

January 14th, 2003

Who Are Voluntary Associations Bringing Together? Voluntary Associations' Contingent
Value for Network Diversity

Amy E. Davis and Howard E. Aldrich

Department of Sociology

CB#3210

University of North Carolina at Chapel Hill, NC 27599-3210

Prepared for presentation at the 2003 Annual Meeting of the American Sociological Association

Comments Welcome

Abstract

Many have studied voluntary associations' influence on social networks, but authors disagree about their effects on network diversity. In this study of economically engaged individuals in the Research Triangle Park of North Carolina, we examine individuals' sets of voluntary association memberships and network connections within them to study the conditions under which voluntary associations increase or reduce members' network diversity and density. We find that voluntary associations can be ways for individuals to meet disparate people in that meeting alters through memberships reduces network density. We find that co-memberships with alters influence the density and occupational diversity of respondents' business discussion networks in the expected directions. We believe that studying multiple memberships' effects on social networks provides a better understanding of how voluntary associations shape individuals' networks and future research should continue this approach. Diverse and low-density social networks may maximize the resources available to people and thus benefit individuals running or starting a business.

Introduction

Researchers have discovered that, in varied situations, individuals' experiences are strongly shaped by the social networks in which they are embedded. Social networks, in turn, are generated by social contexts that provide occasions for people to meet and participate in joint activities. Voluntary associations, such as civic clubs, chambers of commerce, charities, and networking groups bring people together, and can be important social spaces for the formation of interpersonal ties. Some scholars have characterized voluntary associations as having a diffusing and diversifying effect on individuals' networks, whereas others have lamented voluntary associations' tendencies toward concentrating and homogenizing networks. In this study of individuals engaged in business activities in the Research Triangle Park area of North Carolina, we examine the conditions under which voluntary associations contribute to the diversity and density of individuals' business discussion networks. Rather than focusing on the size, sex composition, and other characteristics of single organizations, we examine the effects of belonging to multiple organizations.

Popielarz (1999b) recommended investigating individuals' multiple memberships as a way of understanding how voluntary associations shape personal networks. She suggested that although individual memberships tend to encapsulate people within homogeneous contexts, belonging to several homogeneous voluntary associations located in different niches could actually produce diverse and low-density networks. However, simply joining several different organizations may have little impact on network diversity and density. Instead, social networks' characteristics depend upon the sorts of people members encounter and with whom they form ties. Therefore, to investigate whether *voluntary associations are fruitful locations for the formation of diverse and low-density social networks*, we examine peoples' co-memberships with others in the set of associations to which they belong.

Plan of the paper

We begin by discussing the importance of diverse and low-density networks for economically engaged individuals. Then, we review research on voluntary associations' roles in shaping members' networks. We offer three hypotheses regarding the conditions under which we expect voluntary associations to promote more diverse and less dense networks. After describing our data and measures, we review our analytic strategies and statistical findings. We conclude by discussing the implications of our research and suggesting areas for extension.

Social Networks

Social networks strongly influence important social processes, such as status attainment. Researchers have repeatedly demonstrated that informal relations influence job and promotion opportunities (Campbell, Marsden, Hurlbert 1986, Fernandez and Weinberg 1997, Granovetter 1974). Researchers have also found that network-based hiring and promotion decisions can limit opportunities for women and ethnic minorities (Kanter 1977, Lai, Lin, and Leung 1998; McGuire 2000, Peterson, Saporta, and Seidel 2000; Reskin and McBrier 2000). Social networks influence these varied phenomena because they can give persons access to valued assets, such as "information, referrals, resources, and support" (Ibarra 1997:91).

Consequences of diverse networks

Diversity in individuals' personal networks enhances their access to varied resources. Knowing people of different occupations, ages, educational levels, geographic locations, ethnicities, and genders broadens people's pool of potential resources. Diversity also enhances individuals' access to high status persons (Campbell et al. 1986, Ibarra 1993, Lin, Ensel, and Vaughn 1981; Lin, Vaughn, and Ensel 1981). "High status" people in network research have been characterized variously as highly educated individuals, people with prestigious jobs, individuals with greater autonomy in their job, more free time, and those with larger networks. Researchers have found that high status contact persons tend to yield favorable labor force outcomes for job seekers, such as labor force participation and higher job prestige, authority, and pay (Bian 1997, Granovetter 1973, Granovetter 1974, Lai et al. 1998, Lin et al. 1981a, b,

Marsden and Hurlbert 1988, Mencken and Winfield 2000; Stoloff, Glanville, and Bienenstock 1999). We are particularly interested in the diversity of information and resources available to individuals through occupationally diverse and low-density social networks.

Occupational diversity. Sociologists have long noted the significance of work in people's lives (Tilly and Tilly 1998). The conditions of people's work, including their occupations, shape how they spend their time, the types of people they encounter, the activities they engage in, and even their attitudes regarding many aspects of social life (Burke 2002, Hochschild 1983, Wharton 2002). Thus, people's occupations shape who they are and how valuable they are to others in social relationships.

Having an occupationally diverse network enhances persons' access to a variety of information, perspectives, and areas of expertise. Researchers have found that occupational diversity enhances outcomes for individuals and organizations (Campbell 1988, Lin and Dumin 1986, Lin et al. 1981 a,b; Sicilano 1996). For example, Renzulli and Aldrich (2002) found that access to resources such as legal and accounting advice, and help with bank loans, depended heavily on the mix of occupations in an individual's business discussion network.

Density and Diversity

Density refers to the extent to which alters in an individual's network know one another. High-density networks can be useful because they provide social support and facilitate the transmission of complicated information (Nahapiet and Ghoshal 1998, Pescosolido and Rubin 2000). However, high-density networks can also be detrimental to the extent that they induce conformity and constrain individuals' autonomy and creativity (Brass, Butterfield, and Skaggs 1998, Burt 1997, Gargiulo and Benassi 2000, Gould 1993, Hansen 1999, Putnam 2000) and contain redundancy. Low-density networks, by contrast, have been characterized as beneficial because they maximize individual autonomy and the potential for novel information from network alters.

People with low-density networks are more likely to experience early promotion or advancement (Burt 1997, Burt, Jannotta, and Mahoney 1998), although low-density networks

can also create role conflict (Podolny and Baron 1997). McEvily and Zaheer (1999) found that having low-density networks enhanced company executives' odds of knowing of or implementing new technologies. Thus, low-density networks seem to maximize people's potential for accessing novel and useful information and resources.

Why do economically engaged individuals need diverse and low-density networks?

Our study focuses on people engaged in business activities, defined as individuals starting, running, or servicing a business, or taking business classes. Such individuals can benefit from diverse and low-density networks. They might use their ties to locate other owners or assist them in the acquisition of funding, potential employees, customers, vendors, and/or suppliers. Further, when developing business practices, owners may benefit if they receive advice from diverse alters who have multiple viewpoints. Higgins and Kram (2001) even called diverse and low-density networks "entrepreneurial networks." However, empirical evidence linking diverse and low-density networks to economic success is limited (for exceptions see Brüderl and Preisendörfer (1998) and Renzulli, Aldrich, and Moody (2000)).

Voluntary associations and social networks

Recently, researchers have paid particular attention to whether voluntary associations influence the diversity of members' personal networks. Some studies have suggested that voluntary association membership enhances network diversity and hence produces instrumental benefits for members. Other studies have suggested that voluntary associations promote network homogeneity. We review findings from each set of authors.

Voluntary associations as enhancers of network homogeneity

Some researchers have found widespread voluntary association segregation based on sex, race, age, and education, as well as other characteristics. They have argued that segregated voluntary associations limit members' opportunities to develop diverse networks (McPherson and Smith-Lovin 1986, McPherson and Smith-Lovin 1987, Popielarz 1999). We first discuss how homophilic interpersonal relations might segregate voluntary associations through differential recruitment and turnover. Then, we discuss how segregated voluntary associations

might fail to enhance the network diversity of their members, resulting in disadvantages for women and minorities. We note that almost all of the research on voluntary associations' homogenizing tendencies has used individual memberships as the unit of analysis. Thus, researchers have investigated the effects that the characteristics of voluntary associations have on members' personal networks, taken one membership at a time.

Why are Voluntary Associations Homophilous?

Theorists have used the principle of homophily to explain segregation in voluntary associations. Homophily refers to the tendency for people to associate with those like themselves with regard to characteristics such as sex, age, race, education, social class, and religion. Homophilic tendencies appear to apply not only to personal networks but also to organizational memberships. Segregation largely results from the ways in which people become members of organizations. Thus, we must examine the ways in which voluntary associations recruit new members and also the reasons why people drop their memberships.

