The Evolution of Dyadic Interorganizational Relationships in a Network of Publicly Funded Nonprofit Agencies

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ABSTRACT

This article addresses a gap in the extant literature on networks by assessing how interorganizational relationships evolve in a public sector network setting. The context for the research was a network of publicly funded health and human service agencies involved in service delivery to people with serious mental illness. Longitudinal data were collected from a single community. The analysis suggests that public and nonprofit sector relationships evolve differently than private sector partnerships, providing an alternative perspective to the prevailing view in organization theory.

Policy makers have increasingly selected network forms of governance as a mechanism to provide health and human services to their constituents (Agranoff 1991; Bardach 1998; O’Toole 1997). Networks are thought to assist service providers in coordinating professional activities, resulting in enhanced services to clients. Although network forms of governance are a common mechanism used by state and local governments to accomplish coordination among their service providers, knowledge about the process of creating, maintaining, or growing linkages within a network is still just emerging. In particular, the question of how network relationships change over time remains largely unanswered. As policy makers continue to encourage the formation of service provision networks among private and nonprofit organizations, it is important to understand how networks work.

The most extensive body of literature on interorganizational relationships and networks has been in organization theory. Unfortunately, the preponderance of this literature has focused on private sector settings. Although it is likely that some, and even many, findings in the private sector literature are transferable to the public sector, we do not...
know what aspects of existing theory apply to networks generally and which aspects are sector specific. Thus, public sector scholars have only a modest understanding of how networks operate and evolve in public and nonprofit contexts. In this article we seek to address this issue by analyzing the emergence and evolution of relationships among agencies that constitute a single network of publicly funded health and human services.

THEORETICAL BACKGROUND AND HYPOTHESIS

The extensive literature on interorganizational relationships provides a number of alternative explanations for why organizations seek partnerships with other organizations. Among these are efficiency, legitimacy, power, the need to manage uncertainty, and the acquisition of scarce resources (Galaskiewicz 1985; Oliver 1990). Partners are especially sought out when environments are turbulent in order to smooth out operational flows (Hall 2002; Oliver 1990) and to buffer core technologies (Thompson 1967).

In more recent years, there has been considerable work examining how interorganizational relationships evolve in market settings. Seminal studies conducted by Larson (1992), Gulati (1995), Lazerson (1995), and Uzzi (1997) have shown that firms that develop long-term, trust-based relationships with other organizations typically build these relationships on knowledge gained through previous interactions with these same organizations. In other words, firms develop a reputation for their behavior within a partnership, and this reputation becomes an important factor for explaining future relationships between the collaborating organizations. This tacit knowledge about reputation gradually grows to become more and more important to current decisions regarding the relationship. While much of the empirical work examining this process has focused on business firms, the impact of trust and reputation on current and future relationships between organizations is consistent with much of the more generic social science literature (Axelrod 1981, 1984; Eggertsson 1990; North 1990; Ostrom 1998; Smith and Smyth 1996).

Work by Gulati (1995) and Gulati and Singh (1998) on strategic alliances illustrate the most relevant points for addressing the topic of network evolution in our study. Gulati looked at over 2,400 alliances among firms in the biopharmaceutical, automotive, and materials industries to determine whether or not repeated ties retained a formal equity structure or shifted to a less formal, trust-based form of partnership. His findings led him to conclude that as trust develops among equity partners, the level of formality associated with their relationship should decrease. Trust diminishes the attendant transaction costs associated with partnerships, thereby eliminating the need for maintaining formally structured relationships. Gulati thus showed that “familiarity breeds trust.” This conclusion is similar to the work on trust by Larson, Uzzi, Lazerson, and others referred to above.

Although a number of empirical studies have examined the changes in dyadic linkages over time, there have been few attempts to look at dyads operating within a network context. Relationships develop between two organizations at a time, so the focus on dyads is not inappropriate. However, the setting in which those relationships develop can have an effect on the character and structure of the relationship. Most studies of dyadic relationships occur in market settings where atomistic partners come together to seek gains in productivity from one another. In a network, especially in the public and nonprofit sectors, partners also come together, but in a facilitated environment where a governance structure is often overlaid on partner organizations. The governance structure serves as a
control and guidance mechanism to assist in the creation of a system of productivity that conforms to some overarching theme or goal. Thus, dyadic relationships in most networks of public and nonprofit organizations are created in and are affected by structures and processes that are often different than those for relationships formed in market settings, making dyadic relationships in a network potentially different than dyadic relationships formed outside of networks.

