again, the actual Ns vary because of missing data, from 788 for race and sex to 776 for education.

^c Different race categories are used in 1985 and 2004 (because the 2004 GSS was changed to conform to the new 2000 Census usage. For these analyses, we have re-coded the 2004 categories to match the 1985 codes.

very densely interconnected, with mean densities of 0.60 and 0.66 respectively in 1985 and 2004. This density is the average level of interconnection among named confidants. Recalling that a code of 1 represents the confidants being closer to each other than they are to the respondent, these networks are quite tightly woven. This pattern was noted by Marsden (1987:126) and remains strong in 2004. There is a slight shift toward even more interconnected networks in 2004, a pattern that is supported by analyses of frequency of contact and duration of tie. The typical respondent now sees his or her close confidant more than once a week, on average, and has known him or her for more than seven years. In general, the core discussion networks in 2004 are more closely tied to each other, are more frequently accessed, and are longer-term relationships. Even more than in 1985, the discussion networks we measure in 2004 are the closest of close ties.

We can also examine the character of the interpersonal environments by examining the diversity of the people mentioned as core discussion partners. Table 3 also looks at the heterogeneity of confidants in terms of age, education, race, and sex. Here, again, we see a picture of relative stability. The mean heterogeneity of the discussion networks is significantly less than the heterogeneity of the overall population, reaffirming the well-known finding that networks are homophilous (McPherson et al. 2001). The relatively subtle changes in the diversity of the discussion networks seem to mirror the demographic changes in the population. Age and education heterogeneity have gone down in the general population, mainly because of cohort succession, and the diversity of discussion networks has gone down slightly to reflect that fact. Racial diversity has gone up in the population (through immigration and disparate fertility rates), and has increased in discussion networks as well. (Analyses not reported here also indicate that more people now have a confidant of another race. That is, respondent and his/her confidant are more likely to differ by race in 2004 than in 1985.) Sex heterogeneity has not changed significantly in the overall population, and is remarkably stable in core discussion networks as well.

Kin structures create definite patterns in network diversity, of course. Family members know each other, and they may be close (even closer

than they are to the respondent). In addition, having kin in one's network tends to increase contacts across age categories (through contacts with grandparents, parents, or children), educational strata (because of cohort differences in educational stock), and sex (because of the heterosexual nature of marital unions and the sex composition of sibship), while it reduces heterogeneity of network ties on race, religion, geographic origin, and other matters (McPherson et al. 2001; Marsden 1987: Table 2).

Comparing 1985 and 2004, we see that most of the effects of the proportion of kin in one's core discussion network on the interconnectedness and diversity of network contacts are quite stable over the time period. Since these patterns are relatively well known, we present them in an Online Supplement and comment only on significant changes here (see Online Supplement on *ASR* Web site: <http://www2.asanet.org/journals/asr/2006/toc051.html>). Having kin as confidants tends to make one's network more interconnected and dense—since kin tend to know each other and perhaps be close. This effect, however, is somewhat less marked in the 2004 data than in the 1985 data. Regressing density on proportion kin produces an OLS coefficient of .26 in 2004, as compared to .36 in 1985; the proportion kin coefficient interacts significantly with year.⁷ Furthermore, the predicted value of density when a network has *no* kin in it has increased in 2004 compared to 1985, indicating that even non-family discussion partners are now more likely to know each other and be close.

The effect of kin on age heterogeneity in discussion networks has increased, probably because of changes in cohort structure. Networks of kin are more age diverse now than in the 1980s, while discussion networks without kin are more age homogeneous. The largest change, by far, is in the coefficient-related proportion kin in the discussion network to educational heterogeneity. Marsden (1987: Table 2)

⁷ Following Marsden, we use OLS, although one might make an argument for more sophisticated techniques that reflect that some of the data are bounded at 0 and 1. We suspect that Marsden used OLS because it is more familiar to most journal readers. None of the substantive conclusions varies by method.

finds a large positive OLS coefficient (.42, $p < .01$). The weighting by adults in the household changes this coefficient much more than most other findings, reducing the effect to .30 (still statistically significant at $p < .01$). The impact of kin on educational diversity is much lower in 2004 (a coefficient of .20) and is no longer statistically significant. Both kin and non-kin networks have gotten less educationally heterogeneous by 2004—primarily because of cohort succession and the increasing educational stock of the population as a whole. The difference in cross-educational contact, potentially important for both the framing of issues and the flow of information, no longer varies significantly if one has only kin for confidants or no kin at all in one's discussion network.

DEMOGRAPHIC VARIATION IN NETWORKS

Marsden (1987) also examined how important demographic categories varied in terms of their interpersonal environments. Table 4 here reproduces some of the most important analyses shown in Marsden's (1987) Tables 3 and 4. We use OLS to see how age, education, race, and sex influence the size, kin composition, and density of one's core discussion networks.

Age, which structured networks significantly in 1985, has very little impact on contemporary confidant networks. Marsden (1987: 127–28, Table 3) found a curvilinear pattern, with network size (especially non-kin confidants) dropping off quite precipitously with increasing age and the proportion kin being somewhat higher among younger respondents and the elderly ages. In contrast, age is not strongly related to size or kinship composition in 2004. None of the nonstandardized coefficients regressing the network characteristics on age and age squared is statistically significant, and the multiple correlation between age, age squared, and network characteristics is not significantly different from zero. Clearly, there has been cohort succession since 1985; the very socially active generation that fought World War II is getting less numerous (especially in the non-institutionalized population).

More highly educated people have more people to talk to about things that are important to them. In fact, the impact of education on the number of family confidants has actually increased since 1985. It is still true, however, that

more educated people have a lower proportion of kin in their networks than people with less education.

In the confidant networks of men and women, we see that women still have significantly more kin in their networks than men do, but they no longer have fewer non-kin confidants than men. Since the size of both the kin and non-kin coefficients has gotten smaller from 1985 to 2004, we find that women no longer have a significantly higher proportion of kin in their networks when compared with men. Since the kin-dominated nature of women's networks is one of the staples of the social capital literature (c.f., Moore 1990), this social change is potentially important. It is especially noteworthy that the shift occurs not because women are dropping kinship ties, but rather because they are achieving equality with men in non-kinship ties. Unfortunately, as with growing wage equality, the equity is being achieved by men's *shrinking* interconnection with non-kin confidants rather than by women's greater connection to the world outside the family.

Race continues to have a broad impact on networks in American society. Both blacks and other-race respondents have smaller networks of confidants than white Americans (the reference category). This pattern is most apparent in kinship networks, which are markedly smaller among non-whites.

