In search of a happy medium: How the structure of interorganizational networks influence community economic development strategies

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Abstract

Routes to economic development attract considerable attention among social scientists, policy makers, and community activists. Increasingly, social scientists examine various attributes of communities, their members, and their natural surroundings that facilitate and inhibit economic development. However, few empirical analyses exist that analyze the impact of a community’s network structure on different forms of economic development such as on industrial recruitment and self-development. Using data collected from six communities in Washington State, the impact of a community’s interorganizational network structure on industrial recruitment and self-development is examined. Results suggest that different types of network structures are better suited for different economic development strategies. A certain level of cohesiveness among community organizations and institutions are favorable for implementing self-development projects. However for industrial recruitment, networks that are bridging facilitate more types of economic development. While bonding and bridging network structures appear to be at odds with one another, it is possible for communities to increase both forms of economic development by maintaining a certain level of cohesiveness among subcomponents and increasing the number of organizations that serve as cut-points connecting non-redundant sources of information. These findings illustrate the need for communities and local activists to consider a community’s network structure when deciding on an economic development strategy.

Keywords: Economic development; Industrial recruitment; Self-development; Bonding and bridging social capital

1. Introduction

In recent decades, many rural communities have witnessed an employment decline in traditional resource-based sectors, such as agriculture, fishing, and forestry due to technological advances,
environmental awareness, and a deteriorating resource base. This decline in traditional rural sectors often poses a threat to the survival of rural communities as homes and places of work as people lose their jobs in these traditionally high paying sectors and are forced to live and work elsewhere (Brown, 1995; Sharp et al., 2002). In response, many communities see a need for change in their economic base and have initiated economic development strategies to try to recruit, create, keep, and boost local economic endeavors. Recently, social scientists have taken an interest in researching which characteristics of a local community facilitate effective economic development (e.g., Crowe, 2006; Flora et al., 1997; Putnam, 1993; Shaffer and Summers, 1989; Sharp et al., 2002). In particular the concept of social capital, “the connection among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them” (Putnam, 2000, p. 19), has received much attention as a causal mechanism that can facilitate economic development (e.g. Crowe, 2006; Flora et al., 2004; Sharp et al., 2002). The recent popularity of bonding and bridging social capital has further stimulated an interest in the potential for network structures to facilitate effective community-level economic development. An argument exists in the literature as to whether tightly knit, cohesive networks (e.g., Putnam, 1993) or loose, expansive networks (e.g., Woolcock and Narayan, 2000) are more conducive for implementing local economic development. Drawing on economic development research (Flora et al., 2004; Sharp and Flora, 1999; Sharp et al., 2002; Summers, 1986) community network analysis (Burt, 1992, 2002; Scott, 2004), and social capital literature (e.g. Portes, 1998; Putnam, 1993), I propose that instead of being in direct conflict with one another, different types of network structures are better suited for different economic development strategies. To evaluate this proposition, I analyze associational membership data and recent economic development activities provided by key informants in six rural communities in Washington State. I conclude by exploring implications the findings have for studying community-level economic development.

2. Economic development strategies

As rural communities have tried to increase their economic base, researchers and practitioners have questioned what types of development are most successful and which factors lead to development success. Several researchers of economic development have distinguished between two economic development strategies: industrial recruitment and self-development (Eisinger, 1999; Flora et al., 1992; Sharp and Flora, 1999; Sharp et al., 2002). These two forms of economic development are often pitted against one another as opposing approaches to development. Despite this contrast, communities can successfully implement both forms of economic development (see Crowe, 2006 for an example).

Industrial recruitment involves efforts to attract outside firms and industries to locate to the area (Sharp et al., 2002). These efforts include the provision of tax abatements, low-interest loans, and easy access to cheap land for infrastructure development. The attractiveness of industrial recruitment stems from its ability to generate a large number of jobs in a relatively short time period. Crowe (2006) finds that active civic organizations, community-wide fund-raising capacity, and the availability and control over natural surroundings have a significant positive effect on industrial recruitment. Sharp et al. (2002) find that the existence of active community organizations, businesses that support local community projects, community-wide fund-raising capacity, and extra-local linkages to peer communities and state government have a modest effect on industrial recruitment.

Criticisms of industrial recruitment, such as the payment of low wages, short-term success, high recruitment costs (Loveridge, 1996), degradation of the local environment (Pellow, 2002),
and possible increases in population growth, housing prices and rents (Logan and Molotch, 1987; Molotch, 1976, 1993), have led some communities to promote a second type of economic development: self-development. In contrast to industrial recruitment, self-development activities foster local businesses and other entrepreneurial activities along with relying on local resources to aid in development from within the community (Flora et al., 1992). Examples of self-development activities include revitalizing downtown businesses, promoting local tourism, and retaining or expanding locally owned businesses. Previous research shows that some community attributes foster self-development. Sharp et al. (2002) find that a social infrastructure rich in active community organizations, supportive businesses of local community projects, community-wide fund-raising capacity, and extra-local linkages to peer communities and state government is more likely to cultivate self-development than industrial recruitment. While self-development has some advantages over industrial recruitment, such as new jobs requiring higher skills and stronger job security, a higher number of jobs tend to be created from successful industrial recruitment endeavors than from self-development (Green et al., 1993; Sharp and Flora, 1999; Sharp et al., 2002).