Selective recruitment and differential turnover rates contribute to segregation in voluntary associations. Although some individuals may join an organization in response to an advertisement or independent inquiry, many individuals join because a friend recruited them. Research has shown that individuals are more likely to participate if a friend is also a participant (Brady, Schlozman, and Verba 1999, Gould 1993, Popielarz, McPherson 1995, McPherson, Popielarz, Drobnic 1992). Therefore, if existing members recruit friends who resemble themselves, the recruitment process reproduces organizational homogeneity. In addition, individuals who would boost the diversity of the organization are rarely recruited.

Beyond recruitment, segregation in voluntary associations increases because homophilic tendencies influence the duration of individuals' affiliations. Individuals who conform to the organizational norms tend to remain members, whereas individuals who differ from the organizational norms often become disillusioned and quit. Research has shown that the strength and number of ties inside and outside of an organization, as well as token status within an organization, influence the length of a person's membership (McPherson, Popielarz, and Drobnic

1992; Popielarz and McPherson 1995). Dissimilar members are not necessarily excluded from the organization. Instead, more compatible people may lure members out of the organization and perhaps even recruit them into a different organization. Thus, to the extent that individuals join and remain in organizations with members who are similar to them, organizational homogeneity increases (Liedka 1991, McPherson and Rotolo 1996).

Consequences of Segregated Organizations on Personal Networks

Memberships in homogeneous associations primarily provide opportunities to meet individuals someone would already encounter in other social situations. Rather than memberships enhancing network diversity, many authors argue that voluntary associations either make no difference or actually decrease network diversity (Brady et al. 1999, McPherson, Smith-Lovin 1986). McPherson and Smith-Lovin (1986:77) concluded that segregated voluntary associations maintain inequality “by creating networks of weak ties that restrict men’s and women’s information and resources to the domains that are traditional for each.” Popielarz (1999) also concluded that voluntary associations do not generate diverse ties for women.

If voluntary associations provide limited opportunities to meet individuals from diverse backgrounds, then relations formed in voluntary associations resemble personal networks generated outside voluntary associations. For example, researchers have found that women’s memberships are smaller and less diverse than men’s memberships, just as researchers have found that women’s personal networks are smaller and less diverse than men’s personal networks (Campbell 1988, McPherson and Smith-Lovin 1982, 1986, Moore 1990, Popielarz 1999b). People traditionally unable to generate diverse networks because of segregation in their workplaces, schools, or neighborhoods are thus unlikely to increase network diversity through involvement in segregated voluntary associations.

The authors discussed above studied the effect of membership on network characteristics by comparing members to other members and using membership as the unit of analysis. They noted that many memberships were sex segregated and found that men have larger and more diverse voluntary-association-generated networks than women (McPherson and Smith-Lovin

1982, 1986, 1987, Popielarz 1999a). They therefore concluded that voluntary associations are not a way for resource-poor people to enhance their network diversity. However, by examining a membership as the unit of analysis, they ignored information about individuals' potential multiple memberships.

Voluntary associations as enhancers of network diversity

Although the authors discussed above argued that voluntary associations do little to enhance network diversity, others have claimed that voluntary associations are diverse and hence promote diversity in members' personal networks (Eastis 1998, Olsen 1982, Wellman 2000). In addition, some have argued that voluntary association activity enhances the diversity of someone's personal network, whether *individual organizations* are diverse or not. The homophily theorists discussed in the previous section focused on how memberships are segregated and found that male members enjoy more benefits from memberships than do female members; they overlooked the possibility that people can enhance their network diversity through multiple memberships.

In contrast, the diversity theorists discussed below found that individuals who belong to one or several voluntary associations had more diverse networks and enjoyed more favorable outcomes, compared to individuals with no such memberships. They were not concerned with the possibility that individual memberships might be segregated, instead implicitly reasoning that the potential to increase network diversity is higher in a meeting of a voluntary association than it is in a solitary activity, such as watching television.

Voluntary associations could be particularly beneficial if they increased people's access to high status individuals who would be otherwise inaccessible. Research has found that high status people participate in voluntary associations at greater rates than others (Carroll and Teo 1996, McPherson, Popielarz, and Drobnic 1992; Popielarz 1999a, Putnam 2000, Rotolo 1999, Wilson and Musick 1997a, b, Wilson 2000). If individuals take advantage of opportunities to meet high status people in their memberships, then voluntary associations may improve their chances of attaining a variety of instrumental outcomes.

Several studies have found evidence that voluntary association memberships play brokering roles in connecting individuals with alters who can help them achieve favorable labor force and business outcomes (Beggs and Hurlbert 1997, Boxman, DeGraaf, and Flap 1986; Reed 2001). For example, Stoloff et al. (1999) found membership in one or more voluntary association increased the odds of labor force participation among their sample of women in Los Angeles.

Thus, in contrast to authors reviewed in the previous section, who argued that voluntary associations enhanced network homogeneity, in this section we have reviewed strong claims to the contrary. We presented arguments that activity in voluntary associations may enhance network diversity and, as a result, provide benefits for their members.

Hypotheses: Individuals' membership sets

We believe that the debate over voluntary associations' effects on personal networks has been hampered by a focus on individual memberships in the case of the homophily theorists and by a focus on simple presence or absence of memberships in the case of the diversity theorists. The homophily theorists compare members to members, whereas the diversity theorists compare members to non-members. We prefer to examine individuals' *sets of memberships* because people may belong to several voluntary associations, or none at all. In this way, we can determine whether those with any number of memberships enjoy network density and diversity benefits over those without memberships. Additionally, we can examine whether particular characteristics or particular behaviors within voluntary associations influence network density and diversity.

Analysts rarely conduct research examining individuals' membership sets (see McPherson and Smith-Lovin 1982 for an exception). Most research focuses instead on single memberships. However, we know that many people belong to more than one association. By focusing on only one membership, single-member studies may paint a misleading picture of the varied resources available to people, and overstate the homogeneity of affiliations.

A single membership will only enhance a member's personal network diversity if the organization is diverse *and* the member pursues opportunities to interact with people from different backgrounds in that organization. Conversely, a single membership will not enhance a member's personal network diversity if the organization is homogeneous *or* if the member lacks or does not pursue opportunities to interact with diverse people in the organization. In addition, multiple memberships will not enhance the diversity of someone's personal network if each organization is homogeneous and contains the same types of members, such as if a person belonged to five businesswomen's groups, for example. However, if a person belongs to multiple associations with differing member composition and purpose, then his or her collection of memberships presents opportunities to meet different types of people and enhance network diversity. For example, a person who belongs to a political group, a chamber of commerce, a religious organization, and a hobby group might meet different people in each of the organizations, *even if* each of the organizations is internally homogeneous.

If the diversity researchers are correct, then individuals that people meet through voluntary associations are different from individuals they may meet in other contexts, such as work and neighborhood. Moreover, individuals met through voluntary associations share a common interest with the person beyond gender, race, or occupation, and are therefore more likely to differ from ego, compared to people met elsewhere (Wellman 2000).

FIGURE 1 ABOUT HERE

We illustrate our argument in the two panels of Figure 1. In this figure, persons in panels A and B are both tied to five alters. In both panels, the social spaces of school, neighborhood, work, and local bar in which both focal persons meet their alters are represented as overlapping, and therefore, alters from each of these spheres are likely to know one another. The person in panel B has no voluntary association memberships and thus no arenas in which to meet dissimilar others. By contrast, in panel A, two voluntary associations in which the focal person meets alters four and five are represented as occupying different niches, and hence are separated

from the other spaces. Thus, having and especially *forming* ties in voluntary associations should increase occupational diversity and decrease density in business discussion networks.

Hypothesis 1: The greater the number of alters people meet through their association memberships, the higher the occupational diversity and the lower the density of their business discussion network.

A model of voluntary associations' effects must acknowledge the homogeneity that homophily theorists have found within organizations. If all of someone's alters belong to the same civic club, for example, then his or her network is likely to be dense and homogeneous, even if he or she belongs to several different types of organizations. In this way, voluntary associations can produce cliquish and segregated networks, failing to bring together diverse alters. We illustrate this possibility in Figure 2.

FIGURE 2 ABOUT HERE

Although the focal person in Figure 2 has three memberships, each of which could be a potential source of ties, three of his or her alters belong to the same voluntary association. The other two alters do not share a voluntary association membership with the focal person; perhaps he or she knows them through work, family, or neighborhood. The three alters with whom he or she shares a membership are likely to know one another. Hence, any information one alter may have is likely shared with the other two and thus several of the ties are redundant.

