

Regional Interorganizational Networks and Managers' Orientation toward Social Responsibility

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Abstract

This study employed a network autoregression model to examine the effects of position and relationships in a regional network of managerial elites on beliefs about social responsibility. Data from a survey of top level managers and directors in a corporate headquarters city were combined with network data based on interlocking directorates. One of the two social responsibility orientations tested, a limited, free market orientation, termed Friedmanism, was found to be affected by both network position and relations; a more expansive orientation toward social responsibility was not. Other variables that were related to these orientations included employment in the service sector, local birth, communication with representatives of the nonprofit sector, and communication with family members about CSR issues.

Keywords: Corporate social responsibility, interorganizational relations, macroculture, interlocking directorates, social network analysis, Q-sort

1. Introduction

The research reported in this paper focuses on the role played in patterning managers' orientations toward social responsibility by what has been termed "interorganizational macro culture" (Abrahamson and Fombrun, 1992). The macroculture in this case is a community of managerial elites tied together through a network of interlocking directorates among corporations headquartered in a single, large U.S. city. Research on similar networks by Galaskiewicz and a series of collaborators (Galaskiewicz, 1985; Galaskiewicz and Burt, 1991; Galaskiewicz and Rauschenbach, 1988; Galaskiewicz and Wasserman, 1989) revealed the importance of these structures in influencing managers' beliefs and actions. The aim the present research is to show that these effects include shaping managerial perceptions of social responsibilities. The measurement of social responsibility orientation was approached through a Q-sort survey instrument based on a typology of top-level managers' role responsibilities derived by extending Parsons and Smelers' (1956) social systems model of the economy. Hypothesized relationships between aspects of the macroculture and social responsibility orientations were informed by Burt's (1982) "structural theory of action" and social cohesion theories of influence (Freidkin, 1984; Mizruchi, 1993).

In short, controlling for company and personal factors, we found that one of the two strongest orientations toward social responsibility present among managers in this network was related in a definite manner to network relations and position. This suggests the existence of a mechanism at the regional level that acts to reproduce and reinforce certain business values. The article is structured as follows. We will begin with a discussion of our theory and hypotheses, followed by a description of the research setting and subjects. We will then turn to a necessarily brief explanation of how a typology was developed to conceptualize social responsibility and then detail how our dependent variable, social responsibility orientation, and our independent network and control variables were measured. Finally, hypothesis testing using network autoregression and the results and conclusions will be discussed.

2. Theory and Hypotheses

Burt's (1982) structural theory of action holds that equivalence in social position is a prime factor in "patterning perceptions." In forming beliefs about a given situation or activity, an individual is said to put him or herself in the position of others and imagine the others' evaluation of the situation or activity. This is the process Mead (1934) described as symbolic interaction. Burt, however, differs from Mead in that the "other" with whom one symbolically interacts is not a "generalized social other," but a rather specific set of others.

Direct communication with the “other” is not necessary; one only needs to be able to imagine or conjecture what others in an equivalent social role would believe about the situation or activity.

According to Burt, symbolic role taking is done for others with whom one is equivalent in terms of role/status position. Two people, *a* and *b*, are said to be structurally equivalent (Lorrain & White, 1971) to each other if they have exactly the same relationship with the same other actors. In the social structure of a family, for example, the mother and father would have the same relationship with their children, jointly occupying the status of parent. Joint occupants of positions are seen by Burt to be constrained by a social structure that defines their similarities, patterns their perceptions, and limits their ability to act. Structurally equivalent actors are thus led to adopt similar patterns of beliefs and behaviors. (In practice, structural equivalence between actors is usually treated not as absolute, but measured as a matter of degree as a correlation or Euclidean distance coefficient between two actors' patterns of relationships.)

Burt's structural theory is often seen in competition with the relational or "social cohesion" (direct interaction) explanation of belief transmission (Friedkin, 1984; Mizruchi, 1993). In this approach, which is the received wisdom from early research on informal groups (e.g., Festinger, Schachter, & Black, 1950) and innovation (Coleman, Katz, & Mentzel, 1966), similarity in beliefs and behaviors is held to emerge through a process of socialization based on communication via direct interaction. In the family example, structural theory would predict that the beliefs of the parents would be more similar to each other than they would to those of the children, while the children's beliefs would be more similar to each other than those the parents. Cohesion theory would not predict a difference in beliefs between parents and children, but would predict a difference in beliefs between the family and outsiders. Both of these theories have received attention in general social network studies and in the organizational context through the line of research on social information processing (e.g., Hartman & Johnson, 1989; Krackhardt & Porter, 1986; Walker, 1985) and we will attempt to determine which one is the better predictor of social responsibility orientation.

