

The 2004 GSS Finding of Shrunk Social Networks: An Artifact?

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McPherson, Smith-Lovin, and Brashears (2006, 2008b) reported that Americans' social networks shrank precipitously from 1985 to 2004. When asked to list the people with whom they discussed "important matters," respondents to the 2004 General Social Survey (GSS) provided about one-third fewer names than did respondents in the 1985 survey. Critically, the percentage of respondents who provided no names at all increased from about 10 percent in 1985 to about 25 percent in 2004. The 2004 results contradict other relevant data, however, and they contain serious anomalies; this suggests that the apparently dramatic increase in social isolation is an artifact. One possible source of the artifact is the section of the 2004 interview preceding the network question; it may have been unusually taxing. Another possible source is a random technical error. With as yet no clear account for these inconsistencies and anomalies, scholars should be cautious in using the 2004 network data. Scholars and general readers alike should draw no inference from the 2004 GSS as to whether Americans' social networks changed substantially between 1985 and 2004; they probably did not.

In the June 2006 issue of *ASR*, McPherson, Smith-Lovin, and Brashears (hereafter, MS-LB) reported that in the 2004 General Social Survey (GSS), respondents provided substantially fewer names when asked to list the people with whom they discussed important matters than had GSS respondents in 1985 (McPherson et al. 2006). In particular, the proportion of respondents who gave no names at all more

than doubled from about 1 in 10 to about 1 in 4. The report drew widespread coverage in the general media—for example, in the *New York Times* story, “The Lonely American Just Got a Bit Lonelier” (Fountain 2006) and in a well-publicized book, *The Lonely American: Drifting Apart in the Twenty-First Century* (Olds and Schwartz 2009; see also McPherson, Smith-Lovin, and Brashears 2008a). MS-LB’s recent erratum, which I discuss below, modestly corrected the estimates of “isolated” Americans to 8 percent in 1985 and 23 percent in 2004 (McPherson, Smith-Lovin, and Brashears 2008b), but the claim of substantial shrinkage remains unchanged. In this comment, I show that the question used in the 2004 survey to measure the size of respondents’ networks yielded results that were so inconsistent with other data, and so internally anomalous and implausible, that they are almost surely the product of an artifact. These data do not provide a reliable

Direct correspondence to Claude S. Fischer (fischer1@berkeley.edu). Thanks to Tom Smith for sharing the GSS materials and responding to the concerns described here. I have incorporated the corrections he provided for 41 miscoded cases. Michael Hout supplied key pointers and Rob Mare gave a helpful reading. Exchanges with Lynn Smith-Lovin and Miller McPherson improved my understanding of the issues, and comments by anonymous *ASR* readers were helpful. No one else, of course, is responsible for the interpretations in this comment.

estimate of what happened to Americans' networks between the 1980s and 2004.

Readers deserve to know the history of this controversy. In August 2008, I presented both MS-LB and Tom Smith of the National Opinion Research Center (NORC) with an earlier version of this comment. Much electronic conversation ensued. Smith and his staff scoured their records for evidence of an error. In September 2008, Smith (2008) announced that NORC had discovered 41 cases that had been erroneously coded as giving no names; they should have been coded as missing data. MS-LB's recent erratum (McPherson et al. 2008b) produced tables and figures corrected for this error. But the erratum makes no reference to the wider concerns I had raised in August 2008. The 41 corrected cases help but hardly suffice to account for the anomalies in the 2004 results. The problem is much greater and calls into question the entire conclusion that Americans' networks have shrunk.

THE INITIAL RESULTS

The central network question asked in 1985 and 2004—and in slightly different form in the 1987 GSS—is the following (taken from the GSS codebook):

127. 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? ONLY RECORD FIRST 5 NAMES.

NAME1 _____
 NAME2 _____
 NAME3 _____
 NAME4 _____
 NAME5 _____

The question was followed by this coding scheme, turned into the GSS variable labeled "Numgiven":

128. INTERVIEWER CHECK: HOW MANY NAMES WERE MENTIONED?

| [answer] | [code] |
|----------|--------|
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6+ | 6 |

The interviewer then proceeded to ask detailed questions about each of the persons named in Q. 127. MS-LB analyze these responses in detail, but my concern is with Q. 128, "Numgiven," and especially the number of respondents who were coded zero. (The 1987 GSS used a variant of Q. 127; it differed from the 1985 and 2004 surveys by having interviewers probe for "anyone else" if the initial offerings were fewer than three, rather than five, names.)

Table 1 shows the basic result, corrected for the 41 miscoded cases. In their erratum, MS-LB properly weight the data to describe the general population. They show the 1985 "isolated" as 8.1 percent and the 2004 isolated as 22.6 percent. This is a slightly smaller change, a 2.8-fold increase, than the one displayed in Table 1, a 2.9-fold increase. I do not weight the cases because my interest is in looking at specific, real interviews rather than "constructed" cases. This choice does not affect the conclusions.¹

INITIAL REASONS FOR SKEPTICISM

There are substantive reasons why many sociologists found this result hard to accept, notably (1) the scale of social change suggested by the nearly three-fold increase in social isolation is stunning and hard to explain sociologically and (2) most other indicators of social involvement did not change at all, or nearly as much, in the same period. In *Bowling Alone*, Putnam (2001) presents some evidence—albeit debated by critics—that Americans' social engagement declined from around 1970 through 2000. The scale of change he reports is magnitudes less than the contrast in Table 1 or in McPherson and colleagues (2006).²

THE SCALE OF THE CHANGE

What sociologists know about social change and social networks make the MS-LB results—

¹ McPherson and colleagues (2006: note 4): "The weighting issues, while complex, do not influence the substantive conclusions of our analysis."