Hypothesis 2: The greater the number of alters with whom people share an organizational membership, the lower the occupational diversity and the higher the density of their business discussion network.

Sharing memberships with alters need not reduce diversity and raise density if the co-memberships are spread across different organizations. On the contrary, belonging to several different organizations and sharing a different membership with several alters may result in a diverse and low-density network. With this pattern of affiliations and shared memberships, a person draws on different organizations to connect with persons of varied interests and backgrounds. We illustrate this possibility in Figure 3.

FIGURE 3 ABOUT HERE

The focal person in Figure 3 has the same network size, number of memberships, and number of shared memberships as the person represented in Figure 2. However, each alter with whom he or she shares a membership belongs to a different organization, unlike the person in Figure 2. These persons are less likely to know one another than people sharing memberships, and they may also be very different from one another. Hence, the focal person is more likely to receive novel information and resources from each alter than is the person in Figure 2.

Hypothesis 3: The greater the number of sources of shared memberships with alters, the higher the occupational diversity and the lower the density of their business discussion networks.

Research Design

Data

We use data from the Research Triangle Entrepreneurial Development Study to explore the effects of voluntary associations on the networks of economically engaged individuals. Participants were located in the Research Triangle area of North Carolina, an area previously studied by many researchers (Aldrich et al. 1989, Campbell 1988, Kalleberg et al. 1990, Luger and Goldstein 1991; see Renzulli et al. 2000 for a review of such research). Thus, this area is a worthwhile location for studying entrepreneurship and social networks. In addition, we believe that extending research on the effects of voluntary associations on social networks to regions of the United States beyond the well-studied state of Nebraska allows us to assess the limits to empirical generalizations from previous studies.

The respondents in this sample were selected from people involved in business activities in the North Carolina counties of Durham and Wake. They were located through business organizations in the North Carolina counties of Durham and Wake, small business classes in a technical college in Wake County, and a random sample of new business owners in Wake County.¹ The randomly chosen sub-sample of new business owners in Wake County allowed

¹ The organizations included Center for Entrepreneurial Development (CED), National Association for Women Business Owners (NAWBO), and varied networking organizations (NET).

Reese (1993) to show that sample source was significantly associated with network composition and networking activities. Thus, the multiple methods of recruiting participants increased heterogeneity in the variables of interest to us. When we added a dummy variable for the randomly chosen subsample of business owners to our regression equations, it was not significant (Renzulli et al. 2000).²

Two waves of information were collected, the first between 1990 and 1991, and the second in 1992 (see Reese 1993, Reese and Aldrich 1995 for a full description of the data.). We use data from the first wave, which involved a short mailed questionnaire and an in-depth telephone interview. Fifty-four percent of the 659 individuals initially contacted completed a mailed and telephone questionnaire, a rate comparable other studies of entrepreneurs (Birley, Cromie, and Myers 1990; Cooper and Dunkelberg 1987, Kalleberg and Leicht 1991). We used only those wave one respondents who completed a phone interview, as only they were asked the questions we used to construct our independent and dependent variables. We also dropped cases that had missing values for our variables. In this paper, we analyze data from 315 people, 227 men and 88 women.

Measures

Our measures of network composition concern respondents' business discussion networks. Business discussion networks comprised up to five persons whom respondents nominated as individuals with whom they would discuss business matters. Definitions of our variables are shown in Table 1, and descriptive statistics of our measures are shown in Tables 2 and 3.

TABLE 1 ABOUT HERE

² In analyses not shown here, we replicated and extended Reese's (1993) test for possible selection bias in our sample. We found that sample source was a significant predictor of our independent and dependent variables, before respondents' characteristics were introduced into the equations.

Business discussion network members are mostly strong rather than weak ties.³ Tie strength promotes trust and a willingness to assist, and research has found that strong ties are useful in many situations, such as finding a job, getting help with work-related problems, and transferring complex knowledge (Bian 1997, Hansen 1999, McEvily and Zaheer 1999, McGuire 2002, Ibarra 1993). Brüderl and Preisendörfer (1998) found that new business owners in Upper Bavaria, Germany, with supportive ties more often achieved business success because strong ties provided a source of reliable and sometimes unpaid labor. Strong ties are particularly beneficial to a business owner at startup because the trust associated with strong ties compensates for the low legitimacy of the new business (Hite and Hesterly 2001).⁴

We excluded kin, including spouses, from our measures characterizing the business discussion network. Kin ties are fundamentally different from other types of ties because they are either inherited or acquired via marriage. Organizations are unlikely to be the source of kin relationships, although respondents may share an organizational membership with kin. Therefore, to avoid mixing the impact of kinship and organizational memberships, we excluded from our analysis the 15 percent of alters who were related by kinship to the respondents.⁵

Dependent Variables

Occupational Diversity. Occupational diversity is a count variable measuring the number of different occupations in respondents' business discussion networks.⁶ We examined several ways of measuring diversity, including the index of qualitative variation and entropy measures (Lieberman 1969, Shannon and Weaver 1963). The different measures produced similar findings and we feel that the count measure provides the most straightforward interpretation. We control for the number of alters in a role set, as we discuss later.

³ By contrast, McPherson and Smith-Lovin's 1982 analysis of individuals' multiple memberships only examined potential weak ties.

⁴ Although some research has shown that weak ties are more likely to be work-related and of higher status, weak ties are less useful than strong ties, net of these other characteristics.

⁵ Originally, there were 1,473 alters. Once kin are excluded, there are 1,258 alters.

⁶ The fifteen possible occupations represented in respondents' business discussion networks are: business owner, president of a business, investor, lawyer, accountant, banker, scientist/professor, medical doctor, real estate professional, consultant, manager, miscellaneous employee, retired/unemployed, student, and homemaker.

Density measures the extent to which respondents' alters know one another. After respondents were asked to nominate up to five people with whom they discuss business matters, they were then asked if "alter 1" knew alters 2 through 5, if alter 2 knew alters 3 through 5, and so on. These questions assume the relationship is non-directional: if alter 1 knows alter 4, then alter 4 knows alter 1, for example. The highest possible value for our measure is 10, representing a highly dense network in which all alters know one another. The lowest value is 0, representing a sparse network in which no alters know each other.⁷

Independent variables

Respondents were asked to list up to five voluntary associations in which they held memberships. They were subsequently asked about various aspects of these organizations and their memberships, including their size, sex composition, type, and frequency of attendance. Respondents were then asked which of their alters belonged to the same organizations as they did (*shared memberships*), which organization (*number of different organizational sources of shared memberships*), and if they met through the membership (*alters met in memberships*).

Shared Memberships Respondents indicated whether they shared a membership with their alter (1) or not (0). We then summed across the five alters to determine how many alters shared a membership with the respondent. In the examples shown in Figures 2 and 3, the focal persons' score on this measure is 3 for each person.

Number of different organizational sources of shared memberships (henceforth *sources of shared memberships*). Respondents were asked to indicate in which organization an alter shared a membership with them. Each organization is counted as either 0, meaning no membership or no shared membership with alter, or 1, meaning one or several alters belong to the organization with ego⁸. We then summed the number of different organizations in which a

⁷ An alternative measure of density would be $2 * \text{number of shared ties} / ((\text{number of alters} / (\text{number of alters} - 1)))$ (Wasserman and Faust 1994:101). Our results are unchanged if we use the alternative measure. However, for ease of interpretation, we include the number of alters as a control and use a count of the number of shared ties as the density measure.

⁸ Although it is possible for an alter and a respondent to share more than one membership, this was a rare occurrence in the data. Fourteen respondents reported that one of their alters belonged to more than one of their memberships. Four respondents reported that two of their alters belonged to more than one of their memberships. In the

respondent and an alter share a membership. In Figure 2, the focal person's value for *sources of shared memberships* is 1 and is 3 for the focal person in Figure 3.

Alters met in memberships. Respondents indicated whether they met an alter through their membership (1) or not (0). We then summed across the (up to) five alters.

Controls

Demographic and Human Capital Controls. Researchers have found that demographic and human capital characteristics influence network diversity and voluntary association participation. Therefore, we controlled for these influences when assessing the effect voluntary associations have on network characteristics.

We control for respondents' gender because studies have found that the characteristics of men's and women's networks differ (Campbell 1988, McGuire 2002, Moore 1990). We also control for marriage and number of children. We also control for respondents' age, in years, and educational level, whether respondent has a bachelor's degree, because each has a demonstrated effect on network diversity and voluntary association activity (Campbell et al. 1986, Marsden 1987). We control for ethnicity and ownership status because of possible differences between whites and minorities and between owners and non-owners. "Ethnicity" is measured as an indicator of whether or not the respondent is a member of a minority group: Asian, African American, or Hispanic. "Owner" is an indicator of whether a respondent owns and runs his or her own business.