Both forms of economic development have their advantages and disadvantages. Therefore, it is up to each individual community to weigh its advantages and potential shortcomings when deciding on an economic development strategy. While previous research has examined the effects of a community’s social infrastructure (Crowe, 2006; Sharp et al., 2002) and environmental surroundings (Crowe, 2006) on the two types of economic development, to date little to no research has looked at the effect of a community’s organizational network structure on the different forms of economic development.

Bridging (loosely connected, weak ties) and bonding (dense, strong ties) social capital are terms often used to describe a community’s network structure. While the differentiation between bridging and bonding social capital (Putnam, 2000) is a step in the right direction, the terms are still broadly defined. Below, I give a brief synopsis of the two forms of social capital and definitional problems with each. I then further divide bonding and bridging social capital into four network configurations (complete, factional, coalitional, and bridging) ranging on a scale from densely connected to loosely connected and theorize how each network configuration impacts the two forms of economic development.

3. Bridging and bonding social capital

Recent discussions of social capital often distinguish between “bonding” and “bridging” social capital (Putnam, 2000; Woolcock and Narayan, 2000). Bonding social capital is typically characterized as having dense relationships and networks within communities (Taylor, 2004). This is often typified by the existence of tightly woven networks in which members are directly tied to many other members in the network. Bridging social capital is often described as the weaker relationships and networks across social groups and communities. It consists of the weak ties described by Granovetter (1986). Woolcock and Narayan (2000) argue that while the dense networks of bonding social capital can effectively defend against poverty, real economic development requires a shift to other, looser forms of network structures. In order to shift from “getting by” to “getting ahead,” a shift from bonding to bridging network structure must occur (Putnam, 2000).

The concept of “bridging” social capital has been used in at least three ways in discussions of social capital. These three uses are not necessarily complimentary. Portes (1998) conceptualizes bridging social capital as networks that cross demographic divides of class, age, ethnicity, etc. Burt (2002) conceptualizes bridging social capital much differently by referring to bridges across
structural holes,\(^\text{1}\) or gaps between networks, which are not necessarily of dissimilar people. Bridging social capital has also been used by researchers to refer to the capacity to access resources such as information, knowledge, and finances from sources that lie outside of the organization or community (e.g., Woolcock and Narayan, 2000).

While bridging and bonding capital are often depicted as two distinct forms of connections, Leonard and Onyx (2003) argue that the two are not necessarily mutually exclusive. They suggest that bridging and bonding capital differ in degree, but they do not offer a conceptual model of how one can empirically measure the different types of bridging and bonding capital. Network analysis, by examining the structure of networks, can allow for one to distinguish between different degrees of bridging and bonding capital. By performing network analysis, I differentiate between the second and third uses of bridging social capital. However, because network analysis does not allow for a meaningful way to study various attributes of network nodes, I do not distinguish between the first use of bridging social capital and the second and third uses. Like bridging social capital, network analysis also allows for the unpacking of bonding social capital. In what follows, I distinguish between two types of bonding social capital and two types of bridging social capital and theorize how each relates to different strategies of economic development.

4. Interorganizational network structures and economic development

Bonding social capital acts as the social glue that binds groups together. The network structure under bonding social capital is quite dense. Two typologies of network structures exist that may be considered forms of bonding social capital. At the far extreme end of the dense/loose scale lies the complete network structure. In the complete structure, each organization is directly connected to all other organizations in the community (see Fig. 1 for schematic approximations). Density is at its upper limit. Such completion is very rare even in small communities. The second typology that falls under bonding social capital is a factional structure. A factional network structure consists of two or more connected groups that are not connected to one another.

Bridging social capital can also be divided into two network structure typologies: coalitional and bridging. In a coalitional structure, dense networks of organizations are connected to each other in a non-redundant fashion. Coalitional structures resemble Burt’s use of bridging social capital to describe networks with structural holes. Coalitional structures lie in the middle of the dense/loose continuum. Bridging network structures consist of weak network connections that link organizations together in a loose manner. Bridging structures are representative of the third use of bridging social capital by allowing organizations to access sources of information and other resources that lie outside of an organization. This network structure falls at the opposite extreme end of the dense/loose continuum.

In his work on regional differences in social capital in Italy, Putnam (1993) asserts that dense organizational network structures (what I have termed complete) are conducive for economic development. Putnam (1993, p. 173) writes: “Networks of civic engagement, like the neighborhood associations, choral societies, cooperatives, sports clubs, mass-based parties, and the like . . . represent intense horizontal interaction. Networks of civic engagement are an essential form of social capital: the denser such networks in a community, the more likely that its citizens will

\(^{1}\) Burt uses the term structural hole to refer to the connection of non-redundant contacts. Non-redundant contacts are either not directly connected or have contacts that are different from one another. A network that has numerous structural holes has links between many non-redundant contacts and therefore is diverse in nature.
Fig. 1. Network structure typology.
be able to cooperate for mutual benefit”. It is the tightly cohesive nature of these social networks that facilitates cooperation among individuals for collective benefit.