A PRELIMINARY SUMMARY OF SOCIAL CHANGE IN NETWORKS

In spite of a large literature on declining civic engagement and neighborhood involvement, we began this analysis with the expectation that networks of core confidants would be a stable feature of one's interpersonal environment. Given the close, densely interconnected nature of the ties generated by the GSS question, it seemed unlikely that the typical American would not mention several people in response. We were clearly wrong. The number of confidants mentioned in 2004 is dramatically smaller than in 1985. Both kin and non-kin ties have decreased, although the change is larger in non-family ties. In the past two decades, discussion networks have focused on the very close family ties of spouse/partner and parent, while the potentially integrative ties of voluntary group

Table 4. Differences by Age, Education, Sex and Race in Network Size and Kin/Nonkin Composition

Independent Variables	Dependent Variables											
	Network Size		# of Kin		# of Non-Kin		Proportion Kin		Density			
	1985	2004	1985	2004	1985	2004	1985	2004	1985	2004		
Age												
Age	.02 ^{NS}	.02 ^{NS}	-.02 ^{NS}	.01 ^{NS}	.03	.00 ^{NS}	-.01	.00 ^{NS}	-.00 ^{NS}	-.01	-.00 ^{NS}	-.01
Age ²	-.00	-.00 ^{NS}	.00 ^{NS}	-.00 ^{NS}	-.00	-.00 ^{NS}	.00	-.00 ^{NS}	.00 ^{NS}	.00	.00 ^{NS}	.00
Constant	3.15	1.65	2.06	.86 ^{NS}	1.17	.88 ^{NS}	.69	.48 ^{NS}	.60	.82	.60	.82
R ²	.07	.00 ^{NS}	.01	.00 ^{NS}	.07	.00 ^{NS}	.03	.00 ^{NS}	.02	.01	.02	.01
Education												
Educ (yrs)	.19	.15	.02	.05	.15	.08	-.03	-.01	-.02	-.01	-.02	-.01
Constant	.57	.03	1.15	.45	-.47	-.28	.87	.79	.86	.86	.86	.86
R ²	.12	.05	.00	.01	.12	.04	.05	.01	.05	.02	.05	.02
Sex												
Sex (f=1)	-.05 ^{NS}	.19 ^{NS}	.28	.23	-.30	-.02 ^{NS}	.07	.01 ^{NS}	.04 ^{NS}	-.00 ^{NS}	.04 ^{NS}	-.00 ^{NS}
Constant	3.02	1.78	1.28	1.00	1.59	.89	.49	.59	.58	.67	.58	.67
R ²	.00 ^{NS}	.00 ^{NS}	.01	.01	.01	.00 ^{NS}	.01	.00 ^{NS}	.00 ^{NS}	.00 ^{NS}	.00 ^{NS}	.00 ^{NS}
Race/ethnic (White is reference category)												
Black	-.78	-.66	-.58	-.53	-.19 ^{NS}	-.12 ^{NS}	-.08 ^{NS}	-.08 ^{NS}	.02 ^{NS}	.00 ^{NS}	.02 ^{NS}	.00 ^{NS}
Other	-.43 ^{NS}	-.64	-.45	-.49	.00 ^{NS}	-.11 ^{NS}	-.08 ^{NS}	-.11	.07 ^{NS}	.05 ^{NS}	.07 ^{NS}	.05 ^{NS}
Constant	3.03	2.22	1.51	1.23	1.44	.91	.54	.61	.60	.66	.60	.66
R ²	.02	.02	.02	.03	.00 ^{NS}	.00 ^{NS}	.00 ^{NS}	.01 ^{NS}	.00 ^{NS}	.00 ^{NS}	.00 ^{NS}	.00 ^{NS}

Note: Data show unstandardized OLS regression coefficients of network variables on respondents' demographic characteristics. All coefficients significant at $p < .01$, unless indicated as not significant (NS). Marsden (1987) also analyzed differences in network size and kin composition by size of place, but this variable has not yet been coded for 2004 so comparable analyses are not possible at this time. (The size of place variable is added to the data set after the data are collected, using the respondents' addresses and current Census tract information.)

membership and neighbor have decreased dramatically.

Such a large, unexpected social change raises immediate questions. Therefore, in the next section we explore some reasons why the apparent difference between 1985 and 2004 might be artifactual. We also review other trends that might support or question our results.

COULD SUCH A LARGE SOCIAL CHANGE BE REAL?

Social change is best measured when benchmarks are frequent. Since our measurements are 19 years apart, we have no way to assess directly whether or not the dramatically smaller 2004 networks are part of a slowly developing trend. We therefore must consider threats to validity and look at related data to see if other trends might show similar patterns.

STUDY DESIGN

The most common threat to trend measurement is change in the questions themselves. The GSS asked the same question in 1985 and 2004. While the important matters that respondents discussed may have shifted with demographic characteristics or historical context, there is no reason to expect that the 2004 important-matters question would not elicit the close, frequent confidants that it did in 1985. Interviewer training and probe patterns also were very similar across the two surveys. The GSS implemented a number of changes in sampling frame and survey procedures during the two-decade period in question, but these seem very unlikely to have created the observed pattern.⁸

CONTEXT

Question order is a vexing, important, and understudied aspect of survey design (see review in Smith 1989). Context effects are generally not

large, however, and tend to be concentrated *within* modules of questions on similar content. In methodological experiments conducted in 1988, when the GSS core questions were changed, Smith (1989) estimated that only six out of 358 questions showed real context effects.

For questions like the ones of interest here, however, preceding questions can influence what one thinks of as important matters (Bailey and Marsden 1999; Bearman and Paragi 2004) and, to a lesser extent, which alters one names (Straits 2000). In 1985, the network questions were preceded by a battery of questions on religion. In 2004, they were preceded by a module of questions on voluntary group membership. While not identical, the fact that a large proportion of the voluntary sector is composed of religiously affiliated associations (Bonikowski and McPherson 2006) means that the connections that would be cognitively primed would be somewhat similar in both cases. If there were a bias introduced by this contextual feature, one suspects that it would lead to overreporting of co-membership relationships in the 2004 network data (since the groups of which the respondent and his/her alters might have been co-members had just been reviewed, and the topics that they invoked presumably primed). Recall from Table 2, however, that co-membership relations declined *more* than other types of relations.