2.1 Hypotheses

We can state the expected effect on responsibility beliefs according to Burt's positional reasoning as *Hypothesis 1* and the counter hypothesis based on the relational argument as *Hypothesis 2*.

Hypothesis 1. The more equivalent the positions of corporate leaders in terms of status/role positions in regional networks of corporate elites, the more similar the patterning of their perceptions regarding managerial responsibilities.

Hypothesis 2. The more closely tied corporate leaders in regional networks of corporate elites, the more similar the patterning of their perceptions regarding managerial responsibilities.

Of course, other factors are likely to influence social responsibility beliefs, just as other factors would influence the beliefs of parents and children within a family. Resource dependency theory would predict that companies more "exposed" to the social environment – such as those which deal directly with household consumers, as opposed to those which deal with a commercial or industrial clientele – must be more sensitive to public opinion than those less exposed. For this and other reasons, we might expect individuals in businesses that face similar environmental dependencies and contingencies to adopt similar beliefs about their social responsibilities. Individual factors should also play a role in shaping responsibility beliefs. We might expect a difference in social role, such as being an outside director, to impact responsibility orientation. Since our research was conducted in a particular region and community responsibility was part of the social responsibility construct, controlling for long term personal ties to the region is warranted. Regional ties could affect beliefs about social responsibility through common socialization experiences, personality differences between those who have chosen against career-driven relocation and those who have chosen for it, local “patriotism,” or other mechanisms.

The intersection of long term regional ties and business ties is a concrete example of the “interpenetration” (Preston and Post, 1975) of business and other social subsystems. Another concrete area of interpenetration is membership in and communication with nonbusiness sectors of the community. Participation in nonprofit organizations would be an example. Although people may involve themselves in community organizations because of their strong concern for society or they may develop social concern as a result of exposure to the problems of the community through these involvements, an individual's exposure to the interpenetration of business and non-profit sectors may well affect their pattern of beliefs regarding the responsibilities of managers. Finally, family and friendship ties can also impact business belief systems.

3. Setting and Respondents

The population studied was comprised of the senior corporate officers (as listed in public filings) and locally residing directors (total n=500) of 48 large, publicly and privately held, corporations headquartered in a major American city, including several *Fortune*-listed firms. The 48 companies consisted of the 30 largest publicly held corporations, selected on the basis of revenues, along with the 18 privately held corporations with revenues at least as large as those of the smallest public corporation. Questionnaires were mailed to each of the 500 members of the population; 76 usable responses were obtained, a 15% response rate. This rate of response is at the lower end of what is generally accepted, but given the senior nature of the study population, a response much greater than this would have been unlikely. Among the respondents were 9 CEOs, 1 board chair (non CEO), 3 presidents (non CEO), 12 senior/executive vice presidents, 19 vice presidents, 13 outside directors, and assorted CFOs, treasurers, controllers, counsels, and divisional officers.

Many of these local corporate leaders were no doubt tied to each other through multiple business and social relations. Traditional network studies usually get at these by asking respondents about their specific relationships with others (e.g., "From whom do you seek advice about 'x'?"). Unfortunately, this approach can only work when the researcher, generally under controlled circumstances, is assured of an extremely high rate of response (at least 85-90%). This level of response is critical in network studies, because sampling is from a population of relations, not a population of individuals. Among 500 individuals, there are $500(499)/2=124,750$ possible symmetric relations. A 50% response would yield data on only 25% of relations – $[250(249)/2]/124,750$. And, there are perhaps more critical concerns with network sampling (see Burt, 1983). For example, critical ties could be missed. Given the size and nature of the population, along with resource constraints, a mail survey was the only practical means of gathering data about responsibility beliefs. Yet, the level of response needed to overcome network sampling problems would be an impossibility. Public data had to be used to construct the network. With this data, all relations could be captured, network variables calculated over the whole network, and the values for respondents extracted.