In opposition to Putnam’s early research, Portes and Landolt (1996) show that dense network structures can have a downside. Specifically, they note that strong, tightly knit, long-standing civic groups may hinder economic growth by inhibiting economic development on an individual level. In other words, demanding personal obligations placed on members of a social group may prevent the group from participating in broader extensive social networks that connect individuals to members outside their cohesive group. This critique can be extended to the community-level. As effort and resources are increasingly spent on various community organizations and their projects, less effort and resources are spent on possible external sources of development.

While critics have questioned the effectiveness of dense networks (what Putnam later referred to as bonding social capital) in building economic development, a certain level of cohesiveness may be desirable for certain economic development strategies such as self-development. Cohesive ties found in complete and near complete network structures may be effective in lowering the risk of cooperation and thereby making trust and norms possible. Because self-development projects come from within the community and rely on local resources, high levels of trust and norms lower the risk of cooperation that is needed to successfully implement the projects. Thus, I hypothesize that complete network structures will aid in the pursuit of self-development activities. However, because trust and norms are exceptionally strong in a complete network structure, obligation to the community may be so overwhelming that it severely reduces the time and effort spent on external sources of development, thus hindering industrial recruitment efforts.

On the other hand, factional structures are unlikely to aid in the pursuit of economic development activities of either type. A structure containing dense unlinked factions probably cannot discover a common economic interest and work for it effectively. Information and other resources are not shared among different factions, therefore making industrial recruitment harder to effectively accomplish. Yet, trust and norms are likely to be low making self-development projects more difficult to implement.

Coalitional network structures have traits of both complete structures and bridging structures. Dense networks of organizations are connected to each other in a non-redundant way. This type of network structure may facilitate both self-development and industrial recruitment projects. Because density occurs on a smaller level, but each dense network is connected to other dense networks, a level of trust and norms can develop. This sense of obligation (albeit lower than in complete networks) and level of trust facilitate self-development projects that rely on local resources. While obligation to the community is apparent in a coalitional network structure, it is not so overwhelming that it reduces the time and effort spent on external sources of development. The downside of social capital that Portes and Landolt (1996) refer to is not experienced. Therefore, I hypothesize that because coalitional structures facilitate trust and norms but not in an overpowering fashion, information and resources that are shared among groups will result in high amounts of both self-development and industrial recruitment efforts.

Since a bridging network structure is relatively loose compared to a complete network structure, it may facilitate economic development that relies on external resources. By being loosely connected, organizations can spread information and resources to one another, yet not feel obliged
to contribute resources to every project that is hosted by a community organization. This can be particularly useful when attempting to recruit outside industries to the community. However, loose interorganizational network ties may result in lower levels of trust and norms, thereby making it somewhat difficult to come to a consensus on which industry to pursue. Lower levels of trust and norms will also make it very difficult for pursuing self-development strategies. Therefore, I hypothesize that bridging network structures will result in low amounts of self-development and higher amounts of industrial recruitment, but to a lesser extent than coalitional network structures.

5. Summary of prior research and hypotheses tested in the present study

While much research has been conducted on the effects of social capital toward community-level economic development, less research has been conducted that evaluates the role that a community’s network structure plays with regards to various economic development strategies. Using community-level data, the purpose of the current study is to empirically analyze the effects of the structure of a community’s associational network on the two economic development strategies: industrial recruitment and self-development. The primary goal of the analyses is to test the following hypotheses:

- **H1**: Communities with relatively closed, cohesive associational networks (i.e. complete network structures) exhibit higher numbers of self-development strategies.
- **H2**: Communities whose associational networks are loosely connected (i.e. bridging network structures) exhibit higher amounts of industrial recruitment strategies.
- **H3**: Communities with non-redundant connections of dense organizational networks (i.e. coalitional network structures) are more likely to display both self-development and industrial recruitment strategies.

6. Data and methods

Data for this analysis are drawn from interviews and surveys conducted in six rural communities in Washington in the summer and fall of 2003. The six communities for this study were chosen because they share a number of characteristics—are of relatively equal size (all under 10,000), have similar levels of racial/ethnic composition, and are rural, but vary in amount and type of recent economic development activities. Table 1 broadly describes each community on a number of characteristics.

