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Abstract

Using recently collected data from the 2006 General Social Survey, we compare levels of segregation by race and along other dimensions of potential social cleavage in the contemporary United States. Americans are not as isolated as other recent evidence suggests. However, hopes that “bridging” social capital is more common in broader acquaintanceship networks than in core networks are not supported by the GSS data. Instead, the entire acquaintanceship network appears to be as segregated as the more restricted and much smaller network based on trust. Social divisions based on religiosity, political ideology, family behaviors and socioeconomic standing are high and in some cases rival racial segregation in their intensity. The major challenge to social integration today comes less from the risk of social isolation – complete isolation is rare – than from the tendency of many Americans to isolate themselves from others who differ on race, political ideology, level of religiosity, and other salient aspects of social identity.

Introduction

Scholars have long recognized that Americans are socially divided along multiple dimensions. It is generally believed that social interaction is most highly segregated along racial lines, but other forms of segregation have received increased attention in the past decade. Skocpol & Fiorina (1999), for example, contend that patterns of civic engagement have become more polarized by class, while Evans (2003) and Rosenthal (2004) argue that Americans have become more polarized by political ideology. Political conflict between proponents of secular and religiously orthodox values has been especially prominent since the Reagan presidency (Green, 1996; Brooks, 2002). Coupled with this concern about high levels of segregation and polarization in contemporary American society is new evidence that close ties even to people like oneself have diminished in the past twenty years (McPherson *et al.* , 2006).

Given the level of interest in the topic of social integration, it is remarkable how little hard evidence we have about the extent to which Americans have contact with people who differ from them on core status and values dimensions. Most studies use indirect measures, or focus exclusively on friendships, or the “core” social networks of Americans, or other operationalizations for the set of people to which one has strong ties. Little is known about how religion, political ideology, or social class structure the broader acquaintanceship networks of Americans. In light of the huge number of studies that focus on residential segregation, it is ironic but true that the same can be said about racial segregation in acquaintanceships. As a consequence, we do not know whether religion, class, or political ideology rival race in shaping everyday patterns of social interaction. We do not know whether Americans have more integrated social networks at their workplace and in voluntary associations than they do in their families or neighborhoods. These questions are the focus of much speculation, but there is little hard knowledge about their answers.¹

Using recently collected data from the 2006 GSS, we compare levels of segregation by race and across the principal dimensions of potential social cleavage in contemporary America. We study both the relatively small networks based on trusting relationships and the much larger acquaintanceship networks of Americans in order to answer three major questions. First, how socially

connected are Americans? Second, to what extent do these connections cross social boundaries defined by race, socioeconomic markers, political ideology, and religiosity? Third, is the expected high level of homophily in “core networks” offset by greater diversity in the larger group of people that count as acquaintances? Our answers to these questions offer a mix of reassurance and concern to those who value social integration. We find that Americans are not as isolated as suggested by recent estimates obtained from the 2004 GSS by McPherson *et al.* (2006). However, hopes that “bridging” social capital is more common in broader acquaintanceship networks than in core networks are not supported by the 2006 GSS data. Instead, the entire acquaintanceship network appears to be just as segregated as the more restricted and much smaller network based on trust. Finally, we find that social divisions based on religiosity, political ideology, family behaviors and socioeconomic standing are high and in some cases rival racial segregation in their intensity. Social polarization rather than social isolation appears to be the greater impediment to social integration in the U.S. today.

Social Integration and Interpersonal Association

It has long been known that people prefer to associate with others who are similar to themselves (i.e., “homophilous”), which produces segregation in people’s social networks along a variety of core demographic statuses, including race/ethnicity, age, education and income (Billy *et al.* , 1984; Coleman, 1961; Blau, 1977; McPherson & Smith-Lovin, 1987; McPherson *et al.* , 2001). The homophily principle is so powerful that its existence is taken as given in the social capital literature. Two other issues, however, are considered to be highly problematic in the contemporary U.S., and arise from the recent and growing literature on social integration in modern Western societies. One issue concerns absolute levels of social isolation, i.e., the quantitative extent to which people are socially connected to others, including with people like themselves. The second issue concerns relative isolation, i.e. the extent to which people—despite their tendencies toward homophily— have sufficient ties with people who are different from themselves to be exposed in a meaningful sense

to attitudes, beliefs and opinions that are different from their own.

Social isolation is theoretically linked in the contemporary literature to the issue of social inclusion or exclusion, which especially in the European context has been closely tied to concerns about social inequality and poverty. Social inclusion is defined by the European Social Fund as the ability “to participate fully in economic, social and cultural life and to enjoy a standard of living and well-being that is considered normal in the society in which they live” (Council of the European Union, 2004). People are included in the “life of the community” (Sen 1992, p. 39) through their social capital as well as through consumption of goods and services made possible by an adequate income. From this characteristically European perspective, social inclusion or exclusion has both a material aspect, which affects standard of living, and a social aspect, which affects level of integration into the broader society. Each of these aspects, moreover, can be conceptualized at the level of the individual or of social groups, and becomes a measure of the level of integration and inequality for the society as a whole.

The American discussion similarly addresses both material and social dimensions. Some of this literature follows Bourdieu (1980) and Coleman (1988) in placing primary emphasis on social capital as an individual-level resource in arenas such as educational attainment, labor markets, business, and politics. Other scholars, notably Putnam (Putnam, 1993, 1996, 2000) and Portes (Portes & Sensenbrenner, 1993; Portes, 1998; Portes, 2000) stress the macro-level characteristics of social capital. Portes has placed primary emphasis on homophilous social capital, particularly within the context of ethnic communities, which he refers to as “bounded solidarity” (Portes, 1998), and which corresponds to what Gittel & Vidal (1998) refer to as “bonding” social capital. As Portes (1998) and Waldinger (1995) have argued, bounded solidarity can be a resource for an immigrant community, but it also can be a source of deprivation when practiced by more privileged groups (e.g. white ethnic workers in the construction trades) to exclude new ethnic groups from jobs.

Contrasting to “bounded solidarity” or “bonding” social capital is what Gittel & Vidal (1998) called “bridging” social capital, which concerns extra-community ties, and which fosters integra-

tion in the larger society through heightened levels of trust (Woolcock, 1998; Fukuyama, 1995; Gambetta, 1988; Putnam, 2000). When trust is low, social isolation is high. High in-group trust (high “bonding” social capital) but low out-group trust (low “bridging” social capital) “bolsters narrow identities” and “may create strong out-group antagonism” according to Putnam (p. 23). In contrast, “bridging” social capital involves connections that “are outward looking and encompass people across diverse social cleavages” (Putnam, 2000). The combination of “bonding” and “bridging” social capital arguably correspond to the condition of “generalized trust” (Putnam, 2000) where one thinks that “people in general can be trusted” because one actually has experience interacting with people who are both similar to and different from oneself (Paxton, 2007).

Prominent scholars claim to have found dis-integrationist trends in American patterns of association. Putnam (2000) provided numerous sources of evidence for declining civic engagement, and concluded his book by arguing that “the evidence from our inquiry shows that this longing is not simply nostalgia or ‘false consciousness.’ Americans are right that the bonds of our communities have withered, and we are right to fear that this transformation has very real costs” (p. 402). Skocpol & Fiorina (1999) reached somewhat similar conclusions, namely that Americans were increasingly detached from the kinds of cross-class membership organizations that had once defined the landscape of voluntary association in America, to be replaced by nominal memberships (what Putnam called “mailing list” memberships) that were primarily defined by the paying of dues rather than actual social interaction.²

Other forms of evidence paint a mixed picture. Residential segregation between blacks and whites declined between 1970 and 2000 though not to a large extent and not uniformly, while Asian and Hispanic residential segregation has slightly increased (Massey & Denton, 1993; Iceland *et al.*, 2002; Frey & Myers, 2005). Families have become more heterogeneous, and interracial marriages in particular have increased though remain relatively rare (Ellwood & Jencks, 2004; Gullickson, 2006). Meanwhile, abundant evidence has emerged concerning the growing correlation of statuses in American society, which opposes the mild intergrationist trend that some see in the residential segregation data. In particular, the association between income and family type has increased

(Burtless, 1999). The association between wife's education and husband's education has increased (Schwartz & Mare, 2005). The association between income and political partisanship has increased (McCarty *et al.*, 2006). Our own calculations from the General Social Surveys have established that the association between being married with children and frequent church attender increased, the association between being married with children and being politically conservative increased, and the association between being a frequent church attender and being politically conservative increased. All other things equal, one would expect that a rising correlation of statuses would imply a lower frequency of "cross-cutting status sets" and "cross-cutting cleavages," and higher levels of values polarization and conflict (Merton, 1957; Coleman, 1957; Lipset, 1963). Consistent with this expectation is Lee's (2007) finding that generalized trust has been declining in the U.S. for the past 30 years. Also consistent is the work of Poole & Rosenthal (2000), who documented a growing distance between the political positions of the median Democrat and the median Republican since roughly the middle 1970s. While DiMaggio *et al.* (1996) found no evidence for a growing values divide as of the middle 1990s, analyses of more current trend data by Evans (2003) show growing evidence that "partisan" Americans (those who label themselves as liberals or conservatives) were becoming polarized around moral issues such as abortion, sexuality, school prayer (see also Mouw & Sobel, 2001; Green, 1996; Brooks, 2002; Frank, 2004; and Baldassarri & Gelman, 2008).

The most salient recent evidence on disconnectedness stems from the 2004 General Social Survey (GSS). In 2004, McPherson and Smith-Lovin replicated the 1985 module on the core social networks of Americans. In both the 1985 and the 2004 surveys, the GSS interviewer used the following prompt:

"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?" (NORC interviewer writes down just the first five names and then asks further questions about these names).