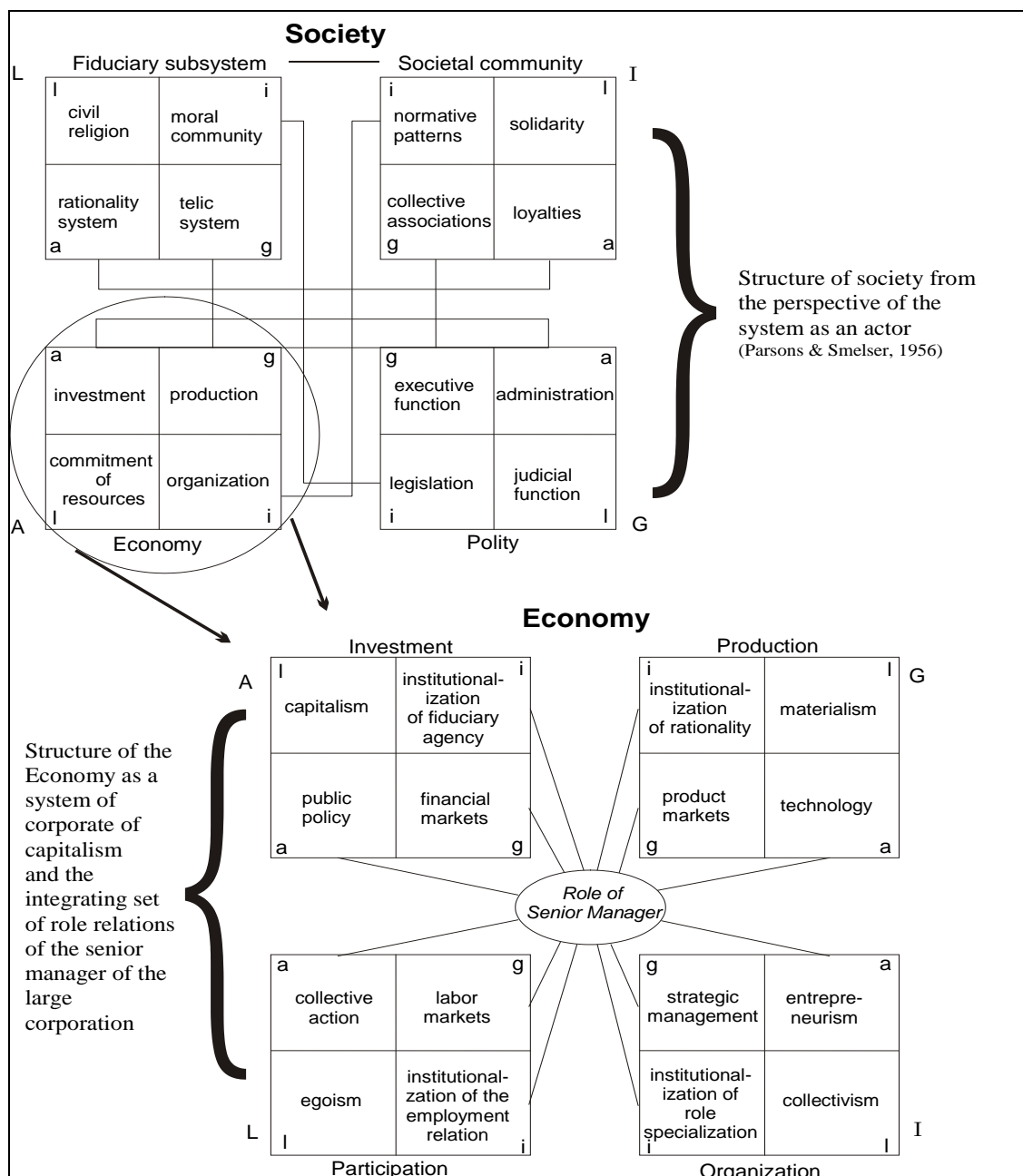
Board and employment data is the most accessible public information on relations among business leaders. By examining board memberships, a local network of "interlocking directorates" can be readily constructed. This avoids network sampling problems, but forces reliance on a surrogate network which may not capture the true structure of relations governing transmission of the beliefs in which we are interested. On the positive side, directorate networks represent formal organizational and interorganizational ties that are likely to be associated with strong business and social relations between companies and/or their managers.