² Moreover, many of Putnam's (2001) noted negative correlations between year and social involvement appear only after respondents' education is controlled for; the MS-LB results are raw differences (on critiques, see, e.g., Fischer 2005).

Table 1. Percentage of Respondents Giving No Names to Numgiven Question, by Year

| Question: "Looking back over the last six months—who are the people with whom you discussed matters important to you?" | 1985 | 1987 | 2004 ^a |
|--|------|------|-------------------|
| Percent Giving No Names | 8.9 | 5.4 | 25.0 |

^a Corrected by dropping 41 miscoded cases per Smith (2008). Unweighted.

a near-tripling of isolation—suspect. No social factors that might even plausibly cause such isolation (e.g., rising divorce, economic dislocation, demographic changes, residential moves, television-watching, or women's participation in the labor force) changed to any comparable degree in the same period. One noteworthy development was the introduction of the Internet; it may have been of an appropriately massive scale. Research shows, however, that the Internet has had few—and perhaps positive—effects on social ties (e.g., Bargh and McKenna 2004; DiMaggio et al. 2001; Wellman 2004).

MS-LB are themselves skeptical of the magnitude of the 1985 to 2004 difference; they provide cautions in both the original article and the erratum and they test for possible artifacts (discussed below). Accepting the change as real, MS-LB search for some historical explanation. In the end, they find no variable in the GSS data that can make the statistical effect of year go away—that can, in other words, explain the 1985 to 2004 difference. MS-LB can only speculate about what factors not measured in the GSS affected American society so much that Americans' networks crashed. We are left with no plausible sociological theory for such a drastic social change. Nonetheless, MS-LB told a wide audience—in sociology and beyond—that "the number [*sic*; percentage] of people saying there is no one with whom they discuss important matters nearly tripled. . . . Americans are connected far less tightly now than they were 19 years ago" (McPherson et al. 2006:373).

CONTRADICTIONS IN OTHER DATA

Four measures of social involvement in the GSS itself cast serious doubt on the MS-LB conclusion.³ I focus on the simple dichotomy, whether the respondent was "isolated" (i.e., provided

no names at all) versus not. This is the key difference between the 1985/1987 and 2004 results. The alternative measures discussed here differ from Numgiven and may not be quite as precise measures of network isolation. Still, the proportion of respondents who appear friendless, and the trends in these proportions, can provide a cross-check on the 2004 Numgiven measure.

(1) Social Evenings: The GSS has long asked interviewees how often they "spend a social evening" with relatives, neighbors, or friends outside the neighborhood. The percentages who said never (or once a year) hardly changed between 1985 through 1987 and 2002 through 2006.⁴

(2) Close Friends: In 1986, the GSS asked respondents, "Thinking now of close friends not your husband or wife or partner or family members but people you feel fairly close to . . . [1208.] How many close friends would you say you have?" Five percent said none, 6 percent said one, and 12 percent said two. Two points are worth noting: (1) Even though the question excluded relatives, only 5 percent were "isolated." (2) That 5 percent in 1986 roughly matches the percentage found as isolated using the Numgiven item in both 1985 and 1987. Twelve years later, in 1998, the GSS asked a similar question: "[386a.] Do you have any good friends that you feel close to?" Nine percent said no—identical to the 1985 Numgiven estimate of isolates, but about *one-third* of the 2004 isolates estimated by McPherson and colleagues, which

⁴ The percentages who said "never" in 1985 to 1987 and 2002 to 2006 were, respectively, relatives: 4 versus 3 percent; neighbors: 25 versus 29 percent; and friends: 10 versus 9 percent. Adding those who answered "once a year" to those who answered "never" yields the same pattern. (Cases weighted by "wtsall.") It would be informative to compare how these items correlated with Numgiven in 2004 versus 1985, but these questions were not asked in 2004 of the same subsample of respondents who were asked the network questions.

³ Michael Hout alerted me to some of the GSS items.

was 25 percent. As with the social evening questions, there is no evidence here of network shrinkage.

(3) ISSP Support Question: The GSS administers items from the International Social Survey Programme. In 1986 and 2002, the ISSP asked a question (numbered 1213 and 1239 in the GSS codebook⁵) that comes close to the gist of the Numgiven question: "Now suppose you felt just a bit down or depressed, and you wanted to talk about it. a. Who would you turn to first for help?" In 1986, 2 percent said no one, compared with 4 percent in 2002 (Chi-square $p < .05$).⁶ The upward trend is consistent with MS-LB, but the difference is much smaller.

(4) Keeping in Contact: In 2000, 2002, and 2004, the GSS asked: "[797.] Not counting people at work or family at home, about how many other friends or relatives do you keep in contact with at least once a year?" (Robinson and Martin [2007] report on this item.) Pooling those surveys, only 2 percent of respondents had no annual contacts in the 2000 to 2004 period; the median for those who gave any names is 15.

In 2002 and 2004, a follow-up question raised the standard for a close tie: "[798.] Of these [insert number] friends and relatives, about how many do you stay in contact with by: a. Seeing them socially, face-to-face?" In 2002 and 2004 combined, 6 percent either said they were in contact with no one or that they saw none of their contacts "socially, face-to-face." Recall that this question excludes coworkers and kin at home, including spouses. It is hard to reconcile this 6 percent in 2002 to 2004 with the 25 percent who named no one to the 2004 Numgiven question.

