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TOWARDS A NETWORK PERSPECTIVE ON ORGANIZATIONAL DECLINE

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Abstract

Analysis of organizational decline has become central to the study of economy and society. Further advances in this area may fail however, because two major literatures on the topic remain disintegrated and because both lack a sophisticated account of how social structure and interdependencies among organizations affect decline. This paper develops a perspective which tries to overcome these problems. The perspective explains decline through an understanding of how social ties and resource dependencies among firms affect market structure and the resulting behavior of firms within it. Evidence is furnished that supports the assumptions of the perspective and provides a basis for specifying propositions about the effect of network structure on organizational survival. I conclude by discussing the perspective's implications for organizational theory and economic sociology.

The US economy has dramatically transformed over the last three decades - raising new questions about economic growth potential, labor market stratification, and industrial and political independence (Harrison, 1994). The most debated change has concerned the loss of manufacturing because of its central role in the development of the US economy and its key role in raising living standards. Before 1975 the loss of manufacturing, often termed deindustrialization, was a regional phenomenon. The loss in manufacturing in one region of the country was off-set by the birth of new manufacturing plants and industries in other regions. After 1975 however, real decline in manufacturing became a national phenomena, reaching its peak rate during the 1980 and 1982 recessions and continuing at a slower but steady rate of decline thereafter. By 1982, manufacturing jobs dropped

to just under 18 million jobs from their all-time high of 21 million jobs in 1979; breaking the prior record for plant failure and job loss set during the Great Depression (Romo and Schwartz, 1995). From an international perspective, these changes are not strictly American. Much research shows that other advanced nations, Great Britain in particular, have experienced similar changes and encountered similar economic and social consequences (Elbaum and Lazonick, 1986; Best, 1990).

These changes are wrenching to local communities and particularly corrosive of the gains won by immigrants, women, and minorities, since these groups benefit most from a strong manufacturing sector even though they are the first to be let go during downsizing and closings. Even though some arguments suggest that the changes are a natural part of a necessary readjustment process whereby economic resources are repositioned to their most productive uses (Romo et al., 1989), there is nonetheless much reason for concern. New industries have not provided ample re-growth opportunities nor reversed the ever-widening income distribution between the well-paid and stably employed and the growing ranks of temporary workers who are restricted to unstable and low-paying positions (Harrison and Bluestone, 1988; Davis-Blake and Uzzi, 1993). There is also a growing recognition that the growth of new industries, particularly those marked to carry the US economy into the 21st century, is based on the presence of a strong manufacturing base that can supply the inputs and absorb the outputs of new industries, and that without such a base, new industries will not arise nor flourish. For example, the growth and success of the biotechnology industry in the US, Japan, and Germany has been tied to the strong presence of three support industries - pharmaceuticals, chemicals, and brewing - and the social and resource dependence networks that exist between and among organizations in these fields (Saxenian, 1994).

Present explanations of organization failure fall into two major views: the comparative cost perspective and the threat-rigidity

perspective. The comparative cost perspective has been developed primarily by economists and population ecologists who study decline and tends to use traditional economic arguments that stress efficiency and rational calculation as determinants of decline¹ (Lawrence, 1984; McKenzie, 1982; 1984; Hannan and Freeman, 1989). The threat-rigidity perspective has been developed mainly by organization theorists and social psychologists and relies predominantly on cognitive and decision making theories to explain the processes by which organizational decline takes place and can be strategically managed (Sutton, 1990).

Though these perspectives are formulated using different disciplinary logic and focus on somewhat different aspects of organizational decline, they tend to make similar assumptions about the role of social structure in the process and outcomes of failure: both theoretical conceptions overlook the fact that organizations are embedded in concrete, ongoing systems of social relations and resource dependencies that influence the process of organizational decline (Granovetter, 1985). For example, in the case of comparative cost theory, the action of firms and decision makers is assumed to be directed by rational, self-interested behavior that is only minimally affected by social ties and resource dependence relations. In the case of the threat-rigidity perspective, managers succumb to "pathological and maladaptive" dominant psychological responses that minimize the effect of social structure on action because microbehavioral decision making processes unfold without attention to the decision maker's linkages to other actors or institutional connectedness (Staw, Sandelands and Dutton, 1981; Ocasio, 1995). Thus, in both cases, a sophisticated account of how social structure directs attention to particular stimuli, shapes actors' expectations and preferences, or channels resources between interdependent actors is given short shrift.

In this paper, I argue that further understanding of organizational failure requires that these perspectives be synthesized to provide a sophisticated account of how social structure and interfirm resource

dependence affect decline. In developing this argument I build upon the majority perspective among sociologists that argues that economic behavior is embedded in ongoing systems of social and resource exchange networks (Granovetter, 1985; Burt, 1992; Smelser and Swedberg, 1994). This perspective proposes that decline is best understood by focusing on the characteristics of relations among organizations and their social context (Romo and Schwartz, 1995; Uzzi, 1996). The objective is to show how an understanding of social structure can furnish a unique perspective on organizational decline while also resolving empirical anomalies from both comparative cost and threat-rigidity perspectives.

I begin with a review of the literature on comparative cost and threat-rigidity perspectives, focusing on how the logic of each argument neglects a treatment of social structure and on the empirical anomalies that have been identified with each approach. I then describe the structural embeddedness framework and present data which supports its assumptions and helps resolve in part some of the anomalies of comparative cost and threat-rigidity perspectives. Finally, I formulate hypotheses that follow logically from the structural embeddedness approach to show how its predictions are unique, testable, and capable of directing future empirical study on organizational decline. I close with a discussion of the implications of the structural embeddedness approach for public policy, the sociology of organizations, and organization decline research.

Organizational Decline

The Comparative Cost Perspective

The study of organizational decline has long been a topic of economic research. While several theoretical perspectives have been forwarded, most combine a focus on cost efficiency and product life-cycle dynamics (Romo and Schwartz, 1995).² The cost argument component of this perspective is the most frequently used decline explanation. Simply put, it argues that organizations survive or die based on their ability to cost-effectively compete with other

organizations. The basic proposition is that those firms that most efficiently organize their internal structures and market relationships will have the lowest failure rates. "[The]...theory assumes that firms seek to maximize profits, ...[and that] a firm will cease production if market price (average revenue) fails to cover average variable costs....where competitive performance has been relatively poor, average profitability is likely to be low and a high closure rate is to be expected" (Henderson, 1980: 153).

On a microbehavioral decision-making level, this perspective embraces the neoclassical assumptions about human information processing and actor motivation, namely, that decision makers are rational, self-interested profit maximizers. Decision makers, in this view, whether individuals or firms, scan the environment, rank alternatives, and direct their investments into those activities with the highest expected value of return, where returns are most efficiently calculated by attention to price data which provides all the information needed to make rational decisions (Simon, 1991). Consequently, successful firms are unlikely to form long-term attachments to exchange partners or a particular place, or to cultivate close personal ties because long-term attachments suggests that the firm is suboptimally exploiting new low cost entrants into the industry. Also, social relationships supposedly offer no economic value over price data or are predicted to lower the price system's efficiency by causing actors to become more enamored with the relationship than with the economic imperatives of the transaction (Harrison, 1992: 476; Peterson and Rajan, 1994).

In perhaps the best articulation of this view, McKenzie (1979, 1982, 1984) argued that the large scale decline of manufacturing in the northeast could be attributed to the relatively high cost of wages and union rigidities, property and business taxes, infrastructure renewal and maintenance costs, utilities, and other regional factors of production in the Northeastern states. As a result, the systematic closure of plants in the Northeast, and the attendant organizational

births in Southern states, was attributed to the lower regional production and transaction costs in the South.