4. Orientations toward Social Responsibility

Many efforts have been made over the years to elucidate and delimit the meaning of corporate social responsibility (Carroll, 1999; Garriga and Melé, 2004). Davis (1960), Friedman (1970), the CED (1971), and Preston and Post (1975) are a few of the more well known early attempts. In 1979, Carroll outlined nine general views of social responsibility and crystallized them in a four-fold typology. Carroll's typology, with areas of responsibilities originally termed economic, legal, ethical, and discretionary, established itself as a dominant construct in the field. It has been integrated into important overarching models of corporate social performance (e.g., Wartick and Cochran, 1985; Wood, 1991), informed empirical measurement (e.g., Aupperle, 1984; Sharfman *et al.*, 2000; Acaret *et al.*, 2001; Crilly, *et al.*, 2008), and become a textbook standard. Yet, conceptually, corporate social responsibility is still considered to be "embryonic and contestable" (Windsor, 2006:94) and its operationalization and measurement has remained problematic (Williams and Aguilera, 2008; McWilliams *et al.*, 2006; Rodríguez *et al.*, 2006). Given this situation, it was decided to develop a new conceptualization of social responsibilities grounded in a rigorous systems view of society, specifically the model of economy and society proposed by Parsons and Smelser (1956), based on Parsons' more general "AGIL" approach to social systems. There are other systems theories of social structures and functions (e.g., Kuhn, 1974; Barber, 1992), but, as Smelser (1988) has argued, Parsons' approach is the most systematic and complete. From this conceptualization, a generalized managerial role-set and its associated role responsibilities were derived and a survey instrument developed. There is not sufficient space to completely discuss the development of the typology nor recount the critique of the structural-functional sociological theory that underlies it. However, in order to understand the survey, a brief explanation is necessary. In one of the classic works of 1950s American sociology, Parsons and Smelser (1956), drawing on work by Bales (1953), postulated four functional imperatives all social systems, from the simplest to the most complex, must meet.

These four imperatives – (A)daptation to the environment, (G)oaal setting, (I)ntegration, and (L)atency (essentially, maintenance of core values) – could be used to analyze any social system. Concrete social systems, such as families, organizations, nation states, etc, were seen as containing abstract functional subsystems to address each of these AGIL imperatives. Each functional subsystem was said to contain functional “subsubsystems” to address its own AGIL imperatives – and each of the subsubsystems would contain functional “subsubsubsystems” and so forth on down to the biological level. Parsons and Smelser viewed the “Economic System” as fulfilling the adaptation function for a society as a whole (roughly equivalent to a nation state). Within the Economic System, the four required functional subsystems were identified as Investment (adaptation), Production (goal setting), Organization (integration), and Participation (latency). Parsons and Smelser stopped at this point, but to develop our typology we extended the model to next level down, identifying the subsystems within Investment, Production, Organization, and Participation. These next level subsystems were used to identify the components of the role-set and the role functions/responsibilities of the senior-level manager in the large corporation. Figure 1 depicts this extension of the Parsons and Smelser model, termed the “System of Corporate Capitalism.”

Figure 1: The system of corporate capitalism as derived from Parsons and Smelser’s AGIL model of society



The lines emanating from the “Role of Senior Manager” in the center of the model symbolize the relations of the status of senior level manager in a large scale corporation with the various functional subsystems of the economy. These illustrate the areas of "social responsibility," broadly defined, adhering to the role-set associated with this status (see Merton, 1957 and Biddle, 1979 for classic treatments of role theory). We theorize that differing levels of interpenetration (Preston and Post, 1975) with society beyond the economic system perceived by the role-set incumbent will alter the incumbent’s interpretation of the role associated with each function and the (social) responsibilities attached to that role. *Figure 2* rearranges the model’s components according to “subsystem” orientation (that is, by the A, G, and I functions within the Investment, Participation, Production, and Organization systems) and by the degree of interpenetration of extra-economic concerns – and identifies the various role interpretations. The broadening of the meaning of responsibility can be seen as operating in slightly different ways regarding the integrative (responsibility), adaptive (responsiveness), and goal attainment subsystem responsibilities. We can conceive of three continua, one for each type of subsystem: degree of expanse for integrative responsibilities (*Figure 2a*), degree of recognition of interaction for adaptive response (*Figure 2b*), and degree of internalization of considerations generally external to the economic system for goal attainment responsibilities (*Figure 2c*). Statements representing the different types of functional role interpretations identified in the *Figure 2* model were used in the survey instrument to be described below. An item factor analysis (R-factor) of the results of the survey produced three factors which can be interpreted as a particularism-universalism dimension, a self-other dimension, and a technological-humanistic dimension. An inductive typology of social responsibility orientations, shown in *Figure 3*, was generated from these three dimensions.