McPherson *et al.* (2006) report that the GSS-defined core network in the U.S. has shrunk dramat-

ically between 1985 and 2004. In 1985, the mean respondent reported that he/she had discussed important matters during the past six months with 2.94 individuals out of a maximum of five. In 2004, in contrast, the mean was only 2.08. In 1985, 10% of GSS respondents could not think of anyone they had discussed important matters with in the past six months. However, fully one quarter of 2004 respondents offered no names in response to this question. The 2004 GSS respondents also reported fewer nonkin contacts and fewer contacts operating through neighborhoods or voluntary associations. Other recent evidence is consistent with this 2004 GSS though not necessarily with a social isolation interpretation of its meaning. Bearman & Parigi (2004) analyzed data from the 1997 North Carolina poll and found that 20% of a random sample of North Carolinians reported that they had not discussed important matters with anyone during the past six months, but that 56% of these 20% gave as the reason for their silence that they had nothing important to talk about. As McPherson *et al.* (2006) note, it is possible that social isolation has increased in the U.S. during the past twenty years, but it is also possible that Americans have reinterpreted what “discuss important matters” means over this period. Not discussed by them is an additional alternative interpretation, namely that the decline in generalized trust found by Lee (2007) may have reduced the willingness of GSS respondents to name individuals (or even the initials of these individuals) that they know well, because they did not want to provide additional information about these people. Finally, it is possible that the decline in available time reported by Bianchi *et al.* (2006) made respondents eager to find ways to shorten the interview, one of which would be to respond that they do not discuss important matters with anyone. In sum, the trend evidence from the GSS is suggestive but not conclusive about heightened risks in American society for social isolation.

Strong and Weak Social Ties across “Diverse Social Cleavages”

Putnam argued in *Bowling Alone* that the “bonding”/“bridging” distinction is “perhaps the most important” dimension along which social capital could vary, but that he could find “no reliable, comprehensive, nationwide measures of social capital that neatly distinguish ‘bridgingness’ and

'bondingness',” which caused him to de-emphasize this distinction in his empirical analysis and focus instead on the simpler question of whether social capital in general had declined (Putnam 2000, pp. 22, 23). Despite the large empirical literature on social networks, his conclusion about the state of available evidence remains accurate for two reasons. First, more attention has been paid in homophily studies to some statuses than to others, which leaves gaps in our understanding about potential barriers to social interaction. The second and more fundamental reason is the lack of good data about the structure of complete social networks –including the weak ties as well as the strong ones.

As McPherson *et al.* (2001) discuss, studies of association range from marriage (Kalmijn, 1998), confidants and friends (Marsden, 1988; Verbrugge, 1977, 1983) to mere contact (Wellman, 1996), knowing about someone (Hampton & Wellman, 2001) or appearing with them in a public place (Mayhew *et al.* , 1995). This literature documents multiple dimensions of homophily, including age, gender, race, and socioeconomic status. However, much of what is known about the level of homophily in social networks concerns close relationships (Moody, 2001), largely because of the methodological difficulty of gathering information about people to whom one has relatively weak ties.

Race is typically identified as the dimension along which social networks are most segregated. Most of the evidence for this assertion comes from the study of close ties of marriage, kinship, and friendship, especially school friendships or core-network designs such as the 1985 and 2004 GSS (Marsden 1988; McPherson *et al.* 2001). Marsden’s (1987) study of the 1985 GSS questions about core social networks found that only 8% of adults with networks of size two or more reported being tied to someone of a different race. Marsden estimated this frequency as only one-seventh as high as one would expect if people sorted themselves at random. Many studies have similarly found strong evidence of segregation in racial friendships (e.g, Quillian & Campbell, 2003; Moody, 2001; Mouw & Entwisle, 2006). But, to repeat, these studies are almost always about close ties. Little is known about inter-racial acquaintanceships made at work, in the neighborhood, or in voluntary associations.

Even less is known about ties among Americans with different religious practices or political preferences. McPherson *et al.* (2001) argued that marriage, friendship, and confiding relations are homophilous with respect to religion, though religious homophily is not typically as strong as race or ethnicity (Laumann, 1973; Marsden, 1988; Fischer, 1982; Louch, 2000). Kalmijn (1998) reported that marital homophily with respect to religion appears to be declining. McPherson *et al.* (2001) note that some religious groups (e.g., Jews) clearly display homophily in their choice of friends and spouses. In contrast, they argue that religion "may not matter much at all" in relationships that are not close. According to McPherson *et al.* (2001), the main exception concerns fundamentalists and members of sects, for whom religion has become something of a total environment.³ Similarly, McPherson *et al.* (2001) report that people form ties based on a similarity of values as well as of social statuses, but the extent to which this generalization covers weak ties outside friendship groups or core social networks is an open question.

Many scholars have offered speculations about the relationship between tie strength and level of homophily. The principle underlying Granovetter's "strength of weak ties" hypothesis was that weak ties provided connections to people who were more occupationally and socioeconomically dissimilar from oneself than did strong ties (Granovetter, 1973; see also Lin, 1999). Putnam similarly argued that close ties were more likely to be with people like oneself, while weak ties were more likely to be with people who are different from oneself. Smith-Lovin (2007), following Blau (1977), argued that homophilous as well as multiplex ties are more likely to be strong ties, while ties among dissimilar others are more likely to be weak. The 2004 GSS data, however, suggested that multiplex ties are uncommon even within core social networks (Smith-Lovin, 2007).

The major challenge for testing these ideas is that relatively little is known about the structure of weak ties. Research using position generators (Lin *et al.* , 2001) and resource generators (Van der Gaag & Snijders, 2005) has focused more on the specific issue of instrumental ties in the labor market than on the broader question of social integration. So-called "complete network" designs, in which the connections between all members of some relevant subpopulation are collected (e.g. the Newcomb (1961) fraternity study, the Add Health friendship and sexual relationship study

(Bearman *et al.* , 2004), or the Nang Rong, Thailand study (Rindfuss *et al.* , 2004)) obviously miss weak ties that link outside the subpopulation under study, and in any case, these designs do not scale well to the world of adult Americans. The 2006 GSS data, therefore, offers the potential to fill an important gap in scientific knowledge about the structure of segregation and homophily in complete social networks.

Data and Methods

The data for this study were collected as a special topical module in the 2006 General Social Survey. The basic design was similar to McCarty *et al.*'s 1998 and 1999 surveys that employed a "how many X's do you know?" methodology in order to estimate the distribution of individuals' network size, and also to estimate the sizes of special subpopulations that tend to be hard to count with standard survey methodologies (McCarty *et al.* , 2001). Our survey differed from the McCarty *et al.* surveys in its focus on ties to highly salient groups that define important sources of heterogeneity among Americans and potentially important sources of social cleavage. Our survey also differed from McCarty *et al.* in the type of relationships that we measured and in the several subsets of a person's full network that our questions pertained to.

We asked about two types of relationships. Our prompt concerning acquaintanceship was as follows:

I'm going to ask you some questions about all the people that you are acquainted with (meaning that you know their name and would stop and talk at least for a moment if you ran into the person on the street or in a shopping mall). Again, please answer the questions as best you can.

The second type of relationship that we studied concerned trust. Coleman defined trust as the willingness to place intellectual, financial, physical or other resources at the disposal of another party (Coleman, 1990).⁴ An individual usually trusts one's friends, but there are other people one may trust who do not qualify as friends, such as kin, or mentors, or people that one has a service

or business relationship with. The extent of one's trusting relationships may in turn be related to one's level of "generalized trust," i.e., one's belief about the trustworthiness of the average person or of the "benevolence of human nature in general" (Yamagishi & Yamagishi, 1994). Our trust question is about the respondent's specific trusting relationships as opposed to generalized trust, and was elicited with the following prompt:

Now I'm going to ask you some questions about people that you trust, for example good friends, people you discuss important matters with, or trust for advice, or trust with money. Some of these questions may seem unusual but they are an important way to help us understand more about social networks in America. Please answer the questions as best you can.

Following the prompts concerning acquaintanceship or trust, the GSS interviewers asked respondents a series of "how many of the people that-you-are-acquainted-with/that you-trust are named [one of a set of names]" in order to estimate the size of the respondent's network (i.e., the network degree).⁵ The interviewers then asked about specific ties with people at various socioeconomic levels, people who were members of various race and ethnic groups, people with various religious behaviors, people in various family types, and people with various political orientations. The specific objects of our inquiry are listed in Table 1.

In the McCarty et al. surveys, the groups being asked about were relatively small in comparison with the groups of interest here, and the questions asked respondents to list the exact number of individuals they knew in each of these groups. In contrast, our interest includes large as well as small groups, and it is infeasible to ask respondents to recall the exact number of people they know in groups that are not rare. Consequently, we asked respondents to indicate whether the number of people they knew in these groups fell within specific numerical ranges, specifically zero, one, two to five, six to ten, or more than ten.

We asked questions about the number of persons known or trusted in the respondent's entire social network. In addition, we asked these questions with respect to four specified subnetworks: (1) family, relatives, or in laws, (2) neighbors, (3) people at work or customers or clients, and (4)

people from associations, clubs, preschool, school, or places of worship. We asked about each of these subnetworks to establish how segregation with respect to specific groups varied across major “foci of interaction” within a person’s overall (Feld, 1981). These questions also served a methodological purpose by creating additional response variance concerning the number of ties with persons in relatively large social groups defined, for example, by race or level of religiosity.