Further, networks in the public domain are potentially different in other ways than networks based in the private sector. The difference can be attributed to the dynamics of operating with government funds and under regulation (Fogarty 1996). For instance, Meyer, Scott, and Strang (1987) illustrated how organizations responded to both real and anticipated requirements of their governmental funders. While many organizations regardless of sector or ownership status receive governmental funds, those organizations that are heavily dependent on government support to operate will be shaped by the regulations and requirements of their funding to a great extent. Therefore, organizations that have a high degree of “publicness” (Bozeman 1987; Bozeman and Bretschneider 1994; Perry and Rainey 1988), such as many social service organizations, will generally be affected to a greater extent by coercive institutional pressures (DiMaggio and Powell 1983) than organizations that receive funding from nongovernmental sources.

Finally, there are some important differences between public and private operating environments that may affect the way organizations within these sectors create, organize, and maintain relationships (Bozeman 1987). For one thing, although many business firms operate in dynamic environments, some would argue that organizations in the public and nonprofit sectors potentially experience an even greater amount of turbulence than private sector organizations. The additional turbulence is due to constantly shifting funding priorities and regular election cycles that disrupt operations in agencies when new administrations take office, appoint new agency heads, and alter existing contracts (Bozeman 1987; Galaskiewicz 1985; Mueller 1996). These changes can create a strong need for the development and, especially, the maintenance of stable partnerships and interorganizational relationships that are likely to go beyond what one might witness in most business settings.

Thus, for a number of reasons, the results of studies in the private sector are not necessarily generalizable to public sector networks. While there is an emerging set of empirical studies on public sector networks (Bickers forthcoming; Provan and Milward 1995; Provan, Isett, and Milward 2004; Raab 2002), the literature in this domain is generally not as well developed as in the private sector, and there has been almost no empirical work systematically tracking partnership evolution (Provan, Milward, and Isett 2002).

The research question of interest in this study is, How do operational-level interorganizational relationships change over time in a publicly funded network setting? To answer this question, we examine the effect of repeated ties on the formality of relationships among organizations in a public sector network. Thus, the study attempts to address a gap in the literature by looking at the evolution of interorganizational relationships within a public sector setting and as part of a broader network governance structure.

Based on the extant empirical literature in organization theory and the general social sciences, we expect that organizations will use past experience with linkage partners as an indicator of likely future behavior and trustworthiness. If Gulati’s conclusion is generalizable across sectors, then organizations in the public sector should first develop formal, contract-based relationships with other agencies and then drop their contract in favor of
more informal, trust-based ties. This idea is a simple replication of the “familiarity breeds trust” (Gulati 1995) argument. If, however, organizations operating in public sector networks are indeed different, in the ways we have argued above, then we would not expect Gulati’s argument to hold. Instead, we would expect informal, trust-based relationships to emerge as a response to increased environmental turbulence regardless of the existence of contractual ties. Contracts are a fact of life in relations between public and nonprofit organizations, and the building of more informal, trust-based ties is likely to have little to do with whether or not a contract exists. Stated as a formal hypothesis:

$H_1$ Relationships between agencies in a publicly funded services-delivery network will demonstrate increased levels of trust over time, as indicated by rising levels of informal ties. However, the increase in informal ties will not necessarily be accompanied by a corresponding decrease in formal, contract-based ties.

While a direct test of the hypothesis might simply examine whether or not interorganizational ties shift over time from a state of formality, based on contractual relations, to less formal trust-based ties, we also address how those relationships change over time. Thus, we hope to add to the literature not only by testing the boundaries of the familiarity thesis but also by examining how the process of change occurs temporally.

**EMPIRICAL SETTING AND RESEARCH METHODS**

This study examines the publicly funded mental health system of care for seriously mentally ill (SMI) adults in Pima County, Arizona. This county has a diverse population that spans both urban and rural areas, including Tucson. Mental health services for SMI adults in Pima County are administered by an entity called the Community Partnership of Southern Arizona (CPSA). CPSA is responsible for delivering mental health services to the entire southern region of Arizona, encompassing six counties. However, 76.3 percent of all of CPSA’s services were provided in Pima County in 2000. The Pima County region was set up to remain functionally distinct from the system in the other counties in the southern region. Thus, the focus on Pima County represents a clearly bounded network of services.