A more serious possibility is that the voluntary organization questions in 2004 had a training effect on respondents—effectively teaching them that mentioning a larger number of affiliations in response to an initial question would then lead to more questions about each mentioned connection.⁹ Luckily, the GSS network questions were partially repeated in 1987 in a module on political participation. In 1987, the network question appeared just after the battery of questions on voluntary association. (In this case, the network question was not followed by queries about the alter's characteristics, but instead was narrowed to a focus on political discussions. The wording of the initial name generator, however, was identical to that used in

⁸ The GSS shifted from PAPI (paper-recorded) to CAPI (computer-assisted) data collection during this period and changed from a sampling frame based on the 1980 Census to the 2000 Census. Response rates also fell somewhat beginning in 1998, although GSS rates are still much higher than comparable surveys. The response rate was 70.4 percent in 2004 and 78.7 percent in 1985.

⁹ In 2004, each voluntary association type in which the respondent reported a membership generated another question about how many memberships of that type he or she had.

1985 and 2004.) In supplement data, we compare the limited analyses that can be replicated comparing 1987 and 2004, separated by 16 years and both preceded by voluntary association modules (see Online Supplement on *ASR* Web site). In these replications, we again find a dramatic drop in network size (from 2.63 in 1987 to 2.08 in 2004, $p < .01$) and a dramatic increase in the proportion of respondents with no core confidants (4.5 percent in 1987 and 24.6 percent in 2004, $p < .01$). There may have been some tendency for the voluntary association context effect to suppress very large networks. Comparing the 1987 data to the 1985 data, we see fewer networks of sizes three, four, five, and more. Yet the voluntary association context *decreased* the number of people who reported no confidants; that proportion is actually smaller in the 1987 data than in the 1985 data (4.5 percent as compared with 10.0 percent).

The relationship between voluntary association membership and network size is positive and roughly the same size in both surveys (a correlation of .22 in 1987 compared to a correlation of .18 in 2004). This relationship is a substantively reasonable one: there is a large literature on the interrelationship of networks and voluntary groups (McPherson 1983, 2004; McPherson and Ranger-Moore 1991; McPherson, Popielarz, and Drobnic 1992). Ideally, of course, one would want an experiment embedded in the survey design that assessed how context affected the network questions. In time, such a measure of context effect should be possible. The National Science Foundation has funded a re-interview of the 2004 GSS respondents to further link their networks and voluntary association memberships through a life history calendar (BCS 0527671, "Niches and Networks: Studying the Co-evolution of Voluntary Groups and Social Networks," \$746,000). These interviews will be conducted in the fall of 2006, two years after the original interview, and will allow both a panel study of the network questions and an investigation of context effects.

FATIGUE AND COOPERATIVENESS

With any question that requires a respondent-generated list, one must be concerned that people who are tired, uncooperative, or hostile

might attempt to speed the survey process along by saying that they have few (or no) entries in the list. The GSS is a long survey, lasting over an hour for many respondents. Therefore, one must be concerned with fatigue effects, especially if these effects differed in 1985 and 2004.

The network items occurred near the end of the survey in both years. The GSS asks a core of sociodemographic and social trend questions in each year,¹⁰ followed by modules of questions on various topics. In 1985, the first network question was question 127 out of 148 total questions. In 2004, the name generator question was also numbered 127, but this has less meaning in a CAPI survey where different questions take on different positions depending on skip patterns. It occurred, however, after 109 questions in the core and a module of questions about membership in voluntary associations.

The GSS has the interviewer rate the cooperativeness of the respondent immediately after the face-to-face session is completed (soon after the network questions in both years). Respondents are categorized as interested/friendly, cooperative, restless/impatient, or hostile. The 2004 respondents were no more likely to be impatient or hostile than were the 1985 respondents (less than 4 percent in both years). The great majority of respondents were rated in the most positive category (interested/friendly) in both years (79.3 and 82.2 percent in 1985 and 2004 respectively).

As we expected, cooperativeness is strongly related to the number of people who are reported as confidants, with hostile respondents reporting almost two fewer confidants than interested and friendly respondents. There was no statistical interaction, however, between the cooperativeness variables and survey year in predicting the number of discussion partners mentioned. To the extent that uncooperativeness leads to underreporting of network ties, this factor seems to have operated in similar ways in both survey years. We also note that some of the relationship between cooperativeness and network size might *not* be an artifact. People who are friendly and interested in the social

¹⁰ The core module was somewhat longer in 1985 than in 2004, because of the major cut in National Science Foundation funding for the survey in the mid-1980s.

situation of a face-to-face interview may also be more sociable in other settings.

We also constructed an index of how many questions prior to the network module had missing data for each respondent. Our logic was that refusal to answer preceding questions might be a behavioral indicator of fatigue or non-cooperativeness. Indeed, the number (out of 10) questions coded missing immediately prior to the network module is correlated -0.16 with the number of network alters mentioned ($p < .01$). We therefore control for this index of missing data in our multivariate analyses of network size.¹¹

CONVERGENT DATA FROM OTHER SOURCES

In the case of most major social changes, researchers can triangulate from multiple data sources at multiple time points to establish an overall pattern with some certainty. Since scholars have rarely measured networks in a way that can be generalized to the national population, we have fewer resources here. There are, however, two types of evidence that might reinforce the data that we present.

The first source of convergent data is Bearman's and Parigi's (2004) finding that 20 percent of the North Carolinians that they interviewed in 1997 have no one with whom they discuss important matters. The proportion of people who report no confidants in the North Carolina study is consistent with the trend between the 10.0 percent estimated from the 1985 GSS sample and the 24.6 percent estimated from the 2004 sample. In supplemental data, we also note that the 1987 GSS data show a movement toward a lower network size (see Online Supplement on *ASR* Web site).

On the other hand, some telephone surveys of the national population asking questions about the number of close friends show rather

different results. In 1990, for example, the Gallup Poll found that only 3 percent of their sample reported no close friends; only 16 percent had less than three friends. While there are many differences between the Gallup and GSS surveys, this raises the interesting question of whether the important-matters question gets at closer, core ties than the concept of close friend. Another recent telephone survey by Pew also found much larger numbers of core or close friends, when it asked about a combination of types of contact (Boase et al. 2006). Both of these surveys alert us to the possibility that respondents might be interpreting "discuss" in a literal way, and not including some types of personal contact (see Conclusions section). On the other hand, the Pew survey has a response rate of 35 percent, while the GSS consistently gets more than 70 percent of its sampled units. Our analyses (not reported here, but available from the authors) of the 2004 weights used in the GSS indicate that easily reached respondents are quite different from difficult-to-interview people in terms of their interpersonal environments. This fact reinforces the importance of response rates in studies of affiliation, social networks, and civic participation.