In the 1980's, the shift of production to off-shore locations caused some factors of the comparative cost logic to be refuted, while at the same time focusing attention on labor costs as the primary driver of decline and managerial attention (Romo and Schwartz, 1995). This shift in thinking occurred because the infrastructure, utility, and tax costs in target relocations in Japan, Germany, and Italy were the same or higher than the South. At the same time, these factors were increasingly recognized as accounting for only a small portion of the average overall cost structure of production within US regions. This meant that the only cost factor that was measurably different was labor costs, which became seen as the core factor behind decline decisions and processes (Romo and Schwartz, 1995).

The idea of comparative costs as grounded fundamentally in labor costs was assimilated into product-life cycle arguments, which combine the assumption of comparative costs with the notion that industries follow hypothetical stages of growth, maturity, and decline over their "product life-cycle." In the early stages, the high level of skill needed to develop new products means that firms must pay high wages to attract skilled workers, while the absence of strong competition in a new product's market enables firms to pay high wages without intense competitive pressure to lower wage costs. During the maturity stage however, there is a shift from nonstandardized product development to standardized production. This change permits firms to shift from using costly high-skilled labor to cheap low-skilled labor. During this stage new entrants can also flood the market as products are easily copied and production is automated - raising labor cost containment pressures. Thus, mature firms, no longer dependent on costly skilled labor, should close old plants and relocate to locales that are replete with low-wage, semi- and unskilled labor (Norton, 1986).

In this way, comparative cost arguments permitted a straightforward explanation of organizational decline. Most of the US

industrial base was constructed during WWII when a high priced labor force was needed to create products and markets. But, as newly industrialized nations developed their industries and adopted advanced technology, the inexorable pressure on US companies to take advantage of lower wages in the production of mature products made plant closures and migration to low wage regions inevitable.³

Most tests of comparative cost theory are based on case studies of particular industries that richly describe specific cases that fit comparative cost logic, such as the Lowell textile industry (Hekman, 1980), yet lack generalizability or a basis on which to explain non-confirming findings. For example, apparel firms located in New York have experienced severe decline despite the fact that their production costs are less than their most important competitors. In several regions associated with the Third Italy, the average Italian producer's labor costs exceed the labor costs of New York producers by \$3.00 an hour and those of Far-East producers by more than \$11.00 dollars an hour (Werner, 1989). Yet, firms located in Italy are growing in number and remain the world's largest clothing exporters in value (Werner, 1989; Lazerson, 1995).

Other evidence for comparative cost perspectives is based on analysis that find a statistical association between industrial decline in the Northeast and its rise in other regions with lower labor rates, particularly the Sun-belt (Hicks, 1980; Norton, 1986). Although these studies offer findings consistent with the broad expectations of comparative cost views, they obscure the fact that firms in the same region or industry have different costs structures. Thus, a more precise test of the theory would examine whether firms with high wages, as opposed to those with low wage structures, are more likely to close plants or move to areas with relatively lower labor costs. In one of the few studies to make this decisive comparison, Romo and Schwartz (1995) detected little support for comparative cost arguments. They found that of the 2,907 plants of greater than 25 employees or 10,000 square feet of workspace that migrated/closed in New York State from 1960 to 1985, 49.9 percent had no cost

savings, while a full 24% moved to locations with higher wage costs - suggesting that 75 percent of the activity in New York State runs counter to comparative cost arguments. A more descriptive summary of these patterns are presented in Table 1 (adapted from Romo and Schwartz, 1995: 879). Table 1 presents the potential average labor costs savings of permanently closing an establishment in New York State or migrating to a new location by 2-digit manufacturing sectors, 1960 to 1985. Consistent with comparative cost theory, Table 1 reveals that there is considerable potential wage cost savings across industries. For example, column one shows that while lumber has only a potential wage cost savings of 3.1 percent through closure, transportation equipment has a potential wage cost savings of 3.1 percent through closure, transportation equipment has a potential wage cost savings of 31.1 percent through closure or migration. Contrary to comparative cost logic however, the results suggest that there is little to no relationship between labor cost savings and actual migration or closure. For instance, apparel, instrument manufacturing, and printing and publishing had estimated cost savings of 24.3, 45.9, and 29.8 percent respectively and migrated/closed at a rate of 0.9, 7.7, and 1.9 percent. In contrast, the chemical sector had a potential wage cost savings rate of 16.1, but migrated at a rate of 12.2 percent, nearly twice that of the other three sectors. Across all sectors, the product moment correlation between potential savings in labor costs and the migration rate is only .06, suggesting an almost random relationship. Romo and Schwartz (1995: 879) concluded, "While these data do not exclude comparative costs as a factor in the relocation of industry, they refute the widely held assumption that such costs are the fundamental determinant of migration destinations [and closure]."

The Threat-Rigidity Perspective

Whereas comparative cost theory focuses on objective cost measures and rational decision making processes, threat-rigidity arguments concentrate on how subjective measures of performance and "irrational" decision making processes affect decline. In this way,

comparative cost and threat-rigidity perspectives present different but complementary views of decline.

Table 1:
Potential Savings in Wage Costs and Percent Migrating: Manufacturing Establishments in New York State, 1960-1985

Sector	Potential Savings in Wage Costs	Migrating Plants as a Percentage of 1963 Base
Apparel	24.3	0.09
Chemical	16.1	12.2
Electrical Machines	36.9	12.8
Fabricated Metals	28.7	3.4
Food and Kindred	33.2	3.4
Furniture	23.6	2.8
Instruments	45.9	7.7
Leather	20.9	1.6
Lumber	3.1	1.5
Machinery	30.4	5.0
Miscellaneous	41.1	2.5
Paper and Allied Industries	19.1	9.0
Petroleum and Coal	13.6	7.0
Primary and Metals	37.8	9.0
Print and Publishing	29.8	1.9
Rubber	11.2	9.4
Stone and Clay	25.8	2.8
Textile Mills	26.7	4.1
Transport Equipment	31.1	7.1

* Defined as the largest percentage savings in wage costs achieved by any migrating plant in the sector between 1960 and 1985 (adapted from Romo and Schwartz 1995:879).

The threat-rigidity perspective contends that individuals, groups, or organizations in threatening situations have a general tendency to follow "...maladaptive or pathological cycles of behavior" that restrict information processing and tighten social control over organizational members in the face of economic change or adversity (defined as a failure to meet a desired level of aspiration, e.g. inability to reduce labor costs to the level of a competitor) (Staw, Sandelands, and Dutton, 1981: 501). These responses are manifested in "mechanistic" shifts in organizational structures that simplify information codes, narrow fields of attention, centralize decision making, and ultimately reduce the organization's ability to change.

According to the threat rigidity perspective, the factors determining organizational decline are rooted in psychological processes that are activated in response to threatening stimuli - such as new lower cost competitors or the inability to innovate. Because decision-makers are socialized to apply well-learned and previously successful strategies, threats fail to illicit rational decision and instead provoke "pathological," "emotional," or habitual responses that are inappropriate for the current crisis but which worked well in the past. Past successes may also cause decision makers to deny problems and defend "business-as-usual" (Weitzel and Jonsson, 1989). Ultimately, these behaviors limit the firm's ability to innovate and change at a time when it needs flexibility and invention most in order to adapt to new environmental conditions.