When the study was conducted the CPSA system was set up with four “Lead Providers” that formed the core of the mental health network. Each Lead Provider then created its own delivery system of providers to offer a comprehensive set of services to its clients, either by delivering the needed services in-house or by contracting for them. Since each of the Lead Providers was quite different in its set of competencies, the service-delivery networks they formed were also different, reflecting the unique strengths and weaknesses of each Lead Provider. Figure 1 illustrates the CPSA system of responsibility and services requirements.

This study focuses on what we call the “enacted network.” Although there were more than forty agencies involved in delivering services to clients in Pima County, only those that had relationships with one or more Lead Providers were considered to be a part of the network of services. Since the Lead Providers form the core of the delivery system, links to these agencies are the critical elements for service delivery. Therefore, the data analysis will focus on the linkages between community service provider agencies and the Lead Providers, not on the linkages among the many other community service agencies that provide support services.
The network of service delivery in Pima County consisted of a variety of agencies. Of the forty-six different agencies that were involved in the networks during the two time periods studied, all were either government or nonprofit organizations. The four Lead Providers were all local nonprofit organizations that had direct contracts with the state-appointed regional entity, CPSA, which was also a local nonprofit organization. The general makeup of community service providers in the network (the forty-one agencies other than the Lead Providers and CPSA) was as follows: nine local government agencies, three state university-based organizations, three state agencies, and twenty-six not-for-profit organizations. Information pertaining to the characteristics of the average agency appears in table 1.
We have defined this network as a public sector network, although most of the organizations studied are not actually government run. However, CPSA, the network administrative organization, is 100 percent government funded, and the lead agencies that provide mental health services rely either exclusively or predominantly on this source of funds for the services received by their mentally ill clients. Thus, as with the provision of many health and human services, public services are funded by government but produced primarily by nonprofit organizations. For these reasons, we consider the system to be a public network.

DATA COLLECTION AND MEASURES

Data were collected at two points in time. The first set of data was collected in fall 1996 shortly after the CPSA system was first implemented. Surveys were sent to each of the forty-five agencies determined to provide services to the adult SMI population in Pima County. This round of data collection focused solely on the relationships between each of the organizations in the network on two dimensions: service contracts and referrals. Network data were obtained from forty-two of the forty-five agencies surveyed (93.3 percent).

The second data set was collected from November 1999 to May 2000, with a more elaborate research design and instrument. Both waves utilized an adaptation of a previously tested and administered instrument found to be reliable and valid (Provan and Milward 1995). In 1999/2000, surveys were used to collect the same network data as in 1996, as well as relationship quality information, attitudinal data, and coordination data. Field interviews were also conducted in 1999/2000 to gather information on system change and other contextual information. Forty of forty-four agencies surveyed completed at least a portion of the instrument (90.9 percent) during the second wave of data collection.¹

The overlap of agencies included in the two waves of data collection was very high. Fully 92.9 percent of the agencies surveyed in 1996 (thirty-nine of forty-two) were also included in the 2000 data. Several causes contributed to the somewhat different set of providers surveyed at the two time periods. One cause was network attrition. Two of the

¹Those agencies that indicated that they would not participate in the survey were asked to fill out the network portion of the survey as a minimum response. This request was made due to the importance of obtaining a complete data set for network measures (Marsden 1990).
agencies from the 1996 data no longer served the population under consideration, and one went out of business. A second cause was network expansion. Two new agencies were created during the three-year time frame between surveys, and these agencies were included in the 2000 data.

The populations used for the data analysis were forty-two agencies in 1996 and forty-four in 2000. Responses from 1996 were substituted for missing data in 2000, giving us a complete but estimated data set for 2000. We then confirmed responses for each type of link to enhance the reliability of the agency network data (Marsden 1990).

The confirmation process used is a standard technique in social network analysis called minimization. Minimization requires that respondents agree about the nature of their relationships in order to be included in the final data set. If two agencies agreed that they had a particular content-specific link, then a “1” was coded in the appropriate cell of the matrix. Likewise, a confirmed absence of a link was coded as a “0.” For those dyads that had conflicting reports of relationships, we conservatively assumed the link did not exist and coded the link as “0” in the appropriate matrix. Each type of link had its own matrix; in our case there were two separate matrices, one for referrals and one for contracts. Although some concerns could be raised about respondent recall and reliability, the survey respondents were typically clinical directors who would most likely know the patterns of treatment his or her agency’s clients receive due to his or her boundary-spanning role (Thompson 1967). Using boundary spanners as respondents coupled with the minimization of data confirming ties enhances the reliability of our data set.