The second area where we look for convergence is other trend data reported by the large, hotly contested literature on civic engagement. Putnam (1995, 2000) raised the issue of declining embeddedness in civic and neighborhood associations to the attention of both policymakers and scholars (especially in political science, where networks had not been a central topic previously). While there has been substantial debate about his data and the downward trends that they indicate (c.f., Fischer 2005; Paxton 1999; Rotolo 1999; Rotolo and Wilson 2004; Sampson 2004), the decline that he reports in socializing among neighbors and general participation in social life beyond the level of the nuclear family fits well with our observations that association co-members, neighbors, and extended family are mentioned much less often as confidants in our survey data. While researchers have contested Putnam's (1995, 2000) reported declines in voluntary association memberships, scholars have generally confirmed his observations about the downward trends in socializing with friends and neighbors (e.g., Paxton 1999:114). Still, these declines have been very small compared

¹¹ Since the index considers different questions in 1985 and 2004, the actual levels of missing data cannot be directly compared. There is no sign, however, that the overall levels of missing data were higher in the 2004 survey. In general, CAPI administration leads to lower levels of missing data, because skip patterns are more efficient (Smith, personal communication). The index of preceding questions that are missing does not interact with survey year in predicting the number of network alters.

to the social changes that we observe. For example, the decline in socializing with neighbors has been about 3 percent over the past two decades. Respondents in 2004 are somewhat less likely than those in 1985 to report that they can trust other people, think that they are fair (as opposed to taking advantage), and think that they are helpful (as opposed to looking out for themselves). The changes in these variables, however, are in the order of 2 percent (fair) to 9.6 percent (helpful)—again, small relative to the drop that we see in core network size.

DEMOGRAPHIC CHANGE AS A SOURCE OF NETWORK CHANGE

Of course, the demographic characteristics of the country have changed considerably in the two decades. Some of those changes could have resulted in a shrinking network size even in the absence of non-demographic social change. As the population gets older and more racially diverse, we would expect networks to get smaller, since older people and racial minorities have smaller networks, on average. On the other

hand, the increasing education of the population should tend to increase network size. To assess the extent to which basic demographic changes have altered the landscape of interpersonal environments, we now move to a multivariate model to examine change from 1985 to 2004.

CHANGE NET OF DEMOGRAPHIC AND METHODOLOGICAL FACTORS

We use negative binomial regression to model the size of discussion networks, because our dependent variable is a count of network alters. Here, data from both the 1985 and 2004 GSS are combined, with the survey year acting as an independent variable in the analysis. Table 5, Model I, illustrates the most important social change documented by our earlier analyses of discussion networks: the number of confidants has decreased significantly over the period between the two surveys. This negative binomial coefficient of $-.356$ (evaluated with the Y-intercept) corresponds to a drop of .86 network alters by 2004 (c.f., row 8 of Table 1, results rounded). The coefficients in all models for Wave

Table 5. Multivariate Models of Discussion Network Size and Social Isolation

Independent Variable	Model				
	Dependent Variable: Discussion Network Size (Negative Binomial Regression)			Dependent Variable: No Discussion Partners (Logistic Regression)	
	I	II	III	IV	V
Constant	1.078	1.150	.477	-2.144	-1.297
Wave (1 =2004)	-.356	-.329	-.407	1.374	.214 ^{NS, b}
Cooperative (Compared to Friendly/Interested)	—	-.225	-.145	.126 ^{NS}	.132 ^{NS}
Restless/Impatient	—	-.667	-.585	1.295	1.308
Hostile	—	-1.121	-.985 ^c	2.005	2.016
Number Missing in Previous Module	—	-.257	-.198	.372	.376
Education (in yrs)	—	—	.059	-.087	-.158
Education* Wave	—	—	—	—	.099
Female	—	—	.071 ^c	-.194 ^{NS}	-.195 ^{NS}
Age ^a	—	—	-.002	.016	.015
Currently Married	—	—	.061 ^c	-.256	-.253
Black	—	—	-.233	.942	.918
Other Race	—	—	-.308	.375 ^{NS}	.360 ^{NS}
Alpha (Heterogeneity Coef.)	.188	.153	.089	N/A	N/A
F	126.07	43.41	45.63	23.48	21.35

Note: N = 2,998. All coefficients significant at $p < .01$ unless indicated as not significant (NS).

^a The squared term for age was not significant.

^b Coefficient represents 1985 vs. 2004 difference for zero years of education, not the general effect of the 1985-2004 comparison, which is very strong, and statistically significant. See Figure 1 and Equation IV.

^c Significant at the $p < .05$ level.

(the 1985–2004 contrast) are a test of the null hypothesis that differences in network size between the two surveys are due to sampling error.

Model II adds the indicators of fatigue and hostility that we suspect may lead respondents to underreport their network ties. The more hostile the respondent gets, the more he or she is likely to report a small network. Having missing data on questions that precede the network questions serves as an additional indicator of survey problems. Controlling for these data issues does not, however, significantly reduce the drop in discussion network size from 1985 to 2004.

Controlling for demographic factors actually *increases* the estimated difference in network size over the 19-year period (Model III). This effect occurs because education is positively associated with network size, and educational levels have increased over time. This effect more than offsets the declines in network size due to other factors such as the declining proportion of the population that is married and the growing minority population.

More educated and younger people have significantly larger discussion networks, as do women. Network size gradually shrinks with aging, and non-white Americans have fewer network resources. Marriage draws one into networks of people with whom one discusses important matters (notably one's spouse, the most often-named type of relationship for the discussion partner).¹²

Of course, there are many controls that we could implement. The results in Table 5 represent the major, stable, statistically significant demographic sources of confidant networks. Some of the logically plausible socio-demographic variables are *not* important sources of network variation in these data. For example, the opportunity structures represented by number of siblings, number of children, and number of adults in the household do not significantly affect the number of confidants (possibly because these variables are highly correlated with marital status). Work status (whether rep-

resented as hours worked per week or as dummy variables for full-time and part-time work) does not have an effect. Geographic mobility does not appear to have an impact, although our ability to explore this factor is limited by the fact that the "size of place" variable has not yet been added to the 2004 GSS.¹³ Neither size of place of residence at age 16 nor whether or not the respondent has moved geographically since age 16 has an effect. While a full exploration of the non-demographic sources of confidant networks is beyond the scope of this article, some commonly used predictors like the number of hours spent watching television are also unimportant (Putnam 2000). Therefore, we conclude that the large drop in confidant networks between 1985 and 2004 in these data is unlikely to be a result of population shifts on other variables.