Organizational and network controls. In addition to human capital, demographic, and family characteristics, we controlled for characteristics of respondents' business discussion network and voluntary association memberships. We included *network size*, the number of alters a respondent nominated for his or her business discussion network, as a control so we can interpret the coefficients for our dependent variables net of network size. We also include

analysis, we counted these "multiple shared memberships" as a distinct membership. For example, if a respondent reported that one alter belonged to organization 1, another alter belonged to organization 3, and a third alter belonged to "multiple organizations", then the value for *sources of shared memberships* would be 3. We ran the analysis both including and excluding these 18 cases, and the coefficients for the dependent variables were not changed.

several characteristics of respondents' voluntary association memberships. The size of respondents' voluntary association memberships may influence their opportunities to meet diverse people who themselves are not connected. *Potential connections* is the total number of members in all of respondents' memberships. Respondents were asked to estimate the number of members in each organization.⁹ We summed their answers across the organizations they named (up to a maximum of five). McPherson and Smith-Lovin (1982) created a similar measure they called "potential weak ties."¹⁰

Several researchers have focused on the roles that voluntary associations' sex composition has on opportunities to form diverse and low-density networks. Therefore, we control for the *percent women members* in respondents' memberships. Respondents were asked to estimate the gender composition of their organizational memberships: all men (0 percent), mostly men (25 percent), half and half (50 percent), mostly women (75 percent), all women (100 percent). We multiplied these percentages by organization size and summed for all memberships. We divided this number by *potential connections* and multiplied the result by 100.

Regression Analysis. We used robust regression analysis to test our hypotheses. The relatively normal distributions of the dependent variables suggest that an Ordinary Least Squares regression is more appropriate than a Poisson or negative binomial regression.¹¹ After running OLS analysis in STATA, Cook-Weinberg diagnostic tests revealed heteroskedasticity, which biases the standard errors but does not influence the coefficients. Therefore, we use robust regression, which uses the Huber/White/sandwich estimator to predict the variance, rather than the traditional OLS method. Robust regression corrects for heteroskedasticity and ensures the

⁹ The categories were less than 20, 20 to 50, 51 to 100, and more than 100 members. We recoded these variables to their midpoints: 10 members for the first category, 35 members for the second category, 75 members for the third category, and 150 members for the last category.

¹⁰ Initially, we also controlled for the number of memberships, between 0 and 5. However, we dropped this variable because of its high correlation with potential connections (greater than .80). Number of memberships was not significantly related to either of our dependent variables.

¹¹ Negative Binomial and Poisson analyses produced similar results.

accuracy of interpretation of statistical significance. Robust regression also minimizes the effects of outlying or influential observations. Our equations are:

Occupational diversity=constant+b1 (background characteristics)+b2(network and organizational controls) b3(alternatives met in memberships)+b4(shared memberships)+b5(sources of shared memberships)+error

Density=constant+b1 (background characteristics)+b2(network organizational characteristics) +b3(alternatives met in memberships)+b4(shared memberships)+b5(sources of shared memberships)+error

Our variables measure several related aspects of voluntary association membership: size, sex composition, alternatives met in memberships, shared memberships, and sources of shared memberships. Variance inflation factor levels are well below the conventional threshold indicating problematic results, thus indicating that we do not have a problem with collinearity.

Results

Descriptive Findings

We first examined overall differences between the women and men in our sample. Table 2 displays, by gender, the means and standard deviations for our continuous variables, and Table 3 displays percentages for the dummy variables. A correlation matrix for all of our variables is included in the Appendix.

TABLES 2 AND 3 ABOUT HERE

The average age of respondents is just over 41 years. Persons have an average of 385 potential connections through their organizational memberships. Respondents' memberships contain, on average, about 35 percent women members. With regard to our dependent variables, respondents have an average score of just over three for density within their business discussion network, with 2.7 different occupations represented. Men have significantly larger networks and more potential connections. Women have a significantly higher percentage of women in their memberships than do men. Most respondents in our sample are white, married, male business owners with at least a bachelor's degree. Men are significantly more likely to be married and have children, and to have a bachelor's degree, than women.

Descriptive Analysis

To begin to address whether voluntary associations are integrating or segregating, we examined the extent to which memberships in our sample were segregated by sex. To do this, we treated each respondent's membership as an observation. We tabulated the respondents' answers for the number of exclusively men, mostly men, representative, mostly women, and exclusively women memberships.¹² The result was a total 1009 memberships, meaning that each respondent belongs to approximately three organizations, on average.¹³ Because several respondents belonged to the same organizations, there are not 1009 distinct organizations represented, much like in the McPherson and Smith-Lovin (1987) study. Organizations such as Center for Entrepreneurial Development and National Association for Women Business Owners are represented in multiple observations in our sample, 185 and 18 respectively. Chamber of Commerce organizations are represented 120 times.

TABLE 4 ABOUT HERE

Table 4 displays the level of sex segregation in memberships in our sample. McPherson and Smith-Lovin (1986) found a great deal of sex segregation when they examined all the memberships in their sample: half of the memberships were in all female organizations and one-fifth were in all male organizations. The level of sex segregation in our sample is much lower than in McPherson and Smith-Lovin's Nebraska sample. The vast majority of memberships involve members of each sex. Most memberships consist of "mostly men members" organizations. Only about eight percent of memberships involve respondents belonging to organizations of exclusively one sex. Therefore, although most organizations have a skewed rather than balanced distribution with regard to gender, almost all have members of both sexes.

Differences between our results and those of the Ten Towns project are not surprising and possibly stem from differences between a sample of individuals engaged in business activities in the Research Triangle Park and a representative sample of 10 towns in Nebraska.

¹² For example, if 100 people said they belonged to 0 exclusively men memberships, 10 people said they belonged to 1, 20 people said they belong to 2, and 50 people say they belong to 3 then the number of exclusively men memberships equals $100*0+1*10+20*2+50*3=200$. We did the same for the other four sex-typed categories.

¹³ When we calculated a measure for the total number of memberships people belong to, the result was 1017 memberships rather than 1009. Some male respondents did not report the sex composition for 8 memberships.

Moreover, our respondents may have chosen memberships more instrumentally than respondents in the Nebraska study. Perhaps our respondents more often chose mixed sex groups that would potentially help their business careers, as opposed to single sex groups that would serve primarily social, service, or recreational functions. Whatever their origins, these differences illuminate the need to study voluntary associations' effects on social networks in a variety of populations.

Regression Analysis

TABLE 5 ABOUT HERE

Control Variables

Network size is significantly and positively related to density, as shown in Table 5. Large networks are associated with more shared ties because a respondent's number of alters determines how many shared ties are possible. A network of only one alter has zero possible shared ties, whereas a network of five alters has ten possible shared ties. Married respondents have significantly lower density networks than single respondents, whereas the greater the number of children, the higher the network density. Business owners have significantly more dense networks than non-owners.

Of the control variables, only network size has a significant effect on occupational diversity, as shown in Table 5. The effect is positive: the larger the network, the greater the number of occupation. This result reflects the definitional dependency between the two variables: a respondent's number of alters determines how many occupations are possible. A network of only one alter has only one possible occupation, whereas a network of five alters has five possible occupations.

Results for density

All three of our hypotheses regarding density were supported. *Alters met in memberships* is negatively and significantly related to density, as expected (Hypothesis 1). For each alter a respondent met in an organization, the number of shared ties among alters decreases by 0.41. Through voluntary associations, individuals go beyond their current ties and meet new

people they would not encounter in other situations. Associations also may be places in which individuals' existing ties are unlikely to share ties with most members.

Shared memberships with alters increased density within a respondent's business discussion network, as hypothesized (Hypothesis 2). Each additional shared membership is associated with an increase of 0.734 in the number of shared ties among business discussion network alters. Thus, sharing membership ties with all five alters is associated with an increase of 3.7 in the number of shared ties within a respondent's business discussion network.

Sources of shared memberships decrease density, as expected (Hypothesis 3). Recall that our measure of different organizational sources of shared memberships reflects how concentrated a respondent's discussion alters are in their memberships. Each unique organizational source of shared memberships is associated with a 0.796 decrease in the number of shared ties between alters in respondents' business discussion networks.