Asymmetric Reports

Respondents sometimes give asymmetric reports of their relationships (i.e., one respondent says there is a relationship, while the other says there is not). As noted above, to enhance reliability, these dyads were coded as “0” in the appropriate confirmed matrices (either referral or contract). However, the asymmetric response was then coded into a third matrix of “perceived” ties, which we used for additional analysis. All asymmetric responses, regardless of content (i.e., contracts or referrals), were recorded in one matrix.

Asymmetric reports represent an interesting problem in relational research since it is difficult to know whether these ties really do exist. The assumption behind the confirmation process is that if the relationship were a regular component of service delivery, it would be accurately reported (Marsden 1990). Rather than eliminate the asymmetric reports, however, we felt that these data should be used, treating the ties as an indicator of a loosely coupled, “perceived” relationship.

Relationship Content

Agencies can have relationships on several dimensions, including operational, technical, and administrative. This study focused on just one dimension of relationships: operational-level linkages related to clinical services, representing actual client-focused contact between agencies. Two types of operational linkages were used: contracts and referrals between agencies. While this focus satisfied the research questions for our study, we recognize that it only gives a partial view of the full range of possible interagency relationships.

The first type of relationship studied was through contracts. Contract linkages existed if two organizations agreed they had a formal contract with each other. Contracts were
operationalized as any formal agreement between agencies involving an exchange of money for the provision of a specified set of services. Contracts were measured both through the confirmed network agency survey responses and through agency records.

The second type of link examined was a client referral tie. This tie existed if two organizations agreed that clients were referred from one organization to another in compatible directions. Thus, if agency A reported that it *sent* a client to agency B, then agency B must also have reported that it *received* a client from agency A. If both agencies reported having a referral link to one another but the direction did not coincide (i.e., both agencies reported sending clients, and neither reported receiving them), that link was not confirmed and was recorded as perceived. Referral ties may or may not occur in conjunction with contractual ties. Referral ties exist when the service needs of one agency are not adequately met. Thus, clients are either (or both) sent to another agency or received by an agency that can provide the needed service.

**Formality**

The primary focus of the data analysis was to examine the change of ties from a condition of formality to informality. Formality was operationalized as any relationship among service providers that was based on a legally binding contract. For the purposes of this study, a contractual tie was a necessary and sufficient condition for formality. Formality was defined in this way since a funding contract creates a legally enforceable statement about what services are expected in exchange for remuneration and guides interactions between the two agencies. The formality condition included those relationships that have contractual ties alone, contract and referral ties, or contract and perceived ties. Formality included contracts plus all other ties because the additional ties were presumed to be a likely outgrowth of the terms of the contract.

Informal relationships were those referral links that existed through the transfer of clients from one agency to another *without* the presence of a contract. These links were informal because there was no legal contractual obligation between the parties to exchange clients. The transfer of clients between agencies through referrals does not require a contractual agreement but is a part of an agency’s service repertoire.

The formality classification of a tie does not speak to its importance, since all operational ties are important for an organization in carrying out its mission. However, the classification does speak to the issue of addressing accountability mechanisms and the enforceability of the agreement between exchange partners, and it may be related to the issue of trust (see below). Tables 2 and 3 provide an overview of how the various linkages studied were categorized and some descriptive data on the types of relationships that are included in our analysis.

**Trust**

The concept of trust is central to both this article and the work done by other organization theorists studying interorganizational relationships. However, we resisted using the mere absence of contractual ties in a dyad as a surrogate measure of trust. Not only is this an overly simplified indicator of trust in most settings, but many relationships among public and nonprofit organizations often involve a mix of formal contractual ties and less formal
ties, like referrals. Thus, the existence of a formal contract could just as readily signal the
presence of trust as not.