Figure 2: Interpenetration and functional responsibility

	less interpenetration narrow construction of responsibility	more interpenetration broad construction of responsibility
Personal Responsibility L[i] Occupational Competency I[i] Fiduciary Responsibility A[i] Economization G[i]	economic actor administrator agent of stockholder interest economic efficiency	moral actor trustee (professional) steward (agent of system interest) social efficiency
	Interpenetration and expansion in integrative responsibilities. Figure 2a.	
	less interpenetration reactive construction of responsibility	more interpenetration interactive construction of responsibility
Political Responsibility L[a] Public Responsibility A[a] Innovation Responsibility I[a] Technological Response G[a]	lobbyist (agent of private interest) obeyer of law opportunist technological dominance	statesman (agent of public interest) opinion leader contributor to progress technological appropriateness
	Interpenetration and interaction in adaptive responsibilities. Figure 2b.	
	less interpenetration external construction of other sectors	more interpenetration internal construction of other sectors
Labor market L[g] Financial market A[g] Organizational I[g] Product market G[g]	employee as resource short term profit firm as production function consumer as target	employee as person long term value firm as institution consumer as person
	Interpenetration and internalization in goal attainment responsibilities. Figure 2c.	

Figure 3: Typology of managerial social responsibility orientations

Factor 1	Factor 2	Factor 3	Ideal type	
Particularism	Self	Technological	Individualists 1	Survivalists
		Humanistic		Weberian Calvinists
	Other	Technological	Teampayers	Friedmanites
		Humanistic		Good Soldier
Universalism	Self	Technological	Individualists 2	Social entrepreneurs
		Humanistic		Egoists
	Other	Technological	Institutionalists	Husbenders
		Humanistic		Statesman

5. Measurement: Dependent Variable

The dependent variable, the patterning or orientation of beliefs about social responsibility, is an inherently multidimensional construct complicated by a potential social desirability bias (all responsibilities can be seen as "good things"). A procedure forcing respondents to choose among competing "goods" was employed based on an adaptation of Q-methodology (Stephenson, 1953; Brown, 1980). The process begins with subjects rank ordering (Q-sorting) a set of representational statements. Q-sorting has traditionally been done in laboratory settings with subjects sorting cards into piles along a specified continuum. A paper and pencil version of a Q-sort instrument was pilot tested with senior undergraduate business majors and found to be practical and to yield interpretable results. A slightly modified version of this instrument was mailed to our population. Respondents were asked to rank 33 statements representing different responsibilities associated with the role interpretations shown in Figure 3 into nine groups according to their functionality for corporate managers (from least to most functional). The nine groups were sized to create a quasi-normal distribution – two statements in the most extreme categories, the tails of the quasi-normal distribution (scored +/- 4 points), three statements in each of the next two categories moving toward the middle of the distribution (scored +/- 3 and +/- 2 respectively), four statements in the next most central categories (scored +/- 1), and eight statements in the middle of the distribution (scored 0).

The results were R-factor analyzed and Q-factor analyzed. The R-factor analysis of the item statements produced the typology depicted in Figure 3. The subsequent Q-factor analysis treated the respondents, rather than the item statements, as the variables. Five Q-factors (a number selected on the basis of interpretability and parsimony, accounting for 61.4% of the variance) were extracted and varimax rotated. Each Q-factor can be interpreted as representing a particular “ideal typical” orientation toward social responsibility. An individual's loading on any of these factors is a measure of the similarity of his/her pattern of beliefs with the "ideal typical" orientation represented by that factor. Note that these factors are independent and not mutually exclusive. No one has a perfect ideal typical orientation and individual patterns usually reflect a combination of two or more orientations. The quantitative association of these patterns with the categories of the Figure 3 typology of social responsibility orientations was accomplished by multiplying the (3x33) transpose of item-factor loadings matrix by the (33x5) Q-factor score matrix. This produced a weighted value for each Q-factor on each item factor used for classification. See Table 1.

Table 1: Classification of Q-factors with numbers of respondents primarily and significantly loaded on rotated factor.

	Q-factor 1	Q-factor 2	Q-factor 3	Q-factor 4	Q-factor 5
Item factor 1 (+ universalism - particularism)	6.19	-4.26	-6.52	0.60	1.40
Item factor 2 (+other, - self)	5.34	3.44	0.45	-6.48	-3.20
Item factor 3 (+ technological, - humanistic)	-3.71	5.80	-3.68	-2.52	4.17
Classification	<i>Statesman</i>	<i>Friedmanite</i>	<i>Calvinist/ Good Soldier</i>	<i>Egoist/ Calvinist</i>	<i>Social Entrepreneur</i>
<i>Number primarily loaded</i>	27	23	12	7	7
<i>Number significantly loaded</i> (.05>0.3412)	37	39	30	14	10

The first two Q-factors are the most clearly defined in terms of the typology. *Q-factor 1* has robust positive weights on the first and second item factors, and a negative weight on the third, indicating association with the “Statesman” orientation. *Q-factor 2* has positive weights on the second and third item factors, and a negative on the first, mapping it on to the “Milton Friedmanite” orientation. That the factors representing these two categories are the strongest in the Q-factor analysis and the most clearly related to the typological categories is not surprising. They represent the “classic” positions in the social responsibility “debate,” corresponding, for example, to Miles (1987) distinction between institutional and enterprise philosophies. For the purposes of this paper, we are interested only in these two Q-factors, which have been labeled “*Statesmanship*” and “*Friedmanism*,” respectively. An overview of the factors and the statements that are most definitive of them is presented in *Table 2*.