Since negative binomial regression coefficients are not as intuitively interpretable as OLS coefficients, we offer the following predicted values from Table 5 as illustration of our main result. In 1985, a white married 25-year-old male high school graduate who was an interested, friendly respondent to the survey, and who had no missing data on any of the 10 items preceding the network module, would be expected to have slightly more than three confidants (3.3) with whom he discussed important matters. In 2004, an interested, friendly fellow with the same demographic characteristics would have reported a network more than one alter smaller (2.2). Another way of viewing the same comparison would be to age our friendly fellow by the 19 years of the study (from 25 to 44), leading to an even smaller network of 2.1 alters.

The resources represented by core networks mirror other major class divides in our society. Net of all other factors, increasing education sharply increases the number of discussion partners that a respondent reports, from roughly 1.5 alters for a person with the lowest level of education in 1985, to around five alters for such a person at the highest level of education. The differences for 2004 are smaller, but just as striking: from about one alter to over three

¹² The marital statuses that indicate the absence of a spouse (never married, widowed, separated, divorced) do not differ significantly from one another in their impact on confidant networks.

¹³ Size of place is coded directly from Census records and the sampling unit designation, rather than being reported by the respondent. As of this date (January 2006), NORC has not yet completed this coding.

alters. The differences between 1985 and 2004, however, remain salient even in the face of this major divide. In 1985, high school dropouts (with 10 years of education) had a network with roughly 2.8 discussion partners—in the range of a college graduate in 2004.

Figure 1 brings these stark differences in educational trajectory to bear on the issue of kin composition and network range. In both time periods, education promotes discussion with both kin and non-family members, with ties outside the family affected most markedly. The different slopes of these two curves mean that at some level of educational achievement the two curves cross. Discussion networks become dominated by people outside one's immediate family. In 1985, this cross occurred at around 13 years of education, a little more than a high school diploma. Discussion networks of those with some college comprised more non-family than family; college graduates had more confidants outside their kin group than inside it. In 2004, the non-kin ties have dropped so much that this crossover is not predicted to occur until a respondent has acquired post-college education. Clearly, the net effect of these changes is

to focus and limit the reach of core discussion networks in the general population.

THE SHAPE OF SOCIAL ISOLATION

Given the close, dense nature of core discussion networks, one might argue that the crucial distinction is not among different network sizes but between those who have *someone* to talk to and those who report *no one* with whom they can discuss matters that are important to them. In Table 5, Model IV, we present a logistic regression analysis that contrasts those who did not name anyone in answer to the name generator (even after the obligatory probe by interviewers) and those who did name a discussion partner. Most of the effects are what we would have expected from our earlier analysis of network size. The data issues operate in the same manner—more cooperative respondents are less likely to be socially isolated, while those who having lots of missing data are more likely to be isolates. More highly educated, younger, currently married people are less likely to be social isolates.

The only notable change from Model III here is that men are *not* significantly more

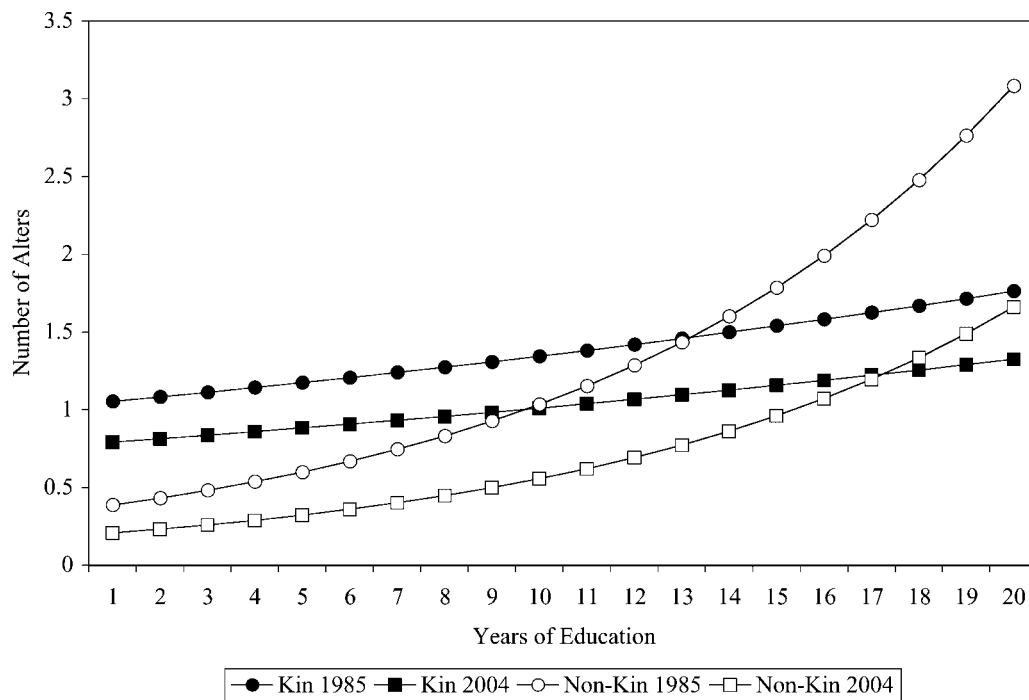


Figure 1. Ego Network Size for Kin and Non-Kin Ties, 1985 and 2004

likely than women to be social isolates in core discussion networks. They may have fewer discussion partners than women, but they nonetheless are as likely to have at least one confidant. Similarly, other-race people are not significantly different from whites (although blacks are still more likely than whites to be isolates).

In the analyses reported in Table 5, we tested for all possible two-way interactions between survey year and predictor variable. In the logistic regression analysis of the probability of being a social isolate, we found an interaction between survey year and education. Model V shows that interaction. The effect of education on the probability of being a social isolate is strong and negative in 1985 (a coefficient of -0.158), and becomes somewhat less negative in 2004 ($-0.158 + 0.099 = -0.059$).

Again, to make the logistic regression coefficients somewhat more vivid, we compute the predicted probability that our white married 25-year-old male high school graduate who is enthusiastically participating in the survey and leaving no missing data would have someone to talk to about important matters in 1985. He

would be virtually assured of a discussion partner (predicted probability of being an isolate = 0.04). The same type of person in 2004 would have a more a ten percent chance of being an isolate (predicted probability = 0.16). Do the same mental experiment and age our 25-year-old to 44 years of age in 2004: we find that his probability of being an isolate would have quintupled from 0.04 to 0.20 .

UNEVENNESS IN THE SOCIAL CHANGE

Given that social change rarely affects the entire population simultaneously, the relative lack of interactions seems somewhat strange. We therefore explore in more depth possible unevenness in the network changes that we observe. While the change is unusually pervasive (probably because of the 19-year gap in our assessment), there are some hints about uneven change in different social groups.