Our three independent variables measure different aspects of shared memberships, and so their effects should be considered together, similar to the way interaction effects are interpreted. See Table 6 and Figure 4 for examples of how the three variables simultaneously affect density. Figure 4 represents the predicted values for density when the mean and modal characteristics are assigned to the control variables. Hence, the individual depicted in Figure 4 is a white, married, man who is a business owner with a bachelor's degree. He is 41.15 years old, has 0.84 children, has a network size of 3.99, has 385.32 potential connections, and 34.55 percent of persons in his memberships are women. When *alters met in memberships* equals zero, an average respondent with 3 shared memberships and 3 sources of shared memberships, such as the person represented in Figure 3, would have a density of 2.7. By comparison, a person with three shared memberships and 1 source of shared membership, as the person represented in Figure 2, would have a density of 4.3.

FIGURE 4 ABOUT HERE

To examine the effect of meeting a person in a membership, we computed the various scenarios shown in Table 6. The table displays 11 different combinations of possible values for

our three independent variables, and shows their consequences for density. For example, consider a person with 3 shared memberships and 3 different sources of shared memberships. If that person initially met none of his or her alters in one of those associations, then density would be 2.7. If the person met one of them initially in one association, density would be 2.3. If all three of them were met initially in the three different associations in which the respondent shared a membership with each, density would drop to only 1.5. Thus, the circumstances surrounding making initial contact with persons who eventually become members of a person's role set have a significant effect on density within the role set.

TABLE 6 ABOUT HERE

Results for diversity

Of our three hypotheses for occupational diversity, only Hypothesis 2 is supported. Neither *alters met in memberships* nor *shared memberships* is significantly related to occupational diversity. Thus, contrary to our expectations, shared memberships do not reduce the occupational diversity of respondents' networks. However, *sources of memberships* is significantly and positively related to occupational diversity, as expected. For each unique organization in which a respondent shared a membership with an alter, the number of occupations represented in the business discussion network increased by 0.233. Thus, having five different organizational affiliations in which an alter is also a member is associated with an increase of about one additional occupation in a respondent's business discussion network.¹⁴

Discussion

Summary and implications

We found that voluntary association memberships, taken individually, contain the potential for homogenizing the personal networks of their members, with regard to gender. Even

¹⁴ In analyses not shown here, we included dummy variables for sample source: CED, NAWBO, networking organizations, and business classes, with the random sample of business owners being the omitted category for our regression models for occupational diversity and density. Sample source was not significantly related to density. Results for occupational diversity indicate that, net of other measures of organizational involvement and networks, respondents from the CED and networking organizations sub-samples have a significantly lower level of occupational diversity. The other coefficients are not affected by the addition of these controls.

though the associations we studied were not as segregated as those studied by Smith-Lovin and McPherson (1986), they were also not gender-balanced. Most memberships reported by the respondents in our student involved a skewed distribution of members, with 60 percent having “mostly men members.”

Voluntary association activity had contradictory effects on the personal discussion networks of owners and potential owners. The more business discussion alters who were actually met through association activity, the less likely such alters were to know one another. Thus, simply adding persons through association contacts lowered network density. Offsetting this tendency, however, was a tendency for shared memberships to increase network density. Thus, if all someone’s business discussion alters were also co-members in the same organization, organizational involvement would raise network density *yet does not lower occupational diversity!* However, our findings suggest that dense and homogeneous personal networks are not an inevitable consequence of involvement in associations.

Memberships in multiple voluntary associations carry a potential for diversifying people’s personal networks. Memberships in dissimilar organizations enable people to meet diverse others, including others who are not part of the same circle of friends and acquaintances. Thus, associating with different people in different organizations could enable economically engaged individuals to increase the diversity and reduce the density of their networks, potentially providing them with new information, resources, and assistance for their business ventures.

Somewhat surprisingly, the size of organizations and the percent of women in them did not affect the occupational diversity and density of the business discussion network.¹⁵ Individuals are unlikely to enhance diversity and reduce density in their social networks simply by joining a large organization or one with a high proportion of women members.¹⁶ Rather, active involvement in several memberships and associating with different people in each is more

¹⁵ In supplemental analyses, we examined the role of attendance at meetings, organization type, and the number of memberships. These variables had no significant impact on density or diversity.

¹⁶ Of course, joining a single prestigious country club or civic organization may enhance access to high status persons.

likely to have a diversifying effect on people's networks. In strategic terms, persons can enhance the diversity of their personal networks by joining several organizations, for example a religious organization, a service organization, a business or professional association, and a social organization, provided that they interact with different people in each.

Opportunities for Extension

Our results provide a partial explanation for why some researchers have argued that voluntary associations are segregating, whereas others have asserted that they are integrating. Voluntary associations can produce either effect on members' social networks, depending on with whom they form ties in their memberships. Previous research that examined only single memberships, rather than aggregated memberships, was thus somewhat misleading. People may belong to multiple organizations that are internally homogeneous but differ in composition from one another. Future research should examine the network consequences of individuals' aggregate sets of memberships, rather than treating memberships in isolation from each other.

We examined voluntary association memberships' effects on economically engaged individuals' strong ties. Further research should examine their effects on a random sample of the populations' networks, examining both strong and weak ties. Using a position generator, in which respondents are given a list of occupations and asked to name people they know in the occupations (Lai et al. 1998, Lin and Dumin 1986, Lin et al. 1981a,b), rather than a name generator which asks respondents to name people with whom they discuss important or business matters, more often yields weak ties. Using a position generator to replicate our analysis of voluntary associations would allow researchers to determine voluntary associations' effects overall on the occupational diversity of weak ties. In addition, such analysis could also assess voluntary associations' effects on reaching high status persons, if prestige scores were assigned to alters' occupations.

Finally, a great deal of attention has been paid to the relative exclusion of women and minorities from informal networks and the relative level of gender and racial segregation observed in voluntary associations. Due to our relatively small sample size and the relatively

small number of women and ethnic minorities in our sample, we were unable to examine possible interaction effects between our measures and gender and race. Future research should examine interactions between race, gender, and voluntary association memberships and their effects on social network diversity and density to determine if involvement and co-memberships in multiple organizations enhances network occupational diversity and reduces network density for all members, or only for some.

References

- Aldrich, Howard E., Arne L. Kalleberg, Peter V. Marsden, and James Cassell. 1989. "In Pursuit of Evidence: Strategies for Locating New Businesses." *Journal of Business Venturing* 4:367-386.
- Beggs, John J. and Jeanne S. Hurlbert. 1997. "The Social Context of Men's and Women's Job Search Ties: Membership in Voluntary Organizations, Social Resources, and Job Search Outcomes." *Sociological Perspectives* 40:601-622.
- Bian, Yanjie. 1997. "Bringing Strong Ties Back In: Indirect Ties, Network Bridges, and Job Searches in China." *American Sociological Review*. 62:366-385.
- Birley, Sue, Stan Cromie, and A. Myers. 1990. *Entrepreneurial Networks: Their Creation and Development in Different Countries*. Cranfield, Enland, Cranfield School of Management.
- Boxman, Ed A.W., Paul M. De-Graaf, and Hendrik D. Flap. 1986. "The Impact of Social and Human Capital on the Income Attainment of Dutch Managers." *Social Networks* 13:51-73.
- Brady, Henry E., Kay Lehman Schlozman, and Sidney Verba. 1999. "Prospecting for Participants: Rational Expectations and the Recruitment of Political Activists." *American Political Science Review*. 93:153-168.
- Brass, Daniel J., Kenneth D. Butterfield, Bruce C. Skaggs. 1998. "Relationships and Unethical Behavior: A Social Network Perspective." *Academy of Management Review*. 23:14-31.
- Brüderl, Josef, and Peter Preisendörfer. 1998. "Network Support and the Success of Newly Founded Businesses." *Small Business Economics*. 10:213-225.
- Burke, Ronald J. 2002. "Work Stress and Women's Health: Occupational Status Effects." *Journal of Business Ethics*. 37: 91-102.
- Burt, Ronald S., Joseph E. Jannotta, and James T. Mahoney. 1998. "Personality Correlates of Structural Holes." *Social Networks*. 20:63-87.
- Burt, Ronald S. 1997. "A Note on Social Capital and Network Context." *Social Networks*. 19:355-373.
- Campbell Karen E. 1988. "Gender Differences in Job-Related Networks." *Work and Occupations* 15:179-200.
- Campbell, Karen E., Peter V. Marsden, and Jeanne S. Hulbert. 1986. "Social Resources and Socioeconomic Status." *Social Networks* 8:97-117.