Table 2: Overview of Q-factor results

Rnd. Score	* Z Score	Q-factor 1: “Statesmanship”	Rnd. Score	Z Score	Q-factor 2: “Friedmanism”
Highest rated statements			Highest rated statements		
4	1.98	33. Doing the “right thing,” even if it means foregoing business opportunities	4	2.18	1. Improving my company’s next quarterly financial statement
4	1.72	6. Ensuring my company’s activities remain within the confines of the law	4	1.65	15. Minimizing production costs
3	1.60	14. Creating long-term value for stockholders	3	1.63	32. Maintaining a technological edge over the competition
3	1.20	18. Acting in accordance with my personal moral standards	3	1.61	14. Creating long-term value for stockholders
3	1.01	17. Managing as a faithful agent of ownership	3	1.55	3. Obtaining maximum productivity from my company’s personnel
Lowest rated statements			Lowest rated statements		
-4	-1.89	2. Speaking out on public issues that affect business	-4	-1.75	16. Keeping the respect of my family and nonbusiness friends
-4	-1.72	9. Acting to maximize my personal utility	-4	-1.45	25. Ensuring my company’s activities contribute to... social progress as I see it
-3	-1.57	24. Developing business contacts through involvement with community organizations	-3	-1.21	28. Achieving my personal career goals
-3	-1.56	28. Achieving my personal career goals	-3	-1.15	24. Developing business contacts through involvement with community organizations
-3	-1.32	1. Improving my company’s next quarterly financial statement	-3	-0.98	31. Cooperating with government and concerned citizens
Number of respondents primarily loaded on <i>Q-factor 1</i> (highest loading on any factor is on <i>Q-1</i>)			27	Number of respondents primarily loaded on <i>Q-factor 2</i> (highest loading on any factor is on <i>Q-2</i>)	
Number of respondents significantly loaded on <i>Q-factor 1</i> (loading >0.3412 for .05 significance level)			37	Number of respondents significantly loaded on <i>Q-factor 2</i> (loading >0.3412 for .05 significance level)	
Statements which most strongly discriminate between <i>Q-Factor 1</i> and <i>Q-Factor 2</i> – absolute difference in Z score greater than two standard deviations			<i>Q-1</i> rank	<i>Q-1</i> Z score	<i>Q-2</i> rank
1. Improving my company’s next quarterly financial statement			29	-1.32	1
33. Doing the “right thing,” even if it means foregoing business opportunities			1	1.98	26
16. Keeping the respect of my family and nonbusiness friends			10	0.61	33
3. Obtaining maximum productivity from my company’s personnel			26	-.070	5
32. Maintaining a technological edge over the competition			21	-0.59	3
				<i>Q-2</i> Z score	Absolute difference in Z score

* The “rounded scores” represent the scores those items would receive in the ideal typical response for that Q-factor.

** The Z-score is the standardized regression-based factor score for the item.

6. Measurement: Network Variables

All network variables were computed using UCINET IV (Borgatti, Everitt, & Freeman, 1992) based on row normalized (using z-scores) 76x76 respondent matrices that were extracted from 500x500 network variable matrices. Construction of the network variable matrices began with a 500x78 “actor by activity” matrix. Each public corporation was represented by two column vectors, one signifying employment, one signifying membership on the board of directors. Private corporations were represented by one column vector representing employment. (60 columns for public corporations, plus 18 for private, equal 78). Each actor was represented by a row vector. Ones and zeroes were entered at the intersections of row and column vectors to indicate an individual’s affiliation (1), or lack thereof (0), with a given activity. The “actor by activity” matrix was then multiplied by its transpose to produce a 500x500 “actor by actor” matrix. The number at an intersection of two actors in this matrix represents the number of “joint participations” in activities (employment or board membership) by the two actors. Structural equivalence between actors was determined, following Burt (1983), as Euclidean distance between actors’ row vectors. Affiliation was measured as the number of direct, one-step ties between actors; that is, simply the number of joint participations. (Note: alternate measures of affiliation, for example ties of two or three steps, yielded similar results.)