Our overall sample size was 1371. In order to accomplish the project’s objectives, we subdivided our sample in complex ways. Fifty percent of the sample were asked the questions about acquaintanceship and trust concerning their entire social network. The other fifty percent were divided into four subsamples, and each of these subsamples was asked about ties within three of the four subnetworks listed above. Figure 1 illustrates the sample design. Restrictions on total module length caused us to exclude questions about contact with the opposite gender because men and women make up such large shares of the population that it would be difficult, given our methods, to measure variation with accuracy.⁶ We also omitted questions about contact with groups defined by age or education in order to focus on the cleavages most salient to the current debate on social integration, namely race/ethnicity, class, religion, political ideology, and family or romantic relationships.

Our basic model is described in detail in Zheng *et al.* (2006). We assume that the number of individuals in group k that are known to individual i (i.e., y_{ik}) follows a Poisson model, i.e.

$$y_{ik} \sim \text{Poisson}(\lambda_{ik})$$

where λ_{ik} is the expected number of individuals that individual i knows in group k . The main task therefore is to model λ_{ik} .

In a world where associations were made at random, it would be straightforward to model λ_{ik} ; for every individual i , the expected number of people in group k that he knows would equal the product of the size (degree) of his network multiplied by the fraction of all acquaintanceship ties that involve group k . For example, if 12% of all acquaintanceship ties involved African-

Americans, an individual who know 500 people would be expected to know 60 African-Americans. More formally, let

a_i equal the estimated degree of individual i 's acquaintanceship network.

b_k equal the proportion of all ties that involve group k . Then we could write

$$y_{ik} \sim \text{Poisson}(a_i b_k) \quad (1)$$

Model (1) is unrealistic because individuals differ in their propensity to know members of any particular social group. We take this overdispersion into account by allowing the relative propensity of individuals to know members of group k to differ. We define g_{ik} as the relative propensity of individual i to know someone in group k , where g is the ratio of the expected number of ties for individual i to the number of ties he would be expected to have if acquaintanceship ties were made at random, i.e.,

$$g_{ik} = \frac{\lambda_{ik}}{a_i b_k}$$

and we elaborate the basic model such that

$$y_{ik} \sim \text{Poisson}(a_i b_k g_{ik}) \quad (2)$$

We cannot directly estimate the parameters in model (2) because the number of parameters exceeds the number of data points. Instead, we integrate out the g_{ik} by assuming that it follows a gamma distribution, and thereby obtain the negative binomial model.

$$y_{ik} \sim \text{negative binomial}(\text{mean} = a_i b_k, \text{overdispersion} = \omega_k)$$

where ω_k scales the variance of the number of acquaintanceship ties between individuals in the

population and members of group k , i.e.,

$$V(y_{ik}) = \omega_k E(y_{ik})$$

Higher values of ω_k imply greater overdispersion. When ω_k is unity, the negative binomial model reduces to the Poisson model where the variance equals the mean. For further details, please consult Zheng *et al.* (2006).⁷

Three further issues need to be briefly summarized. One concerns the issue of normalization. Note that in model (2) the predicted y_{ik} depends on the product of a_i and b_k . There is no way from the data alone to determine whether a certain y_{ik} arises from a larger network with a smaller proportion of overall ties involving group k or from a smaller network with a larger number of overall ties involving group k . In order to identify a_i and b_k separately, we borrow information about the size of the groups from other sources. Thus, we could constrain the b_k parameters such that the sum of the estimated proportion of ties involving each of the names is equal to the proportion of all members of the population that have these names.⁸

A second issue concerns recall errors. Prior research demonstrates that individuals find it easier to accurately count the number of individuals they know from rare groups than from common groups. Put concretely, it is easier to recall the number of females that one knows who are named Bethany than it is to recall the number of males one knows who are named Michael.⁹ To ease respondent burden, we used intervals to ask respondents about people they know (zero, one, 2-5, 6-10, or greater than 10), but this does not by itself solve the problem of under-reporting. McCormick & Zheng (2007) show that for rare names, people have accurate recall, but that as the group becomes more common, the recall shortfall becomes larger. Killworth *et al.* (2003) and McCormick & Zheng (2007) find that the fraction recalled rises with the square root of the actual fraction in the population as the group becomes a larger fraction of the total population. This research suggests a further modification of model (2) to incorporate recall error, i.e.,

$$y_{ik} \sim \text{negative binomial} \left(\text{mean} = a_i b'_k, \text{overdispersion} = \omega_k \right) \quad (3)$$

where b'_k is the proportion of ties in the *recalled* social network that involve group k , and where b'_k is linked with b_k via a recall function that is fitted from the data (McCormick & Zheng, 2007). We use the recall function to transform the known proportion of group k in the population into an estimate of the fraction of network ties that will be recalled to connect with group k , and this then gives our estimate of degree size.

The names plus recall function approach works well for estimating acquaintances, but it gives estimates of the trust network that in our judgment are too large. The names that we selected for the GSS survey were only a small fraction of 1% of the American population, which means that 0, 1, and 2-5 would be typical responses to the question about how many people of this name one is acquainted with. However, trust networks are much smaller than acquaintanceship networks. It would have required another set of more common names – each around 1% of the population – to estimate the size of the trust network on the basis of trust of people with a given set of first names. It is also likely that recall problems are much less severe for the relatively small group of people that one trusts than for the larger group of people that one is acquainted with. Consequently, applying the recall function estimated from the acquaintanceship data to the trust network would upwardly bias the estimated number of people that one trusts. An alternative normalization strategy assumes that the proportion of ties involving racial groups equals their collective proportion in the population. We use the latter normalization strategy in our analysis of the network of people that one trusts. To the extent that respondents fail to recall specific individuals that they trust, our approach will underestimate the true size of trust networks, though we expect the size of this bias to be relatively small.

The third issue concerns the distinction between observable and hidden statuses. Killworth *et al.* (2003) refer to the situation where information about one's status is not transmitted with equal probability to all people that one knows as a "transmission effect." Some statuses –most notably skin color– are often (though not always) observable. Other characteristics such as political ideology or sexual orientation are not as readily observed, and it might often be true that a respondent would recall a particular acquaintance but not necessarily know that the acquaintance

was politically conservative, gay, in a cohabiting relationship, or someone who goes to church on a regular basis. Sometimes the respondent does not know because the information has low salience for him. In other cases, he may overestimate the extent to which other people that he knows are like himself (McPherson *et al.* , 2001). Finally, sometimes the information is masked on purpose by acquaintances who think he would be put off by this knowledge. Thus conservatives may be less likely to make their political ideology readily apparent to an acquaintance who is a liberal, someone who is gay may hide this fact from someone else who may have low tolerance for homosexuality, etc. Generally speaking, we expect these transmission errors will make networks appear to be more segregated than they actually are on those social dimensions where one's status can be hidden. The fact that our estimates will overstate segregation on certain dimensions is not simple error, however; it instead provides an accurate estimate of the level of segregation and the extent of "bridging social capital" that ego perceives in his network.

Results

The Size and Segregation in Acquaintanceship Networks

The size of acquaintanceship networks varies substantially in the adult population. Figure 2 shows the distribution of the recall adjusted acquaintanceship network. The median person is acquainted with 550 people, with an interquartile range of approximately 400 to 800.¹⁰ Our estimate from the 2006 GSS data is similar to the 610 estimate of the median made by Zheng *et al.* (2006) based on the 2000/2001 Kilworth and McCarty data (see also Marsden, 2005), and larger than the estimate (a mean of 290) by McCarty *et al.* (2001) because of our use of a recall correction and because of the specific names used in the three normalizations.¹¹ We regressed degree size on a set of sociodemographic characteristics, and Table 2 is consistent with other research (e.g., Zheng *et al.* , 2006) in showing systematic variation. The strongest predictors of acquaintanceship degree in our data are education, race, and church attendance. Each year of education is associated with an increase of 22 people, or about 3%, in one's acquaintanceship network. Net of education, income

also has a small effect, with each \$10,000 in additional family income predicting an increase of 9 acquaintances. Race and church attendance have large effects on the size of social networks. GSS respondents who identify their race as neither white nor black have 25% smaller networks than do whites, while those who attend church on a weekly basis have 25% larger networks (about 150 people) than do those who rarely or never attend church. The added network members of frequent church members are presumably the people that they know from their participation in religious services and other activities at their places of worship. That there is no significant difference between the size of the network of whites and blacks (controlling for other characteristics) demonstrates that the national imbalance in the size of racial population groups has little impact on the size of their acquaintanceship networks, despite predictions that flow from Blau's (1977) work. Members of "other" races (largely Hispanic and Asian) are more likely to be recent immigrants and more likely to speak a language other than English, and these factors may depress the size of their networks; unfortunately, the GSS does not allow direct measures of these characteristics.

Estimated overdispersions in acquaintanceship social networks are presented in Table 3. The statistics in this table are estimates of the extent to which acquaintanceship ties towards people in particular groups vary from the ties that would be predicted based on random interaction. The overdispersion parameters provide an estimate of the ratio of the true variance to the variance from the null model of random mixing. In the case of people named Kevin, the estimated overdispersion is 1.7. So for example, if ego knows 900 people, and if 1% of all people are named Kevin, then ego would be expected to know 9 people named Kevin under the null model with a standard deviation of 3. An overdispersion of 1.7 implies that the standard deviation of the number of Kevins known to people with 900 acquaintances is inflated from 3 only slightly to 3 multiplied by the square root of 1.7, or 3.9 people. In general, the overdispersions for groups defined by names were low, which supports our using these names to estimate the distribution of network degree in the GSS sample. In contrast, overdispersion is much greater for ties with groups defined by or related to class, race, political orientation or religion. For example if 5% of social ties involved the unemployed, then a person who knew 500 people would be expected (based on random assignment) to know 25

unemployed people with a standard deviation of 5. In actual contemporary American society, we estimate the standard deviation to be 16, implying an approximate 95% confidence interval of 0 to 57 as opposed to the 15-35 confidence interval in a world of random mixing.