Contracts may certainly be used in public network contexts in the way Gulati and
other organization theorists described. That is, two agencies with limited knowledge of
each other, especially regarding trustworthiness, may contract with one another as a way of
ensuring that a work relationship between them will be performed in an acceptable manner.
However, contracts are also used in public sector networks so that both funders and service
providers can be assured that clients with multiple needs will have a full range of services
available, especially when these services go beyond the capacities of any single provider.
Finally, contracts are used simply because government regulations often specify that they
are required. These latter two reasons do not, of course, preclude ties that are also informal
and trust based.

Our indicators of relative formality, discussed above, capture these more subtle
combinations of formal and informal relations. Specifically, while the movement from
formal contracts to less formal referral ties might reflect greater trust, consistent with
Gulati’s operationalization of the concept, our measures of formality also allow for the
emergence of trust, based on informal ties, despite the presence of a contract.

We also measure trust more directly, based on the strength of ties between agencies,
or multiplexity. Multiplexity is a structural estimate of the extent to which social actors are
willing to do business with one another. The more multiplex relations are between actors
(unless mandated), the more trust and commitment there are between them because their
operations are more embedded with one another (Granovetter 1985; Uzzi 1997).

**DATA ANALYSIS AND FINDINGS**

**Changes in Formality**

Patterns of change were analyzed to determine how relationships between organizations
evolved during the period under study. Each of the community service providers was

<table>
<thead>
<tr>
<th>Table 2</th>
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<tr>
<td><strong>An Overview of Link Types and Conditions</strong></td>
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<table>
<thead>
<tr>
<th>Link Type</th>
<th>Perceived</th>
<th>Informal</th>
<th>Formal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracts</td>
<td>Unconfirmed Only</td>
<td>Confirmed</td>
<td></td>
</tr>
<tr>
<td>Referrals</td>
<td>Unconfirmed Only</td>
<td>Confirmed without Contract</td>
<td>Confirmed with Contract</td>
</tr>
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<th>Table 3</th>
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<tr>
<td><strong>Unmatched Linkage Data among Agencies at Two Points in Time</strong></td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>Not Confirmed</th>
<th>Confirmed</th>
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<tbody>
<tr>
<td>1996</td>
<td>No Tie</td>
<td>Perceived</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>Total N = 42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>No Tie</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>44</td>
</tr>
<tr>
<td>Total N = 44</td>
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</table>
paired with each of the Lead Providers, and their relationship was recorded for both years (e.g., Agency B and Lead Provider 1 had a contract relationship in 1996 and had a contract and one-way referral relationship in 2000). Pairs were included in the analysis only if both agencies were involved in the network in both 1996 and 2000. Since the data collection in 1996 and 2000 involved slightly different agency lists, approximately twenty dyads were excluded because they could only have appeared in 1996 or 2000 but not in both years of the data collection. Matching dyads enabled us to examine specific relationship changes between agencies over time. The data analysis was based on the 146 pairs of agencies that met the inclusion criteria. Table 4 displays the results for the matched-pairs analysis.

Our hypothesis focuses on the predicted movement of linkages from formality to informality. Findings are reported in column four of table 4. Of the twenty-seven agency relationships that were contract based (formal) in 1996, only eight relationships became less formal (i.e., retaining service ties through referrals but with no contract) in 2000, the hypothesized direction of movement. In contrast, sixteen of the formal relationships in 1996 remained unchanged by 2000. The stability of the formal relationships over the time period studied indicates that the movement from formality to informality, as suggested by Gulati’s familiarity hypothesis, has weak support in the context we studied. Significance tests showed that the level of change from formality to informality was not greater than movement or change generated by random chance ($z = 0.2927$, n.s.). Thus, the “familiarity breeds trust” argument is not supported.

**Multiplexity**

Further analysis of the formal relationships that did not change over time yielded results that showed increased multiplexity and embeddedness, our second measure of trust. Again, multiplexity refers to the existence of multiple ties between a pair of nodes, in this case, agencies. A multiplex relationship is stronger, and thus, more likely built on a foundation of trust, than a relationship linked by only one tie. In the network we studied, the maximum degree of connectedness, and thus, multiplexity, is three (contract, referral sent, and referral received). The addition of any tie to an existing relationship, regardless of content, strengthens the overall relationship between the two network agencies.

