Interorganization Contagion in Corporate Philanthropy

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Two network contagion models are used to describe corporate contributions officers' evaluations of nonprofit organizations seeking philanthropic donations. Contagion by cohesion predicts that behavioral communication between contributions officers results in their sharing the same evaluation. Contagion by structural equivalence predicts that symbolic communication via role playing between officers similarly positioned in the interorganization network of contributions officers results in similar evaluations. We find strong evidence of contagion, robust over differences in the evaluated nonprofit organizations and differences between officers. The evidence is overwhelmingly of contagion by structural equivalence.•

Highlighting the importance of institutionalizing processes, DiMaggio and Powell (1983) brought together several streams of work to account for the similarities found among formal organizations. They offered the unifying concept of an organizational field of firms. They argued that firms come to resemble one another and have their resemblance enhanced, even enforced, by institutionalizing processes within and between organizations in the field. More specifically, they discuss coercive processes that stem from political influence and the problem of legitimacy, mimetic processes that involve standard responses to uncertainty, and normative processes associated with professionalization (DiMaggio and Powell, 1983: 150ff). An important component of their argument is that the network of contacts among organizations or their agents within a field drives organizations toward isomorphism (Moch and Seashore, 1981; Zucker, 1987; Mizruchi, 1990, review related work). The appeal of DiMaggio and Powell's thesis lies in its focus on taken-for-granted social processes that explain how and why organizations, and the texture of organizational fields, change over time.

In an effort to verify empirically DiMaggio and Powell's thesis of normative control, Galaskiewicz (1985b) studied how direct contact between corporate philanthropic officers in large business firms had an impact on how they viewed clientele (prospective donees). He found that the nonprofits that were recognized and evaluated positively by contributions officers in Minneapolis–St. Paul received more money from corporate donors, irrespective of their size, activities, and fund-raising capacity (Galaskiewicz, 1985a). It was important to understand how these opinions arose and survived.

For reasons that will become obvious from our results, Galaskiewicz (1985b) reported limited support for his hypothesis. The limited support resulted from the kind of mechanism presumed to generate contagion. Debate in network theory has crystallized around two contagion mechanisms: cohesion and structural equivalence. Adapted in their simplest form to interorganization contagion, the concepts involve an officer, ego, expressing an evaluation in the context of evaluations by other officers as alters. Contagion involves alter evaluations influencing ego's.

Contagion by cohesion focuses on behavioral communication between ego and alter. In the case of Galaskiewicz's contributions officers, the more frequent and empathic the communication between ego and alter, the more likely that ego

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and alter will share the same evaluations of individual non-profit organizations (for an extended review of the literature on cohesion effects, see Burt, 1987: 1289–1290). Discussing the activities of a nonprofit organization with other contributions officers, ego comes to a normative understanding of the organization—an understanding that includes recognition of the nonprofit and an evaluation of its contribution to the community, an understanding charged with the interests of the people with whom the nonprofit has been discussed. Cohesion is the mechanism traditionally presumed to generate contagion between people. Extending this to contagion between people in separate organizations, it is natural to find cohesion implicit in DiMaggio and Powell's (1983) discussion and explicit in Galaskiewicz's (1985b) empirical analysis.

The received tradition was challenged in the mid-1970s with the rapid diffusion of structural equivalence models operationalizing status and role sets in social structure as positions in networks. Theoretical models of interpersonal influence grounded in structural equivalence rather than cohesion quickly followed to guide empirical research on the manner in which the structural equivalence concept of group defines social pressures on subjective evaluations (e.g., Burt, 1982: chap. 5). Evidence on interpersonal contagion favors structural equivalence over cohesion (Burt and Doreian, 1982; Burt, 1982: chap. 6; 1987; Burt and Uchiyama, 1989), as does the emerging evidence on interorganizational contagion (e.g., Schøtt and Morrissey, 1988; Mizruchi, 1989, 1990, 1991).

Contagion by structural equivalence focuses on symbolic rather than behavioral communication. Contagion arises from role playing among people who perform similar occupational roles, as indicated by their similar positions in the network of contributions officers. This includes, in the extreme, people competing for the same job but applies more generally to people putting themselves in one another's position to evaluate the relative adequacy with which they are performing their current job. The more similar ego's and alter's work relations with others in their occupational community—that is, the more that one officer could substitute for another in the network of contributions officers—the more likely that ego will adopt beliefs or evaluations perceived to make alter more attractive as the object or source of professional opinion, information, and relationships. In the case of Galaskiewicz's contributions officers, coming to know how other officers perceive the activities of a nonprofit organization, ego comes to a normative understanding of the organization—an understanding of the propriety for a person in ego's position recognizing and endorsing the organization, an understanding ego perceives to be shared by others in the same position, an understanding colored by ego's interest in advantage accruing to anyone performing ego's roles within the network of contributions officers. To affirm in-group membership and distance themselves from the out-group, individuals in structurally similar positions are expected to express similar perceptions and attitudes.

The frame of reference shifts from dyad to social system. Regardless of the frequency or empathy of communication between individual pairs of officers, ego can be indifferent to

the professional evaluations of officers in positions above, below, or apart from ego's own position in the social structure of his or her profession. Their evaluations might make ego nervous about his or her own evaluation in the sense that they indicate to ego that he or she will soon have to resolve his or her own evaluation of a nonprofit being discussed among contributions professionals, but the primal force shaping ego's evaluation is the opinion of officers with whom he or she is structurally equivalent. These are the people who indicate for ego the evaluation proper for his or her position in the profession. As an opinion comes to be shared within ego's position, ego is expected to follow rapidly to avoid the embarrassment of being the last to espouse a belief that has become a recognized feature of occupying his or her position in the contributions community (cf., Burt, 1982: chap. 5; 1987: 1323).