The existing literature, which is largely based on information collected about a few close ties, reports that segregation on the basis of race outstrips by far segregation on other social variables. Our data clearly support earlier findings showing a high degree of segregation on the basis of race. Because whites are numerically dominant, we cannot accurately estimate the level of overdispersion of the number of whites one is acquainted with.¹² For blacks and Hispanics, however, our results show overdispersion parameters of about 9 or 10. In a network of 500 acquaintanceships, we would expect at random about 12% black and Hispanic acquaintances, or 60 blacks and Hispanics each out of 500, and a standard deviation of about 8, and so 95% of social networks would have between 44 to 76 of each group. Instead, the estimated standard deviation is on the order of 25, giving a 95% band of about 10-110 for each group. If anything, these estimates probably underestimate the actual overdispersion, in that 12% of the American population is black and more than half of them are very likely acquainted with more than 110 blacks.¹³

Another way to illustrate the meaning of overdispersion is to compare our estimated probabilities of being acquainted with (knowing) especially few (or especially many) members of any particular group against the benchmark of random mixing. Table 4 shows the estimated number in a 400 person network (the 25th percentile of estimated network size) that would belong to each of the measured subgroups based on the proportion that each of these groups constitutes of the American population, i.e., based on random mixing. A 400 person acquaintanceship network would be expected to include 4 prisoners, 17 Asians, 17 women who are cohabiting, 20 gay men or women, and larger numbers of all other groups. We then compare the probability of knowing relatively few (specifically, ten or fewer) in each of these groups under random mixing with the estimates from our model based on the actual patterns of segregation found in the data. For the counterfactual of random mixing, only 5% of networks would include 10 or fewer Asians or cohabiting women, almost everyone would know 10 or fewer prisoners, and only 1% would have networks containing

as few as 10 gay men or women. For all of our other groups, the probability of having 10 or fewer acquaintanceships in a 400 person network would be extremely small. In contrast, we estimate the probabilities of having such segregated networks to be much larger than the random benchmarks would suggest. For example, eighteen percent (as opposed to 1 in a 1000) would know 10 or fewer unemployed persons, 1/3 would know 10 or fewer Asians, and 17% would know 10 or fewer gay people.¹⁴

Our results differ from earlier findings, however, in suggesting that segregation by race is not notably higher than segregation on the basis of class or religion. Like race, both of these variables also have overdispersions that are on the order of 10. We estimate that the chances of knowing no one who goes to church regularly, no one who is unemployed, no one who is gay, no one who cohabits, no one who is strongly liberal, or no one who is strongly conservative is always at least 5 times and as much as 11 times higher in American social networks than would be true under random mixing. Our results suggest a polyvalent pattern of segregation in American social networks which challenges the conventional wisdom that "race and ethnicity are clearly the biggest divides in social networks" (McPherson *et al.* , 2001, p. 6).

Table 5 shows that the pattern of segregation varies across subnetworks. Naturally, race and ethnicity are most highly segregated within families, where integration occurs only either through intermarriage, or through members of mixed-race and mixed-ethnic families assuming different racial or ethnic identities. Outside of the family, race and ethnic segregation are generally of comparable size within the neighborhood, voluntary associations, and the workplace, with acquaintances involving blacks being somewhat less overdispersed at work than in neighborhoods. Scholarship has, of course, demonstrated widespread residential segregation so segregation in neighborhood-based acquaintances is no surprise. It is also well known that schools, churches, and social organizations are highly segregated by race. The average census tract-level index of black-white dissimilarity in the 50 largest metropolitan areas of the U.S. is .62, while the average tract-level Hispanic-white index of dissimilarity is .48 (Charles, 2003). Our recent knowledge about workplace segregation derives from EEO-1 data on private establishments with 50 or more

employees (Robinson *et al.* , 2005). Tomaskovic-Devey *et al.* (2006) found that American establishments had a mean white-black dissimilarity index of about .35 and a similarly sized white-Hispanic dissimilarity index.¹⁵ However, they argue that this number is an underestimate, first because it excludes establishments that are racially homogeneous, and second because it is based on the highly aggregated EEO nine-category occupational classification. In contrast, Hellerstein & Neumark (2008) ignored occupation and estimated a dissimilarity index for blacks and whites of .19 in a sample of establishments with at least 40 employees based on the 1990 long form census data merged with the Business Register.¹⁶

The apparently greater opportunity for interracial mixing at work than in the neighborhood is consistent with the gradient of overdispersions that we estimate for blacks. Segregation involving Hispanic or Asian neighborhood acquaintances is clearly lower than is segregation involving black acquaintances, and this pattern is consistent with the gradient that we observe in residential segregation for these groups. Segregation involving Hispanic or Asian acquaintances through voluntary associations is similarly lower than is segregation involving black acquaintances. We do not have the data to disentangle the various associational contexts within which Americans mix, but certainly religious activities play a major role. It is well known that religious congregations are highly segregated by race (Dougherty, 2003; Vischer, 2001), though little hard evidence exists to support the speculation that segregation at church is greater for blacks than for other racial groups. Whatever its cause, these gradients by racial group deserve further investigation.

The second striking pattern in Table 5 is the extent to which “bridging” social capital is more likely to be found within families than in the associations and business organizations that make up the public sphere. There is less overdispersion in knowing the unemployed or people with a second home in the family than at work, within associations, or in neighborhoods. The same is true for prisoners. Acquaintanceship ties with gays are also less segregated within the family than at work, in associations, or in neighborhoods. This pattern may partly be explained by the fact that American families have become much more heterogeneous over time, and therefore it is more likely that people who are dissimilar with respect to class or prison status will be located in the

same family than in the past. It is probably also harder to ignore (or to mask) statuses within the family than it is at work, in associations, or even in the neighborhood. In other words, the greater amount of shared information about family members may produce a closer correspondence between the diversity of networks as they really are and as they appear to ego in the family than in more public contexts. Neither explanation diminishes the irony of this striking finding.

Segregation in church attendance and in political ideology follow the more predictable pattern of being greater within the family than among acquaintances in the neighborhood or at work. Even at work, however, segregation on these dimensions is relatively strong. Glaeser & Ward (2006) estimated that the index of dissimilarity by political party at the national level is about .2 when counties are the unit of analysis. This is much lower than standard results for residential segregation at the tract level, but these numbers are not readily comparable. Counties are much bigger than tracts, and county-level racial segregation is doubtless much lower than is tract-level segregation. However, racial segregation *within* counties is very high, while the level of political segregation within counties is an unknown. Religiosity is much more segregated within associations than at work or in the neighborhood, but this is not surprising given that the category of associations includes places of worship. Political ideology is similarly more segregated within voluntary associations than it is at the workplace or in the neighborhood. Certainly it is not the case that political associations are a central aspect of the associational life of Americans, but people appear to choose associations or choose whom to associate with in associations in order to produce a greater level of ideological segregation than they experience in their neighborhoods or workplaces.

Trusting Networks

The number of individuals that one trusts is obviously smaller than the number of people that one is acquainted with, but how much smaller? McPherson *et al.* (2006) found that the mean size of confiding networks (as measured by the GSS question concerning a list of people one has "discussed important matters with" in the last six months) dropped from 2.9 out of a maximum of 5 in 1985 to 2.1 in 2004, with 24.6% of the sample listing no names at all. Our 2006 GSS question

about trust differs from the 2004 (and 1985) GSS questions; it broadens the relationship to include friends, and it is closer to the Coleman idea of trust as the willingness to place material resources along with information at the disposal of someone else. For these reasons, it provides an alternative perspective on the level of isolation among contemporary Americans. We computed the proportion of people in our sample who reported that they trusted no one at all in any of the social categories that we asked about (i.e., all the specific names, all the specific occupations, all races, liberals and conservatives, churchgoers and non-churchgoers, the unemployed, those in prison, those with a second house, gays, and cohabiting women). Only 1.4% of the 2006 GSS sample reported that they did not trust any specific person in any of these categories that we queried about, which is very different from the 2004 GSS. We further computed the proportion of respondents who did not trust anyone in all but one of these categories (we let the excepted category be anything at all). This relaxed criterion only raised the proportion of "extremely low trusters" to 3.1%. It seems that when confronted with specific prompts for specific types of people, Americans are much more likely to report that they trust at least some specific individual than they are to provide the specific name of someone with whom they have discussed "important matters."

Next, we estimated the degree distribution of the trusting network. Recall from above that our model contains an indeterminacy in its parameters because the expected number of people one knows in group k is the product of the size of one's network multiplied by the proportion of all ties that map to people in group k . For purposes of estimating the acquaintanceship network, we needed to adjust our estimates to correct for recall error. Because the size of the trusting network is likely to be much smaller than the size of the acquaintanceship network, we assumed as a lower bound that respondents were able to recall all the individuals in each category that they trust, and then we normalized on race groups, which implies that the total distribution of trusting ties to the different race groups matches the distribution of these racial groups in the population. The result is displayed in Figure 3. The distribution of trust ties is skewed to the right, with a median of 17, and an interquartile range between 10 and 26. These values are much higher than the mean of 2.1 reported out of the 2004 GSS (McPherson *et al.*, 2006). At the same time,

trust networks are much smaller than acquaintanceship networks. Whereas the median number of acquaintances estimated from our data is 550, our estimate of the median number of people that one has a trusting connection with is only 3% of the median acquaintanceship network.¹⁷ The large discrepancy between these two numbers suggests that respondents correctly reported about specific trust relations rather than about generalized trust, since one-third of GSS respondents reported that most people can be trusted, which presumably would have included most of the people that they themselves were acquainted with.