To represent community network structure, I analyze interlocking leadership among local community organizations and institutions. One can either focus on the linkages among organizations created by members or the linkages among members created by organizations. Here I focus on links among organizations created by members. To evaluate each community’s associational network structure, I analyze data from 15 to 34 interviews with local leaders and citizens from each community, with a total of 150 participants among the six communities. Informants were selected to represent one of 20 categories of people that characterized the community and therefore needed to be represented. Sixteen of the categories of people were consistent for each community, while four wild card slots were made available to fill with people from categories that were unique to each particular community. A list of the categories can be found in the Appendix. A local community coordinator from each community, who was extremely familiar with that particular community, helped identify and recruit the participants.
Table 1
Name and broad description of the sampled communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Population size(^a)</th>
<th>Percent white</th>
<th>Household median Income</th>
<th>Percent poverty</th>
<th>Primary economic base(^b)</th>
<th>Rural typology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creston</td>
<td>5,000–10,000</td>
<td>60–70</td>
<td>30,000–35,000</td>
<td>15–20</td>
<td>Farming</td>
<td>Non-federal lands</td>
</tr>
<tr>
<td>Davis Grove</td>
<td>0–5,000</td>
<td>80–90</td>
<td>35,000–40,000</td>
<td>15–20</td>
<td>Non-specialized</td>
<td>Federal lands</td>
</tr>
<tr>
<td>Gwenville Heights</td>
<td>5,000–10,000</td>
<td>80–90</td>
<td>35,000–40,000</td>
<td>10–15</td>
<td>Non-specialized</td>
<td>Metro</td>
</tr>
<tr>
<td>Mayfield</td>
<td>0–5,000</td>
<td>80–90</td>
<td>35,000–40,000</td>
<td>10–15</td>
<td>Service industry</td>
<td>Island</td>
</tr>
<tr>
<td>Rowans View</td>
<td>0–5,000</td>
<td>80–90</td>
<td>30,000–35,000</td>
<td>10–15</td>
<td>Farming</td>
<td>Non-federal lands</td>
</tr>
<tr>
<td>Soundberry</td>
<td>0–5,000</td>
<td>70–80</td>
<td>30,000–35,000</td>
<td>15–20</td>
<td>Non-specialized</td>
<td>Federal lands</td>
</tr>
</tbody>
</table>

\(^a\) Population size, percent white, household median income, and percent poverty provided by the United States Census Bureau (2000).

\(^b\) Primary economic base and rural typology provided by the Economic Research Service of the United States Department of Agriculture (1989).
Informants were asked a series of open-ended questions about general community action. The purpose of the interviews was to capture the social network structure of each community. The researcher asked participants to recall all local organizations and government institutions that they belonged to, the number of years they had been a member, as well as all leadership positions that they had held in the previous 5 years.

To evaluate the various strategies of economic development recently pursued by each community, I analyze survey data from the same informants who were interviewed. Informants were asked a series of questions with regards to whether or not a particular type of economic development activity had been implemented in the community in the past 3 years. These items asked about self-development activities that were implemented in the previous 3 years. These items included: efforts to promote agricultural diversification; to revitalize the downtown or retail sector of the community; to retain or expand locally owned businesses or industry; to develop a small business assistance program; to develop a commercial/retail center for locally owned businesses; to apply for financial governmental assistance to expand local businesses; to attempt to find buyers for local businesses; to develop or promote a local historic or cultural site or event to promote tourism; and to encourage local realtors or contractors to develop housing. The mean number of types of self-development activities implemented in the previous 3 years is computed and serves as the indicator of self-development. An additional nine items asked about industrial recruitment activities that occurred in the past 3 years. These items included: efforts to organize a committee to recruit new business or industry; to attract a large scale agricultural producer or outside owned value-added processing firm; to develop a commercial/retail center for outside-owned businesses; to develop an industrial park; to develop and maintain contact with leaders in industry outside the area; to apply for government financial assistance to attract industry or business; to seek investments from corporations outside the community to expand business or industry; to bring a state or federal office or facility to the community; to seek outside investors to develop single or multi-family housing. The mean number of types of industrial recruitment activities implemented in the previous 3 years is computed and serves as the indicator of industrial recruitment. Past questionnaires and surveys used by Flora et al. (1997) and Sharp and Flora (1999) in their analyses of entrepreneurial social infrastructure served as the basis for both the interview questionnaire and the survey.

7. Analytic strategy

The first stage of the analyses focuses on the description of each community’s organizational network with regards to component analysis. This is meant to give a vivid depiction of each

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3 Questions measured a total of 18 different types of economic development activities. While the range of economic development measures used is quite extensive, each measure falls into one of two categories: self-development or industrial recruitment. These are two very different strategies that research has shown to yield different economic results. Furthermore, previous research shows that different community traits are more favorable for implementing either self-development or industrial recruitment strategies (e.g., Crowe, 2006; Sharp et al., 2002). Continuing with this tradition, I aggregate the outcome measures into two composite measures: self-development and industrial recruitment. This also helps to focus the analyses in a concise manner when comparing each outcome variable to the four network configurations.

4 While it is possible to achieve successful economic development by pursuing one or a couple of economic development strategies, many communities have been scorned by “putting all of their eggs in one basket”. Particularly when it comes to industrial recruitment, many communities have witnessed industries move in only to shut down operations a few years later (LeRoy, 2005). For this reason, I equate the pursuit of a larger variety of economic development strategies as having a more likely chance of benefiting the community both economically and socially.
organizational network before more precise measures are conducted to determine the level of bonding and bridging capital in each community.