Elements of this argument can be seen in DiMaggio and Powell's discussion. They argued that professional networks that span organizations and diffuse information and attitudes "create a pool of almost interchangeable individuals who occupy similar positions across a range of organizations and possess a similarity of orientation and disposition that may override variations in tradition and control that might otherwise shape organizational behavior" (DiMaggio and Powell, 1983: 152). These positions are defined by the "exchange of information among professionals [which] helps contribute to a commonly recognized hierarchy of status, of center and periphery, that becomes a matrix for information flows and personnel movement across organizations" (DiMaggio and Powell, 1983: 153). A professional community is thus a social structure of multiple positions, each with its own, internally reproducing beliefs and attitudes about professional work.

The idea that there exist different normative systems or subcultures within an organizational field adds a new dimension to institutional analysis. Most theorists within this framework recognize that organizational action is influenced by the norms or standards within the organizational environment or standards set by a professional community (Zucker, 1987). We extend this line of thought and argue that different norms and standards develop among clusters of agents within an organizational field and that these norms are co-variant with the informal stratification among organization representatives. Furthermore, these norms can influence how individual agents come to view their environment. While contagion by cohesion focuses on dyadic influence processes that operate on a one-to-one basis; contagion by structural equivalence focuses on the informal stratification of agents in an organizational field, the identification of strata within this field, the normative standards that mark these different strata, and the influence of these strata standards on the perceptions and attitudes of agents.

METHOD

Our data describe the contact network among corporate contributions officers in the Minneapolis and St. Paul metropolitan area and officers' evaluations of local nonprofit organizations eligible to receive contributions. The study population is described in detail by Galaskiewicz (1985a, 1985b).

In brief, the population is made up of publicly held firms in the metropolitan area. The 67 firms contacted for the study were publicly owned, headquartered in the Twin Cities, with 200 or more employees, and made corporate contributions in 1979, 1980, or 1981 (see Galaskiewicz, 1985a: Appendix A, for details). The person most responsible for each firm's charitable activities was interviewed. We refer to this person, our respondent, as the firm's contributions officer.

Respondents' job responsibilities vary between firms. Contributions are disbursed more often than not through a committee composed of employees, with the contributions officer screening requests, executing grant approval, and handling correspondence, payment procedures, and record keeping. In larger firms with more substantial budgets, contributions officers typically work on long-range planning, formalize procedures, and initiate projects in the community (Troy, 1982: 3). Galaskiewicz (1985b: 642) argued that contributions officers are especially important as boundary spanners who reduce the uncertainty surrounding contributions by supplying information on community needs and nonprofit organizations to the committee that ultimately allocates a firm's charitable donations.

The interviewed officer in each of the 67 firms was presented with a list of all publicly held companies in the Twin Cities area and asked to "check off those firms where you know personally individuals involved in corporate contributions, i.e., on a first-name basis, would feel comfortable calling for lunch or drinks after work, etc." Sixty-one of the interviewed officers completed the question. Their responses define a (61, 61) sociometric choice matrix among the largest firms. Fourteen officers had no personal contacts in other firms. A few were in touch with as many as half of the other firms. The average officer had personal contact with contributions personnel in 9.6 other firms.

Each contributions officer was also presented with a list of 326 nonprofit organizations in the Twin Cities area. The 326 nonprofits are a stratified sample of nonprofit organizations in the area, amounting to about one in five of all eligible organizations (Galaskiewicz, 1985a: Appendix C). In response to the list, officers put a check by the nonprofits that they recognized and a second check next to those they felt had achieved extraordinary accomplishments. Sixty of the 61 officers in the network provided evaluations of the organizations, from which we have a three-category response variable: For each nonprofit organization, each officer did not recognize the organization (0), or recognized it, but not for outstanding projects (1), or recognized it for outstanding projects (2).

The evaluated nonprofit organizations varied over the whole range of services provided by such organizations, but we were most interested in highly visible organizations, given extremely different evaluations by the officers, that would be difficult to evaluate by concrete criteria. The first two points are important, because we are trying to explain differences in the officers' evaluations. The third point is important because it is in these cases of having to make an evaluation in the absence of concrete criteria that social contagion is expected to

affect officers' evaluations. There was substantial variation in evaluations of the nonprofit organizations, but those over which the officers most disagreed all provided cultural, health, or welfare services. These were also organizations widely seen as providing outstanding services. Of the fifteen organizations over which officers most disagreed, four provided cultural services and the remainder all provided health and welfare services.

Rather than focus on the two or three organizations most variably evaluated by the officers—and so have our results potentially depend on the idiosyncratic qualities of recent projects by individual nonprofit organizations—we estimated contagion effects in the evaluations of the ten nonprofits given the highest and most variable evaluations. The ten include all four of the cultural nonprofits among the most variably evaluated organizations. The remaining six are health and welfare nonprofits. As a group, the ten selected nonprofit organizations include, from all 326, the organizations with the highest average officer evaluations and the organizations receiving the most variable evaluations. Across the ten organizations, mean level of evaluation is uncorrelated with the standard deviation of evaluations. The four nonprofit organizations providing cultural services are Twin Cities Public Television, Minnesota Public Radio, the Minnesota Orchestral Association, and Film in the Cities. The six health and welfare organizations vary in the kinds of services they provide: the Fairview Community Hospitals, the Harriet Tubman Women's Shelter, the Wilder Foundation, the Opportunity Workshop, the Sabathani Community Center, and St. Mary's Rehabilitation Center.