Why the discrepancy between the 2004 network questions and our estimates of the size of trusting networks from 2006? As noted earlier, McPherson *et al.* (2006) raised two possible explanations concerning (a) the meaning of the word "discuss" and the possibility (strongly supported by Bearman & Parigi, 2004) that many people rarely or ever consider that they are engaged in discussions about "important matters." The 2006 GSS question was broader and did not require a decision about whether "important matters" had been discussed with specific people that the respondent trusted. Another possibility is that the the 2006 GSS questions did a better job of recalling people to the minds of GSS respondents than did the open-ended question used in the 2004 GSS.¹⁸ Finally, it is possible that people who were uncomfortable in the 2004 GSS about revealing specific names of individuals were nonetheless willing to count their trusting ties within specific social categories.

To establish the determinants of the size of the trusting network, we first estimated a fractional polynomial regression of the estimated size of the trusting network against the estimated size of the acquaintanceship network. Figure 4 shows the estimated relationship between the number known and the predicted number trusted along with a scatterplot of the estimated number trusted against the estimated number known. Among those whose estimated acquaintanceship degree is in the bottom 25% of the distribution, the predicted number trusted moves from about 5 to about 15, with virtually everyone in this quartile trusting fewer than 20 people. In the middle 50% of the distribution, the expected number trusted climbs from about 15 to about 25. In this range, it becomes more common for people to report that they trust between 20 and 40 people, even though

there is a persisting minority of respondents who trust very few individuals. Finally, in the top quartile, the expected number trusted climbs from 25 to over 40. A minority of people assert that they trust over 60 people, while another minority report that they trust very few individuals.

To further explore the determinants of the trusting network degree, we regressed the estimated number trusted on a set of covariates, and we report the answers in Table 6. In Model 1, we omit acquaintance degree. In this model, the only variables that have statistically significant effects are education (the more educated trust more), race (whites trust more people than blacks and others), and church attendance (regular church attenders trust more people). In model 2, we include the estimated size of one's acquaintanceship network as a covariate. Model 2 suggests that education and church attendance mostly affected the number trusted because of their effect on the number known, while the effect of nonwhite is diminished. Net of estimated degree size, age appears to have a curvilinear relationship with trust; young adults and people over 65 trust a higher proportion of their acquaintance network than do people of other ages. Model 3 includes the generalized trust variable.¹⁹ In the absence of any other covariates except for degree size, generalized trust has a significant effect on the number trusted; those who think that people mostly can be trusted trust an estimated 15% more people (net of estimated degree size) than do people who disagree that most people can be trusted (results available upon request from the authors). In the presence of other covariates, however, the effect of generalized trust on the degree of one's trust network is weakened below the level of conventional statistical significance.²⁰ When generalized trust as well as degree size are controlled, church attendance again becomes a significant predictor of the size of one's trusting network; net of other factors, those who attend church weekly or more trust about 20% more people than do those who never go to church. We speculate that these additional people in the trusting network are in fact the people that churchgoers go to church with, but we do not have the data to confirm this.

Next, we address the question of overdispersion in trusting networks. Table 7 shows the level of overdispersion in the trusting networks and Table 8 illustrates the impact of overdispersion by comparing the probability of trusting no one in our salient groups as compared with the expected

outcome under random mixing. As with acquaintanceship networks, overdispersion is highest for racial groups, but church attendance follows closely behind. Under random mixing, only 9% of people would be expected not to know of any specific African-American that they trust. In the actual data, we estimate that 53% of the population knows no African-American that they trust, 52% percent knows no Hispanic that they trust, and nearly 80% knows no Asian that they trust. The effects of overdispersion similarly magnify the likelihood of trusting no one in groups defined by religiosity or political ideology relative to the baseline random mixing model. While only 9% of the population would be expected not to trust a single liberal under random mixing, our actual estimated probability is 40%. We estimate that 29% of the population do not know any specific conservative person that they trust; in a world of random mixing, this number would be only 4%.

We elaborate our analysis of racial segregation in trusting networks in Table 9 by comparing the actual frequencies of trusting people of other races that we obtained from the GSS. As other studies have reported, it is relatively common for blacks and whites to report significant contact with members of the other race. In a 1989 national survey, 82% of blacks and 66% of whites claimed to have friends of the other race (Sigelman & Welch, 1993). Jackman & Crane (1986) reported results from a 1975 national sample that showed 10% of whites to have a close black friend, another 21% with a black acquaintance, and 25% of blacks with a close white friend.²¹ Sigelman *et al.* (1996) reported from their 1992 Detroit survey that 43% of blacks and 27% of whites said that they had a good friend of the other race. In the 2006 GSS, 37% of whites claim to trust 2 or more blacks, and 28% claim to trust 2 or more Hispanics. A small majority of blacks and a larger majority of people of other races report that they trust two or more whites. While Jackman and Crain used a different operationalization than we did, the 2006 GSS data suggest that interracial contact may have increased from 1975 to 2006. These results further suggest that studies which rely on the direct production of names may understate the number of cross-racial trust-based ties, as well as close ties in general.²² Nonetheless, trusting networks are clearly still highly segregated.

As we argued earlier in the paper, little is known about the relative level of segregation of

trusting networks vs broader acquaintanceship networks. On theoretical grounds, McPherson *et al.* (2001) predicted that homophily is stronger in what they refer to as "multiplex" relationships, in which people have a relationship along more than one dimension. One corollary of this is that trusting networks should be more homophilous than are acquaintanceship networks, because one is likely to have a more elaborated structure of ties involving kinship, marriage, and friendship in addition to more instrumental connections with people that one trusts than with people that are only acquaintances. Similarly, Putnam (2000) conjectured that "bonding" ties tend to be with people like oneself; his question was whether bridging ties would be sufficiently heterophilous to create a socially integrated society. A comparison of the estimated overdispersion in the acquaintanceship and trusting results provides a simple test of this conjecture. In fact, our estimated overdispersions are generally smaller for trusting networks than for acquaintanceship networks. Given that our estimated overdispersion parameters for acquaintanceship networks are if anything downwardly biased because of recall error, this result would appear to be robust. Trusting networks are if anything slightly less segregated than are acquaintanceship networks.

Discussion

Segregation in American social networks is pervasive across multiple statuses that have been identified as dimensions of potential social cleavage in the popular press and in the academic literature. Other studies have found this to be true in the context of core networks. Our data confirm that segregation is also pervasive in broader acquaintanceship networks as well. Beyond this confirmation, our data contain three major findings that contain both optimistic and sobering news for those who believe the social integration is an essential component of modern society. On the optimistic side, we find that trusting networks have not atrophied to the extent implied by the 2004 GSS. The typical American is able to identify between 10 and 20 individuals that are trusted. Some individuals do have fewer than 10 individuals that they trust, and these individuals typically have relatively few acquaintances as well. At the other extreme there are people who have a relatively large number of

acquaintances but few people that they trust. For our lower bound estimate, the typical American has a trusting relationship with only about 1/30th of the people that he or she is acquainted with. This may sound low, but building a trusting relationship takes time, and most people may not have enough time in their lives to build more than twenty or so such relationships.

The greater concern, we suggest, lies not with the size of trusting relationships but rather with the structure of acquaintanceship networks, which we find to be as segregated as trust networks. To say that core networks are homophilous is almost a truism. Scholars would also expect that people make acquaintances more frequently with people like themselves than with people who were different. However, the daily requirements of life and work require that people also interact with others who are different from themselves. The opportunity for meeting people who are different from oneself is of course not a social constant. It depends on the level of homogeneity in one's social environment. People have a certain amount of choice over the neighborhoods in which they live, the places they work, and the associations they join. They also have some control over the people to get to know in these neighborhoods, these workplaces, and these associations. When social barriers are high, people of different races or with different political views or religious orientations may avoid social interaction to the extent possible or at least may hide social differences from those whom they must work with or see on a regular basis. Structural opportunity mixes with personal preferences in order to shape the extent of heterogeneity in weak ties.

Core networks are different. People are socialized to be like their family members, and they choose their mates and their friends. It is for this reason that one expects homophily to be high in core networks. That acquaintanceship networks are at least as segregated as are core networks has, we suggest, two potentially important implications. The first, which is consistent with concerns raised by Putnam, Skocpol, and others, is that the organizations of American civil society in the American economy do not play a strongly integrative role in contemporary American society. A second potentially important implication is that new forces in American society may provide the basis for increased integration in the "bounded solidarity" group known as the American family. One of these factors is rising rates of interracial marriage, and another is the relatively high rate of

instability of both cohabitation and marriage, which increases the rate of repartnering at older ages and thereby lowers marital homogamy (Schwartz & Mare, 2005). The impact of these trends is magnified by the relative difficulty of hiding one's religious orientation, sexual orientation, political orientation, or cohabitation behavior from other family members. It is much easier to hide or overlook social differences at work, in voluntary associations, or even in the neighborhood than in the family.

Our third major finding is more difficult to characterize as either optimistic or pessimistic. The estimated level of segregation by race in association networks is roughly on par with the level of segregation by religious behavior, employment status, and political ideology. Religion in particular has emerged as a fundamental cleavage in American society at the level of day-to-day interaction. From the perspective of the culture wars that we have seen play out in the American political sphere and the past decade or so, this may not be surprising. However, it is often assumed that the most visible participants in these culture wars are a relatively small number of partisans. Our findings show that Americans in general segregate their social networks on the basis of religious behavior. The same is true for political orientation. Because a lack of interaction may heighten a lack of understanding and a lack of tolerance for the views of others, this pattern is worrisome.