- Carroll, Glenn R., and Albert C. Teo. 1996. "On the Social Networks of Managers." *Academy of Management Journal*. 39:421-440.
- Cooper, Arnold, and William C. Dunkelberg 1987. "Entrepreneurial Research: Old Questions, New Answers and Methodological Issues", *American Journal of Small Business*, 11:11-23.
- Eastis, Carla M. 1998. "Organizational Diversity and the production of social capital." *The American Behavioral Scientist*, 42, 1: 66-77.
- Fernandez, Roberto M., and Nancy Weinberg. 1997. "Sifting and Sorting: Personal Contacts and Hiring in a Retail Bank." *American Sociological Review* 62:883-902.
- Gargiulo, Martin, and Mario Benassi. 2000. "Trapped in Your Own Net? Network Cohesion, Structural Holes, and the Adaptation of Social Capital." *Organization Science*. 11:183-196.
- Gould, Roger V. *American Sociological Review*. "Collective Action and Network Structure." 58:182-196.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *American Journal of Sociology*. 78:1360-1380.
- Granovetter, Mark. 1974,1995. *Getting a Job: A study of contacts and careers*, 2nd edition. Chicago, University of Chicago Press.
- Hansen, Morten T. 1999. "The Search-Transfer problem: The Role of Weak Ties in Sharing knowledge Across Organization Subunits." *Administrative Science Quarterly*. 44:82-111.
- Higgins, Monica C., and Kathy E. Kram. 2001. "Reconceptualizing Mentoring at Work: A Developmental Network Perspective." *Academy of Management Review*. 26:264-288.
- Hite, Julie M., and William S. Hesterly. 2001. "The Evolution of Firm Networks: From Emergence to Early Growth of the Firm." *Strategic Management Journal*. 22:275-286.
- Hochschild, Arlie Russell. 1983. *The Managed Heart: The Commercialization of Human Feeling*. Berkeley: The University of California Press.
- Ibarra, Herminia. 1997. "Paving an Alternative Route: Gender Differences in Managerial Networks." *Social Psychology Quarterly* 60:91-102.
- Ibarra, Herminia.1993. "Personal Networks of Women and Minorities in Management:

- A Conceptual Framework.” *Academy of Management Review*. 18:56-87.
- Kalleberg, Arne, and Kevin Leicht. 1991. “Gender and Organizational Performance: Determinants of Small Business Survival and Success.” *Academy of Management Journal* 34:136-161.
- Kalleberg, Arne L., Peter V. Marsden, Howard E. Aldrich, and James W. Cassell. 1990. "Comparing Organizational Sampling Frames." *Administrative Science Quarterly* 35: 658-688.
- Kanter, Rosabeth Moss. 1977. *Men and Women of the Corporation*. BasicBooks, NewYork.
- Lai, Gina, Nan Lin, and Shu Yin Leung. 1998. “Network Resources, Contact Resources, and Status Attainment.” *Social Networks*. 20,2: 159-178.
- Liebertson, Stanley. 1969. “Measuring Population Diversity.” *American Sociological Review*. 34:850-862.
- Liedka, Raymond V. 1991. “Who do you know in the Group? Location of Organizations in Interpersonal Networks.” *Social Forces*. 70:455-474.
- Lin, Nan. 2000. “Inequality in Social Capital.” *Contemporary Sociology* 29:785-795.
- Lin, Nan and Mary Dumin 1986. “Access to Occupations through Social Ties.” *Social Networks*, 8, 365-385.
- Lin, Nan, Walter M. Ensel, and John C. Vaughn. 1981a. “Social Resources and Strength of Ties: Structural Factors in Occupational Status Attainment.” *American Sociological Review* 46:393-405.
- Lin, Nan, John C. Vaughn, and Walter M. Ensel. 1981b. “Social Resources and Occupational Status Attainment.” *Social Forces* 59:1163-1181.
- Luger, Michael, and Harvey Goldstein. 1991. *Technology in the Garden: Research Parks and Regional Economic Development*. Chapel Hill, NC: University of North Carolina Press.
- Marsden, Peter V. 1987. “Core Discussion Networks of Americans.” *American Sociological Review* 52:122-131.
- Marsden, Peter V., and Jeanne S. Hurlbert. 1988. “Social Resources and Mobility Outcomes: A replication and extension.” *Social Forces*, 66,4: 1038-1059.
- McEvily, Bill, and Akbar Zaheer. 1999. “Bridging Ties: A Source of Firm Heterogeneity in Competitive Capabilities.” *Strategic Management Journal*. 20:1133-1156.

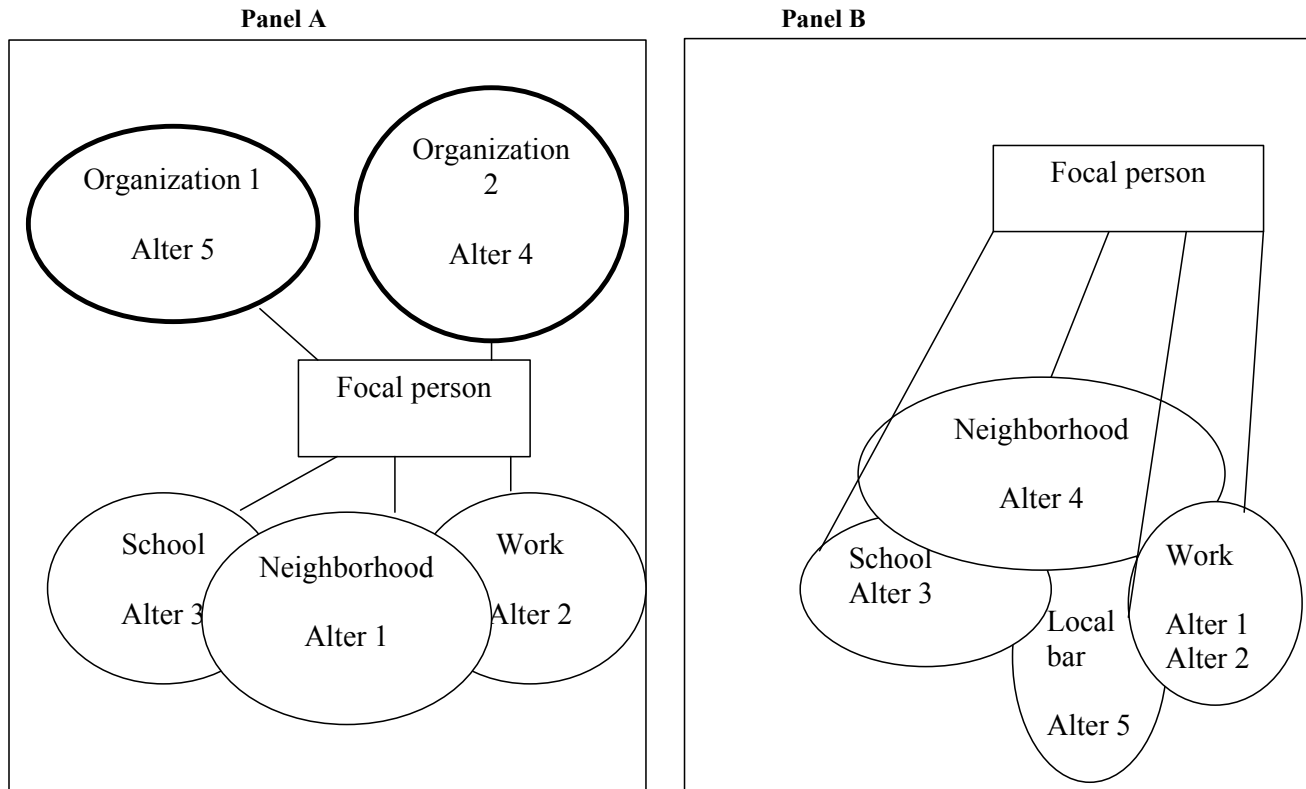
- McGuire, Gail M. 2000. "Gender, Race, Ethnicity, and Networks: The Factors Affecting the Status of Employees' Network Members." *Work and Occupations*. 27:500-523.
- McGuire, Gail M. 2002. "Gender, Race, and the Shadow Structure: A Study of Informal Networks and Inequality in a Work Organization." *Gender & Society* 16:303-322.
- McPherson, J. Miller, and Lynn Smith-Lovin. 1982. "Women and Weak Ties: Differences by Sex in the Size of Voluntary Organizations." *American Journal of Sociology*. 87:883-904.
- McPherson, J. Miller, and Lynn Smith-Lovin. 1986. "Sex Segregation in Voluntary Associations." *American Sociological Review*, 51, 1: 61-79.
- McPherson, J. Miller, and Lynn Smith-Lovin. 1987. "Homophily in Voluntary Organizations: Status Distance and the Composition of Face-to-Face Groups." *American Sociological Review*, 52, 3: 370-379.
- McPherson, J. Miller, and Pamela A. Popielarz, and Sonja Drobnic. 1992. "Social Networks and Organizational Dynamics." *American Sociological Review*, 57, 2: 153-170.
- McPherson, J. Miller, and Thomas Rotolo. 1996. "Testing a Dynamic Model of Social Composition: Diversity and Change in Voluntary Groups." *American Sociological Review* 61:179-202.
- Mencken, F. Carson, and Idee Winfield. 2000. "Job Search and Sex Segregation: Does Sex of Social Contact matter?" *Sex Roles*. 42:847-864.
- Moore, Gwen. 1990. "Structural Determinants of Men's and Women's Personal Networks." *American Sociological Review* 55:726-735.
- Nahapiet, Janine, and Sumantra Ghoshal. 1998. "Social Capital, Intellectual Capital, and the Organizational Advantage." *Academy of Management Review* 23:242-266.
- Olsen, Marvin E. 1982. *Participatory Pluralism: Political Participation and Influence in the United States and Sweden*. Chicago: Nelson-Hall.
- Pescosolido, Bernice A., and Beth A. Rubin. 2000. "The Web of Group Affiliations Revisited: Social Life, Postmodernism, and Sociology." *American Sociological Review*. 65: 52-76.
- Peterson, Trond, Ishak Saporta, and Marc-David Seidel. 2000. "Offering a Job: Meritocracy in Social Networks." *American Journal of Sociology*. 106:763-816.
- Podolny, Joel M., and James N. Baron. 1997. "Resources and Relationships: Social Networks and Mobility in the Workplace." *American Sociological Review*. 62:673-693.