Detecting Contagion

We used network autocorrelations to detect contagion. Brought into sociology by network analysts (e.g., Doreian, 1981; Dow, 1984), autocorrelation models have become a standard vehicle for expressing contagion effects (see Burt, 1987: Appendix, for a quick review and leads into the literature). The models describe interpersonal influence in terms of correlated responses:

$$y_j = a + by_j^* + e_j,$$

where y_j in our data is an evaluation of a nonprofit organization by officer j and y_j^* is the typical evaluation of the same nonprofit by other officers who contribute to the social contagion effect on officer j. Under contagion by cohesion, the other officers are those with whom officer j has personal contact. Under contagion by equivalence, they are officer j's peers in the social structure of contributions officers. The typical response of these other officers as a generalized alter presumed to influence officer j as ego is the weighted average of their individual evaluations:

$$y_j^* = w_{j1}y_1 + w_{j2}y_2 + \ldots,$$

where the weights are fractions indicating the extent to which each other officer plays a role in the social contagion pressure on officer j and summation is across all other officers in the network ($0 < w_{ji} < 1$, $w_{jj} = 0$, and $\Sigma_i w_{ji} = 1$).

Interorganization Contagion

To estimate contagion by equivalence, the w_{ji} are measured in terms of the extent to which officers i and j are similarly positioned in the social structure of contributions officers. Beginning with the raw sociometric choice data, each officer's position in the social structure is defined by the pattern of direct and indirect relations linking the officer with each other officer. Two officers are structurally equivalent to the extent that they have identical relation patterns—they are directly connected to the same other contributions personnel; through these connections they reach the same other firms with which they do not have direct contact; and they are themselves directly and indirectly cited by contributions officers in the same other firms. The network weight w_{ji} measuring equivalence varies from 0 to 1 with the extent to which officers i and j have identical patterns of direct and indirect relations with contributions personnel in the 61 firms under study.

The network weight is defined as follows: The Euclidean distance, d_{ij}, measuring the structural equivalence of officers i and j was computed in the usual way from path distances derived from the raw sociometric choice data (e.g., see Burt, 1988, for review). The network weight w_{ji} was then computed as the relative strength of officer j's felt equivalence to officer i:

$$w_{ji} = (\text{proximity } j \text{ to } i)^\nu / \Sigma_k (\text{proximity } j \text{ to } k)^\nu, \quad k \neq j,$$

where j's proximity to i reverses Euclidean distance to measure structural equivalence rather than distance (maximum distance from j minus d_{ij} and self-relations are set to 0 so that the w_{ji} weights measure the relative contribution of each other officer i to the contagion effect on officer j (Burt, 1982: 176–177; 1987: 1296–1297). A search through alternative values of the power exponent ν with a tolerance of .01 in sequential contagion correlations settled on a value of 2. The contagion correlation between officer and alter evaluations (y_j and y_j^*) across officers and the ten nonprofit organizations is .527 with ν set to 1, .535 with ν set to 2, and .534 with ν set to 3. We also reanalyzed the data for contagion effects using popular variations on the raw Euclidean distance measure of structural equivalence. We computed Euclidean distances directly from the raw binary sociometric choice data, which ignores the indirect relations in terms of which officers might be nonequivalent. This reduces the aggregate contagion correlation only slightly, from .54 to .48. We computed Euclidean distances from z-score measures of relations, as in CONCOR, ignoring mean and variation differences between officer relation patterns. This reduces the aggregate contagion correlation from .535 to .345. These results with alternative measures are not intended to illustrate a general preference for the one selected here, but only to show that the measure selected is well suited to this study population.

Given the network weights defining each officer's structurally equivalent peers, the alter evaluation y_j^* can be computed and correlated with the corresponding observed evaluation, y_j, to test for equivalence contagion. Correlations were computed across 60 officers evaluating the ten nonprofit organizations, and jackknife-test statistics were used to evaluate the significance of effects.[1]

RESULTS

The results show weak evidence of contagion by cohesion and strong evidence of contagion by structural equivalence.

For equivalence contagion, the correlation was .535, indicating that 28.6 percent of the variation in evaluations across officers and nonprofits can be described with the evaluations of their peers in the social structure of contributions officers. To hold constant differences between the nonprofits, we computed partial correlations between y and y^*, holding constant nine dummy variables distinguishing the ten nonprofits. Net of differences between the evaluated organizations, the correlation was still a high .398, and the jackknife t-test statistic showed a very low probability of getting a contagion effect this strong by chance (8.16 t-test with 59 d.f., giving the null hypothesis a probability well below .001).

The same is not true of contagion by cohesion. The correlation for cohesion contagion was .290, indicating that only 8.4 percent of the observed variation in evaluations across officers and nonprofits can be described with the evaluations of contacts in other firms. Net of differences between the evaluated nonprofit organizations, the correlation for cohesion was .120 and the jackknife t-test fails to reject the null hypothesis (1.89 t-test with 38 d.f., $p = .07$).