The questioning most comparable to the 2004 Numgiven item appeared in 2002. The introduction was the one above, "Not counting people at work or family at home, about how many other . . . do you keep in contact with." It was

followed in 2002 by this question: "Of these [insert number] friends and relatives, about how many would you say you feel really close to, that is close enough to discuss personal or important problems with?" One percent said no one in answer to the first part, Q. 797, about being in contact, and another 4 percent reported at least one contact but then said they felt "close enough" to discuss problems with no one. This two-part sequence yields only 5 percent isolated, without a confidant, in 2002. And recall that these respondents were told not to include coworkers and kin at home.

To be sure, the 2002 question about contacts respondents felt "close enough to discuss personal or important problems with" and the 2004 Numgiven question are different in various ways. For one, the latter specifies actually having discussed something of importance in the previous six months. Yet the 2002 questions throw out a major chunk of Americans' social networks—their immediate family and coworkers. The contradiction between the 2002 item on discussing problems yielding only 5 percent isolated and the 2004 Numgiven question showing 25 percent isolated is hard to explain except by artifact.

The reader may have noticed that both the Numgiven question and the "how many other . . . do you keep in contact with" question appeared in the 2004 survey. In 2004, 938 respondents answered both questions. (Unfortunately, the 2002 follow-up question—how many of these would respondents discuss important problems with—was not repeated in 2004.) Table 2 presents the cross-classification. For each level of Numgiven, it displays how many "other contacts" respondents reported to Q. 797. The table shows, for example, that of respondents who were coded as zero for Numgiven, 8.4 percent answered zero to the question about contacts. There is an association between the two questions; those who listed more names also estimated more contacts. But the association is remarkably weak. Most important for present purposes, 80 percent of the respondents who presumably gave zero names in answer to the Numgiven network question estimated that they had at least three people—aside from coworkers or family at home—with whom they kept in contact. In the full table (not shown here), the median for the 225 respondents in the zero column for Numgiven is 10. Borrowing informa-

⁵ The items differed slightly in the coding of the answers, not in the question.

⁶ Two similar questions appeared in both 1986 and 2002 and show the same slight trend. One asked who would help around the house should the respondent be ill. In 1986, 1 percent said no one, compared with 2.5 percent in 2002 ($p < .001$). In 1986, 4 percent said there was no one from whom they could borrow a large sum of money, compared with 12 percent in 2002 ($p < .001$).

Table 2. Percentage of Respondents by Number of “Contacts” They Estimated, by Number of Names They Gave to the Numgiven Question, 2004

| Number Respondent Estimated in Answer to “Contacts” Question | Number of Names Respondent Gave in Answer to Network Question (Numgiven) | | | |
|--|--|--------|---------|----------|
| | No Names | 1 Name | 2 Names | 3+ Names |
| No Contacts | 8.4 | 1.6 | 2.7 | 1.5 |
| 1 Contact | 5.8 | 5.9 | 1.1 | .9 |
| 2 Contacts | 5.8 | 4.8 | 3.8 | 3.5 |
| 3+ Contacts | 80.0 | 87.7 | 92.4 | 94.2 |
| N | 225 | 187 | 184 | 342 |

Notes: The contacts question is “Not counting people at work or family at home, about how many other friends or relatives do you keep in contact with at least once a year?” The network question is quoted in Table 1. Data corrected by dropping 41 miscoded cases per Smith (2008).

tion from the 2002 survey, we can estimate that, had the respondents in 2004 also been asked the 2002 follow-up about discussing personal problems, only 3 percent of them would have reported that they had no one to talk to⁷—compared with the roughly 25 percent figure from Numgiven.

Finally, McPherson re-interviewed 839 of the 2004 GSS’s original 1,467 respondents in 2006. These respondents agreed to be re-interviewed by telephone and were re-asked the Numgiven question. The results are that these

2006 respondents “in comparison with the 1985 respondents [show] modest significant changes, or negligible changes 1985–2004, depending on the model.”⁸ That is, the answers to Numgiven of 2004 respondents re-interviewed in 2006 were more like the 1985 respondents’ answers than to their own answers in 2004. McPherson points out reasons, in addition to the high attrition, that may explain why the re-interviewees gave substantially more names in answer to the Numgiven question in 2006.⁹ Nonetheless, these data further contradict the conclusions MS-LB drew from the 2004 data.

Other independent estimates of isolation for around 2004 are also much lower than that of MS-LB. For example, the 2006 Saguro Seminar Community Survey reports that 3 percent of their respondents said they had nobody to confide in (Q. 54; Saguro Seminar 2006). Cornwell, Laumann, and Schumm (2008) conducted a survey of 57- to 85-year-olds with a network question similar to Numgiven, but asking about the previous 12 months and leading off the survey. They found a mean size of 3.6 names,

⁷ Using the 2002 GSS data, I ask: What percentage of respondents who estimated keeping in contact with only one person then said they had no one to discuss problems with when asked “Of these, . . . about how many would you say you feel . . . close enough to discuss personal or important problems with?” What proportion of those who estimated two contacts then said they had no one to discuss problems with? What proportion of those who named three or more people? I apply the 2002 ratios to the 2004 distribution for the initial “how many . . . keep in contact” question. We can then infer that in 2004, about 22 percent of those who estimated one contact, 12 percent of those who estimated two contacts, and 3 percent of respondents who estimated three or more contacts would have gone on to say that they felt close enough to discuss personal problems with no one. Combined with Table 2, roughly 12 percent of those who were coded zero on Numgiven would have been coded zero on whom (outside of coworkers and coresident family) they felt close enough to discuss personal matters. All together, 3 percent of all the 2004 respondents would have been without such a confidant according to these questions, compared with 25 percent estimated from Numgiven.

⁸ Miller McPherson, personal communication, September 21, 2008; also sent to the GSS Board of Overseers on October 24, 2008.