For the second stage of the analyses, I examine the level of bonding and bridging social capital in each community by evaluating $k$-cores and cut-points of each organizational network. It is useful to examine $k$-cores (Seidman, 1983) to help interpret the level of bonding capital in each network structure. A $k$-core is a maximal subgraph in which each point is directly connected to at least $k$ other points. Thus an isolate is a ‘0-core’ since the single point is not connected to any other points in the network. Because the current study is interested in bonding and bridging network structures in how they relate to different types of economic development strategies, the analysis of $k$-cores is an improvement over a measure of density for measuring bonding structures. It is also important to look at the number and proportion of cut-points in a network to measure the level and type of bridging capital in each network. Cut-points determine the extent of non-redundant contacts: contacts that are either not directly connected or have contacts that are different from one another. A cut-point is a node in which its “removal would increase the number of components by dividing the sub-graph into two or more separate subsets between which there are no connections” (Scott, 2004, p. 107). Each sub-graph that either stands alone or is connected to a larger graph by a cut-point is referred to as a block. Thus, cut-points are essential in measuring the extent and type of bridging capital in a given network. The existence of several cut-points indicates a coalitional network structure. While a loosely connected network with few cut-points indicates a bridging network. Each community’s organizational network is evaluated with regards to its level of $k$-cores and cut-points and is allotted an estimated network configuration: complete, factional, coalitional, bridging, or a combination of two.

For the final stage of the analyses, I test my hypotheses by comparing each community’s mean number of pursued self-development and industrial recruitment activities with a community’s organizational network structure. I do this in a qualitative manner by describing where each community falls in the rank order of each type of development and comparing it to each community’s network configuration based on the $k$-core and cut-point analyses depicted in the second stage of the analyses.

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5 Because the highest value of $k$ for each of the six community network structures ranges from 3 to 8, I will compare the proportion of organizations that belong to a three-core or higher (i.e. the proportion of organizations that are directly connected to at least three other organizations).

6 While the density of each community network can be measured, a fundamental problem exists with this measure. The density of a network depends on the size of the graph. This prevents density measures from being compared across networks of different sizes (Friedkin, 1981; Scott, 2004). While measuring the mean degree of each network overcomes this limitation, it does not measure the bonding type of structures that are theoretically important for the current study. This is because one member may have direct ties with many other members thus raising the mean number of ties for all other members of a network whom may not have many direct ties with other members in the network. Because the analysis of $k$-cores overcomes both of these limitations, the current study uses $k$-cores to measure bonding network structures.

7 This is what Burt (1992) refers to as “structural holes.”

8 A limitation of cross-sectional data performed on a small number of communities is the uncertainty of causation. While descriptive comparisons can reveal trends between the dependent and independent variables, caution must be taken in asserting causality from data collected from one point in time. Nevertheless, various forms of social capital theory assert that network structures influence economic development and not vice versa. Furthermore, the measures of economic development activities are based on the previous 3 years, while most participants were members of organizations and institutions for much longer than three years (6.6 years on average). Because the study’s hypotheses were made prior to data collection, I infer causal relationships, albeit with caution.
8. Component analysis

I gathered organizational and institutional membership data from 15–34 key informants from each of the six communities. Table 2 provides the number of informants and organizations along with a descriptive summary of the associational networks for each community. For instance, in Rowans View, I acquired information from 22 key informants on 48 organizations and institutions, while in Mayfield I collected information from 34 informants on 72 organizations and institutions.

Before describing each community’s network structure with regards to its level of bonding and bridging capital, component analysis of the organizational adjacency matrix helps to describe the overall appearance of each community’s organizational network structure. A component is a “maximal connected subgraph” (Scott, 2004, p. 101). In other words, a component is the largest sub-graph of the entire network in which all points are connected to all other points in the sub-graph by one or more paths. By examining the components of each community’s organizational network, one can begin to see distinct differences among the six communities. For instance, Gwenville Heights has the most components at five. The largest component includes 39 organizations linked by 18 informants. On the other hand, Mayfield has one component that consists of 70 organizations linked by 28 informants. Component analysis suggests that Gwenville Heights may be more factional, while Mayfield may take on characteristics of a complete network structure. However, more precise measures need to be taken to determine the level of bonding and bridging capital in each community. This can be done by examining \( k \)-cores and cut-points of each organizational network. This will also help to determine the organizational network structure of each community in relation to the network configurations depicted in Fig. 1.

9. Organizational network structure in each community

Here I describe and interpret each community’s organizational network structure in relation to the network configurations depicted in Fig. 1. Mayfield’s organizational network is large with numerous ties among it various organizations. At the core of the network is a densely interlocked clique (see Fig. 2). One hundred percent of the possible links among organizations exist within this eight-member clique. Mayfield has the highest order of a \( k \)-core among the six communities with \( k = 8 \), in which nine organizations are connected to eight other organizations. The proportion of organizations in Mayfield that are connected to a minimum of three other organizations is .78 (see Table 2).

Mayfield’s network structure has five cut-points and six blocks. However, because there are a total of 72 organizations in the network, the proportion of cut-points is small at .069 (see Table 2).

These findings suggest that Mayfield has a highly dense associational network with relatively few structural holes. Thus Mayfield’s interorganizational structure appears to be characterized by a strong bonding structure. Because of these dense existing ties, trust and norms are more likely to develop leading Mayfield to have a high potential for implementing self-development projects.