- Popielarz, Pamela A. 1999a. "(In)Voluntary Association: A Multilevel Analysis of Gender Segregation in Voluntary Associations." *Gender and Society* 13:234-250.
- Popielarz, Pamela A. 1999b. "Organizational Constraints on Personal Network Formation." *Research In the Sociology of Organizations* 16:263-281.
- Popielarz, Pamela A., and J. Miller McPherson. 1995. "On the Edge or in Between: Niche Position, Niche Overlap, and the Duration of Voluntary Association Memberships." *American Journal of Sociology* 101:698-720.
- Putnam, Robert. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
- Reed, Kimberly A. 2001. *Managing our Margins: Women Entrepreneurs in Suburbia*. New York:Routledge.
- Reese, Pat Ray. 1993. "Entrepreneurial Networks and Resource Acquisition: Does Gender Make a Difference?" Ph.D. Dissertation, Department of Sociology, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Reese, Pat Ray, and Howard E. Aldrich. 1995. "Entrepreneurial Networks and Business Performance." Pp. 124-144 in *International Entrepreneurship*, edited by Sue Birley and Ian C. MacMillan. London:Routledge.
- Reskin, Barbara F., and Debra Branch McBrier. 2000. "Why Not Ascription? Organizations' Employment of Male and Female Managers." *American Sociological Review*. 65:2, 210-233.
- Renzulli, Linda A., and Howard E. Aldrich. 2002. "Friends in High (and Low) Places: Small Business Owners' Access to Resources." Paper Presented at the Southern Sociological Society Annual Meeting.
- Renzulli, Linda A., Howard E. Aldrich, and James Moody. 2000. "Family Matters: Gender, Networks, and Entrepreneurial Outcomes." *Social Forces* 79:523-546.
- Ridgeway, Cecilia L., and Lynn Smith-Lovin. 1999. "The Gender System and Interaction." *Annual Review of Sociology* 25:191-216.
- Robinson, Dawn T., and Lynn Smith-Lovin. 2001. "Getting a Laugh: Gender, Status, and Humor in Task Discussions." *Social Forces*. 80:125-158.
- Rosenfeld, Richard, Steven F. Messner, Eric P. Baumer. 2001. "Social Capital and Homicide." *Social Forces*. 80: 283-309.
- Rotolo, Thomas. 1999. "Trends in Voluntary Association Participation." *Nonprofit and Voluntary Sector Quarterly* 28:199-212.

- Shannon, Claude and Warren Weaver. 1963. *The Mathematical Theory of Communication*. Urbana: University of Illinois Press (originally published in 1949).
- Sicilano, Julie I. 1996. "The Relationship of Board Member Diversity to Organizational Performance." *Journal of Business Ethics*. 15:1313-1320.
- Stoloff, Jennifer A., Jennifer L. Glanville, and Elisa Jayne Bienenstock. 1999. "Women's Participation in the Labor Force: The Role of Social Networks." *Social Networks* 21:91-108.
- Tilly, Chris and Charles Tilly. 1998. *Work Under Capitalism*. Boulder, CO: Westview Press
- Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge, UK: Cambridge University Press.
- Wharton, Amy S. 2002. *Working in America: Continuity, Conflict, and Change*. 2nd Edition. Boston: McGraw-Hill.
- Wellman, Barry. 2000 "Changing Connectivity: A Future History of Y2.03K" *Sociological Research Online*. 4. Retrieved March 20, 2002. <http://www.socresonline.org.uk/4/4/wellman.html>
- Wilson, John, and Marc A. Musick. 1997a. "Work and Volunteering: The Long Arm of the Job." *Social Forces* 76:1, 251-272.
- Wilson, John, and Marc Musick. 1997b. "Who Cares? Toward an Integrated Theory of Volunteer Work." *American Sociological Review* 62,5: 694-713.
- Wilson, John. 2000. *Annual Review of Sociology*. "Volunteering." 26:215-240.

Figure 1

Hypothesis 1: Meeting alters through memberships increases occupational diversity and decreases network density.



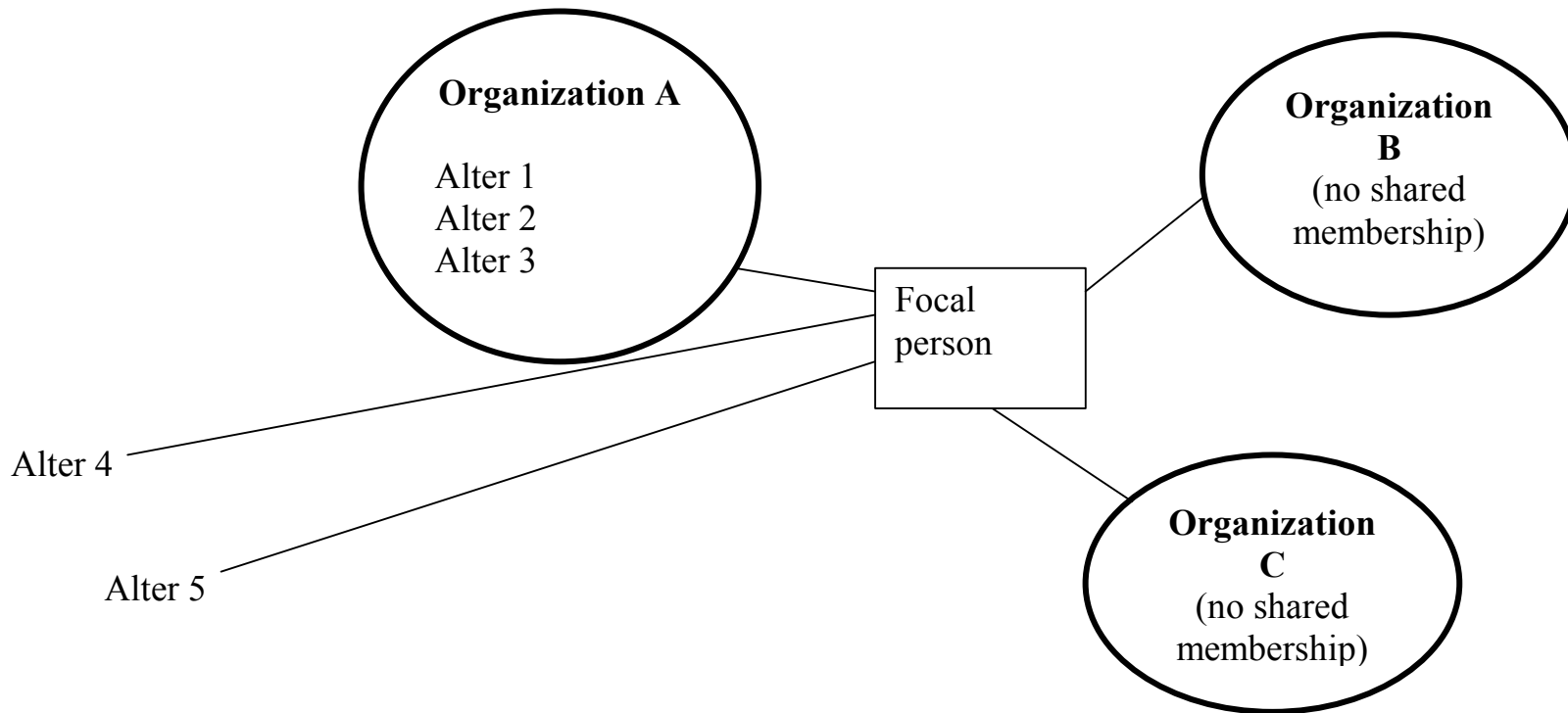


Figure 2

Hypothesis 2: The number of people a respondent shares a membership with will decrease diversity and increase density.