⁹ McPherson points to the difference between using telephones in 2006 versus face-to-face interviews in 2004 (although see note 14 for a discussion of a possible telephone effect), the publicity about the MS-LB report at the time of the 2006 interviews, demographic differences between the 2006 and 2004 pools, fatigue effects in 2004 as a result of the preceding battery of questions (much discussed later in this comment), and attrition.

Table 3. Percentage of Respondents Who Gave No Names to the Numgiven Question, by the Number of Types of Organizations They Belonged to, by Year

| Number of Types of Organizations Respondent Belonged To | 1987 | 2004 ^a |
|---|------|-------------------|
| No Organizations | 8.3 | 33.8 |
| 1 Type | 4.4 | 24.9 |
| 2 Types | 5.4 | 15.6 |
| 3 Types | 1.9 | 19.5 |
| 4+ Types | 2.8 | 14.9 |

^a Corrected by dropping 41 miscoded cases per Smith (2008).

which they note (p. 192) is much higher than that of the 2004 GSS (2.1 for the same age group).

Clearly, there are both theoretical and empirical reasons for considerable skepticism about MS-LB's conclusion, even in their erratum, that there was "a significant increase in the number of people who report that they do not discuss important matters with anyone." The anomalies in the 2004 Numgiven data, to which I will now turn, are even more striking.

ANOMALIES

Some results from the 2004 GSS Numgiven data make little sociological sense; they render the main findings—that Americans' networks shrank greatly—not impossible, but highly implausible. Again, I focus on the simple dichotomous dependent variable: the respondent was coded as having given no names versus 1+ names. I analyze the 1987 data, as well as the 1985 data where possible. The three years' data are roughly parallel through the Numgiven question and then differ at the follow-up probe. (In 1985 and 2004, interviewers were supposed to ask for more names if the respondent stopped at fewer than five, and in 1987, if the respondent stopped at fewer than three.)

ANOMALY 1: ORGANIZATIONAL MEMBERSHIPS

The 2004 GSS asked the Numgiven question near the end of the interview and after a heavy battery of questions concerning organizational membership. This turns out to be important in trying to understand the artifacts in the data, and I will return to it again. For now, consider Table 3, which displays the percentage of respondents coded as giving no names to Numgiven cross-classified by the number of types of organizations to

which they belonged, repeated for 1987 and 2004. (The 1985 GSS did not ask about organizations.) We see, for example, that in 1987, 8.3 percent of respondents who reported no organizational memberships reportedly gave no names in answer to Numgiven, 4.4 percent of those who belonged to one type of organization reportedly gave no names, and so on. In striking contrast, in 2004, almost 15 percent or more of respondents who belonged to two, three, or four or more types of organizations supposedly listed no one in answer to Numgiven—14.9 percent among members of 4+ types ($n_{2004} = 221$), compared with under 3 percent in 1987 ($n_{1987} = 250$). Under what plausible sociological theory could five times as many hyper-social respondents, respondents who were willing to report in detail about their organizations, claim *no* confidants in 2004?

ANOMALY 2: COOPERATIVENESS

Table 4 displays the percentage of respondents who were coded zero in Numgiven by the interviewers' ratings of their cooperativeness. The striking point here is that 23.7 percent of "friendly, interested" respondents in 2004 were coded zero, compared with 6.0 and 3.7 percent in the two 1980s surveys ($N > 1200$ each year). This is a roughly five-fold increase among the most forthcoming respondents.

ANOMALY 3: EDUCATION

Educational attainment is the best predictor of whether respondents gave any names. Table 5 displays the pattern. Note, in the bottom row, that in 2004 about 16 percent of respondents with postgraduate degrees were recorded as giving no names ($N = 142$). In the 1980s, only two postgraduate respondents were coded as zero—one in each year ($N = 90, 86$). The data imply a roughly 15-fold increase in the likeli-

Table 4. Percentage of Respondents Who Gave No Names to the Numgiven Question, by Interviewers' Rating of Their Cooperativeness, by Year

| Interviewer's Rating of Respondent | 1985 | 1987 | 2004 ^a |
|------------------------------------|------|------|-------------------|
| Restless, impatient, hostile | 32.1 | 20.7 | 57.5 |
| Cooperative | 17.6 | 7.9 | 25.9 |
| Friendly, interested | 6.0 | 3.7 | 23.7 |

^a Corrected by dropping 41 miscoded cases per Smith (2008).

Table 5. Percentage of Respondents Who Gave No Names to Numgiven Question by Educational Attainment, by Year

| Respondent's Highest Degree | 1985 | 1987 | 2004 ^a |
|-----------------------------|------|------|-------------------|
| Less than high school | 18.2 | 11.1 | 34.8 |
| High school | 6.9 | 3.8 | 28.0 |
| Junior or some college | 1.7 | 5.2 | 25.7 |
| Bachelor's degree | 2.3 | 2.6 | 14.6 |
| Postgraduate degree | 1.1 | 1.2 | 16.2 |

^a Corrected by dropping 41 miscoded cases per Smith (2008).

Table 6. Percentage of Respondents Who Gave No Names to Numgiven Question by Marital Status, by Year

| Respondent's Marital Status | 1985 | 1987 | 2004 ^a |
|-----------------------------|------|------|-------------------|
| Married | 6.6 | 3.6 | 22.2 |
| Widowed | 21.4 | 9.4 | 31.3 |
| Divorced | 8.3 | 5.5 | 25.7 |
| Separated | 20.0 | 10.8 | 29.8 |
| Never married | 6.7 | 6.3 | 28.7 |

^a Corrected by dropping 41 miscoded cases per Smith (2008).

hood of giving no names among that highly sociable group. This oddity accounts for a finding emphasized by MS-LB, the closing of the gap in network size by respondent education between 1985 and 2004.