Aside from technical issues concerning measurement and model specification, there are important substantive questions raised by our results. One such issue concerns the extent to which our measured levels of segregation are driven by the objective characteristics of the people that Americans know, and the extent to which they are driven by misperception or masking of behaviors and opinions that Americans think would be disapproved of by their associates. A second important issue concerns trends over time. While our study provides a baseline for the assessment of future trends, our limited comparisons with previous studies provide some grounds for concluding that segregation in association by race may be diminishing or at least is not increasing. We have no firm basis for drawing any similar conclusions concerning segregation by religious behavior, political orientation, sexual orientation or the other variables measured in the 2006 GSS. Future data collections can provide the basis for comparisons with existing data to establish a level of stability

and change in segregation of social networks along these dimensions. A final issue concerns the causes and consequences of network segregation. The General Social Survey provides a good platform for collecting descriptive information about social networks and for studying the behavioral correlates of network structure. However, causal estimates involving these network characteristics cannot readily be obtained from these data, and imaginative strategies are needed in order to determine the individual and structural factors that can explain heterogeneity in segregation across individuals and over time. These are important topics for future research.

Notes

¹DiMaggio *et al.* (1996) used “polarization” to refer to three aspects of the distribution of public opinion: the extent to which opinions on some issue were opposed, the extent to which attitudes on different issues were correlated (they used the word “constrained”) and the extent to which attitudes were correlated with various social statuses (which they referred to as “consolidation”). Taking opinions one at a time, they measured the level of polarization in terms of the variance of the attitude distribution (they called this “dispersion”) and the shape of the distribution (they measured this in terms of kurtosis, which is related to bimodality). The related concept of “segregation” is the extent to which people are separated from each other on the basis of specific statuses, such as race, gender, or learning difficulties. The separation is typically defined with respect to some single characteristic of individuals, such as one’s occupation, job, employer, classroom, or the geographic location of one’s residence. It is typically measured in terms of the difference in the distribution of two or more groups with respect to this characteristic (e.g., as the percent of each group that would have to be rearranged in order to equalize the distributions of the groups). High segregation implies unequal or at least different group experiences with respect to the characteristic in question (job, residence, or classroom) and also usually implies lowered rates of contact to the extent that social interaction is structured by geography, employer, classroom etc. In this paper, we are directly concerned with the level of contact itself rather than the characteristic that may structure contact, and so we use the term “segregation.” As we discuss below, we measure network segregation as the extent to which the individual-level variance in the level of contact with a particular social group (“dispersion”) is higher than one would expect under a random mixing model (i.e., “overdispersion”). We define overdispersion more formally below.

²Not all scholars agree with Putnam that social capital has declined, including Ladd (1996) and Wuthnow (1998). Costa & Kahn (2003) analyzed trend data on social capital in multiple datasets including the DDB Life Style Surveys, the Current Population Surveys, the General Social Surveys, the National Election Studies and time diary studies conducted at multiple points in time. Costa and Khan reported that some measures of social capital declined over time, while others did not. There was no strong trend in rates of volunteering across the multiple datasets that they studied. GSS data show the strongest trend in membership organizations involved religious organizations. Membership in professional organizations actually rose considerably, while in other nonchurch organizations, membership rates changed very little. Costa and Khan’s analysis of time-trend data agrees with Bianchi *et al.* (2006) in finding declines in socializing time with friends and relatives, though much of this decline appears to involve the frequency of interaction rather than the existence of ties per se.

³Wuthnow (2002, 2003) also finds that religious involvement does not have a net effect on having friends with lower status or with higher status people. Ties to higher status people, in contrast, do tend to be higher for those who are members of religious congregations or who have leadership positions in these congregations.

⁴Tilly's recent definition of trust is similar; according to Tilly: "Trust consists of placing valued outcomes at risk to others' malfeasance, mistakes or failures (Tilly, 2005, p. 12).

⁵We used the following names: Karen, Brenda, Kevin, Shawn, Keith, Rachel, Mark, Linda, Jose, and Maria. While the estimated level of overdispersion with these names was relatively low, no names are truly neutral because they vary in frequency by birth cohort and ethnicity, and these "barrier effects" will bias the estimate of degree size (Salganik *et al.*, 2008). To take the most obvious example, the popularity of specific names varies by ethnic group. To determine the size of this bias, we estimated the data alternatively including and deleting the two Hispanic names (Jose and Maria). The results were highly similar. To illustrate, the mean posterior mean of the acquaintanceship networks differed by less than 0.25% when we alternatively included and excluded the Hispanic names, and the estimated acquaintanceship overdispersions varied at most by 4% across the groups analyzed in this paper, which was considerably smaller than the standard errors for these estimates.

⁶ Social networks tend to be relatively gender-integrated, which is another reason for our excluding gender as a potential dimension of segregation (McPherson *et al.*, 2001).

⁷The GSS data used intervals instead of continuous responses and so the posterior density described there needed to be modified to handle interval data.

⁸For further details, see McCormick & Zheng (2007).

⁹The average person in the McCarty *et al.* data reported knowing 600 persons (McCormick and Zheng, 2007). Someone with a personal network of 600 would be expected to know about 11 persons named Michael. However, respondents reported knowing an average of just under 5 Michaels.

¹⁰The estimates we provide included the Hispanic names in the normalization. As noted above, our estimates differ by a trivial amount if we exclude these names from the estimation procedure.

¹¹Our estimate is also similar in size to that obtained by McCormick *et al.* (2008), who used a more sophisticated approach to take barrier effects into account related to the different distribution of names across birth cohorts. McCarty *et al.* normalized on common names, while Zheng *et al.* and the current research normalize on rarer names.

¹²The highest response category for our questions was "more than 10." Almost everyone knows more than 10 whites, and so we have relatively little information about overdispersion for this group. Because we did not assume a hierarchical model for the overdispersion parameters themselves, the imprecise estimate for the white group does not affect the estimates for the other groups.

¹³Our recall corrections affect our estimates of the number who are known but not the overdispersion parameter. Generally speaking, however, we expect that recall error will bias downward the estimates of overdispersion in our model.

¹⁴The estimated number of people in a 400 person network who belongs to any particular social group is of course greater than the estimated number of people that one would *recall* from a 400 person network. The illustration could

equally well have been worked out for the recalled network as for the total network, and the results would be the same, with the caveat for both cases that the overdispersion refers to what ego *knows* about the people in his network rather than what these people know about themselves.

¹⁵Roughly 15% of establishments were missing either blacks or whites and roughly 20% of establishments were missing either Hispanics or whites (Tomaskovic-Devey *et al.* , 2006).

¹⁶Racial or ethnic segregation by job is conceptually quite different from racial or ethnic acquaintanceship at work, because people potentially interact both vertically (i.e., between superiors and subordinates) and horizontally at the workplace.

¹⁷In contrast, if we used the names normalization along with recall correction, we would estimate the posterior mean of the median number trusted to be 220 as opposed to 17. An inspection of Table 9 demonstrates the basis for this much larger estimate. In the raw data, 56% of whites reported that they trusted 11 or more specific white people, 33% of blacks reported that they trusted 11 or more specific black people, and 24% of those of other race reported that they trusted 11 or more specific Hispanic people. A presumption that the reports in Table 9 are accurate supports the estimate of a median of 17. The presumptions that the name normalization used for acquaintances applies to trust and that people fail to recall those they trust in the same pattern as for acquaintances would inflate the estimates of the fraction of people whose answers are in the open-ended category and also our numerical estimate for the open-ended category. For reasons already stated, we believe the estimate of 17 is closer to the truth though probably a lower-bound on the correct answer.

¹⁸The use of the six month window in the 2004 GSS prompt may also have played a role, though we think it unlikely that the width of this time window by itself is the cause for the very large discrepancy between the two surveys.

¹⁹NORC asked the generalized trust question to approximately 2/3 of the GSS sample that was also asked our questions about trust, and so the sample size for model 3 is smaller than for models 1 and 2.

²⁰However, respondents with high generalized trust know an estimated 70 more people than do those with low generalized trust. Generalized trust is related to the number one trusts partly through its association with the number one knows.

²¹Jackman and Crain's data used a "stronger" form of acquaintanceship than used in our data. Their prompt defined acquaintanceship as people that respondents "keep in touch with or get together with occasionally." It seems likely that many people who would be defined as acquaintances based on knowing their name and stopping on the street to say hello are not people that one keeps in touch with or gets together with occasionally.

²²Marsden's (1987) study of the 1985 GSS social network questions found that only 8% of adults with networks of size two or more reported being tied to someone of a different race. Marsden estimated this frequency as only one-seventh as high as one would expect if people sorted themselves at random.