This data set contains sixteen pairs of agencies that maintained their formal, contract-based relationships over the entire study period. When these sixteen relationships were
examined, eleven ties had become more multiplex during our study. In other words, each of these eleven pairs of agencies added some sort of informal referral relationship over the time period studied. These multiplexity changes are reflected in the cells below the diagonal in table 5. In the other five cases, three pairs of agencies maintained the same level of multiplexity (shown on the diagonal in table 5), and only two pairs moved from more multiplex ties to less multiplex ties (in both cases, from contracts with reciprocated referrals to contracts with only one type of referral—the cells above the diagonal in table 5).

Overall, unlike Gulati’s (1995) findings, our relationships did not become less formal, based on shifting from contractual ties to referrals. Instead, informal ties (i.e., referrals) were often added to contractual ties, strengthening the bond between agencies despite the existence of a formal contract (i.e., greater multiplexity). The formality finding does not support the “familiarity breeds trust” hypothesis, suggesting instead that formal ties in public and nonprofit settings tend to be maintained over time. The finding on multiplexity does, however, demonstrate that formal ties are often reinforced, becoming increasingly stronger. Thus, consistent with our own hypothesis, trust does appear to increase over time in public sector network settings, but in more subtle and complex ways than those predicted by Gulati and without having to abandon the formal contract.

### Stability

Stability is an overall pattern revealed in table 4. Generally, the ties in the network we studied maintained a stable composition over time. Of the 146 dyads in the network, sixty-one (41.8 percent) could be categorized as the same in both time periods. This finding is represented by the diagonal in table 4. Thus, a significant portion of the ties in the network neither increased nor decreased in formality but, rather, stayed the same from 1996 to 2000 ($z = 2.77$, $p \leq .01$). Although there has been literature on the stability of organizational forms over time (see Boeker 1989; Stinchcombe 1965), this is a new insight into the dynamics of network relationships.

### Table 5

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<tr>
<th></th>
<th>1996</th>
<th>2000</th>
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<tbody>
<tr>
<td></td>
<td>Contract Only</td>
<td>Contract + 1 Referral</td>
</tr>
<tr>
<td>2000</td>
<td>Contract Only</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Contract + 1 Referral</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Contract + 2 Referrals</td>
<td>4</td>
</tr>
</tbody>
</table>

2 The addition of ties within a condition of formality necessarily means an addition of a referral link, since a formal relationship is defined by the presence of a confirmed contract.

3 The analysis in this section excludes the twenty dyads for which there was no partner agency in either 1996 or 2000. Inclusion of these dyads might have changed the results somewhat. However, our analysis focuses on how relationships within the network changed over time, not on whether new or existing relationships outside the network were either started or maintained. We thank an anonymous reviewer for raising this issue.

4 Provan and Milward (1995) found that stability was a key factor in network effectiveness. However, their study focused on the structure of the governance regime and resource levels of the network, not the dynamics of network structure. Thus, although our finding about stability is consistent with their work, we focus on stability in dyadic structure as the network evolves over time.
In table 4, the cells above and to the right of the diagonal represent those ties that weakened in some manner (e.g., moved from informal to perceived or from perceived to no tie), and those cells below and to the left of the diagonal represent those dyads that strengthened their relationship in some manner (e.g., moved from perceived ties to informal or formal ties or from no tie to any other type of tie). The upper portion of the grid (weakened ties) represents only 23.2 percent (34 of 146) of all the paired relationships in the enacted network, while the lower portion (strengthened ties) represents 34.9 percent (51 of 146) of the paired relationships in the network. While nearly half of all relationships remained stable over time, those that did change were more likely to shift to increased formality than to less formality. This difference is statistically significant ($z = 2.17, p \leq .05$). Overall, more than three-quarters (76.7 percent, 112 of 146) of all ties in the network either became more formal or remained in a formal state over the time period covered by this study (those cells located on or below the diagonal).

It is important to point out that many of the ties that remained informal throughout the study are organizations that do not contract in the system. Agencies such as law enforcement and crisis centers provide public services and are required to remain impartial and objective about their clients and the services clients might potentially seek. Therefore, these agencies can only have a limited set of formal relationships at any point in time because they are restricted from having certain types of contracts (henceforth called “referral-only” agencies). Of the seventeen relationships that involved referrals but no contracts, ten pairs are linkages between referral-only agencies and the Lead Providers. Four of the pairs could have established contracts to formalize their referral relationships but did not. The final three pairs involved systemwide organizational resources, such as the state mental health hospital. Such agencies offer resources that are available to all clients included in the network of services and thus, do not require individual agency contracts.