ANOMALY 4: MARITAL STATUS

Table 6 displays the percentage coded as Numgiven equals zero by respondents' marital status. Notice (1) about 22 percent of married respondents presumably gave no names in 2004, compared with about 5 percent in 1985 and 1987 combined; and (2) the differences among marital categories essentially wash out in 2004.¹⁰

¹⁰ A simple test is to apply an anova to each column of Table 6. For 1985 and 1987, the marital effects are significant at least at $p < .002$. For 2004, they are not significant ($p = .083$).

The 22 percent rate for 2004's married interviewees is striking. Why would these respondents not at least mention their spouses? We can ask: What percentage of married respondents did *not* list their spouses? Table 7, line A, provides the answer: about 42 percent of the 2004 married respondents failed to name their spouses, compared with about 30 percent in the 1980s. Perhaps this finding reflects something about the way interviewers asked the question; maybe in 2004 they implied that spouses should not be named. But line B in Table 7 discounts that explanation: among respondents who gave any names at all to the interviewer, the proportion who failed to include their spouses was about the same across all years. This suggests that the 2004 application did not have an anti-spouse bias. More important, it strengthens the emerging pattern, that the critical difference between 2004 and the earlier years was in the mentioning of any names at all, in the zero category. To

Table 7. Percentage of Married Respondents Who Did *Not* List a Spouse in Response to Numgiven, by Year

| | 1985 | 1987 | 2004 ^a |
|--|------|------|-------------------|
| (A) Among all married respondents | 32.5 | 25.5 | 41.9 |
| (B) Among married respondents who listed at least one name | 27.8 | 22.7 | 25.3 |

^a Corrected by dropping 41 miscoded cases per Smith (2008).

return to the key point: one-fifth of married respondents in 2004 failed to mention *anyone* as a confidant. This represents a four-fold increase over the 1980s for a category of people who were living with a confidant.

PROVISIONAL CONCLUSION AND HYPOTHESIS

These four anomalies are most puzzling. Subgroups one would expect to be rarely isolated, and which were rarely isolated in 1985 and 1987, had rates of isolation in 2004 of about 15 percent or higher. *Indeed, among the 88 respondents in 2004 who were (1) married, (2) holders of postgraduate degrees, and (3) rated as "friendly" by the interviewers, 18 percent named no one in answer to the network question. In the 1980s surveys, none of the 102 respondents in that select group failed to give at least one name.*¹¹ As a consequence, differences in isolation by organizational membership, education, cooperation, and marital status narrowed in the 2004 survey. A logit model predicting the probability that a respondent gave no names explains considerably less of the variation in the 2004 data than in the 1980s data (even though the 2004 distribution is much less skewed).¹² It is, of course, possible that an as yet unidentified social change between 1985 and 2004 severely and disproportionately cut the social ties of educated, cooperative, married,

and club-joining Americans—but it is an implausible (and inefficient) explanation.

The most parsimonious explanation for these anomalous results is this: for some reason, a random set of the 2004 respondents, roughly 15 to 20 percent of them, were coded as having given no names to Numgiven even when they did or would have given one or more names. (Smith [2008] identified only 41 respondents who had refused to answer and were coded zero.) This would explain not only the gross change from 1985 to 2004 in percentage of respondents coded zero, but also why in virtually every subcategory of any size among the 2004 respondents—married, postgraduates, and so on—about 15 percent or more were coded zero.

SEARCHING FOR THE ARTIFACT

MS-LB are themselves somewhat dubious of their results; “given the size of this social change, we remain cautious (perhaps even skeptical) of its size” (McPherson et al. 2006:372). They consider several possible artifacts.

STUDY DESIGN

MS-LB reject the suggestion that the designs of the 1985 and 2004 surveys differed significantly: “Interviewer training and probe patterns also were very similar across the two surveys” (McPherson et al. 2006:364). They also find sampling frame and response rate differences to be unlikely explanations. More recently, McPherson examined interviewer effects within the 2004 survey (personal communication), but it is hard to see how that could explain much of the 1985 to 2004 difference.

CONTEXT AND TRAINING EFFECT

MS-LB point to a crucial difference between the 1985 and 2004 surveys: in 2004, the network item followed a sequence of questions asking

¹¹ I dropped two of the original 90 cases from 2004 as a result of the Smith (2008) correction.

¹² Regressing the dichotomy, gives no names versus any names, on cooperativeness, race (black), education (four dummies for degree attained), age and age-squared, and marital status (dummy for married versus not), yields the following results: (1985) Log Likelihood = -369, pseudo R-squared = .171; (1987) Log Likelihood = -325, pseudo R-squared = .116; and (2004) Log Likelihood = -755, pseudo R-squared = .050 (corrected for the 41 miscodes).

respondents about the organizations to which they belonged. Perhaps respondents learned during this segment that affirming membership in any organization led to their being asked many more questions, often intrusive ones. Some interviewees may, therefore, have subsequently reacted to the network question that immediately followed by giving no or few names to avoid detailed questions or simply to get the long interview over with. To test this possibility, MS-LB turned to the 1987 version of “Numgiven,” because that survey preceded Numgiven with a (shorter) set of organization questions. (MS-LB do not otherwise analyze the 1987 data, except in an appendix, because, as previously noted, the 1987 survey asked respondents to describe their first three, rather than first five, associates.) As we saw in Table 1, the 1987 results are comparable to the 1985 results and both differed greatly from 2004. MS-LB therefore conclude that the 2004 organizational module cannot explain the reduction in names from 1985 to 2004.