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Table 1: Groups Included in the 2006 GSS Queries about Social Ties based on Acquaintanceship and Trust

How many people are you acquainted with/do you trust who...	Occupations	Social Groups
	Are Police Officers	Are currently unemployed
	Are Lawyers	Own a second home
	Are Social Workers	Are currently in state/federal prison
	Are Janitors or Building Cleaners	Asian or Asian-American
	Are Child Care Workers	Black or African/American
	Are Electricians	Hispanic men or women
	Are currently serving in the Armed Forces	Gay men or women
		Unmarried women living with men in a romantic relationship
		Attend religious services on a regular basis
		Attend religious services rarely or never
		People who are very liberal
		People who are very conservative

Table 2: Regression of Acquaintanceship Degree on Selected Covariates

	Acquaintanceship Degree		Log of Degree	
	Coefficient	Standard Error	Coefficient	Standard Error
Age 30-64	17.6	45.5	0.033	0.063
Age 66+	-53.0	57.3	-0.058	0.079
highest year of school completed	21.9**	5.3	0.033**	0.007
total family income (in 10K units)	9.1*	4.1	0.001*	0.001
Income is missing	61.56	48.4	0.062	0.067
female	-37.5	29.6	-0.043	0.041
black	-61.7	45.1	-0.08	0.062
Other race	-145.2**	50.8	-0.250**	0.07
attend church sometimes	51.3	34.9	0.093	0.048
attend church weekly or more	149.5**	39.2	0.252**	0.054
moderate political views	1.15	43.0	-0.016	0.059
conservative political views	-80.845	51.5	-0.117	0.071
widowed	-31.0	60.4	-0.106	0.083
divorced	51.3	43.0	0.073	0.059
separated	-37.2	94.8	0.032	0.13
never married	-1.8	42.1	0.006	0.058
_cons	280.0**	96.4	5.76**	0.133
N		647		647
R ²		.12		.14

* p < .05; **p < .01

Table 3: Estimated Level of Overdispersion in Acquaintanceship Networks

	Median	SE
Persons who are named		
Kevin	1.7	0.11
Karen	1.6	0.13
Shawn	1.6	0.13
Brenda	1.5	0.11
Keith	1.2	0.086
Rachel	1.5	0.11
Mark	1.7	0.12
Linda	1.3	0.10
Jose	3.4	0.36
Maria	2.4	0.20
Persons who (are)		
Unemployed	10	1.12
Own second homes	4.1	0.42
In prison	3.7	0.57
Asians	8.2	0.96
Blacks	11	1.3
Hispanics	8.8	0.91
Whites	45	12
Gay men or women	5.7	0.62
Women who are cohabiting	6.2	0.61
Attend church regularly	12	1.7
Attend church rarely/never	12	1.6
Strongly liberal	7.9	0.94
Strongly conservative	8.3	0.97

Table 4: Deviation from Random in 400 Person Acquaintanceship Networks

Persons who (are)	Expected Count	Probability of knowing ≤ 10		
		Random	Estimated	Odds Ratio
Unemployed	24	0.00	0.18	202
Own second homes	24	0.00	0.06	55
In prison	4	1.00	0.91	0
Asians	17	0.05	0.33	9
Blacks	48	0.00	0.01	>1000
Hispanics	52	0.00	0.00	>1000
Whites	291	0.00	0.00	>1000
Gay men or women	20	0.01	0.17	19
Women who are cohabiting	17	0.05	0.28	7
Attend church regularly	125	0.00	0.00	>1000
Attend Church Rarely/Never	168	0.00	0.00	>1000
Strongly liberal	60	0.00	0.00	>1000
Strongly conservative	78	0.00	0.00	>1000
TOTAL	929			

Note: Expected Count based on estimates of group population size. Sum of N known exceeds 400 because people typically have multiple statuses.

Table 5: Estimated Mean Level of Overdispersion in Acquaintanceship Subnetworks

	Work		Associations	
	Mean	S.E.	Mean	S.E.
Unemployed	15	3.7	11	1.8
Second home	5.8	0.9	8.2	1.4
Prison	4.2	1.2	8.1	2.8
Asians	9.2	1.5	6.6	1.0
Blacks	11	1.6	14	2.2
Hispanics	13.	2.0	8.7	1.2
Whites	33	13.4	47	16
Gays	4.5	0.6	4.8	0.7
Go to church regularly	8.0	1.4	15	2.5
Go to church rarely/never	11	2.3	19	3.8
Liberals	7.2	1.3	8.2	1.4
Conservatives	9.5	1.7	9.8	1.8
Cohabitators	5.4	0.7	8.5	1.4

	Neighborhood		Family	
	Mean	S.E.	Mean	S.E.
Unemployed	13	2.4	5.3	0.7
Second home	3.6	0.6	2.6	0.3
Prison	14	8.1	3.6	0.8
Asians	8.3	1.6	16	5.5
Blacks	15	2.8	83	26
Hispanics	11	1.8	25	6.2
Whites	32	9.0	219	67
Gays	4.7	0.8	2.6	0.3
Go to church regularly	7.8	1.2	9.8	1.6
Go to church rarely/never	9.2	1.5	8.2	1.1
Liberals	6.3	0.9	6.2	0.8
Conservatives	7.7	1.2	9.1	1.3
Cohabitators	4.4	0.7	4.4	0.6

Table 6: Regression of the Logarithm of Estimated Trust Degree on Selected Covariates

	Model I	Model II	Model III
Age 25-34	0.17	0.21*	0.30*
Age 35-44	0.19	0.15	0.16
Age 45-54	0.11	0.11	0.15
Age 55-64	0.13	0.10	0.022
Age 66+	0.22	0.28**	0.22
highest year of school completed	0.031**	0.008	0.000
total family income (in 10K units)	0.009	0.000	-0.004
Income is missing	0.022	-0.028	-0.09
female	-0.084	-0.054	0.001
black	-0.14	-0.059	-0.104
Other race	-0.32**	-0.14*	-0.15
attend church sometimes	0.14*	0.076	0.12*
attend church weekly or more	0.29**	0.095	0.20**
moderate political views	-0.039	-0.018	0.016
conservative political views	-0.049	0.048	0.050
widowed	-0.18	-0.11	-0.100
divorced	0.012	-0.038	-0.018
separated	-0.10	-0.11	0.013
never married	0.051	0.039	0.066
estimated acquaintance degree/100		0.27**	0.29**
(estimated degree/100)**2		-0.013**	-0.015**
(estimated degree/100)**3		0.000**	0.000*
Cannot trust most people			-0.096
Whether one can trust "depends. . . "			-0.14
Intercept	2.2**	1.4**	1.4**
Number of observations	642	642	415

*p < .05; **p < .01

Table 7: Estimated Level of Overdispersion in Trust Networks

	Median	SE
Persons who are named		
Kevin	1.0	0.04
Karen	1.1	0.08
Shawn	1.2	0.10
Brenda	1.4	0.15
Keith	1.2	0.09
Rachel	1.4	0.13
Mark	1.2	0.09
Linda	1.2	0.11
Jose	2.1	0.26
Maria	2.4	0.28
Persons who (are)		
Unemployed	5.3	0.67
Own Second Homes	3.0	0.29
In Prison	2.8	0.66
Asians	5.6	0.76
Blacks	6.8	0.69
Hispanics	7.3	0.84
Whites	9.6	1.33
Gay Men or Women	4.0	0.45
Women who are Cohabiting	3.9	0.39
Attend Church Regularly	7.3	0.85
Attend Church Rarely/Never	6.1	0.57
Strongly Liberal	5.3	0.59
Strongly Conservative	5.1	0.54

Table 8: Deviation from Random in Median Size (17) Person Trust Network

Persons who (are)	Expected Count	Probability of Trusting No One		
		Random	Estimated	Odds Ratio
Unemployed	1	0.36	0.67	3.6
Own Second Homes	1	0.36	0.57	2.4
In Prison	0	0.84	0.91	1.8
Asians	1	0.49	0.76	3.4
Blacks	2	0.13	0.51	7.0
Hispanics	2	0.11	0.50	8.0
Whites	12	0.00	0.04	>1000
Gay Men or Women	1	0.43	0.67	2.8
Women who are Cohabiting	1	0.24	0.51	3.3
Attend Church Regularly	5	0.00	0.19	47
Attend Church Rarely/Never	7	0.00	0.08	109
Strongly Liberal	3	0.08	0.37	7.0
Strongly Conservative	3	0.04	0.27	9.9

Note: Expected Count based on estimates of group population size. Sum of N trusted exceeds 17 because people typically have multiple statuses.

Table 9: Distribution of Trust of Other Races, by Own Race

		Own Race		
Number of		White	Black	Other
Whites trusted	0	3.6	31.0	19.7
	1	3.6	16.1	14.8
	2-5	20.4	35.6	34.4
	6-10	16.7	3.5	11.5
	11+	55.8	13.8	19.7
N		504	87	61
Blacks trusted	0	48.0	13.6	52.4
	1	14.9	4.6	15.9
	2-5	25.0	26.1	23.8
	6-10	7.1	22.7	3.2
	11+	5.0	33.0	4.8
N		504	88	63
Hispanics trusted	0	59.9	64.4	38.7
	1	12.5	11.5	8.1
	2-5	20.2	20.7	17.7
	6-10	3.8	1.2	11.3
	11+	3.8	2.3	24.2
N		506	87	62

Note: Percentages add to 100 within each column in each panel of the table.