Creston’s network structure is much more sparse and lacks the cohesion of the Mayfield network. Creston’s organizational network is the smallest with 18 organizations broken into two

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9 Organizations included voluntary and civic organizations such as the Chamber of Commerce, Kiwanis, and local development groups. Institutions included boards associated with government, the hospital, schools, churches, and the like.
<table>
<thead>
<tr>
<th></th>
<th>Mayfield</th>
<th>Rowans View</th>
<th>Soundberry</th>
<th>Gwenville Heights</th>
<th>Davis Grove</th>
<th>Creston</th>
</tr>
</thead>
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<tr>
<td><strong>Organizational data</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total organizations</td>
<td>72</td>
<td>48</td>
<td>35</td>
<td>49</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>Number of informants</td>
<td>34</td>
<td>22</td>
<td>18</td>
<td>29</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Number of components</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>2</td>
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<tr>
<td><strong>Largest component</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizations</td>
<td>70</td>
<td>43</td>
<td>19</td>
<td>39</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>Largest interorganizational members</td>
<td>28</td>
<td>16</td>
<td>13</td>
<td>18</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Isolated organizations</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<tr>
<td><strong>Indicators of network closure</strong></td>
<td></td>
<td></td>
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<tr>
<td>Largest k-core</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Number of organizations in largest k-core</td>
<td>9</td>
<td>17</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Proportion in 3-core and higher</td>
<td>.78</td>
<td>.78</td>
<td>.67</td>
<td>.65</td>
<td>.57</td>
<td>.44</td>
</tr>
<tr>
<td><strong>Indicators of structural holes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of cut-points</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Number of blocks</td>
<td>6</td>
<td>10</td>
<td>10</td>
<td>13</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Proportion of cut-points to total points</td>
<td>.07</td>
<td>.10</td>
<td>.14</td>
<td>.10</td>
<td>.07</td>
<td>.22</td>
</tr>
<tr>
<td><strong>Estimated network configuration</strong></td>
<td>Complete</td>
<td>Coalitional</td>
<td>Coalitional/factional</td>
<td>Factional/bridging</td>
<td>Bridging</td>
<td>Coalitional/bridging</td>
</tr>
<tr>
<td><strong>Measures of economic development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-development (ranking from highest to lowest)</td>
<td>4.72 (2nd)</td>
<td>5.36 (1st)</td>
<td>3.23 (4th)</td>
<td>3.11 (5th)</td>
<td>2.65 (6th)</td>
<td>4.56 (3rd)</td>
</tr>
<tr>
<td>Industrial recruitment (ranking from highest to lowest)</td>
<td>1.64 (6th)</td>
<td>3.64 (2nd)</td>
<td>2.69 (3rd)</td>
<td>2.32 (4th/5th)</td>
<td>2.32 (4th/5th)</td>
<td>4.22 (1st)</td>
</tr>
</tbody>
</table>
components (Fig. 2 shows the largest component). The highest order of a $k$-core is $k = 3$, in which eight organizations are connected to three other organizations. The proportion of organizations that are connected to a minimum of three other organizations is .44. This proportion is much smaller than it was for Mayfield. Four organizations serve as cut-points, while there are a total
Gwenville Heights Interorganizational Network Structure

Soundberry Interorganizational Network Structure

Davis Grove Interorganizational Network Structure

Fig. 2. (Continued).
of six blocks. Since there are a relatively low number of total organizations, the proportion of organizations that serve as cut-points connecting non-redundant contacts is .22. This proportion of cut-points is three times the Mayfield’s proportion.

Creston has somewhat cohesive sub-components, but has the highest proportion of structural holes out of the six communities. These findings suggest that Creston’s network structure possesses a mix of coalitional and bridging properties. Creston’s high proportion of cut-points mirrors a coalitional network structure. However, the less cohesive sub-components reflect a network that is bridging in nature. These network properties are conducive for industrial recruitment but only modestly favorable for self-development.

Rowans View’s network is relatively large with one large component and two small components. The highest order of a k-core is \( k = 5 \), in which 17 organizations are connected to five other organizations. The proportion of organizations that are connected to a minimum of three other organizations is .78. This is the same proportion as Mayfield, although the value of the highest \( k \)-core is lower. Five organizations serve as cut-points, while there are a total of 10 blocks. For the entire network structure, the proportion of organizations that serve as cut-points connecting non-redundant contacts is .10. However, for the sub-network shown in Fig. 2 that revolves around the arts council (TVAC) the proportion of cut-points is .14 (2 out of 14). The proportion of cut-points is lower than it was for Creston but higher than it was for Mayfield.

Rowans View has highly cohesive sub-components with a relatively mid-range proportion of structural holes. While, the proportion of cut-points lies in the middle for the six communities, one can clearly see by looking at the TVAC-centered sub-network (Fig. 2) that Rowans View’s network structure is coalitional. Therefore, Rowans View’s network structure is favorable for both self-development and industrial recruitment.