However, MS-LB significantly understate the differences between the 2004 and 1987 organizational questions; the 2004 series was much more burdensome. In 2004, but not in 1987, the GSS asked respondents to not only indicate what types of organizations they belonged to, but also to distinguish specific organizations within the types (e.g., to count how many hobby clubs they belonged to). Even more critically, in 2004 but not in 1987, the GSS asked for the name, address, telephone number, and Web site of one specific, randomly selected organization—and for the name and telephone number of a leader in that organization. One can reasonably suspect that the extended questioning and the greater intrusiveness of the 2004 version, although surely valuable for studying organizations, made some respondents reluctant to provide even just the first names or initials of many confidants, if any at all.

Such a “training effect” remains a leading explanation for the exceptionally high percentage of respondents coded as offering no names in 2004. Smith (2008) describes the 41 miscoded respondents as disproportionately composed of organization members who refused to provide follow-up information on their organizations. He speculates that others may have opted out of the network question, not by refusing to answer, but by simply answering “no

one” to Numgiven.¹³ (At this writing, the GSS Board of Overseers, in an effort to explain the 2004 results, has approved a survey experiment in the 2010 GSS to test this hypothesis and the fatigue hypothesis discussed next.)

One comparison between the 1987 and 2004 results, however, suggests that the contextual difference may not suffice to explain the large difference in the percentage coded as zero on Numgiven. (The context may explain why the 2004 respondents who gave at least one name gave fewer names on average than did the 1985/1987 respondents, but I have not explored that issue.) If respondents gave no organizations in response to the question asking about memberships, then they were not exposed, in either 1987 or 2004 (nor, of course, in 1985 when membership was not asked) to the follow-up questions on organizations; they were not “trained” to avoid such questions. Table 3 shows that even among respondents who reported belonging to no organizations in 1987 or 2004, roughly four times as many respondents in 2004 gave no names in answer to “Numgiven.” This finding suggests that a training effect may not suffice to explain the 1985/1987 versus 2004 differences.

FATIGUE

MS-LB also consider the possibility that the 2004 network question had many defectors because it came so late in the interview—essentially at the end, before the income questions. To test that idea, they examine whether missing data in previous modules affected respondents’

¹³ “Thus what distinguishes the [41] errant cases is that they tended to have objected to providing detailed information on the groups they belonged to and people they discussed important personal matters with. . . . [T]his connection between the group items and the social-network questions raises the possibility that others who wanted to minimize follow-up questions asking about details of their interpersonal contacts in general and those who had answered group-membership, follow-up questions, including the hypernetwork battery [the questions asking for organizational names and places] in particular, might have reported they had not discussed an important personal matter with anyone as another way of skipping out of follow-up questions” (Smith 2008:2).

cooperation. The answer was: not nearly enough to explain the drop-off in names between 1985 and 2004. They also examine whether interviewers' ratings of interviewees' cooperativeness account for the 2004 results. That is, did respondents' resistance increase over the years? Again, the answer is no, as we saw in Table 4.

In these ways, MS-LB, skeptical of their own results, tried strenuously to check for artifacts. They failed to identify any, although they may not have adequately dismissed the possibility that the 2004 organization questions "trained" respondents to say no.¹⁴ The core finding of a huge decline in Americans' number of confidants remains both sociologically stunning and unexplained.

A RANDOM ERROR?

Earlier, I suggested there may have been a technical error—in the software for the computer-assisted interviewing, in interviewer procedures, or in coding—that, in effect, randomly recoded respondents to zero on Numgiven. I advance this hypothesis because of the pattern in anomalous results in which at least 15 to 20 percent of virtually every subgroup, including members of four or more organizations and the married, friendly, postgraduates, were coded as isolated. Here, I pursue this hypothesis by a rough simulation.

(1) Assume that the "true" 2004 distribution of respondents across categories of Numgiven, from 0 through 6+, is identical to that in 1985. (2) Assume that 20 percent of all respondents in 2004 were randomly coded as having given no names, whatever they actually said. I take the 1985 distribution and move 20 percent of the cases out of each category and move them all into the zero category as a simulation of what the 2004 distribution would look like if the only true change were this error. (This simulation cannot be done with the 1987 data, because in that survey interviewers did not encourage more

than three names.) Table 8 shows the resulting distribution.

Although the simulated and observed 2004 distributions still differ somewhat, with the observed one skewed more to lower categories, the simulation is nonetheless a reasonably close fit. This exercise does not take into account other factors—that only the 2004 survey asked respondents intensive questions about organizations, other methods differences, demographic changes, true historical changes, or the possibility that the random error was not exactly 20 percent (perhaps it was 14.9 percent; see Table 3). Given all that, the fit is close enough.

Another sort of simulation addresses the MS-LB finding (replicated above; see note 12) that in 2004 the associations between giving any names and predictor variables were weaker than in the earlier surveys. Table 9 presents a simulation of the association between college graduation and giving no names. It shows the results for 1985, a simulated 2004, and the real 2004 data. The simulated 2004 table is the same as the 1985 table, except that 20 percent of the respondents who gave one or more names to Numgiven are transferred to the no-names row. One sees the strong association between education and naming in 1985 ($\gamma = -.71$; Odds Ratio = .17). The effect of a random 20 percent redistribution to the "no names" category to create a simulated 2004 table weakens the association ($\gamma = -.18$, OR = .70) and approaches the observed 2004 cross-tabulation ($\gamma = -.39$, OR = .44).