We searched through alternative cohesion measures for stronger evidence. To estimate contagion by cohesion, the w_{ji} are measured in terms of officer j's personal contact with other officers. We began with the usual practice of using raw sociometric choices as a measure of cohesion (e.g., see Coleman, Katz, and Menzel, 1966; Burt, 1987). The network weight w_{ji} is one over the number of cited contacts for each other firm i in which officer j has personal contacts. The alter evaluation y_j^* is the average evaluation of officers in the firms that j cites. The correlation between this and the observed officers' evaluations is .218—not much worse, but certainly no better, than the .290 correlation for cohesion. Extending the measure to include indirect connections between firms did not yield stronger evidence of contagion. We then restricted the model to only the strongest of relationships. Network autocorrelation evidence of contagion by cohesion can be expected to increase with the strength of the cohesive relationship (e.g., Burt and Uchiyama, 1989). We obtained the results for contagion, above, with cohesion restricted to reciprocated choices, following Galaskiewicz (1985b). The network weight w_{ji} measuring cohesion varies from 0 to 1, with non-zero values indicating that officers j and i acknowledge personal contacts with contributions officers in one another's firms. Here, too, we considered indirect contacts through intermediary organizations (path distances varied from 1 to 5 steps in length) but again obtained weaker evidence of contagion.[2]

We were suspicious of the sample size change between cohesion and structural equivalence. Structural equivalence doesn't depend on contacts between officers influencing one another. Alter evaluations can be computed for all officers. The contagion by equivalence effect is estimated across 60 officers evaluating 10 nonprofits, a total of 600 evaluations. Cohesion depends on contact between officers influencing

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The network weights for cohesion are defined by the same perceptual model described above to define equivalence weights, but "proximity j to i" is measured by the strength of officer j's personal relation to the contributions personnel in officer i's firm. In the contagion analysis, proximity is 1 if j and i cite one another, 0 otherwise. The ν exponent does not change the strength of the contagion effects and is left at a default value of 1.

one another. Alter evaluations cannot be computed for officers who have no contacts. Fourteen officers had no personal contact with contributions officers in other firms and another seven had no reciprocal contact with other firms. Therefore, the usual operationalization of cohesion using raw sociometric choices yields alter evaluations for only 46 officers evaluating 10 nonprofits (a total of 460 evaluations), and our reciprocated-choice operationalization yields alter evaluations for only 39 officers evaluating 10 nonprofits. A possible explanation for the weaker evidence of contagion by cohesion is the fact that it is estimated from a subsample of officers. Further analysis shows that this doesn't account for the stronger evidence of contagion by structural equivalence, but it is a point to be noted. The correlation for contagion by structural equivalence is .433 if limited to the 39 officers involved in reciprocated contacts and .455 if limited to the 46 officers who have personal contact with contributions personnel in at least one other firm. These effects are weaker than the effect given above, estimated across all officers, but still quite significant (with respective jackknife t-tests of 3.24 and 5.12, holding constant differences between the evaluated nonprofit organizations).

Differences between Evaluated Nonprofits

Evaluations vary significantly between nonprofit organizations, which provide different kinds of services. For this, or their effectiveness in delivering whatever services they provide, they vary in appearance to the officers. Some of the organizations are widely recognized for outstanding projects. Others are the object of more narrowly distributed acclaim. Without defining specific qualities of the nonprofits that might affect evaluations, we can get a sense of how much differences between them matter by regressing the evaluations across dummy variables that distinguish every nonprofit from every other. With nine dummy variables distinguishing the 10 evaluated nonprofit organizations, we can describe 15.6 percent of the variation in the 600 evaluations (multiple correlation of .394). This strong association raises the possibility that contagion might vary significantly, depending on the specific nonprofit organization under evaluation.

Differences between the evaluated organizations are quickly apparent from the results in Table 1. Contagion by structural equivalence is not uniformly successful. It generates negative, although negligible network autocorrelations in the evaluations of two organizations: the Minnesota Orchestral Association and the Fairview Community Hospitals. Contagion by cohesion is not uniformly poor. It generates statistically significant network autocorrelations in the evaluations of two organizations: Twin Cities Public Television and Fairview Community Hospitals.

We know from the aggregate analysis that there is evidence of contagion even after holding constant these differences between the evaluated organizations. The question remains of accounting for the different effects in Table 1. The variables we have to work with are the kind of services provided by an evaluated nonprofit, the extent to which officers generally share a positive opinion about the nonprofit, and the extent to which officers differ in their evaluations. We tested

Table 1

Contagion in Evaluating Each Nonprofit*

Evaluated nonprofit	Mean	S.D.	Structural equivalence	Cohesion
Cultural				
Twin Cities Public Television	1.41	.75	.106 (1.3)	.502 (2.6)
Minnesota Orchestral Association	1.28	.68	−.287 (−0.3)	−.183 (−0.5)
Minnesota Public Radio	1.57	.66	.477 (3.4)	.169 (1.1)
Film in the Cities	.61	.63	.654 (6.0)	.351 (1.8)
Health and Welfare				
St. Mary's Rehabilitation Center	.84	.83	.312 (2.6)	.035 (1.0)
Harriet Tubman Women's Shelter	.74	.81	.669 (4.8)	.264 (1.8)
Opportunity Workshop	1.23	.78	.151 (1.5)	−.108 (−0.2)
Wilder Foundation	.92	.75	.402 (2.7)	−.070 (−0.6)
Sabathani Community Center	.75	.71	.630 (6.1)	.175 (1.6)
Fairview Community Hospitals	1.10	.67	−.256 (−0.3)	.256 (2.5)

* The mean and S.D. describe the average and standard deviation of evaluations given by the 60 contributions officers to each nonprofit organization. Ordinary-least-squares estimates of the network autocorrelations are presented for contagion by structural equivalence and cohesion. Jackknife *t*-tests are given in parentheses and have 59 degrees of freedom for contagion by equivalence, 38 for contagion by cohesion.

these variables for slope adjustments to the aggregate contagion effects reported above.