Research on threat-rigidity effects has found mixing results (Ocasio, 1995). Cameron, Whetton and Kim (1987) found no evidence of decision making centralization, non-prioritized cost-cutting, or a lack of long-range planning in declining universities. These findings are similar to the results of other studies that show that some organizations become more innovative rather than less during decline. Etzkowitz (1990) found that colleges experiencing financial cutbacks support faculty entrepreneurship and new types of industry-university alliances.

Evidence from studies of large manufacturing firm failures is also mixed. In a sample of matched bankrupt and surviving firms, D'Aveni (1989) argued that the increased levels of centralization, heightened attention to costs, and "strategic paralysis" found in bankrupt firms reflected threat-rigidity responses. In a follow-up study, D'Aveni and MacMillan (1990) found that manufacturing organizations facing performance problems relied on well-learned, rather than adaptive responses. Hambrick and D'Aveni (1988, p.15) however, using the identical sample of firms, were unable to determine whether the strategic vacillation and paralysis⁴ they identified in bankrupt firms was due to, "a perceived lack of resources, a tendency for decision makers to 'withdraw', or to paralysis brought on by anxiety." Hence,

some declining firms appear to exhibit patterns consistent with the threat-rigidity thesis, but others do not. Ocasio (1995) argues that this contrary evidence stems from the fact that theories of threat-rigidity have not been adequately reconciled with theories of rational action and failure-induced change such as comparative cost perspectives. He concluded that threat-rigidity arguments are predictive, but lack a specification of the institutional and organizational field-level contingencies under which they are operative.

In this regard, Sutton (1990) has begun to touch on the importance of interfirm relations in determining how threat-rigidity process unfolds. He theorizes that a deterioration in a firm's resource base may arm its reputation with its network of exchange patterns - leading exchange partners to end relations or to bargain for more favorable contract terms. Consistent with its argument, D'Aveni (1989) found that the social capital of the top management of bankrupt firms affects the firm's ability to acquire resources during periods of threat and decline. He showed that firms with senior executives who attended prestigious schools or who have extensive contact networks are better able to acquire financial resources than other firms that lack these kinds of ties.

Thus, the threat-rigidity literature, like the comparative cost literature, has begun to recognize the need to pay greater attention to the structural relations within which firms operate and decline processes unfold. Interestingly, this gap in our understanding of decline processes arises out of both perspectives even though they approach decline from different microbehavioral and organizational assumptions. In comparative cost logic, behavior follows almost automatically from rational calculations and self-interested organizational behavior. Social and interfirm ties have no real effect on behavior; instead, decline occurs in an economic outer space - ".....relations of productions and distribution are (and must be) essentially untouched by such sociological, cultural, anthropological and political considerations as the size, location and history of one's community, family and ethnic ties, the presence or legacy of

attachment to guilds, or commitment to place, or else they ought to be" (Harrison, 1992, p.476). On the other hand, organizational decline logic holds that failure results from pathologically flawed decision-making. Organizational relations and interdependencies are at best "triggers" of behavior because decision makers follow nearly deterministic scripts of behavior. From this perspective organizational behavior is also viewed as automatic - one merely needs to know the conditions under which decision-making is taking place to predict the mechanistic changes in individual and intraorganizational behavior that promote decline. Thus, although each perspective posits opposing mechanisms, they paradoxically reach similar conclusions about decline. In short, once we know either that an organization is acting rationally or is under threat, organizational decline behavior follows automatically and ongoing relations become unimportant in determining decline.⁵

The structural embeddedness perspective does not refute either comparative cost logic or irrational decision-making processes, but attempts instead to specify the conditions under which costs and faulty decision making is likely to be a primary determinant of decline, while also making unique predictions that are not conceived of in either of the other perspectives. In the next section, I attempt to integrate the insights and advances found in both comparative cost and threat-rigidity perspectives with recent work in economic sociology on the embeddedness of economic action. I build on these results and other arguments to develop a framework which tries to explain how the structure and content of network ties among firms affects firm and network-level performance. This work takes an explicit network focus and attempts to explain economic behavior and microbehavioral decision-making processes as a function of the social structure within which organizations are embedded.

The Structural Embeddedness Perspective

Resource dependence and institutional theories have shown that organizational behavior is constrained by resource interdependence and uncertainty (Pfeffer and Salancik, 1978; DiMaggio and Powell,

1983). The embeddedness approach argues that economic behavior cannot be explained by individual motives and cognition alone because it is influenced by networks of relations between and among organizations and individuals (Granovetter, 1985; Portes and Sensenbrenner, 1993; Romo and Schwartz, 1995; Uzzi, 1996). "Embeddedness refers to the fact that exchanges within a group....have an ongoing social structure[that]....by constraining the set of actions available to the individual actors and by changing the dispositions of those actors toward the actions they may take" affects economic performance in ways that economic and psychological schemes of organizational behavior do not centrally address (Marsden, 1981:1210). First, interfirm networks are important mechanisms by which resources are allocated and valued by actors, and second, networks influence behavior by directing decision makers' attention to specific stimuli and by changing their expectations and motives. A distinct feature of the approach is that embeddedness characterizes a unique logic of exchange. In this exchange logic, explanatory power is attributed to ongoing networks of interfirm ties that shape actors' expectations and opportunities in ways that differ from self-interested economic logic or the logic of mechanistic, hard-wired psychological processes. The key implication is that the level of embeddedness in an exchange system creates opportunities, constraints, and outcomes that are not predicted by standard explanations. In the next section, I focus on how content and structure of interfirm network ties shape decline and present data which support key assumptions of the model.

Network Structure and Formation

In both comparative cost and threat-rigidity perspectives on decline, the image of the social structure within which the firm operates is one of an atomistic market (Sutton, 1990; Harrison, 1994). Organizations primarily form loose, temporary connections to other firms and the quality of the relationship itself remains cool. "To this day, orthodox economists ... assume that relations of productions and distribution are (and must be) essentially untouched by such sociological, cultural,

anthropological and political considerations as the size, location and history of one's community, family and ethnic ties, the presence or legacy of attachment to guilds, or commitment to place, or else they ought to be" (Harrison, 1992).