Table 10 summarizes the results of conducting this sort of simulation for four predictor variables, using both 1985 and 1987 for the simulation. (I can use the 1987 GSS here because the dependent variable is not the number of names but simply 0 versus 1+.) The important comparison is between the last column, observed 2004 associations, and the two columns to the left, simulated 2004 associations based on the 1985 and 1987 results with their 20 percent redistributions. For the most part, the simulations come close to the observed. One noteworthy exception is the effect of being black, which is considerably stronger in 2004 than the simulation expects.

MS-LB's results, both the distribution of respondents by number of names and the associations of key variables with giving any names, can thus be approximated without assuming

¹⁴ An additional possibility is mode of interview. Although the GSS is primarily face-to-face, in 2004, 22 percent of the interviews were conducted or completed on the telephone with hard-to-reach respondents. There was no zero-order difference in the percentage of isolates in the two formats.

Table 8. Simulation: Percentage of Respondents by the Number of Names They Gave to the Numgiven Question; 1985, Simulated 2004, and 2004

| Number of Names Given to Numgiven Question | Observed 1985 | Simulated 2004 ^a | Observed 2004 ^b |
|--|---------------|-----------------------------|----------------------------|
| No Names | 8.9 | 27.1 | 25.0 |
| 1 Name | 14.9 | 11.9 | 19.7 |
| 2 Names | 15.3 | 12.3 | 18.4 |
| 3 Names | 21.0 | 16.8 | 16.3 |
| 4 Names | 15.2 | 12.2 | 9.0 |
| 5 Names | 19.2 | 15.4 | 6.7 |
| 6+ Names | 5.5 | 4.4 | 4.9 |

^a Simulated by subtracting 20 percent of each 1985 cell and moving it to the “No Names” row.

^b Corrected by dropping 41 miscoded cases per Smith (2008).

Table 9. Simulation: Cross-tabulation of Giving No Names to Numgiven by Respondent’s Highest Degree; 1985, Simulated 2004, and 2004

| | Percentage Who Gave 1+ Names versus No Names | | | | | |
|---------------|--|------|-----------------------------|------|----------------------------|------|
| | 1985 | | Simulated 2004 ^a | | Observed 2004 ^b | |
| | < BA | BA+ | < BA | BA+ | < BA | BA+ |
| Gave 1+ Names | 89.7 | 98.1 | 71.8 | 78.5 | 71 | 84.9 |
| Gave No Names | 10.3 | 1.9 | 28.2 | 21.5 | 29 | 15.1 |

^a Simulated by taking 20 percent of the upper row in the 1985 table and adding it to the lower row.

^b Corrected by dropping 41 miscoded cases per Smith (2008).

Table 10. Simulations of Associations Between Giving No Names and Predictor Variables (Gammas)

| Predictor Variable | 1985 | 1987 | 2004 | | |
|---------------------------------|------|------|---------------------|---------------------|-----------------------|
| | | | Simulated from 1985 | Simulated from 1987 | Observed ^a |
| Respondent had college degree | -.71 | -.49 | -.18 | -.09 | -.39 |
| Respondent was married | -.32 | -.36 | -.11 | -.08 | -.16 |
| Respondent was black | .57 | .44 | .27 | .12 | .45 |
| Respondent was very cooperative | -.60 | -.50 | -.27 | -.14 | -.18 |

Note: Simulations follow procedure in Table 9 for each underlying 2×2 table used to generate the associations.

^a Corrected by dropping 41 miscoded cases per Smith (2008).

any real historical change and by assuming only that (1) American social networks in 2004 were the same as those in 1985 and (2) for some reason a random 20 percent of the 2004 respondents were erroneously recorded as giving zero names. Any other effects, be they technical or substantive, would be relatively minor compared with this one. Perhaps both sorts of factors—a training or fatigue effect from the 2004 organizational questions and a random error—were at work. For example, one or more tech-

nical errors may have inflated the number of respondents coded as having no confidants, while a contexts or fatigue effect depressed the number of names given by those who gave any names at all. If we combine artifacts with any kind of modest substantive changes—for example, a growing gap between the more and less educated, or between blacks and whites—then we could imagine fully accounting for the observed 1985 to 2004 differences without assuming that “Americans are connected far

less tightly now than they were 19 years ago” (McPherson et al. 2006:373).

CONCLUSION AND LESSONS LEARNED

Although the “smoking gun” artifact has not yet been found,¹⁵ we can only conclude that the 2004 results, even after the MS-LB erratum, are *highly implausible*. The best estimate is that the “true” percentage of 2004 respondents who were isolated was roughly the same—or perhaps less—than the percentage in 1985/1987, somewhere under 10 percent.¹⁶

Beyond its details, this case reinforces a few lessons. One is the importance of early, close, exploratory data analysis to check one’s data for anomalies, outliers, coding problems, and the like. Any scholar who has done much statistical work will have been tripped up by such a problem. (I have tripped and can expect to again.) Another is the importance of replication to ensure that our findings are robust. The public availability of researchers’ data—and here, the GSS is especially commendable—is critical to the scientific cross-checking process.¹⁷ Results that seem too good or too strong to be true probably are and need particularly thorough scrubbing, especially those that will find their way into the general media.

One point on network research in particular: there are potential problems with using a single probe—discussing “important matters”—for

eliciting the people in respondents’ networks.¹⁸ This item is vulnerable to significant “noise” and contextual effects (Bailey and Marsden 1999; Bearman and Parigi 2004). One might speculate, for example, that being questioned during a spring full of heated discussion about war and presidential primaries may have led many respondents to interpret “important matters” as political matters. In any event, a more diverse battery of questions would probably yield more robust measures.