There are no significant adjustments to the effects of contagion by structural equivalence. The strongest is a slight tendency for contagion to weaken as a nonprofit becomes more widely admired (−1.95 *t*-test for the slope adjustment with mean level of evaluation). Similarly, slope adjustments for the mean and standard deviation of evaluations do not reveal stronger evidence of contagion by cohesion. However, the evidence of contagion by cohesion is clearly stronger for nonprofits providing cultural services. In Table 1, the network autocorrelations and test statistics for cohesion are higher among the four culture nonprofits than among the six health and welfare nonprofits. The slope adjustment for the higher contagion effect among culture nonprofits generates a routine *t*-test of 3.5. The jackknife *t*-test for cohesion contagion in the evaluations of the culture nonprofits is 2.5 (with three dummy variables, holding constant differences between the four culture nonprofits; 38 d.f., *p* = .01) versus a negligible 1.2 for cohesion contagion in the evaluations of the health and welfare nonprofits (with five dummy variables, holding constant differences between the six health and welfare nonprofits).

It is tempting to speculate about why cohesion should generate contagion in officers' evaluations of culture nonprofits rather than health and welfare nonprofits. This could turn out to be fruitful, but we caution against expecting too much. The stronger evidence of contagion by cohesion is still much

weaker than the corresponding evidence of contagion by structural equivalence. If an officer's evaluation of a nonprofit providing cultural services is regressed simultaneously over the evaluation predicted by structural equivalence and the evaluation predicted by cohesion, the routine t-test for structural equivalence is 4.0 versus 1.9 for cohesion. Holding constant three dummy variables distinguishing the four culture nonprofits to get a more precise estimate of contagion, the partial correlation providing evidence of contagion by structural equivalence generates a 5.0 jackknife t-test (59 d.f., $p <$ .001), versus the above-mentioned 2.5 t-test for cohesion.

The evidence of contagion in officers' evaluations is thus not uniformly distributed across what might seem to be substitutable objects of evaluation. Future research on the mechanisms of interorganization contagion should include multiple criterion variables to compensate for idiosyncratic factors in the evaluations of any one stimulus in an organization's environment. Focusing on the characteristic rather than the idiosyncratic, our more central conclusion concerns the relative stability of contagion effects predicted by structural equivalence versus cohesion. Across the evaluated nonprofit organizations showing variable evidence of contagion, structural equivalence effects are stronger in the aggregate and significant in more evaluations of individual nonprofits.

Differences between the Officers

Evaluations vary significantly between officers making the evaluations. The officers come from different industries, different firms, and have different roles in their firms and different personal backgrounds. Without defining specific qualities of the officers that might affect evaluations, we can get a sense of how much differences between them matter by regressing the evaluations across dummy variables that distinguish each officer from every other. With 59 dummy variables distinguishing the 60 officers, we can describe 28.9 percent of the variation in evaluations (multiple correlation of .537), just about the same amount of variation described by the contagion effects in the first analysis. Again, this strong association raises the possibility that the contagion effects may vary significantly depending on the kind of officer making the evaluation.

We focused on personal and professional differences between the officers as sources of evaluations. With respect to personal differences, we studied gender, education, and birthplace (Twin Cities, north central region of the country, or elsewhere). With respect to professional differences, we studied human service experience, membership in local professional associations (officers in one or more professional associations were members in at least one of the following: Minnesota Council on Foundations, the Business Action Resource Council, and Women in Foundations/Corporate Philanthropy), whether their job was as a semi-professional or professional contributions officer, and their prominence in the network of Twin Cities contributions officers. Low-prominence officers were employed by a firm in which fewer than four of the respondents cited personal contact with contributions personnel. High-prominence officers were employed by a firm in which 14 or more of the respondents cited personal

contact with contributions personnel. Average-prominence officers are everyone between these extremes. These factors define 12 variables that together describe 18.5 percent of the variance in officers' evaluations. Three alone describe 17.3 percent of the variance: gender, membership in at least one of the local professional associations, and network prominence. These three officer variables capture only a portion of the description provided by the 59 dummy variables distinguishing each officer from every other, but it is a large portion, captured with few variables.

The first point to establish is that the differences between officers do not explain away the observed contagion effect in their evaluations. The bottom two rows of Table 2 show continuing evidence of contagion, at least by structural equivalence: The contagion effect remains significant after holding constant differences between the evaluated nonprofits and gender, membership, and network-prominence differences between the officers (4.42 jackknife t-test, 59 d.f., $p < .001$). A more stringent test is to test the partial autocorrelation among officers' evaluations, holding constant nine dummy variables distinguishing each evaluated nonprofit organization and 59 dummy variables distinguishing each officer. Even with this exaggerated control, in which all covariation with differences between officers and evaluated nonprofits is removed from the contagion effect, there is significant evidence of contagion by structural equivalence (3.52 jackknife t-test, 59 d.f., $p < .001$).