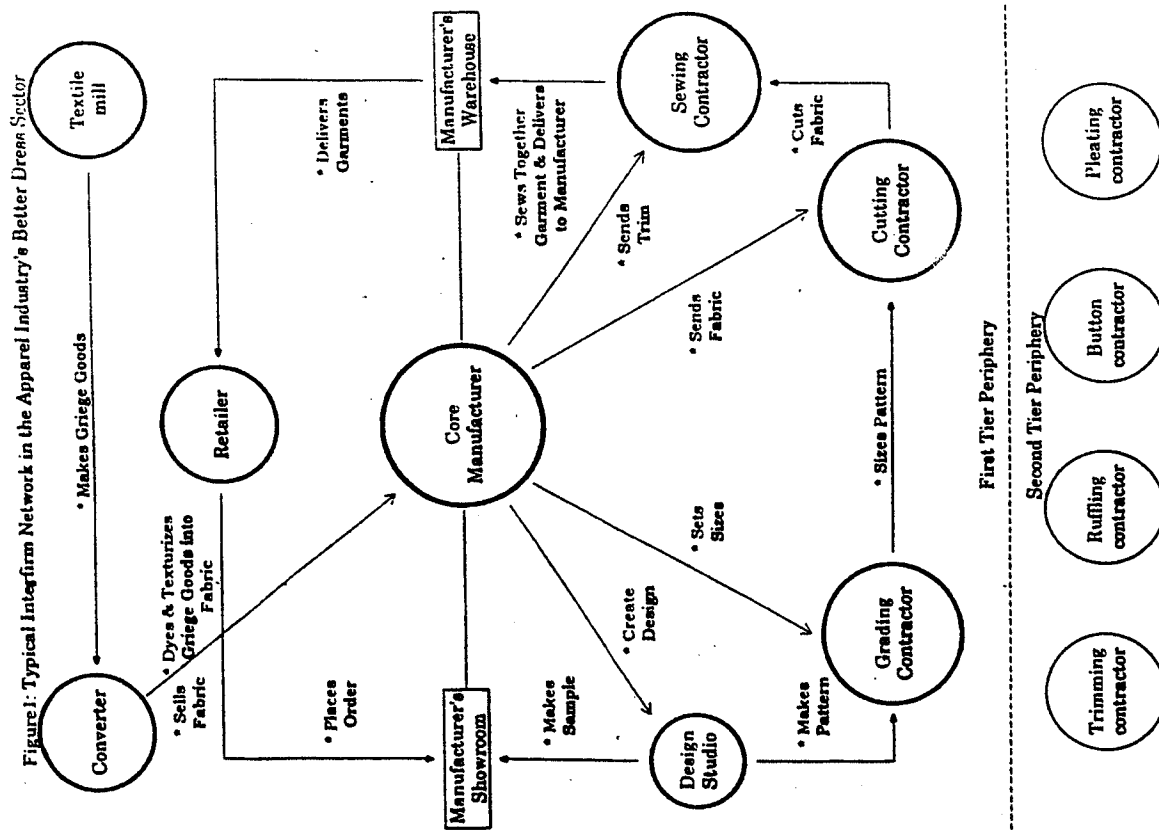
In contrast, the structural embeddedness approach makes the assumption that organizations are embedded in interfirm networks that shape individual firm's performance, as well as the performance of the network as a whole by determining how resources are allocated and what range of action is considerably feasible by organizations. Romo and Schwartz (1995) showed that interfirm networks develop around core establishments that provide the resources on which subcontractors, supplier, trader, and service organizations thrive. Core organizations have several characteristics that distinguish them from periphery firms (Romo and Schwartz, 1995). First, they tend to be large manufacturers of diversified finish products, rather than specialized producers. Second, core organizations tend to be sophisticated assemblers who have broad knowledge of the design, fabrication, and marketing process, rather than extensive primary expertise in the product and process innovations related to particular component parts. Instead, they tend to purchase components and expertise from specialized local contractors and suppliers. Lastly, core firms are likely to be part of multiregional or multinational companies, since their finished products are shippable and marketable in markets that demand similar products but may be located in different places around the globe. In the US auto industry for example, GM is an example of a core organization. Its contracts with over 5000 suppliers yearly for component parts that it then assembles into final goods (Helper and Levine, 1992). More generally, the use of suppliers is evidenced by the fact that the typical US firm contracts out about 60% of all manufactured parts and there are 5-7 customer-supplier links on the value-added manufacturing chain from raw material to the end user subcontractors (Kelley and Harrison, 1990).

In contrast, periphery firms tend to be small or medium sized producers of a narrow range of components or products. Periphery

firms provide core firms with a pool of specialized skills and expertise that may be uneconomical for core organizations to develop on their own because of the uneven demand for a product or because the unique know-how that is required to undertake the design and manufacture of the product is too costly to develop in-house (Davis-Blake and Uzzi, 1993). In this way, periphery firms provide more than just products and services to the network of organizations with whom they transact. Their small size and specialized production facilities increase the flexibility of the network for dealing with changing market conditions by enabling core firms to adjust production levels in quick response to changes in demand while also providing a source of skilled and specialized talent that can be tapped when creating new products or moving into markets (Piore and Sabel, 1984; Harrison, 1994).

Since core organizations provide the principal resources on which periphery firms survive, interfirm networks develop around core organizations that provide a market for the specialized components and products made by contracting, supplier, and other periphery organizations. Moreover, because the viability of networks of organizations become tied to the welfare of the core, core firms acquire the power to shape the social structure of the local economy and the embeddedness of firms within it. They gain power in local politics, professional associations, and on boards of major institutions (Mintz and Schwartz, 1985). At the same time, these resource constraints lead periphery organizations to mimic the practices of core firms, establish plants near core establishments, or form corporate ties to core firms (Florida and Kenney, 1991). Taken as a whole, these processes create pressures that transform atomized markets into networks of organizations.

The creation of networks around Japanese transplant firms is a contemporary example of the network formation process. "Around any major Japanese corporation one can find a cluster of intermediate-sized firms that make quality products....Most of the parts used by auto plants in Japan, for example, are manufactured by



sub-contractors. All the automaker is responsible for are the assembly and painting operations." (Trevor and Christie, 1988: 20). Moreover, Florida and Kenney (1991) report that the formation of networks of suppliers and contractors around the Japanese transplant automakers in the Midwest was due in small part to comparative costs. Over 90 percent of the periphery firms chose sites near core firms to take advantage of network benefits, rather than cost efficiencies.

Figure 1 illustrates the core and periphery structure of a typical interfirm network in the apparel industry.⁶ Circles represent the different firms that make up a network. Arrows indicate the flow of goods and information. The core firm is at the center of the network. Apparel manufacturers are really sophisticated assemblers (hence the industry specific nomenclature of "jobber") that often make no part of the garment. Instead, they usually design a product line, in-house or with freelance designers, organize work of the specialized firms that manufacture the individual components of the garment, and provide a channel between finished goods and retailers. Core firms also link backward to textile mills and converters, which take raw materials and transform them into fabric. The primary periphery firms in this network are design, grading and marking, and sewing contractors. Other contractors are used for specialized production purposes - pleating, button holes, ruffling, and bias trim. These firms have deep knowledge of one specialized aspect of the production process.

As can be seen from the diagram, the welfare of the network is tied to the viability of the core firm; while the success of the core firm is itself dependent on the performance of its contracting network. This creates a reciprocal dependence between the firms in the network and the network as a whole. Moreover, this example points out that the large size of a core organization is not measured in absolute terms but in relative terms vis-a-vis periphery firms. In this industry, apparel manufacturers are small in absolute size of number of employees, and may have fewer direct employees than the periphery firms in their

network, but they almost always have much greater sales volume, and more connections to other firms in and outside the immediate locale.

Table 2 further describes the typical size and nature of interfirm network ties in the apparel industry. The data shows that the average number of ties that a firm maintains in the "market" is relatively small, given the number of possible relations in the regional economy. Limiting our analysis to women's better dress firms, the average contractor maintains ties with 4.33 manufacturers out of the possible 91 manufacturers with whom they can do business. The average manufacturer maintains ties to 12 contractors out of a possible 508 subcontractors with whom they can do business. Relationships in networks also tend to be more concentrated than expected by comparative cost theories, which focus on the atomization of exchange relationships (McLean and Padgett, 1996). Contractors tend to do a high proportion of their work for just one or at most two firms. On average, 61.7% of a subcontractor's total work is due to a single manufacturer.