Among the six communities, Soundberry lies in the middle with regards to number of organizations at 39. It consists of one large component, two mid-size components, and one small component. The highest order of a \( k \)-core is \( k = 5 \), in which six organizations are connected to five other organizations. The proportion of organizations that are connected to a minimum of three other organizations is .67. Compared to the other five communities this proportion is in the middle. Five organizations serve as cut-points, while there are a total of 10 blocks. The proportion of organizations that serve as cut-points connecting non-redundant contacts is .14.

Soundberry has somewhat cohesive sub-components; however, it has several sub-components that are not connected to each other. The largest subcomponent, which consists of 19 organizations, has a higher proportion of structural holes. Soundberry’s interorganizational network structure is quite different from the other community network structures. While the overall network structure appears to be factional, the network structure of the largest component has coalitional properties. These two network structures have quite different expectations for economic development. While factional network structures are expected to have low numbers of both industrial recruitment and self-development activities, coalitional network structures are expected to be favorable to both types of economic development strategies. Therefore, Soundberry may lie somewhere in the middle with regards to both types.

The Gwenville Heights network is large with one large component and four small components. The highest order of a \( k \)-core is \( k = 5 \), in which six organizations are connected to five other organizations. The proportion of organizations that are connected to a minimum of three other organizations is .65. Five organizations serve as cut-points, while there are a total of 13 blocks. The proportion of organizations that serve as cut-points connecting non-redundant contacts is .10. Gwenville Heights has somewhat cohesive sub-components with a relatively lower proportion of structural holes.
Of the six communities, Gwenville Heights appears to be the most factional. Several blocks are not linked to other blocks of organizations. However, the largest component appears to have bridging qualities. The proportion of organizations that are connected to at least three other organizations is relatively low as well as the proportion of cut-points. Both factional and bridging network structures are expected to result in low levels of self-development. However the two structures are expected to produce opposite results with regards to industrial recruitment. While bridging structures are expected to produce higher levels of industrial recruitment, factional structures are expected to produce low levels. Thus, Gwenville Heights may lie somewhere in the middle with regards to industrial recruitment activity.

Davis Grove’s network is relatively small with a total of 29 organizations. The highest order of a $k$-core is $k=4$, in which five organizations are connected to four other organizations. The proportion of organizations that are connected to a minimum of three other organizations is .57. Two organizations serve as cut-points, while there are a total of five blocks. The proportion of organizations that serve as cut-points connecting non-redundant contacts is .069. While Davis Grove’s interorganizational network is not very dense, it is connective. Hence, Davis Grove has a bridging network structure. With a bridging network structure, self-development is expected to be low and industrial recruitment is expected to be higher.

10. Qualitative assessment of community network structure and economic development

Table 2 provides the number of types of economic development strategies implemented for the two forms of economic development for each community along with each community’s rank order with regards to each type of development. For self-development, communities on average implemented 3.84 types of self-development activities over the past 3 years. Rowans View had the highest amount of self-development activities (5.36) while Davis Grove had the least (2.65). On average, all communities had implemented fewer industrial recruitment activities than self-development activities over the past 3 years (2.35 compared to 3.84). Creston had the highest amount of industrial recruitment activities (4.22), while Davis Grove once again had the fewest number at .4.

When comparing each community’s mean number of self-development and industrial recruitment activities with a community’s associational network structure, a pattern emerges. First, the communities that have the top two highest number of self-development activities implemented in the past 3 years have the highest proportions of organizations and institutions that belong to a 3-core and higher (are directly connected to at least three other organizations). Rowans View and Mayfield have the highest number of different types of recently implemented self-development activities (5.36 and 4.72, respectively) and have the most cohesive sub-components of the six communities with 78% of the organizations in both communities directly connected to at least three other organizations. Mayfield has a network structure similar to a complete network structure, while Rowan’s View has a coalitional network structure. Both network structures were expected to have high levels of self-development.

In addition the community that has the lowest number of recent self-development activities (Davis Grove) has a bridging network structure with a proportion of organizations and institutions that belong to a 3-core or higher at .56. Gwenville Heights, which has the second lowest number of recent self-development activities, has an overall factional network structure with its largest component having a bridging network structure. Hence, it appears that communities that have complete or coalitional interorganizational network structures are more likely to implement
self-development activities than communities with bridging or factional networks. This supports my first hypothesis.

With regards to industrial recruitment, a different pattern emerges. First, the community that has the highest proportion of organizations serving as cut-points (Creston) has the highest number of recently implemented industrial recruitment activities. Creston implemented 4.22 types of industrial recruitment activities in the previous 3 years and 22% of its organizations serve as cut-points in its associational network. Creston’s network structure has both coalitional and bridging properties. While it has the highest proportion of cut-points among the six communities, the density among sub-groups is relatively low. Rowans View had a coalitional network structure and had the second highest number of recently implemented industrial recruitment activities with 3.64. The coalitional and bridging network structures were predicted to have higher amounts of industrial recruitment strategies.

In addition, the two communities with the lowest number of recently implemented industrial recruitment activities (Mayfield and Gwenville Heights) have low proportions of organizations serving as cut-points (.069 and .10, respectively). Mayfield’s network structure resembles a complete network structure by having one tightly knit component, while Gwenville Heights’ overall network structure is factional with five separate components. Both complete and factional network structures were predicted to have lower amounts of industrial recruitment activities. Hence, it appears that communities with coalitional and bridging associational network structures are more likely to implement industrial recruitment strategies than communities whose networks are complete or factional. This is in support of my second hypothesis.