7. Measurement: Control Variables

Control variable data was gathered from public sources and, for more individualized items, as part of the mail survey which included the Q-sort. A control variable for the business environmental context was operationalized in two ways: as the size and as the economic sector (service or manufacturing) of the respondent’s company of primary affiliation. Size was measured as revenue and sector was treated as a dummy variable equal to one if the company was in a service industry. A dummy variable was included to indicate if the respondent was an outside director, with no primary employment by any of the companies in the population. Controls for personal involvement in the community were likewise measured in multiple ways: as the number of “prestigious” regional policy and planning boards of which the respondent was a member and as a dummy variable equal to one if the respondent reported conversations with representatives of the nonprofit sector about corporate community responsibility at least “a few times a year.” These measures were chosen from a number of alternative indicators identified in preliminary analysis as having the strongest relationships to managerial responsibility.

The number of policy and planning board memberships was superior in this sense to both the total number of nonprofit board memberships and “centrality” in the nonprofit network. (A network model of relationships through community nonprofit board membership was constructed in a manner similar to the business network.) Community responsibility conversation frequency was reported on a scale from “never” to “more than once a month.” At least “a few times a year” seemed to be a threshold level. A dummy variable equal to one indicating birth within 150 miles of the city controlled for personal regional ties was also included. Family and friendships ties were measured with a dummy variable indicating reported conversations with family and/or nonbusiness friends about corporate community responsibility at least “a few times a year.”

8. Hypothesis Testing: Network Autoregression

The statistics of network effects by definition violate OLS assumptions of uncorrelated and normally distributed error terms – the network effects are in fact autocorrelation effects. Thus, a fairly sophisticated maximum likelihood estimation procedure is required to estimate network effects. These effects are similar to various spatial effects in biology, geography, and geology in that the independence of observed items is affected by the items’ proximity to each other. In social networks, measures of physical distance are simply replaced by measured of social distance. Doreian (1989; Burt & Doreian, 1982) has built on work in spatial autocorrelation in the physical sciences (Cliff & Ord, 1973; Upton & Fingleton, 1985), demonstrating the applicability of spatial autocorrelation models to the network context. Therefore, we will use the spatial simultaneous autoregressive lag model estimation function in the spatial dependence package (Bivand, 2006) written for geographical applications in the R statistical computing environment (R Development Core Team, 2008) to estimate the parameters of the mixed autoregressive mixed model:

$$y = \alpha W y + X \beta + \epsilon$$

Where y = Q-factor loading, L , and α (rho) = lag coefficient. For Hypothesis 1,

$$W y = \sum_i^N \sum_j^N \sum_{ik} SE_{ij} L_{ik}$$

SE_{ji} = weight of network relationship of actors j and i measured as structural equivalence (Euclidean distance), $SE_{ji} = 0$

L_{ik} = loading of actor i on factor k ,

and for Hypothesis 2,

$$W_i = \sum_j^N \alpha_{ji} AFF_{ji} L_{ik}$$

AFF_{ji} = weight of network relationship of actors j and i measured as direct affiliation $AFF_{ji} = 0$

L_{ik} = loading of actor i on factor k .

X = vector of control variables and parameters.

This means that loading on a Q-factor for actor i is predicted by the sum of the loadings of the other actors' in the response set weighted by their normalized relationships with actor i . A statistically significant lag coefficient, α , indicates the presence of network effects on the respondents' belief orientations regarding managerial social responsibility.

9. Results

Table 3 presents the autoregressive lag model estimates using structural equivalence as the source of network effects (Hypothesis 1). Table 4 presents the results using affiliation (Hypothesis 2). The expected sign of the lag coefficient α in Table 3 is negative, because structural equivalence is measured using Euclidian distance (the more alike the pattern of relationships of two actors, the smaller the distance). The expected direction of the coefficient in Table 4 is positive (the more connections between two actors, the greater the level of affiliation).