Table 2:
Indicators of Structural Embeddedness in the New York Better Dress Apparel Industry, 1992

Variable	Contractors (N=508 firms)	Manufacturers (N=91 firms)
Mean Number of Firms per Network	4.33 (3.26)	12 (10.28)
% of Focal Firm's Work due to One Firm	61.7% (285)	27.8% (211)
% of Focal Firm's Work due to Two Firms	76.7% (271)	39.7% (236)
% of Focal Firm's Work due to Three Firms	82.5% (268)	45.5% (230)
Market Boundary Index (No. Ties/No. possible Ties)	4.9%	2.5%

Note: Values are means with standard deviations in parenthesis. Sample represents all unionized firms; about 85% of the industry.

On average, 76.7% is due to just two manufacturers. In the case of manufacturers, 27.8% of their total work goes to a single subcontractor. It also appears that while manufacturers maintain networks with a mean of 12 contractors, three contractors account for 45.5% of the average manufacturer's total business. Another

measure, the market boundary index, measures the proportion of buyers and sellers out of all possible buyers and sellers that an average firm transacts with. The lower the index, the more firms rely on a small portion of the total market for the volume of their transaction. The market boundary values for contractors and manufacturers respectively is 4.8% of the market (4.33 ties/89 possible ties) and 2.5% of the market (12 ties/508 possible ties). Thus, contrary to the atomistic logic of market exchange that underlies current views of decline, but consistent with a structural embeddedness perspective, firms appear to form highly interdependent resource dependence ties with a network of trading partners - underscoring the importance of network structure in the functioning and survival of the organization.⁷

The above patterns are particularly illustrative because the apparel industry is precisely the kind of industry in which one would expect comparative cost theory predictions about the atomization of relations to be an accurate description of economic relations. In the apparel industry there are many buyers and sellers, low barriers to entry, low start-up costs, and many substitutable shops. Hence, while these data do not refute current decline arguments, they highlight the need to develop an understanding of how embeddedness and network structure affects economic action.

Social Structure and Interfirm Network Relationships

An understanding of how embeddedness and network structure produce particular economic outcomes demands a closer examination of the interactions among firms in organizational networks. Research shows that exchange relationships among firms in a network can be either arm's-length as an atomistic markets or closely knit and collaborative as the organizational network literature emphasizes (Powell, 1990). I view arm's-length and embedded relationships as being on opposite ends of an exchange continuum so that a network can have varying levels of structural embeddedness from low (arm's-length ties) to high (embedded ties) depending on the type of ties used by firms in the network. This view allows for the possibility

that networks can be mechanisms for both cooperation and exploitation (Granovetter, 1985; Burt, 1992).

Arm's-length Relationships. In arm's-length ties only price and quantity data needs to be exchanged between buyer and seller because, according to neoclassical logic, it contains all the information necessary to make efficient business decisions currently and in the future (Hirschman, 1970). Each party to the transaction pursues their own interest and exchanges with the highest bidder or lowest cost producer. If ongoing relations form between parties, they are believed to be more a matter of coincidence than a deliberate commitment (Lazonick, 1991) or simply epiphenomena of economic interchange (Granovetter, 1985). The identity of parties is immaterial to the extent that it does not influence the use-value of the commodity (Sen, 1985), while sociological factors such as family, shared ends or values, history, commitment, or trust have a minimal effect on economic action (Harrison, 1992). Thus, when arm's length ties are used among firms in a network, the network structure resembles the competitive model of microeconomic theory" (Baker, 1990; Powell, 1990).

Arm's-length relationships are argued to produce efficiencies and promote survivability in several ways. First, they provide wide access to a market information. Because there is a low level of exchange between any two parties, firms can spread their business out in small parcels to many firms which in turn gives the focal organization a large number of competitors from which to sample price and quantity information. Second, arm's-length ties reduce the risk of opportunism because firms, in the process of spreading their business out among many trading partners, avoid small numbers bargaining situations and increase their ability to withdraw from problematic partners (Hirschman, 1970; Williamson, 1985). Finally, low interfirm dependencies mean that firms can unilaterally adapt to changes in the market (Williamson, 1985).

Embedded Relationships. At the other pole of the exchange interface is an embedded relationship. In these relationships, social factors such as personal relations, identity, and trust influence the

nature of the economic association and the behavior of the economic actors themselves (Granovetter, 1985). Uzzi (1996), integrating the literature on interfirm relationships (see Powell, 1990) with his ethnographic field research in the New York apparel industry, has demonstrated that these relationships are composed of three primary components: trust, fine-grained information transfer, and joint problem-solving arrangements; and that these factors influence the logic of exchange and decline processes.

In contrast to the contractual relations of arm's-length ties, trust has been found to be the governance mechanism in network exchange relationships (Smitka, 1991; Larson, 1992; Portes and Sensenbrenner, 1993). Trust is defined as the expectation that an exchange partner will not act in self-interest at another's expense. On a microbehavioral decision making level, trust operates like a heuristic - a predilection to interpret someone's behavior in a favorable light, rather than with the intensive calculation typical of economic models of decision making.

The presence of trust in an interfirm relationship is important because it facilitates the giving of voluntary contributions to the relationship that go beyond an exchange partner's expectations. These voluntary exchanges might include putting an exchange partners' goods in front of a queue, working overtime, or giving business to an exchange partner to help them through a slow period even when that business is not immediately needed. The distinctive characteristic of these assets is that they are difficult to value with prices and are monitored with few or no formal mechanisms of enforcement (e.g. no fines or contracts). Over time, these exchanges create relationship-specific opportunities that can be drawn upon in times of need (Uzzi, 1996). This means that firms with embedded ties in networks gain access to privileged resources that help them adapt, while also lowering transaction costs.

The information exchanged in embedded relationships includes much more than just price and quantity information. Important technical know-how and tacit information is shared among exchange

partners so that each comes to understand the products and production processes of their trading partner well. As a result, firms linked through embedded contacts can jointly contribute to design and process innovations, rather than simply transmitting prices or following the plans of the purchasing firm (Helper, 1990; Powell, 1990). Importantly, Smitka (1991) found that this information is not a form of, or result of, asset-specificity. Rather this type of know-how may be quite general and transferable to a wide range of exchange partners without a loss of value.

In a study of apparel firm networks relationships, Uzzi (1996) found that the information transferred in embedded relationships was more tacit and proprietary than that exchanged in arm's-length ties. Unlike price data which presumably distills all pertinent features of a good into a single dimension, the tacit and proprietary data of embedded exchanges had a holistic rather than a distilled structure. This information structure is comprised of a configuration of densely packed patterns of data that fuse together components of fashion, materials, nomenclatures, and production techniques into a "style". This style tends to be difficult and time-consuming even for experts to articulate and separate into component parts and as a result makes it difficult to codify in discrete terms or communicate with prices through arm's-length ties. His ethnographic data demonstrated that information links in embedded ties comprise a composite of non-distillable "chunks" of information that are not only highly detailed (relative to price data), but quickly processed in a manner consistent with Herbert Simon's notions of "chunking" and expert rationality (Prietula and Simon, 1991).

The value of fine-grained information exchange has been shown to be more than a matter of asset-specificity, because the social tie between exchange partners imbues the information with value beyond what it has at hand. For example, Uzzi (1996) reports a case of a manufacturer who uses his network of arm's-length ties to shop the market of retail buyers to learn what styles they are converging on. Once this forecast has been determined, he passes the information

on to his embedded ties. This feedback, in turn, gives his embedded ties an advantage in predicting the market. Moreover, the manufacturer in this case reported that his embedded ties believe him only because of their close relationship. If they learned the same information from an arm's-length tie, they would not have no faith in the vicinity of the data. From the point-of-view of organizational competitiveness, what this means is that these chunks of information not only allow individuals to handle more detailed data at one time, but that decision-making is sped up because exchange partners are processing chunks of packed data rather than individual pieces of that data.