Figure 1: GSS Sample Design

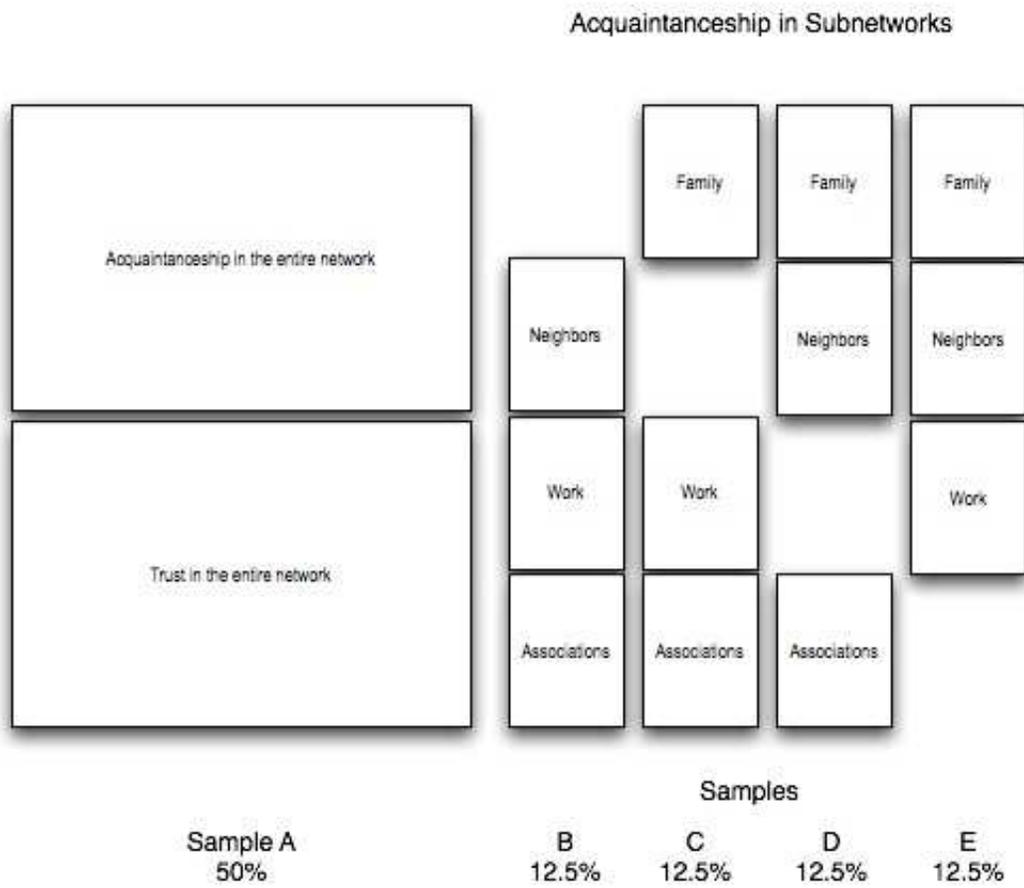
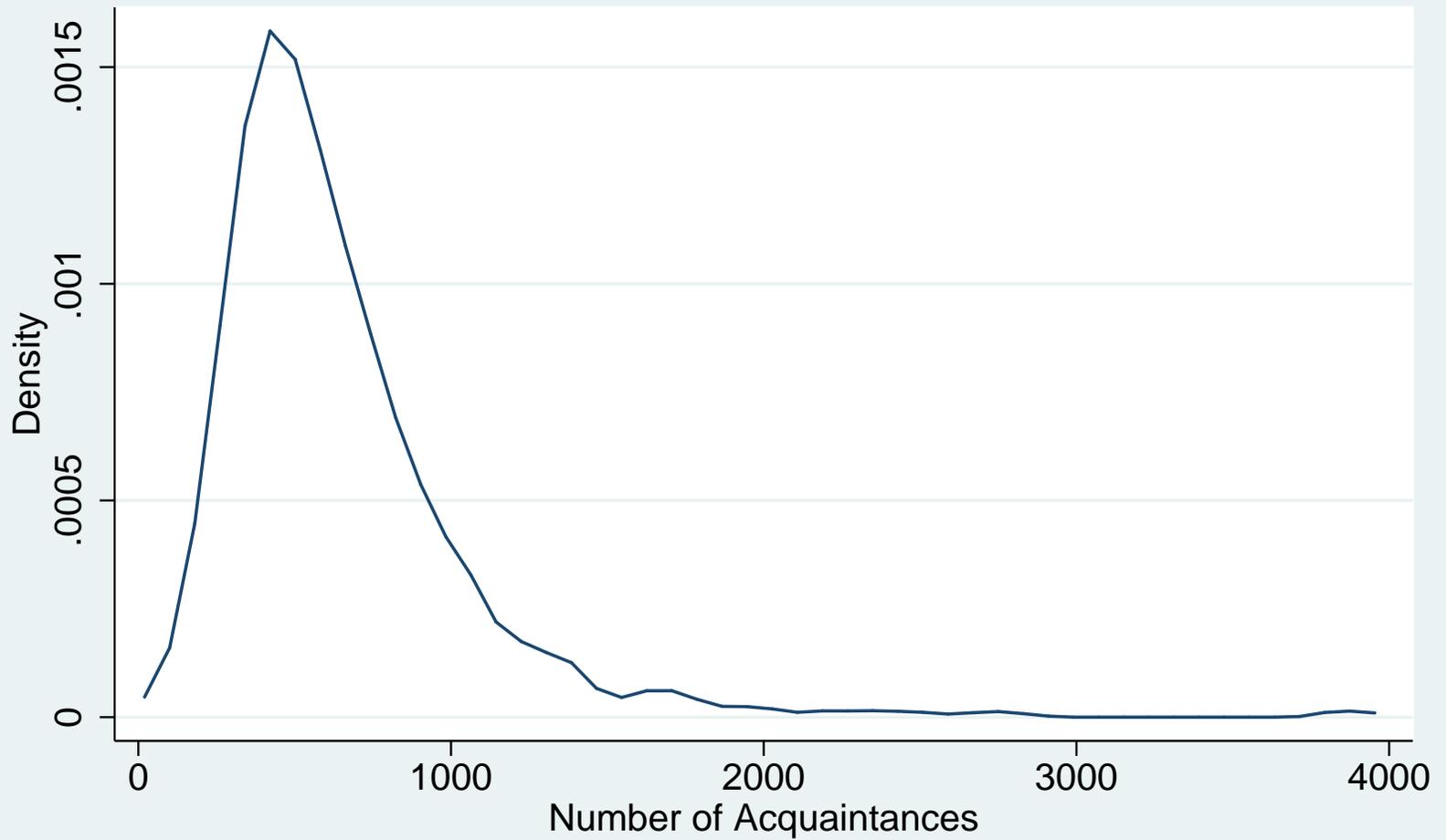
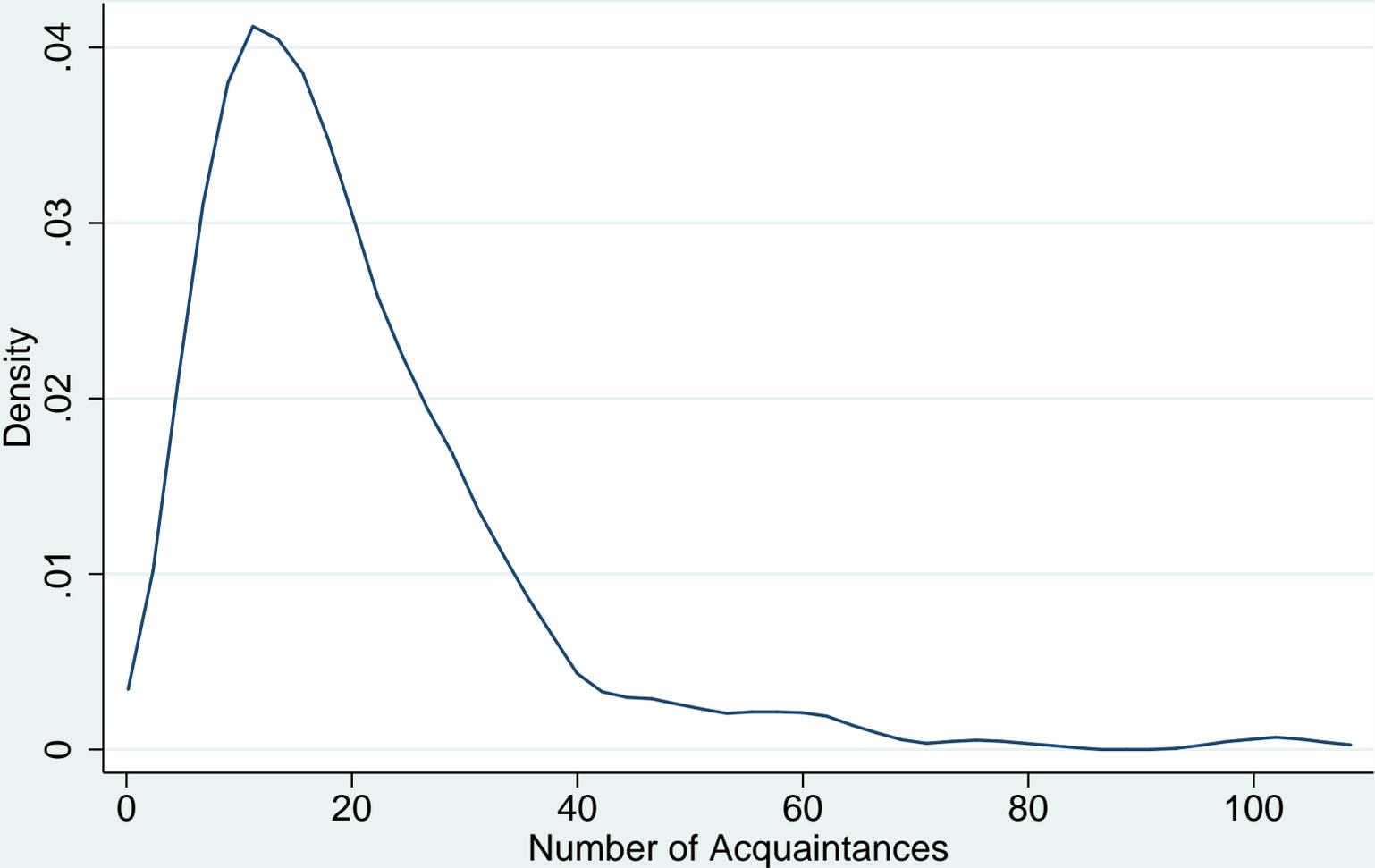


Figure 2
Estimated Distribution of Number of Acquaintances



Median = 550, Interquartile Range = 395–781

Figure 3: Estimated Distribution of Number Trusted



Median = 17, Interquartile Range = 10–26

Figure 4: Number Trusted v. Number Known