The findings for these referral-only agencies show that although the links maintained by some agencies remained informal throughout the study and did not follow the pattern established by most other agencies in the network, their relationships were often as formal as they could be due to the nature of their services. In other words, sometimes the type of service provided by an agency restricts the maximum number and types of linkages that an agency can develop with other agencies. An examination of the pairs of agencies that maintained their informal links over time without moving toward a formal contract revealed that the services provided by these agencies were not conducive to contracting (such as the crisis hotlines) or were mandated services (such as the state hospital and police services). Therefore, the majority of the dyads (thirteen of seventeen, 76.5 percent) that remained stable over time in a referral-only relationship were actually at their maximum level of multiplexity because of the services they provided. In total, 33.6 percent of the agencies involved in the network were maximized in their level of relationship formality.

**DISCUSSION**

The results found in this study are different from those found by Gulati and others in private sector research settings (Gulati 1995; Larson 1992; Uzzi 1997). Therefore, the question is posed, How can these divergent results be explained, and what, if anything, is fundamentally different about public and nonprofit settings from private sector settings that can account for these differences?
The explanation offered here focuses on the operational dynamics of the public and nonprofit sectors. Agencies in these sectors oftentimes have broad goals within their missions that are too expansive for the agency to address independently. This creates joint production functions for these agencies where, in order to accomplish their organizational goals, the agencies must either develop multiple services on their own or coordinate their existing services with other organizations (Milward and Provan 2000)—the classic “make or buy” decision (Williamson 1985). Since funding for health and human service agencies is typically too low to meet demand and services are stretched thinly, agencies generally opt to “buy” and then try to coordinate additional or complementary services. The need for coordination will drive agencies to establish reliable relationships with other agencies that can aid them in accomplishing their missions.

The services studied in this network were those funded by the state and federal governments through Medicaid and other funding streams. This funding typically comes with requirements and restrictions guiding the practices of the service providers, both administratively and clinically. If the contracting agency itself does not have the capacity to perform all of the tasks required in the contract, it will need to develop relationships with agencies that do provide those services. These supplemental relationships will aid in satisfying the terms of the government contract.

However, government contracts typically require evidence that services are being delivered. To fulfill this need, direct contractors will formalize their relationships with their partner agencies through subcontracts in order to legally satisfy the terms of the government contract. Therefore, agencies operating with direct government contracts might need to maintain their formal relationships with partners much more than their private sector counterparts due to the accountability requirements inherent in government contracting.

Agencies often feel the burden of conforming to bureaucratic regulations even though the pressures might be through indirect channels (see Fogarty 1996; Meyer, Scott, and Strang 1987). As illustrated in figure 1, most of the service providers are indirect recipients of the state money available to this network. Although the pressure to satisfy contractual and legal requirements to the state is filtered through the network administrative organization (NAO) and the Lead Providers, the pressure to conform to mandate is pervasive, even if indirect.

A third aspect of our explanation lies in the fundamental nature of networks as cooperative mechanisms. As Powell (1990) pointed out, networks are a third kind of organizational form with different properties than markets or hierarchies. Some networks in the public and nonprofit sectors, like the one under study here, are created with the intent to facilitate coordinated activity among a broad range of member organizations. In such networks, NAOs perform facilitative and intermediary roles to organize services in a way that contributes to the effectiveness and sustainability of the system as a whole. Since NAOs and networks, in general, exist in order to facilitate relationships among agencies, greater levels of formality in more broadly defined networks (i.e., not simply dyadic relations) may be both required and accepted because of the need to manage the complexity of coordination across the many organizations that constitute the network. Further, since NAOs may also perform duties related to role assignment and conflict resolution, the costs of arbitrating differences are reduced in networks, making formal contracts less burdensome for network members to create and maintain.

The role of an NAO and the embeddedness of dyadic relations in a network environment, then, mean that the transaction costs of creating relationships and
maintaining those relationships are likely to be diminished. In this environment, it is less costly for network members to find partners and to develop formal contracts with one another than it is for two firms initiating a relationship in an atomistic market setting. Network governance changes the dynamic of creating relationships because of its facilitative character. Thus, formalizing dyadic relationships is fundamentally different within a network than when it takes place in a market. Decreased transaction costs of contracting would explain the increased occurrence of formal relationships within the network structure studied here, as compared to Gulati’s R&D dyadic alliances, which occurred in a market context with no network structure.