Lastly, embedded ties include joint problem-solving arrangements that enable firms to coordinate functions and resolve problems (Larson, 1992). In an arm's-length tie, problems in scheduling, production, or quality control are resolved independently by the parties responsible for that function. Deviations from contractual standards are resolved through exit from the relationship (Helper, 1991). In embedded relationships, exchange partners send personnel or tightly link their separate operations across firm boundaries in an effort to solve production or design problems on-the-fly (Smitka, 1991; Larson, 1992). Thus, joint problem-solving arrangements are key mechanisms of "voice" (Hirschman, 1970) that allow organizations to promote resource pooling and to learn from their mistakes through direct feedback from exchange partners.

It is worth noting that although the dimensions of embeddedness have been presented as individual components, they interact as a gestalt. Trust promotes information exchange between two firms while increased information exchange improves one's trust in another's claim about performance (Moorman et al., 1992). Joint-problem solving increases information exchange during learning. Fine-grained information exchange in turn improves problem solving performance. Trust is fostered in joint problem solving situations that reduce another party's risk. Finally, joint problem-solving allows one to go beyond the letter of the contract -

to create indebtedness on the other's part and an opportunity to show one's ability to do more than is required or expected beforehand.

Broadly speaking, the supplier relationship policies of US and Japanese automakers offer contrasting examples of the use of arm's-length and embedded tie interfirm arrangements respectively. Each Big three automaker typically spreads its work out in small parcels to over thousands of suppliers annually. Moreover, contracts are usually short-term and based on distrust of the other party (Cusumano and Takeishi, 1991). Among the big three automakers, it is still common practice to frequently switch suppliers yearly in order to save pennies per component. Also, US firms typically specify all the details of the performance contract and the part to be produced. Contractors are not normally asked to participate in design or product development or encouraged to exchange tacit information on production or product development processes (Helper and Levine, 1992).

Japanese automakers focus their ties on 200-300 contractors, rather than thousands (Smitka, 1991). Interfirm relationships are characterized by fine-grained information exchange on production techniques and new product innovation, and contractors typically co-design the products they supply to the automaker. Contractors trust that core firms will forego opportunities to switch to new low cost and presumably more efficient subcontractors if the opportunity to successfully form an embedded tie with the subcontractor is promising. Lastly, trust insures that problems will be worked out fairly whether they arise on-the-fly or in the future (Dore, 1983).

Finally, the dyadic focus of this discussion does not give the full picture because dyads are themselves embedded in larger networks of relationships. Since an exchange between dyads has repercussions for the other network members through transitivity, embedded ties assemble into extended networks of such relations. The ties of each firm, as well as the ties of their ties, generate a network of organizations that becomes a repository for the accumulated benefits

of embedded exchanges. Moreover, the longer an actor has made embedded contacts within their present and past networks, the more the benefits of embedded ties can be "stockpiled" for future needs. Thus, the level of embeddedness in a network increases with the density and duration of embedded ties. Conversely, networks with a high density of arm's-length ties have low embeddedness and resemble an atomistic market. This process underscores the primary effect the network of ties has on a firm's performance. For example, Baum and Oliver (1991) found that social service organizations in Toronto had higher survival chances when they maintained close cost and information sharing ties to other social service organizations. Peterson and Rajan (1994) found that small businesses significantly increase their availability of financing when they build close ties to an institutional investor.

Within the general parameters of the structural embeddedness approach, it has also been shown that the structure of the network and its level of embeddedness are important for understanding adaptation and failure. Uzzi (1996) found that apparel firm contractors that operate in embedded networks have significantly higher chances of survival than do comparable firms that operate in markets - underscoring the importance of network effects, as well as the problems associated with thinking of arm's-length market ties as being the most efficient form of transacting. The analysis revealed that a contractor's survival chances are optimal when it uses embedded ties to link to its network of manufacturers and those manufacturers have networks fashioned of both arm's-length and embedded relationships. The crucial implication of these forces is that networks critically affect a focal firm's survival chances and are set by a web of ties, some of which lie beyond the actor's direct influence. Similar findings have been found in other studies as well.

These arguments and findings suggest that social structure influences organizational behavior in important ways that are not well-articulated in either the comparative cost or threat-rigidity perspectives.

Whereas comparative cost and threat-rigidity views focus on atomistic relationships between firms, the structural embeddedness approach focuses on how network linkages inhibit or facilitate economic action depending on the type of relationships an actor possesses and the structural position of the actor in the core or the periphery of the network. Moreover, whereas comparative cost and threat-rigidity perspectives view individual action as hard-wired, psychological tendencies, the structural embeddedness approach argues that preferences and motives emerge from the social relationships that make up an actor's network. Thus, whether a firm views changes in its environment as threats or opportunities, or chooses to close its business in the face of comparably better alternatives, turns on the way in its network of ties enable or block access to resources needed to survive. In the next section, I build on these arguments and describe how key decline processes and their intensity vary for individual firms depending on the level of embeddedness in their network.

Network Dynamics and Organizational Decline

It follows from my discussion on the structure of organizational networks that unique predictions about decline can be derived. While empirical tests are beyond this paper's scope, the ultimate value of this perspective lies in its predictive utility. The propositions discussed below are not meant to exhaust the universe of predictions but to accent those *ceteris paribus* predictions that are testable and central to a network perspective. The first set of propositions specifies the relationship between the content of interfirm relations and decline. The second set of propositions specifies the relationship between network structure and the decline of individual firms, as well as the network as a whole.

Interfirm Network Ties and Decline

The logic of embeddedness suggests that firms are likely to look to their network exchange partners for interpretation of environmental

changes. Under these conditions, embedded ties are likely to help moderate threatening situations because these ties become conduits to privileged resources, information, and on-the-fly problem-solving arrangements that help firms adapt to problems that would otherwise exceed their individual resource base. Ocasio (1995:299) has made this link between social structure and threat-rigidity processes explicit. He concludes that, "...the mental models used by individuals to enact economic adversity in organizations are socially constructed,and will depend not just on the problem-solving search and narrowing of information processing triggered by loss aversion and threat-rigidity, but on the....supra-organizational factors that influence....decision makers."

Research on Japanese interfirm networks exemplify some of these processes (Smitka, 1991; Gerlach, 1992). Studies have shown that when firms in a keiretsu experience adversity they are likely to be highly adaptive (e.g. move line managers in sales, institute job rotation programs, intensify training) in part because of their ties to other network partners whom they have had long relationships with and whom they can rely on to help them ride out the period of adversity. Organizations in a network may also find it difficult to make changes in technology, production methods, or strategy if their ability to implement change depends on complementary changes among organizations they are tied to. This appears to have been a factor in the decline of the auto industry. Large firms in this industry slowly adopted new technologies and work arrangements because the periphery organizations they depended on were unable to coordinate adjustments quickly enough. Specifically, periphery firms were unable to change practices until core establishments shifted from arm's-length contracting modes to relational contracting modes that facilitated interfirm coordination (Helper, 1991).

Proposition 1: Firms in networks characterized by embedded ties will have lower rates of decline than firms that maintain arms-length relations, and this effect will increase with increases in the rate of environmental change.