Finally, it is important to note that both communities with coalitional network structures (Rowans View and Creston) displayed high amounts of both strategies of economic development. In fact, Rowans View had the highest number of self-development activities and the second highest amount of industrial recruitment activities, both numbers well above the mean. Creston had the highest amount of industrial recruitment activities and the third highest amount of self-development activities, again both numbers above the mean. This supports my third hypothesis that communities with non-redundant connections of dense organizational networks display high amounts of both self-development and industrial recruitment.

11. Discussion and conclusion

Does a community’s associational network structure have an effect on the type and extent of economic development strategy pursued? For the six communities in the current study, it appears that network structure does impact economic development activities. However, different network qualities have a positive impact on different types of economic development strategies. A certain level of cohesiveness among community organizations and institutions are favorable for implementing self-development activities. This may be because cohesive ties are effective in lowering the risk of cooperation and thereby making trust and norms possible. Because self-development activities come from within the community and rely on local resources, high levels of trust and norms lower the risk of cooperation that is needed to successfully implement the projects. With regards to industrial recruitment activities, bridging and coalitional networks are desirable. Industrial recruitment comes from outside of the community. Therefore, a high level of trust and norms from within the community may not be needed as much as is access to a wide variety of information in coming up with a successful plan to recruit outside businesses.

These findings have several interesting implications for the community sociology and economic development literature. The results of the current study show that different types of
network structures facilitate different kinds of economic development activities. For industrial recruitment, networks that are bridging facilitate more types of economic development. However, networks with bonding elements are more likely to generate more types of self-development. While bonding and bridging network structures appear to be at odds with one another, it is possible for communities to increase both forms of economic development by maintaining a certain level of cohesiveness among subcomponents and increasing the number of organizations that serve as cut-points connecting non-redundant sources of information. This is representative of a coalesional network structure.

The current study focuses on the impact of structural network configurations and their impact on different strategies of community-level economic development. In this sense it is fairly unique, seeing that most studies of economic development focus on examining the attributes of the community that facilitate development. However, a brief discussion of the study’s findings in light of some specific community characteristics is warranted. The following are mere observations, given that the number of communities in the study is not large enough for empirical testing. First, it appears that population size and racial make-up of the community have little influence on economic development activities (see Table 1). The community with the largest population, Gwenville Heights, did not rank high for either self-development or industrial recruitment. On the other hand the community with the highest percent of racial and ethnic minorities, Creston, ranked high for both industrial recruitment and self-development—which is in contrast to the popular belief that minority communities are less likely to implement economic development. Second, it appears that the level of financial resources in a community, at least for these six communities, has little impact on economic development activities. The level of household income was relatively similar for all six communities (between $30,000 and $40,000). In fact, some communities with higher income levels (such as Gwenville Heights and Davis Grove) had lower economic development activity, while some communities with lower income levels (such as Creston and Rowan’s View) had higher economic development activity. Likewise, the percent of people below poverty did not seem to influence community-level economic development activity. This does not imply that a community’s ability to mobilize resources does not impact economic development. However, in light of a community’s financial resources, network structures seem to matter. Of all the indicators shown in Table 1, rural typology appears to have the most potential for influencing which economic development strategy is pursued. The communities that are limited in available land by either being an island community or surrounded by federal lands rank low for industrial recruitment. Crowe (2006) argues that the availability and control over natural surroundings have a significant positive effect on industrial recruitment. It may be the case that the location of Davis Grove and Soundberry near federal lands and Mayfield on an island may limit the types of opportunities they can pursue. Thus, more research is needed to tease out the impact network structures have on economic development activities controlling for various community attributes such as a community’s resource base and natural surroundings.

In addition to teasing out the impact of network structures in congruence with various community attributes, further studies need to address the impact other types of networks outside of the community have on different economic development strategies. For instance, future research is needed to analyze how linking social capital (networks and connections between communities and other communities and institutions) interacts with bonding and bridging social capital and how this interaction impacts various forms of economic development. Finally, future research is needed to extend the analyses to other forms of community development. The current study limits community development to two forms of economic development. However, community development encompasses a broad spectrum of phenomena. To identify the impact of different forms of
network structure on community development, future research should examine their influence on other types of development in the community, such as recreational and social service opportunities as well as network capital’s influence on the capacity of social institutions to distribute resources to the community.

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Appendix Community interview categories

1. Parent
2. Nonprofit youth focused service organization
3. Nonprofit adult focused service organization
4. Major employer
5. Entrepreneurial business
6. Faith based organization
7. Elected official
8. Law enforcement
9. Social services agency
10. Chamber/economic development council
11. School employee (must live in community)
12. School board member
13. Hospital/health organization
14. Senior citizen
15. Representatives of ethnic groups in community
16. Older youth
17–20. Wild card

Note: Wild Card category examples may include but are not limited to: farming community, service club representative, arts community, representative from an environmental group, factory worker, and timber worker.

References