First, there is the statistical interaction between education and year in affecting the probability of social isolation. This interaction is made clearer by inspection of Figure 2, which

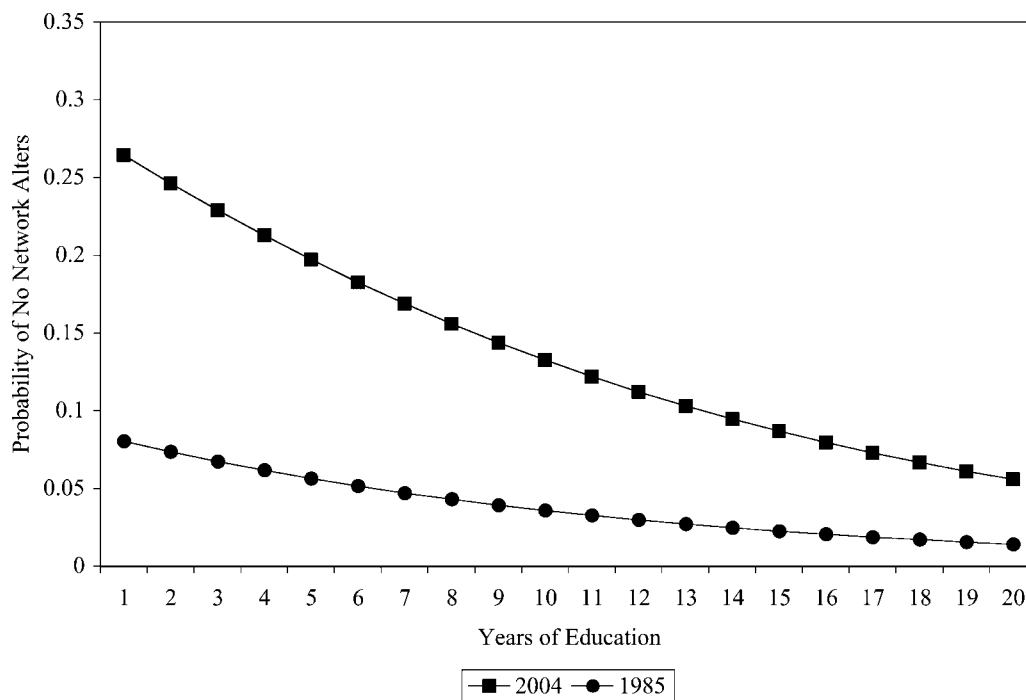


Figure 2. Social Isolation Increases 1985–2004

plots the fitted probability of social isolation across years of education in 1985 and 2004. As the figure shows, there is a very sharp increase in the probability of social isolation for all levels of education, but the greatest change occurs in the middle range of education. In 1985, increasing education led to a sharp decline in social isolation, while that effect is much less evident in 2004. This change is one of the few areas where inequality has gone *down* in our society. Unfortunately, the inequality is decreasing because everyone is getting worse off (if we assume that social isolation is bad).

We also inspected the data for interesting subgroup differences, using the intersection of race, class, and gender as a general guide. The decline in networks is quite uniform, but young (ages 18–39), white, educated (high school degree or more) men seem to have lost more discussion partners than other population groups (from 3.5 in 1985 to 2.0 in 2004). In the next section, we discuss the possible impact of Internet usage on this demographic group. Young, poorly educated (less than high school), white women also experienced a large decline (3.2 to 1.4 alters).

Among African Americans, a gender difference is striking. Older (60+) African American men's networks have declined the most (from 3.6 to 1.8). Among black women, the change is more uniform, with the young experiencing a larger decline than the old. Indeed, black men over 60 are the only sector of the older population that experienced a major decline between 1985 and 2004. Otherwise, the elderly have been more stable than most other groups in their core social connections.¹⁴ This article leaves these possible subgroup changes in core discussion networks to future analyses.

¹⁴ We should note that these observations are effectively discussing a post-hoc five-way (race/class/gender/age/year) interaction. Furthermore, the inspection of such subgroups is complicated by this being a count variable: simple comparisons of means do not have the same interpretation as for interval variables. For example, a change of 1 is a 50 percent change in a network size of 2, but only a 25 percent change in a network of size 4.

DISCUSSION AND CONCLUSIONS

If we assume that interpersonal environments are important (and most sociologists do), there appears to have been a large social change in the past two decades. The number of people who have someone to talk to about matters that are important to them has declined dramatically, and the number of alternative discussion partners has shrunk. In his groundbreaking study of social networks, *To Dwell among Friends*, Claude Fischer (1982:125–27) labeled those who had only one or no discussion ties with whom to discuss personal matters as having marginal or inadequate counseling support. By those criteria, we have gone from a quarter of the American population being isolated from counseling support to almost half of the population falling into that category.

The American population has lost discussion partners from both kin and outside the family. The largest losses, however, have come from the ties that bind us to community and neighborhood. The general image is one of an already densely connected, close, homogeneous set of ties slowly closing in on itself, becoming smaller, more tightly interconnected, more focused on the very strong bonds of the nuclear family (spouses, partners, and parents). The education level at which one is more connected through core discussion ties to the larger community than to family members has shifted up into the graduate degrees, a level of education attained by only a tiny minority of the population. High school graduates and those with some college are now in a very family-dominated social environment of core confidants.

Some of the basic parameters of discussion network structure have moved very little in 19 years. Age and sex heterogeneity of ties has remained remarkably constant, and the decline in educational diversity seems directly linked to the increasing education level of the population. Racial contact in these discussion networks has actually increased. Having a network dominated by family members still increases one's contact with other ages and the other sex, while it makes the interpersonal environment more homogeneous with regard to race. The distinction between family and non-family ties has lost its importance only for education. Where families used to link the more highly educated younger generations to less educated elders,

now kin and non-kin look similar in their educational composition.

If core discussion networks represent an important social resource, Americans are still stratified on education and race. Higher education people have larger networks of both family and non-family members, and their networks have more of the range that tends to bring new information and perspective into the interpersonal environment. Non-whites still have smaller networks than whites. Sex, on the other hand, seems to have lost some of its interpersonal stratifying power in the past 19 years. While women still have marginally larger networks than men and have more discussions about important matters with kin, they no longer show a significant deficit in the number of core contacts outside the family. As a result, women no longer have a significantly more kinship-focused discussion network than men; nor are they significantly less likely than men to be social isolates.