Network Structure and Decline

The structural embeddedness approach emphasizes the point that socioeconomic ties pressure organizations to become isomorphic and tighten relations within regional networks. However, organizations in a network may paradoxically become less able to adapt as organizational isomorphism decreases diversity (Weick, 1979) and asset specificity among firms make subsequent change costly and disruptive (Singh, House and Tucker, 1986). Ironically then, if core establishments migrate, downsize, or close, the embedded ties used by periphery establishments to increase transactional effectiveness between themselves and core firms may actually put them at higher risk of decline. This is because their competencies may not be transferable to new organizations or locales and because they may not have the resources needed to ride out the period between the loss of a core establishment and the founding of a new core establishment and interorganizational relations.

Proposition 2: The decline of an organization in a network will negatively affect the performance of other organizations in the network in direct proportion to its resource interdependence with the other organizations in the network and in inverse proportion to the other organization's ties to organizations in other networks.

These relationships speak to the debate on whether adaptation precludes adaptability, i.e. whether "Organizations that acquire an exquisite fit with their current surroundings may be unable to adapt when those surroundings change" (Weick, 1979, p.135). It also suggests that organizations can obtain a balance between maximizing adaptation and adaptability via their mix of network ties. Firms with contacts that span networks may be able to access novel information and resources that permit adaptation to new environments even though they may be tied at the same time to firms in their regional network. Thus, organizations that are simultaneously "tightly" and "loosely" coupled to their networks maximize their adaptive capacity. Tight coupling improves the transactional efficiency of exchanges and sociopolitical cohesion within the network, while loose coupling

prevents the complete insulation of the network and improves its ability to anticipate and react to opportunities. Granovetter (1973) showed that change in exchange systems depends on strong ties (direct friendships) that bind systems and weak ties (friends of friends) that make systems permeable (e.g. via innovation diffusion) to adaptive changes. Uzzi (1996) showed in a study of the apparel firms in New York that there was a positive association between organizational survival and being connected to a network composed of a mix of embedded and arm's-length ties. Similarly, organizations tied to a network composed of either predominantly arm's-length ties or predominantly embedded ties had high death rates. What is suggested by these data are that threat rigidity effects are likely to be most problematic when all ties in a firm's network are embedded. This occurs because firms in the network become sealed-off to new and alternative mental models of change, and thus, are likely to apply an inappropriate mental model as the variance in environmental change increases. On the other hand, in networks composed only of arm's-length ties, firms are not privileged to the unique network resources and therefore have a narrower competitive base and fewer resources to draw on relative to firms that have embedded ties. In an integrated network structure, the variety of mental models represented by arm's-length linkages permits a greater range of models to choose from and therefore a greater probability of at least implementing an appropriate model, while the embedded ties support coordinated and cooperative action.

Proposition 3: Threat-rigidity effects are most likely to occur in networks composed of only embedded ties; while comparative cost logic is most likely to occur in networks composed of only arm's-length ties.

Proposition 4: Decline rates will be lowest in networks composed of an integrated mix of both embedded and arm's-length ties.

Friedland and Palmer (1984) have argued that core organizations make decisions that promote the success of the whole organization, even if branch establishments in the organization are injured.

Executives in core organizations are active in national business networks which expose them to information about distant industrial sites, profitable acquisitions, and new investment opportunities (Mintz and Schwartz, 1985). Also, core firms tend to have multidivisional forms, diversified products, and geographically dispersed establishments.

Haunschild (1993) found that interlock networks among large firms affect their propensity to divest, as well as the price they will pay for acquisitions, after controlling for typical determinants of these activities. In both cases, Haunschild argued that the networks of large firms systematically channel investment and disinvestment information to their members while excluding non-network members. Not only do network ties shape the information available to firms, they can also make the investment decisions more or less difficult to implement. Davis (1990) found that the interlock network within which a firm is embedded is an important determinant of the adoption of disinvestment counter strategies - specifically the use of poison pills to ward-off hostile takeovers. McPherson, Popielarz, and Drobic (1992, p.166) found in their study of organizational memberships, that, "Weak ties outside a group shorten our stay in the group by introducing new information, new commitments, and contradictory pressures."

Under these conditions, aspects of comparative cost logic complement the structural embeddedness approach. Core firms are likely to adopt business strategies that transcend the interests of a single establishment or regional economy in ways unlike that of single-site or family-owned firms (Romo et al., 1989).

Proposition 6: Organizations with ties to firms outside the region are most likely to reduce operations or close plants in a regional network than organizations with only regional network ties.

Proposition 7: The core organizations around which regional business networks are founded are paradoxically those most likely to abandon the network.

When core establishments decline or depart there is a multiplier effect that causes the decline of interdependent organizations. Periphery organizations tied to the core lose access to critical and perhaps nonsubstitutable resources. A structural embeddedness approach argues that an organization's response to these events and its likelihood of decline are contingent upon its structural position in the interfirm network. For example, I propose that "strategic vacillation," a key decline response found to occur in threat-research, is conditioned by the organization's network characteristics, which in turn, trigger psychological tendencies. Baker's (1984) study of stock option trading showed that as the size of the stock trading group increased, the variance of group members' trading behavior increased - resulting in high levels of stock price variation. This occurred because information about stock prices and trades was more difficult for each stock trader to learn, interpret, and react to. As a consequence, group members had a more difficult time deciding on and converging to an equilibrium price in their trading behavior. Extrapolating from the structural causes of trader behavior variation to the structural causes of strategic vacillation, I argue that strategic vacillation is associated with the number of connections organizations maintain in their networks.

Proposition 8: Large networks will have high levels of equivocality - resulting in high levels of strategic vacillation, i.e. too much strategic change during decline.

Proposition 9: Small networks will have low levels of equivocality - resulting in low levels of vacillation, i.e. too little strategic change during decline.

These points mark another area of integration between decline literatures. Comparative cost theory argues that organizations will survive in those regions promising the greatest return. The structural embeddedness perspective extends this logic by arguing that it is the financial interdependence and social context within which establishments are embedded that affects the pattern of decline. To illustrate, the structural embeddedness approach suggests an

explanation of why financial losses lead to "mechanistic rigidities" in some declining firms but not in others (Sutton, 1990). D'Aveni and MacMillan (1990) found that bankrupt firms focus on their organization's "input/internal environment" (i.e. creditors, suppliers, owners, employees, and top managers), whereas matched surviving firms pay more attention to their organization's "output environment" (i.e. customers and economic conditions). The structural embeddedness approach suggests that declining firms turn their attention to "input/internal" factors because their ties to other organizations limit their ability to acquire financial resources. As a consequence, they turn to improving the internal aspects of the organization because they are mutable and may be the best way to reduce the hazard of failure even in a permanently changed environment.

In contrast, surviving organizations may focus on the external environment because their interfirm ties permit access to capital or control of market constraints. Survivors attempt to change external organizational factors because they are mutable and provide a way to overcome financial losses. Thus, a firm can use its network ties to strategically shape the environment within which it operates, even though the environment may be simultaneously placing constraints on the firm's behavior. This argument is similar to Burt's (1992) theory of structural holes. In Burt's foundational work, an actor that occupies a structural hole in a network (qualitatively similar to a broker position in a network) has high bargaining power because it has more nonsubstitutability vis-a-vis the firms it transacts with. In this way, severe threats to the organization's survival can be reversed via network linkages.

Proposition 10: Organizations in broker positions will have lower decline rates than organizations in client positions.

Proposition 11: Core establishments will have lower rates of decline than periphery organizations.

Thus, a structural embeddedness approach argues that both environmental constraints and individual organizational autonomy interact through social structure to determine a firm's probability of decline. External changes such as financial cutbacks on dwindling market share affect a firm's survival ability through direct interfirm ties not through indirect market forces or psychological determinism.