Table 3: Model 1: Spatial simultaneous autoregressive lag model estimation with structural equivalence as the source of network effects

	Statesmanship(Q-factor 1)				Friedmanism(Q-factor 2)			
	Estimate	Std. Error	Z Value	P	Estimate	Std. Error	Z Value	P
Struc. Equiv. Effect (α)	-.010145			.129	-.019342			.0146*
Service sector	.065573	.060515	1.0836	.279	-.16210	.053927	-3.0059	.003**
Company Size	-.000003	.000005	-.6558	.512	-.000003	.000004	-.8210	.412
Outside Director	-.16096	.064560	-2.4930	.013*	.0092802	.054352	.1701	.864
Policy board membership	.053061	.039206	1.3534	.176	.019563	.032284	.5878	.557
Communication with non-profit sector	.13662	.055581	2.4581	.014*	.067416	.047082	1.4319	.152
Local birth	.084637	.048740	1.7365	.082+	-.11978	.041519	-2.8849	.004**
Communication with family	.03066	.05581	.4752	.634	-1.2296	.054013	-2.2763	.023*

Significance: + .10; * .05; ** .01

Table 4: Model 2: Spatial simultaneous autoregressive lag model estimation with affiliation as the source of network effects

	<i>Statesmanship (Q-factor 1)</i>				<i>Friedmanism(Q-factor 2)</i>			
	Estimate	Std. Error	Z Value	P	Estimate	Std. Error	Z Value	P
Affiliation Effect (□)	-.002919			.467	-.07971			.007**
Service sector	.087733	.063914	1.3727	.170	-.18622	.055324	-3.3660	.001***
Company Size	-.000006	.000005	-.1077	.914	-.000007	.000004	-1.16148	.106
Outside Director	-.17811	.067335	-2.6451	.008**	.0003725	.058486	.0058	.995
Policy board membership	.062576	.041648	1.5025	.133	.0023178	.036346	.0638	.949
Communication with non-profit sector	.12991	.058284	2.2289	.026*	.082128	.050562	1.6242	.104
Local birth	.092652	.050940	1.8189	.069+	-.12959	.044348	-2.9222	.003**
Communication with family	.038931	.066470	.5857	.558	-.15200	.057539	-2.6417	.008**

Significance: + .10; * .05; ** .01; ***.001

The same pattern of relationships is seen in both tables. Both *Hypotheses 1* and *2* hold for *Q-factor 2*, *Friedmanism*, but not for not for *Q-factor 1*, *Statesmanship*. It appears that philosophically conservative economic values are promoted and reinforced through formal interorganizational business networks, while the same process does not seem to be in place for "institutional" or "socially responsible" business values. Perhaps the enterprise philosophy reflected in *Q-factor 2* is closer to the core value system of business and, hence, is reproduced in business systems, while the institutional philosophy of *Q-factor 1* has its roots and support in other social sectors and is present in business to the extent these other systems "interpenetrate" with business. These other systems may in fact be represented in our model through the control variables, although, of course, we can say nothing of the direction of causality of the relationships seen here. For example, speaking to representatives of the non-profit sector about community responsibility issues more than few time a years is positively related to a holding a *Statesmanship* type pattern of beliefs, while local birth has a negative relationship to the *Friedmanism* orientation and a nearly significant positive relationship to *Statesmanship*. Interestingly, many of the control variables seem to operate more in a negative than positive sense. Employment in the service sector is negatively related to *Friedmanism*, but not significantly positively related to *Statesmanship*. The same is true for reported family communications about responsibility. Conversely, a position as an outside director, which one might expect to be related to a concern with the interests of stockholders, has no relationship at all to the *Friedmanism* orientation, but is negatively related to *Statesmanship*.

Both theories of social influence, Burt's structural theory and the traditional cohesion theory, are supported the by results. In Burt's theory symbolic role taking is done using others with whom one is structurally equivalent. One compares oneself to one's peers, not *necessarily* to those persons who are closest at hand. Unfortunately for the analyst, one's peers are often those closest at hand. Mizruchi (1993) argues that the source of similarity between structurally equivalent actors derives from their communication with the same set of alters and is in actuality an artifact of cohesion. That could be the situation we are witnessing here. In fact, given that in our case affiliation effects seem to be marginally stronger, with an application of Ockham's razor, we could be justified in declaring the traditional cohesion theory the more powerful explanation. We will not go that far, but will add that further research employing different measures of positional equivalence, such as "regular equivalence" (White & Reitz, 1983), that are less confounding of role status and cohesion will be necessary.

Although this research was only exploratory, the results were satisfying and encouraging. The existence of social influence on managers' beliefs about social responsibility was supported, yet with a twist that points toward the necessity of a multiple systems view of society. In demonstrating the importance of social structures in determining business beliefs, the results also point out the danger of ignoring these structures in future research. Attempting to identify the sources of managers' beliefs about social responsibility without accounting for the effects interorganizational and extraorganizational structures would not only leave a strong source of variance unexplained, but would lead to an overestimation of the influence of industry and individual variables.

10. References

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