Our final estimates, corrected for response problems and demographic shifts, are that (1) the typical American discussion network has slightly less than one fewer confidant in it than it did in 1985, and (2) that in 2004 an adult, non-institutionalized American is much more likely to be completely isolated from people with whom he or she could discuss important matters than in 1985. Given the size of this social change, we remain cautious (perhaps even skeptical) of its size. The limited network data in 1987 indicate that the proportion of people who answer "no one" and who list relatively large numbers of confidants may be especially sensitive to context effects (see Online Supplement on *ASR* Web site). Given our analyses of the highest-quality nationally representative data available, however, our best current estimate is that the social environment of core confidants surrounding the typical American has become smaller, more densely interconnected, and more centered on the close ties of spouse/partner. The types of bridging ties that connect us to community and neighborhood have withered as confidant networks have closed in on a smaller core group.

Since the GSS has few measures other than demographic characteristics that were asked at both points in time, we are not well positioned to explore the reasons behind the social change. Still, it is useful to speculate (with help from

other literature) to guide future research. Three explanations seem most likely.

The first two possibilities concern how people interpret the question that we asked them, in view of historical and cultural change. What Americans considered important might well have shifted over the past two decades, perhaps as a result of major events (the attacks of 9/11 and the wars that followed). If people think of "important" more in terms of national and world-level events, more people might now think that they have nothing important to say.¹⁵ Since many people interpret the question as simply asking about their close confidants (rather than a particular discussion of important matters), it seems unlikely that such a shift in cultural meaning would have produced such a strong effect. It may, however, have contributed to the pattern.

The second possibility is that the use of the word "discuss" in the question was interpreted by respondents to exclude other forms of communication that are becoming dominant in our contacts with core confidants. Many more people now use cell phones and Internet (email, list serves, chat rooms, and instant messaging) to contact core network members (Wellman et al. 2006; Boase et al. 2006). If people exclude these types of communications when answering the question, it could reduce the number of alters reported.¹⁶

The third possibility is the most substantively interesting. Shifts in work, geographic, and recreational patterns may have combined to create a larger demarcation between a smaller core of very close confidant ties and a much larger array of less interconnected, more geographi-

¹⁵ Bearman and Parigi (2004) found that roughly half of their respondents who reported discussing important matters with no one in the past six months said that they had nothing to say.

¹⁶ The fact that cell phones and Internet communications tend to mirror other channels of communication makes this explanation less plausible as a source of major change. Still, the Pew Internet and American Life project report shows that Americans report an average of 23 core or very close ties (with a median of 15) when the questions includes three elements—the people to whom Americans turn to discuss important matters, with whom they are in frequent contact, or from whom they seek help (Boase et al. 2006).

cally dispersed, more unidimensional relationships. Families, especially families with children, may face a time bind that comes from longer commutes and more work time (Hochschild 1997). As more women have entered the labor force, families have added 10 to 29 hours per week to their hours working outside the home (Jacobs and Gerson 2001; Hout and Hanley 2002). The increase has been the most dramatic among middle-aged, better-educated, higher-income families—exactly the demographic group that fuels the voluntary association system (McPherson 1983; McPherson and Ranger-Moore 1991). The narrowing of the education gap suggests that this group—highly educated middle-class families—is where the declines in the number of core discussion ties have been sharpest. Such families can use new technologies to stay in touch with kin and friends—most notably cell phones and the Internet. While these technologies allow a network to spread out across geographic space and might even enhance contacts outside the home (e.g., arranging a meeting at a restaurant or bar), they seem, however, to lower the probability of having face-to-face visits with family, neighbors, or friends in one's home (Boase et al. 2006; Gershuny 2003; 2and Erbring 2000; Nie, Hillygus, and Erbring 2002).¹⁷ Wellman et al. (2006:10–13) note that Internet usage may even interfere with communication in the home, creating a *post-familial family* where family members spend time interacting with multiple computers in the home, rather than with each other. They suggest that computer technology may foster a wider, less-localized array of weak ties, rather than the strong, tightly interconnected confidant ties that we have measured here.

This may not be all bad, of course, since we know that weak ties expose us to a wider range of information than strong, close ties. We also know, however, that strong ties offer a wider array of support, both in normal times (Wellman and Worley 1990) and in emergencies (Hurlburt

et al. 2000). Only geographically local ties can offer some services and emotional support with ease (Wellman and Worley 1990).

Whatever the reason, it appears that Americans are connected far less tightly now than they were 19 years ago. Furthermore, ties with local neighborhoods and groups have suffered at a higher rate than others. Possibly, we will discover that it is not so much a matter of increasing isolation but a shift in the form and type of connection. Just as Sampson et al. (2005) discovered a shift in the type of civic participation, and the Pew Internet and American Society Report (Boase et al. 2006) showed a shift in modes of communication, the evidence that we present here may be an indicator of a shift in structures of affiliation.

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¹⁷ In our data, we find some suggestion of this time bind effect. Among people who worked either full-time or part-time, the number of hours worked has a significant effect on increasing social isolation. That effect seems to be stronger in 2004 than in 1985 and 1987.