Overall, the unique setting of public contracting and services provision creates an environment where agencies coordinate services with one another in multiple ways. The public sector’s joint production function creates a need for agencies to come together to provide services for their clients. Further, the realities of government contracting oblige organizations to cooperate even if they may have been reluctant to do so on their own, by requiring legal contracts for services among partner agencies. However, the dynamic created by network governance reduces the transaction costs of these formal contracts, thereby enhancing the likelihood that contractual relationships can coexist with trust, resulting in multiplex ties between tightly coupled organizations.

As agencies repeat interactions with one another, through formal contracts, informal referrals, or both, they develop a reputation for their service quality, business practices, and ethics. If that reputation is positive, trust will develop between the agencies and they may choose to increase interaction, as reflected by greater multiplexity. This interpretation is consistent with conclusions made by Granovetter (1985), Ostrom (1998), and others that reputation is an important factor in predicting future relationships.

SUMMARY AND CONCLUSIONS

The findings in this article present a new look at networks in a public sector setting. The public sector creates a unique operating environment for organizations involved in interorganizational relationships and networks. This operating environment encourages contracting as a way to safeguard organizational stability. Although repeated relationships in a public and nonprofit sector network may not become less formal, we found that these relationships do become stronger over time. This does not mean that trust declines; rather, it is likely to increase even in the presence of contractual ties, consistent with our hypothesis.

The data analysis provided some alternative results to the body of organization theory research conducted primarily on private sector organizations. The “familiarity breeds trust” argument supported by Gulati (1995) and Larson (1992) states that organizations in repeated interactions will decrease their need for formal contracts as trust is established and grows. Instead, our research showed that context matters. Formal contracts are necessary in a public sector context, in part because of the regulatory requirements of funding agencies. Thus, the need for formal contracts generally remains constant among publicly funded organizations, and trust is not negatively affected by the presence of such contracts. The context in which relationships among organizations occur can have an important effect on how formal or how tightly coupled relationships between two organizations might become.

The environmental context of a network has an important effect on how relationships among its members evolve over time. While there have been some major research
contributions to an understanding of cooperative interorganizational relationships in the private sector, it is important to understand that the dynamics in these relationships may be fundamentally different in a publicly funded nonprofit network. It is unlikely that relationships in the public and nonprofit sectors will evolve in the same way as those in the private sector. Whereas trust and reputation are important elements in any long-term, repeated relationship, the ways in which they evolve appear to take different forms across sector boundaries. The existence of a contract may not necessarily signal a lack of trust in a partner in the public sector and among nonprofit agencies that rely on government funding but, rather, may reflect the realities of the public and third sector operating environment.

The research presented here is not, of course, without its limitations. For one thing, reliance on only a single network focusing on mental health services limits the generalizability of our conclusions. Unfortunately, collecting data on networks is difficult and time-consuming, especially for longitudinal data. Thus, network research may be limited to a gradual building of knowledge accumulated from research on multiple networks, rather than from a single definitive study. Another limitation is that we only examined two types of linkages, contracts and referrals. Clearly other types of links exist, and the relationships we uncovered may not hold when focusing on administrative-level (versus operational) links or on such informal ties as shared information and resources.

The study’s main limitation, however, is probably that the specific transformation process is unexamined. In other words, using the linkage data we collected, it is not possible to tell exactly how a relationship moves to lesser (or greater) formality or to enhanced multiplexity. Our data uncovered an overall pattern in relationship evolution that then had to be interpreted, based on theory and inference. We do not know the specific pathways of development and the ultimate stability of the patterns of the relationships uncovered in our network. Such an examination would require an in-depth empirical analysis tracking the evolution of relational ties, including observations more frequent than three years apart. Despite these limitations, we believe that our study provides scholars with a better understanding of how dyadic relationships evolve in public networks, providing a base for further research.

From a practical perspective, our results demonstrate that publicly funded service delivery networks can be established and maintained through a base of traditional contracts while still building informal, trust-based ties among the agencies that make up the network. Contracts provide a critical framework for carrying out basic network functions in the public and nonprofit sectors. However, the existence of such contracts need not restrict the establishment of more informal, trust-based ties, such as referrals. The two types of relationships can readily exist side by side, and in fact, unlike networks in business, their mutual existence is likely to be a fundamental characteristic of most public sector networks.

REFERENCES