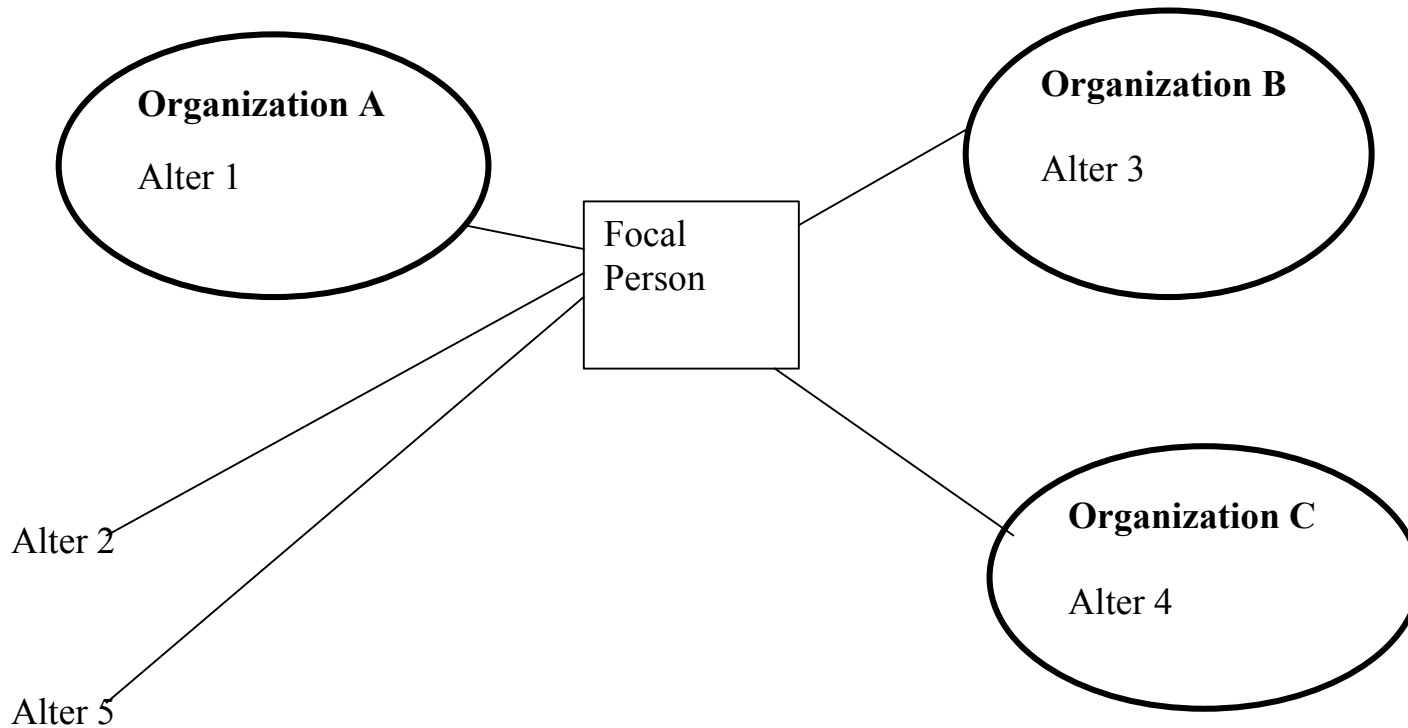


Figure 3

Hypothesis 3: The number of people a respondent shares a different membership with will increase diversity and decrease density.

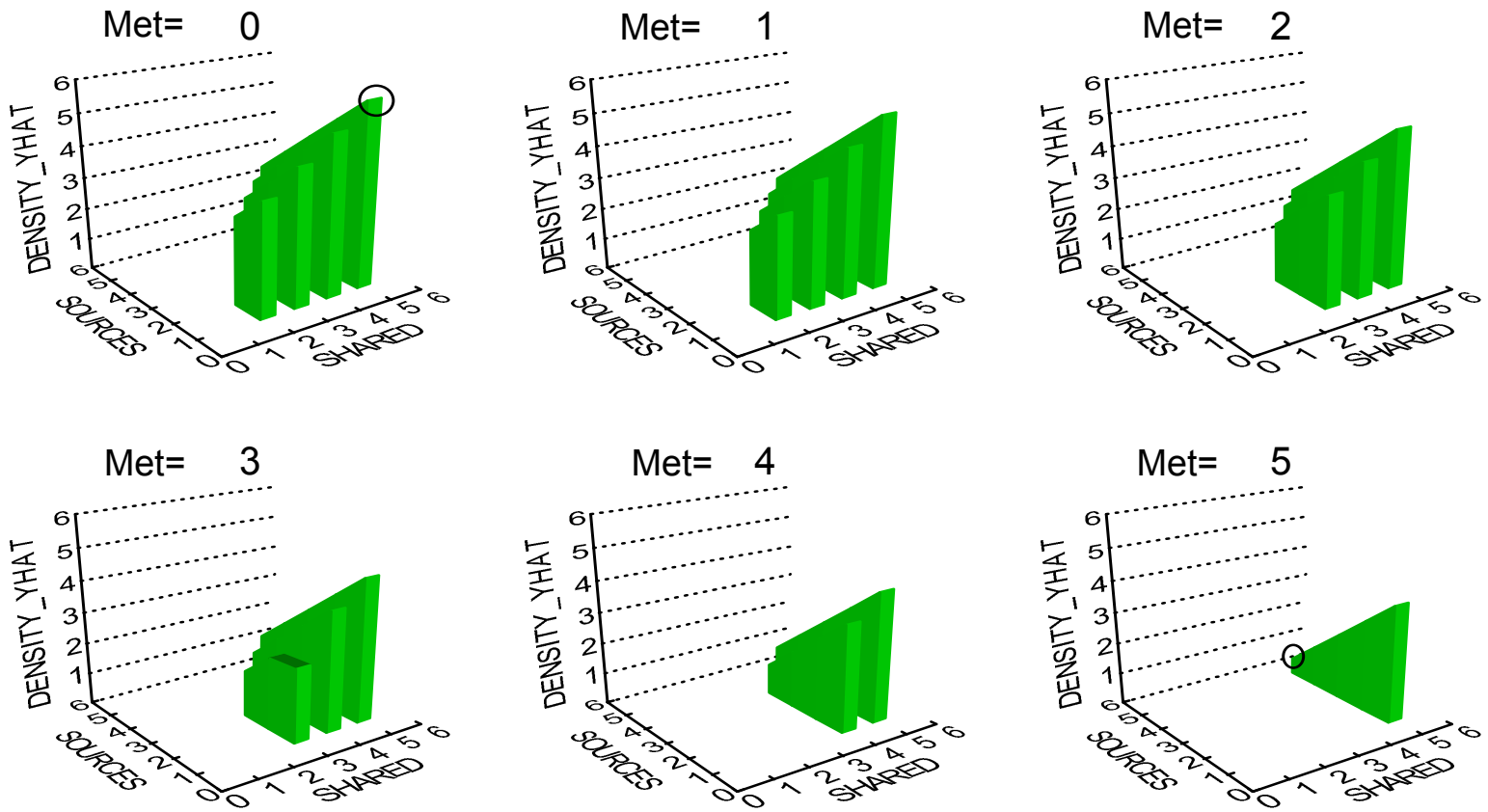


Figure 4

This graph shows the effects of our three hypothesis variables on predicted values of density (\hat{y}). The mean and modal values were assigned for our control variables. Density is maximized when alters are not met through memberships and all 5 alters are in one organization with the respondent (density=5.76), represented in the upper left graph. Density is minimized when all five alters are met through memberships and each is met through a different organization (density=0.52), represented in the lower right graph.