Discussion and Policy Implications

This paper introduced a sociological perspective on organizational decline that is based on principles from embeddedness, institutional, and resource dependence theories. I reviewed current perspectives on organization decline and showed how they lacked a sociological account of social structure and organizational interdependence, and how this neglect led to a limited understanding of decline. My main argument is that economies are composed of networks of interdependent organizations. When core establishments decline, close down, or migrate, periphery organizations dependent on the core lose access to critical or nonsubstitutable resources. The embeddedness of periphery firms in local networks increases their likelihood of decline. These processes cause multiplier effects - the negative economic effects of the declining core firm spread throughout the network causing the decline of interdependent firms. It is this result that connects the decline of a single firm with the decline of networks and industries.

From the perspective of public policy on organization growth and decline, this research has two main implications that follow the guidelines offered by Hall and Quinn (1983). First, since organizations are a means by which public policy is implemented, they must be understood from the perspective of embeddedness if policy directives are to succeed. A point made throughout this paper has been that current perspectives on organization decline have neglected an understanding of how social structure affects economic action. Comparative cost perspectives and threat-rigidity perspectives both treat organizations and their decision makers as unitary actors that operate in either an undersocialized world of "hard-wired"

economic self-interests or the oversocialized world of well-learned, but unreflective pathological responses. In either case, social structure plays a minor role in shaping expectations, motivations, or channeling resources. Thus, if public policy is to be implemented within an organizational context, an understanding that organizations are embedded in on-going relations with other organizations is fundamental to the success of policy. Policies of economic development that continue to view organizations as atomized actors regulated by the invisible hand of market processes can only produce limited results.

Future research should begin to consider how policy must change to enhance the competitiveness of industries and firms that are composed of interconnected networks of organizations. In highly successful economic sectors in Japan, Germany, and the Third Italy, economic policy has already developed to a high degree to capitalize on these structural considerations. In Italy and Japan for example, there are many associations and cross-cutting networks of formal and informal relationships at the contractor-to-contractor level, the contractor-to-manufacturer level, and the level between manufacturers and trading companies that enhance information flow among firms, technology transfer, resource sharing, international marketing and research and development projects, and labor management training, development, and redeployment strategies (Lazerson, 1988; Gerlach, 1991; Harrison, 1994). These relationships are multiplex (information ties, resources ties, and rule making ties) and help coordinate the activities, interests, and competencies of the firms in a region or industry in ways that appear to out-perform invisible hand allocation and alignment systems (Best, 1990). One conclusion from this research is that public policy on economic growth and decline should specifically address the issue by which policy is implemented between and among organizations, rather than as a function of unitary organization.

A second implication of the structural embeddedness approach for public policy is that greater attention needs to be placed on the

role of periphery organizations in the policy formulation process. This research suggests that more policy needs to be directed to the smaller firms that support the effectiveness and adaptability of the large core organizations. When the base of periphery firms is underdeveloped or under-supported, the human and technical resources needed by core firms to innovate, bring products to market quickly, or shift production is limited - increasing the likelihood that the core will close or migrate to locales with these features (e.g. the electronics industry to Japan) or lower labor costs in order to sustain a competitive advantage.

This suggests that there needs to be a stronger connection between policy at the federal and local levels as a way of coordinating the global interests of large firms and local interests of periphery organizations. Both Etzkowitz (1993) and Harrison (1994) have argued that there are numerous methods for accomplishing these outcomes - high-tech parks and research triangles such as Stanford Industrial Park and the Research Triangle in North Carolina are two of the most visible methods. Nonetheless, there has been little effort on the part of federal or local policy formulators to study or institute these arrangements systematically, even as the firm, as the basic unit of economic activity, is increasingly supplemented by networks of organizations as generators of competitive advantage (Etzkowitz, 1990; 1995). Thus, policy should not only address the network as the level of analysis, as opposed to the firm or unitary decision maker, but should develop strategies for linking the competencies and competitive advantages of periphery and core organizations.

Endnotes

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1. To date, there is no universally agreed upon definition of decline (see Sutton, 1990, p.208), and definitions tend to vary according to what types of firms are under investigation, i.e. not-for-profit, manufacturing, or educational organizations. In this paper, decline refers to three organizational changes: workforce reductions, plant closings, or organizational death. This definition is consistent with most deindustrialization and organizational decline research, as well as the paper's focus on manufacturing firms.
2. A line of thought within economics which is not explored here because of my focus on organizations and their interrelationships, is the purely macro argument of deindustrialization. In this view, decline is caused by the government's mismanagement of the money support, tax and tariff policies, and exchange rates (Best, 1990).
3. Capital accumulation arguments also emphasize rational disinvestment behavior as a source of decline, but view it as a product of managerial philosophy, not competitive forces. In this view, quick-fix profit making strategies direct investment into speculative, short-term activities such as junk bonds rather than into investments that improve plant efficiency. Over time, disinvestment in once profitable plants reaches a level that makes production too expensive - justifying plant closure (Bluestone and Harrison, 1982).
4. Hambrick and D'Aveni (1988, p.11) defined vacillation and paralysis as a firm's attempt at "either doing too much or too little" entry or exit into new product domains as a means of reversing

decline. It is measured as an organization's entries into, and exits from, different lines of business measured at the 4-digit SIC level and uses the coefficient of variation to compare firms.

5. It is not surprising that decline research has focused on individual actor explanations. Attribution theory has shown that observers seek an explanation of phenomena that provides a sense of control over situations (Kelley, 1971). Thus, by attributing decline to individual, atomized actors, observers have a powerful theory of how to control organizations - change managers or their decision making processes. Attributing decline to social structural relations shifts attention away from the individual and makes situational control more difficult. Moreover, because economics and psychology focus on traits (e.g. human capital, personality) as causes of behavior it has been difficult for scholars to attribute causality externally.

6. Original data on this economy came from two sources. Intensive field interviews were conducted with the CEOs of 20 apparel firms with gross sales varying from \$500,000 to \$1,000,000. Interviews were focused on women's better dress apparel firms - a design driven and trendy segment of the market. Data on the level of transactions between manufacturers and contractors were obtained from the International Ladies Garment Workers Union and the American Fashion Council which maintain records on the volume of transactions between contractors and manufacturers. The data describe the full network of relations each firm possesses and the level of that relationship in terms of resource dependencies. A firm's main product lines, number of employees, ownership ties to other firms, and location are also included in these data. Because the union relies on these records for dues collecting, it maintains data on the number of workers in each firm and how much work they do for other firms to accurately track the manufacturer or contractor responsible for paying workers' dues. Data are kept only on unionized shops. Nearly 3/4 of all firms are union controlled in the New York regional economy, non-unionized shops tend to be small. For a full description of the data see (Uzzi, 1996a).

7. It is possible that the concentration and relative exclusivity of network ties reflected in these data are an artifact of an unrepresentative, one-year cross-section of data. However, a research project carried out by Emil Schlesinger (1951) and funded and published by the International Ladies Garment Workers Union (now called UNITE, NYC, NY) demonstrates clearly that these network characteristics are typical of on-going interfirm relationships in the apparel industry dating back as far as the 1930 and up to the end of his study in 1951. His data also shows that principle relationships between manufacturers and contractors were long-term and enduring, while relationships that comprised a small percentage of total business were fleeting and "turned over" frequently on a year-to-year basis (see also Waldinger, 1986).

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