REFERENCES

Bailey, S. and Peter V. Marsden. 1999. "Interpretation

- and Interview Context: Examining the General Social Survey Name Generator Using Cognitive Methods." *Social Networks* 21:287–309.
- Bearman, Peter S. and James Moody. 2004. "Adolescent Suicidality." *American Journal of Public Health* 94:89–95.
- Bearman, Peter and Paolo Parigi. 2004. "Cloning Headless Frogs and Other Important Matters: Conversation Topic and Network Structure." *Social Forces* 83:535–57.
- Bernard, H. R., P. D. Killworth, and L. Sailer. 1982. "Informant Accuracy in Social Network Data: An Experimental Attempt to Predict Actual Communication from Recall Data." *Social Science Research* 11:30–66.
- Boase, Jeffery, John Horrigan, Barry Wellman, and Lee Rainie. 2006. "The Strength of Internet Ties." Washington, DC: Pew Internet and American Life Project, January.
- Bonikowski, Bart and Miller McPherson. 2006. "Voluntary Associations." In *Handbook of 21st Century Sociology*, edited by Dennis L. Peck and Clifton Bryant. Thousand Oaks, CA: Sage.
- Brewer, D. D. 1995. "The Social Structural Basis of the Organization of Persons in Memory." *Human Nature* 6:379–403.
- Burt, Ronald S. 1984. "Network Items and the General Social Survey." *Social Networks* 6:293–339.
- . 1986. "A Note on Socio-metric Order in the General Social Survey Data." *Social Networks* 8:149–74.
- . 1997. "A Note on Social Capital and Network Content." *Social Networks* 19:355–73.
- Fischer, Claude S. 1982. *To Dwell among Friends: Personal Networks in Town and City*. Chicago, IL: University of Chicago Press.
- . 2005. "Bowling Alone: What's the score?" *Social Networks* 27:155–67.
- Freeman, L. C., A. K. Romney, and S. C. Freeman. 1987. "Cognitive Structure and Informant Accuracy." *American Anthropologist* 89:311–25.
- Gershuny, Jonathan. 2003. "Web Use and Net Nerds: A Neofunctionalist Analysis of the Impact of Information Technology in the Home." *Social Forces* 82:141–68.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78:1360–80.
- Hill, R. A. and R. I. M. Dunbar. 2003. "Social Network Size in Humans." *Human Nature* 14:53–72.
- Hochschild, Arlie. 1997. *The Time Bind*. New York: Metropolitan Books.
- Hout, Michael and Caroline Hanley. 2002. "The Overworked American Family: Trends and Non-trends in Working Hours, 1968–2001." Working Paper, Survey Research Center, University of California, Berkeley, CA.
- Hurlbert, Jeanne S., Valerie A. Haines, and John J. Beggs. 2000. "Core Networks and Tie Activation: What Kinds of Routine Networks Allocate Resources in Nonroutine Situations?" *American Sociological Review* 65:598–618.
- Jacobs, Jerry A. and Kathleen Gerson. 2001. "Overworked Individuals or Overworked Families." *Work and Occupations* 28:40–63.
- Kogovšek, Tina and Anuska Ferligoj. 2004. "The Quality of Measurement of Personal Support Subnetworks." *Quality and Quantity* 38:517–32.
- Lin, Nan. 2001. *Social Capital: A Theory of Social Structure and Action*. New York: Cambridge University Press.
- Marin, A. 2004. "Are Respondents More Likely to List Alters with Certain Characteristics? Implications for Name Generator Data." *Social Networks* 26:289–307.
- Marsden, Peter V. 1987. "Core Discussion Networks of Americans." *American Sociological Review* 52:122–31.
- . 2005. "Recent Developments in Network Measurement." Pp. 8–30 in *Models and Methods in Social Network Analysis*, edited by Peter J. Carrington, John Scott, and Stanley Wasserman. New York: Cambridge University Press.
- McPherson, Miller. 1983. "An Ecology of Affiliation." *American Sociological Review* 48:519–32.
- . 2004. "A Blau Space Primer: Prolegomenon to an Ecology of Affiliation." *Industrial and Corporate Change* 13: 263–80.
- McPherson, Miller, Pamela A. Popielarz, and Sonja Drobnic. 1992. "Social Networks and Organizational Dynamics." *American Sociological Review* 57:153–70.
- McPherson, Miller and James Ranger-Moore. 1991. "Evolution on a Dancing Landscape: Organizations and Networks in Dynamic Blau Space." *Social Forces* 70:19–42.
- McPherson, Miller and Lynn Smith-Lovin. 1981. "Women and Weak Ties: Sex Differences in the Size of Voluntary Associations." *American Journal of Sociology* 87:883–904.
- McPherson, Miller, Lynn Smith-Lovin, and James M. Cook. 2001. "Birds of a Feather: Homophily in Social Networks." *Annual Review of Sociology* 27:415–44.
- Moore, Gwen. 1990. "Structural Determinants of Men's and Women's Personal Networks." *American Sociological Review* 55:726–35.
- Nie, Norman H. and Lutz Erbring. 2000. "Our Shrinking Social Universe." *Public Perspective* 11:44–45.
- Nie, Norman H., D. Sunshine Hillygus, and Lutz Erbring. 2002. "Internet Use, Interpersonal Relations and Sociability: A Time Diary Study." Pp. 215–43 in *The Internet in Everyday Life*, edited by Barry Wellman and Carolyn Haythornthwaite. Oxford, England: Blackwell.

- Paxton, Pamela. 1999. "Is Social Capital Declining in the United States? A Multiple Indicator Assessment." *American Journal of Sociology* 105:88–127.
- Putnam, Robert D. 1995. "Bowling Alone: America's Declining Social Capital." *Journal of Democracy* 6:65–78.
- . 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
- Rotolo, Thomas. 1999. "Trends in Voluntary Association Participation." *Nonprofit and Voluntary Sector Quarterly* 28:199–212.
- Rotolo, Thomas and John Wilson. 2004. "What Happened to the 'Long Civic Generation'? Explaining Cohort Differences in Volunteerism." *Social Forces* 82:1091–121.
- Ruan, Danching. 1998. "The Content of the General Social Survey Discussion Networks: An Exploration of the General Social Survey Discussion Name Generator in a Chinese Context." *Social Networks* 20:247–64.
- Sampson, Robert J. 2004. "Neighborhood and Community: Collective Efficacy and Community Safety." *New Economy* 11:106–13.
- Sampson, Robert J. and John H. Laub. 1990. "Crime and Deviance over the Life Course: The Salience of Adult Social Bonds." *American Sociological Review* 55:609–27.
- Sampson, Robert J., Doug McAdam, Heather MacIndoe, and Simon Weffer-Elizondo. 2005. "Civil Society Reconsidered: The Durable Nature and Community Structure of Collective Civic Action." *American Journal of Sociology* 111:673–714.
- Smith, Tom W. 1989. "Thoughts on the Nature of Context Effects." Methodological Report No. 66, National Opinion Research Center, September, Chicago, IL.
- Smith-Lovin, Lynn and Miller McPherson. 1993. "You Are Who You Know: A Network Perspective on Gender." Pp. 223–51 in *Theory on Gender/Feminism on Theory*, edited by Paula England. New York: Aldine.
- Straits, Bruce C. 2000. "Ego's Important Discussants or Significant People: An Experiment in Varying the Wording of Personal Network Name Generators." *Social Networks* 22:123–40.
- Verbrugge, L. M. 1977. "The Structure of Adult Friendship Choices." *Social Forces* 56:576–97.
- Wellman, Barry. 1979. "The Community Question: The Intimate Networks of East Yorkers." *American Journal of Sociology* 84:1201–31.
- Wellman, Barry, Bernie Hogan, Kristen Berg, Jeffery Boase, Juan-Antonio Carrasco, Rochelle Cote, Jennifer Kayahara, Tracy L.M. Kennedy and Phuoc Tran. 2006. "Connected Lives: The Project." In *Networked Neighborhoods*, edited by Patrick Purcell. London: Springer.
- Wellman, Barry and Scot Wortley. 1990. "Different Strokes from Different Folks: Community Ties and Social Support." *American Journal of Sociology* 96:558–88.