Those skeptical of the MS-LB report owe the authors at least a suggestion for how those results could have obtained if Americans’ social networks had in fact not changed. MS-LB certainly tried to explain the great contrast between the 1985 and 2004 results. Nonetheless, whatever the explanation for the 2004 results that will (hopefully) emerge, reports on those findings continue to hang out in public where the latest word is that American social networks crumbled between the 1980s and 2004. Because those results are hard to explain sociologically, are inconsistent with other findings, and have major internal anomalies, that conclusion now appears implausible. Pending the release of further results and further studies of the matter by the GSS, the best statement social scientists can make is that we do not know whether or how American social networks, as measured by the 2004 Numgiven item, changed between 1985 and 2004. I would further venture that our best estimate, drawing on other data, is that they changed little.

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¹⁵ To date, Tom Smith has been unable to track down any further technical problem beyond the 41 miscoded cases.

¹⁶ I made an effort to estimate the true 2004 value. In the 1985 data, I regressed respondents’ network sizes on basic demographic variables and on four sociability questions (how often the respondent got together with relatives, friends, neighbors, or went to a bar). The equation explains 15 percent of the 1985 variance. Substituting the 2004 means for those of the 1985 predictor variables yields a predicted mean for “Numgiven” of 3.2 (versus an observed mean of 2.0). Even if we imagine that educational attainments did not change between 1985 and 2004, the predicted mean for “Numgiven” is 3.0, the same as the observed 1985 mean.

¹⁷ For earlier cases in this vein, see, for example, Kahn and Udry (1986) and Jasso (1986); Peterson (1996) and Weitzman (1996).

¹⁸ This item is derived from the bank of about 10 name-eliciting questions used in Fischer (1982). Methodological tests of these questions show that the set could reliably describe respondents’ networks, but that any single question has a high error rate (Jones and Fischer 1978). In particular, there is a “difference between the method’s accuracy with regard to the names given in answer to specific questions and its accuracy with regard to the names as a whole. Our analyses of the pilot surveys show that there were notable reliability problems in clearly specifying who provided what. . . . But the reliability of the whole list was greater. . . . Associates missed by the specific question tended to be picked up somewhere else in the interviews” (Fischer 1982:289–90).

To Dwell Among Friends: Personal Networks in Town and City (1982); America Calling: A Social History of the Telephone to 1940 (1992); with five Berkeley colleagues, Inequality by Design: Cracking the Bell Curve Myth (1996); and with Michael Hou, Century of Difference: How America Changed in the Last One Hundred Years (2006). A forthcoming book is tentatively titled Made in America: A Social History of American Culture and Character (University of Chicago Press).

REFERENCES

- Bailey, Stefanie and Peter V. Marsden. 1999. "Interpretation and Interview Context: Examining the General Social Survey Name Generator Using Cognitive Methods." *Social Networks* 21:287–309.
- Bargh, John H. and Katelyn Y. A. McKenna. 2004. "The Internet and Social Life." *Annual Review of Psychology* 55:573–90.
- Bearman, Peter and Paolo Parigi. 2004. "Headless Frogs and Other Important Matters: Conversation Topics and Network Structure." *Social Forces* 83:535–57.
- Cornwell, Benjamin, Edward O. Laumann, and L. Philip Schumm. 2008. "The Social Connectedness of Older Adults: A National Profile." *American Sociological Review* 73:185–203.
- DiMaggio, Paul, Eszter Hargittai, W. Russell Neuman, and John P. Robinson. 2001. "Social Implications of the Internet." *Annual Review of Sociology* 27:307–36.
- 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.
- Fountain, Henry. 2006. "The Lonely American Just Got a Bit Lonelier." *New York Times*, July 2.
- Jasso, Guillermina. 1986. "Is It Outlier Deletion or Is It Sample Truncation? Notes on Science and Sexuality." *American Sociological Review* 51:738–42.
- Jones, Lynne [McCallister] and Claude S. Fischer. 1978. "A Procedure for Surveying Personal Networks." *Sociological Methods and Research* 7:131–48.
- Kahn, Joan R. and J. Richard Udry. 1986. "Marital Coital Frequency: Unnoticed Outliers and Unspecified Interactions Lead to Erroneous Conclusions." *American Sociological Review* 51:734–37.
- McPherson, Miller, Lynn Smith-Lovin, and Matthew Brashears. 2006. "Social Isolation in America: Changes in Core Discussion Networks over Two Decades." *American Sociological Review* 71:353–75.
- . 2008a. "The Ties that Bind Are Fraying." *Contexts* 7(3):32–36.
- . 2008b. "ERRATA: Social Isolation in America: Changes in Core Discussion Networks over Two Decades." *American Sociological Review* 73(6):1022.
- Olds, Jacqueline and Richard S. Schwartz. 2009. *The Lonely American: Drifting Apart in the Twenty-First Century*. Boston, MA: Beacon Press.
- Peterson, Richard R. 1996. "A Re-evaluation of the Economic Consequences of Divorce." *American Sociological Review* 61:528–37.
- Putnam, Robert D. 2001. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
- Robinson, John P. and Steven Martin. 2007. "IT and Activity Displacement: Behavioral Evidence from the U.S. General Social Survey (GSS)." Paper presented to the 63rd Annual AAPOR Conference.
- Saguro Seminar. 2006. "2006 Social Capital Survey." Harvard Kennedy School. Retrieved December 14, 2007 (<http://www.ksg.harvard.edu/saguro/2006sccs.htm>).
- Smith, Tom. 2008. "2004 Social-Network Module, Draft 9/08." Memorandum, National Opinion Research Center (September 22).
- Weitzman, Lenore J. 1996. "The Economic Consequences of Divorce Are Still Unequal: Comment on Peterson." *American Sociological Review* 61:537–39.
- Wellman, Barry. 2004. "Connecting Communities: On and Offline." *Contexts* 3(4):22–28.