That point established, it is clear that much of the zero-order contagion effect can be attributed to differences between officers. The contagion variance that remains after our controls, although statistically significant, is much reduced—from the

Table 2

Contagion and Officer Differences*

Officer characteristics	Mean	S.D.	Structural equivalence	Cohesion
Men (50 officers)	1.01	.79	.543	.291
Women (10 officers)	1.34	.73	.547	.283
No professional associations (36 officers)	.82	.80	.525	.293
One or more associations (24 officers)	1.43	.61	.267	.254
Low prominence (24 officers)	.73	.81	.570	.395
Average prominence (16 officers)	1.14	.74	.380	.223
High prominence (20 officers)	1.40	.63	.244	.211
Correlation net of above differences and differences between evaluated nonprofits			.184	.073
Jackknife-test statistic			4.42	1.13

* The mean and S.D. describe the average and standard deviation of evaluations made by the officers in each row category (each officer evaluates 10 nonprofit organizations). Ordinary-least-squares estimates of the network autocorrelations are presented for contagion by structural equivalence and cohesion. The two partial correlations are the correlations between officer evaluations removing any variance attributable to sex, membership in professional associations, network prominence, and nine dummy variables distinguishing the 10 evaluated nonprofit organizations. The jackknife t-tests have 59 degrees of freedom for structural equivalence, 38 for cohesion.

.535 correlation in the first analysis to the partial correlation of .184 at the bottom of Table 2.

The first two rows in Table 2 show evaluation and contagion differences between men and women. Evaluations by women were more positive than those provided by men, but otherwise there were no gender differences. Variation in evaluations by men and women were about the same and, most importantly, contagion had almost identical effects on the evaluations of men and women. Gender was not a factor distorting contagion.

The other two variables in Table 2 are more interesting. Officers socially integrated into the society of other officers gave higher evaluations to the nonprofits and showed less evidence of contagion in their evaluations. These findings bring three new factors into the analysis: social integration, a positive correlation between integration and evaluation, and a negative correlation between integration and contagion.

Social Integration

A structural equivalence analysis of the sociometric choice data shows that Twin Cities contributions officers live in a center-periphery social structure. There is a single position at the center of the system occupied by prestigious officers employed by the largest firms, a satellite position of officers employed by small firms who claim personal relations with officers in the center position, and a hierarchy of four other positions variably interconnected in descending prominence under the center position. In such a system, row and column marginals of the network describe much of each person's position. In the Twin Cities, the number of sociometric choices an officer "sends" is a good indicator of the number he "receives" (.73 correlation), and eigenvector measures of officer prestige and centrality are highly correlated (.889; see Knoke and Burt, 1983, for review). An officer has prestige if widely cited by officers who are in turn cited by prestigious officers. An officer is central to the extent that he or she has reciprocated contact with many officers who are similarly connected to other central officers. Our distinction in Table 2 between low-, average-, and high-prominence officers is robust largely because the study population has a simple center-periphery structure. We made the distinctions based on graphs of contagion effects at each level of alternative prominence measures. The simple three-category prominence distinction is correlated .91 with the eigenvector measure of officer prestige and .83 with the eigenvector measure of officer centrality.

The three prominence categories are linked with memberships in professional associations. Prominence and memberships each have a direct positive effect on officers' evaluations (respective t-tests of 2.6 and 3.3 with 57 d.f.), and there is no interaction effect above and beyond the direct effects (−0.6 t-test); however, the two variables both tap into integration differences between the officers. Of the 24 low-prominence officers, no one was a member in any one of the three area professional associations. Of the 20 high-prominence officers, 17 are members in at least one of the associations, and seven are members in two. The average-prominence officers were about evenly divided between members and nonmembers of the associations.

The officers thus vary in social integration between two extremes: At the center of the system are officers who participate in one or more of the area professional associations and work for a large firm with which many local contributions officers have personal contact. On the periphery of the system are officers who have no affiliation with the area professional associations and little or no personal contact with other contributions officers.

Integration and Evaluation

Turning to the positive and statistically significant correlation between integration and evaluation, the means in Table 2 show that higher evaluations were made by officers more integrated into the society of other officers. More graphically, the average evaluation doubled between the periphery and center of the system. The 24 low-prominence officers outside the area professional associations gave an average .73 evaluation to the 10 evaluated nonprofit organizations. This increases to 1.43 for the 17 high-prominence officers who were members in one or more of the area professional associations.

The substance of the association remains hidden in these results. Revealing it will inform our description of contagion's decline with increasing integration. The three-category evaluation of a nonprofit distinguishes recognized nonprofits from the invisible, and outstanding nonprofits from the merely recognized. Table 3 contains the frequencies with which officers at each level of prominence gave each kind of evaluation to one of the 10 nonprofit organizations. The numbers in parentheses are z-score test statistics from a loglinear model of the frequencies. A positive z-score indicates a frequency larger than would be expected if evaluations were independent of prominence. We are not concerned with the absolute magnitudes of these statistics so much as with their relative magnitude.

The point we wish to highlight is how the effects change across the rows and columns of the table. Reading down the columns, there is a linear transition from low evaluations by low-prominence officers to high evaluations by high-prominence officers. For example, the third column shows that low-prominence officers are unlikely to give an outstanding rating, officers of average prominence give outstanding ratings about as often as would be expected in the absence of an association between prominence and evaluation, and

Table 3

Prominence and Evaluation*

| Officer prominence | Evaluation of nonprofit organization | | |
	Unrecognized	Recognized	Outstanding
Low	119	67	54
	(8.97)	(−4.33)	(−5.32)
Average	34	69	57
	(−0.36)	(0.64)	(−0.23)
High	16	89	95
	(−6.24)	(3.39)	(5.32)

* Ratings given by all 60 officers to the 10 evaluated nonprofit organizations are tabulated, with loglinear z-score tests for interactions given in parentheses.

high-prominence officers are likely to rate nonprofits as outstanding. The rows of Table 3 show a more discontinuous pattern, switching between response modes at the point of recognizing a nonprofit organization. In the first row, for example, low-prominence officers are likely to say they do not recognize a nonprofit. They are about equally unlikely to rate a recognized nonprofit as not outstanding or outstanding. In the third row, high-prominence officers are unlikely to say that they do not recognize a nonprofit. Once they recognize a nonprofit, they are likely to rate it as outstanding only slightly more than they are likely to rate it as not outstanding. The same discontinuity appears in the association between evaluations and memberships (not presented in Table 3). Officers who are members in one or more of the area professional associations are unlikely to say that they do not recognize a nonprofit (-8.44 z-score). They are more likely to rate recognized nonprofits as outstanding rather than not outstanding, but both tendencies are high (respective z-scores of 7.17 and 4.78).

These results show that the positive association between integration and evaluation is driven by variation in recognizing nonprofits rather than variation in the tendency to view them as outstanding. Officers more integrated into the society of other officers have more information on nonprofits or a lower response threshold for saying that they recognize a nonprofit, or some combination of both. The membership and prominence variables in Table 2 both have positive effects on the tendency to recognize nonprofits (3.56 and 3.58 t-tests, 57 d.f., $p < .001$). Neither is associated with an officer's tendency to rate recognized nonprofits as outstanding (0.88 and -0.02 t-tests).

Integration and Contagion

The detailed explanation of integration's link with evaluation is consequential, because it is clear from Table 2 that contagion plays a smaller role in the evaluations of more integrated officers. For both structural equivalence and cohesion, contagion is strongest among the low-prominence officers and weakest among the most prominent. We know from the discussion of the partial correlations from Table 2 that strong evidence of contagion remains after stringent controls for differences between the officers. The issue at hand is to understand the systematic decline in that effect with increasing social integration. In particular, is the eroding contagion effect true of officers' evaluations generally or only of the recognition aspect of their evaluations, which is known to change with social integration?

The results in Table 4 show that the latter is true. We focus on structural equivalence because it provides more explanatory variance. The same pattern can be seen in the evidence of contagion by cohesion, but much of the pattern involves negligible effects, as might be expected from the negligible aggregate effect at the bottom of Table 2. The first column in Table 4, repeating the results in Table 2 but now with jackknife t-tests, shows how contagion by structural equivalence decreases as integration increases. This is a balance of the two trends in the second and third columns of Table 4. In the

Table 4

Prominence and Structural Equivalence Contagion*

Officer prominence	Evaluation of nonprofit organization		
	Evaluation	Recognition	Outstanding
All officers	.535	.543	.295
	(14.42)	(10.51)	(6.50)
Low prominence	.570	.571	.258
	(11.03)	(10.77)	(3.02)
Average prominence	.380	.265	.325
	(5.19)	(2.64)	(4.06)
High prominence	.244	.025	.281
	(4.11)	(0.41)	(3.33)

* Correlations between officer and structural equivalence alter evaluations are presented for categories of officers. The criterion variable in the first column is the three-category evaluation variable used in all prior tables. The criterion variable in the second column is a dummy variable distinguishing recognized from unknown nonprofit organizations. The criterion variable in the third column is a dummy variable distinguishing outstanding recognized non-profits from the merely recognized (unrecognized coded as missing data). Jackknife t-tests are in parentheses. Across the four rows of the table, the t-tests have 59, 23, 15 and 19 degrees of freedom.

second column, contagion in officers' recognition of a nonprofit is strong among the peripheral officers and completely absent among the most prominent officers. In the third column, contagion in the tendency to rate a recognized nonprofit as outstanding is not as strong as contagion across all three evaluation categories, but it is consistent and significant across all levels of prominence (all t-tests in column three are significant beyond a .01 level of confidence). The same pattern occurs among officers who are members of professional associations (not presented in Table 4). There is no evidence of structural equivalence contagion in their recognition of nonprofits (.080 correlation; 1.21 jackknife t-test, 23 d.f., $p = .12$) and strong evidence of contagion in their evaluations of certain recognized nonprofits as outstanding (.302 correlation; 4.60 t-test, 23 d.f., $p < .001$).

There are two ways to interpret the declining contagion in recognizing nonprofits. One is to argue that the socially peripheral officers are more insecure about their social legitimacy and so are more affected by the opinions of their peers. If this is responsible for the declining contagion with increasing integration, then variation in officers' evaluations should increase with social integration, reflecting the freedom that the most prominent officers have to focus their attention on whatever nonprofit activities interest them. The second is to argue that contagion has reached saturation among the most prominent officers. If this is responsible for the declining contagion with increasing integration, then variation in officers' evaluations should decrease with social integration as the most prominent officers come to share the same opinions, opinions characteristic of the social center of officer society.

The second interpretation better describes the Twin Cities contributions officers. In Table 2, the standard deviation of evaluations decreases as social integration increases. With respect to recognition alone, the mean and standard deviation of the recognition dummy variable are .504 and .501 for low-

prominence officers, .788 and .410 for average-prominence officers, and .920 and .272 for the most prominent officers. In other words, the most prominent officers have come to recognize all of the 10 nonprofit organizations. In contrast, the dummy variable distinguishing outstanding nonprofits from the merely recognized has a relatively consistent mean and standard deviation across prominence levels: .446 and .499 for low-prominence officers, .452 and .500 for average-prominence officers, and .516 and .501 for the most prominent officers. Our evidence of contagion depends on variation in officer evaluations. Where officers all agree, there is no evidence of contagion—as there would be no evidence if their opinions varied independent of one another. Either condition creates a zero correlation. The fact that their agreement is correlated with social integration means that contagion has reached saturation with respect to recognizing the selected 10 nonprofit organizations. In this sense, and in the context of strong evidence of contagion elsewhere in the system, the dissolving evidence of contagion in recognition is yet another indicator of contagion's effect on the Twin City officers' evaluations.

CONCLUSIONS

The purpose of this article was to see if, and how, normative processes were at work in shaping the perceptions and evaluations of corporate officers in a professional community. We draw three conclusions from the analysis. First, there is strong evidence of contagion in the officers' evaluations of nonprofit organizations: The way evaluations vary between organizations can be predicted from the network of personal contacts between people in the separate organizations.

Second, replicating results in other studies, the observed contagion operates through structural equivalence rather than cohesion. Direct and indirect contacts had little or no impact on the officers' perceptions and evaluations. Officers close to one another in the contact network did not recognize the same organizations, nor did they think that the same nonprofits had achieved extraordinary accomplishments. This leads us to believe that knowledge of and opinions about donees does not spread through direct contacts among giving officers within this occupational subculture. The contributions officers are guided in their evaluations by the opinions of their peers in the social structure of other officers rather than the opinions of officers with whom they have personal contact.

Third, there are important differences between evaluations, depending on the object, criterion, and source of the evaluation. The evidence of contagion persists with these factors held constant, but the factors explain substantial variation in the officers' evaluations and highlight interesting leads for future research. For example, there is the question of why contagion should be stronger for nonprofit organizations providing cultural services. One explanation is that culture is more difficult to evaluate than health and welfare. The less tied an evaluation is to empirical fact, the more it will be affected by contagion. If officers' opinions of cultural nonprofits are more contagious for this reason, then a variable could be constructed to measure the ambiguity of the service provided by

a nonprofit. Contagion effects should be stronger in the evaluations of any nonprofit higher on the variable. Our results also demonstrate the importance of the evaluation criterion. Quality is distinct from recognition. There is strong evidence of contagion in both aspects, but the evidence on recognition varies with social integration—from a high level of contagion among peripheral officers to a low level among the most prominent officers, who have come to share a recognition of all the nonprofits selected for study. The evidence of contagion in evaluating certain recognized nonprofits as outstanding is consistent and significant across levels of prominence. The moral is that variables selected for studying contagion have to be selected with attention to the evaluation they request of respondents. With respect to research design, having data on multiple evaluations is a good idea to avoid idiosyncratic components in any one, and distribution is important. Little will be learned from looking for (cross-sectional) contagion effects in issues on which members of the study population have come to share a single opinion. With respect to social contagion theory, kinds of evaluations can be distinguished for their ambiguity, just as kinds of evaluated objects can be distinguished for their ambiguity. Recognizing the name of a nonprofit organization is a low-ambiguity evaluation; the name rings a bell or it doesn't. This is the evaluation that shows less evidence of contagion as officers become more integrated into the professional community and thus exposed to more information about the nonprofit organizations supported by the community. For officers on the periphery of the community, information is more often rumor—and it is among them that recognition evaluations show evidence of social contagion. In contrast to merely recognizing a nonprofit organization, claiming that it provides extraordinary services is much more a matter of subjective judgment. It is this more ambiguous evaluation that shows consistent evidence of contagion for central as well as peripheral officers.

The results are important to organization research in particular and network theory more generally. For network theory, these results add evidence from another context, the context of interorganization networks, showing that contagion appears to operate by structural equivalence rather than the traditionally presumed cohesion. To organization research, these results are important because they show how social networks contribute to the isomorphism found in organizational fields. The common knowledge base and value consensus among contributions officers in the Twin Cities can be traced to the personal contact network among them. Beyond reinforcing the idea of institutionalized isomorphism, our results add clarity to the picture of how beliefs are transmitted between organizations. Contagion is typically presumed to operate through socializing communication, officers in contact with one another developing a shared view of the corporate environment by their frequent and empathic communication. We found little support for this thesis in our analysis. Rather, we found contagion between officers structurally equivalent in the contact network. Actors in a professional community do not always play on a level playing field. In the Twin Cities, contributions officers were stratified across statuses in the hierarchy of their profession, and contagion took place among

those similarly positioned in the hierarchy. Rather than being a function of behavioral communication, officers' views of the corporate environment are driven by what is expected of a person occupying their position in the social hierarchy of the profession.

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