An examination of the endogenous region

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An examination of the endogenous region

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Iowa State University, 1992
An examination of the endogenous region

by

Timothy O'Connor Borich

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DEDICATION

This dissertation is dedicated to my wife, Jeanette and my children,
Genevieve, Anthony, and Jean Marie, for their never ending love and patience.
INTRODUCTION

Community sociologists have debated for years on the definition and interpretation of the concept of community. Hillery (1955) identified ninety-five definitions of community used by sociologists up to that time. More recently, Warren (1988) and Lyon (1987) have suggested that sociologists researching community should utilize a variety of theoretical paradigms for studying communities and choose perspectives and definitions most appropriate for the research topic.

While confusion over community seems to center on urban settings (Luloff, 1990, Wellman and Leighton, 1979; Simpson, 1965), rural communities are assumed to experience clearer lines of demarcation (Sanderson, 1988, Simpson, 1965). As an example, Galpin's (1915, 1918) study of farmers' trade in nearby villages shows empirical spatial boundaries of rural communities. In contrast, the complexity of urban living leads Simpson (1965:141) to conclude that, "for most Americans, except for small town dwellers and some suburbanites, 'community' has no hard and fast empirical reference" (emphasis mine).

More recently, new transportation and communication technologies have altered the interaction patterns in rural communities. The autonomous rural community of the past came under greater influence of extra-local forces (Warren, 1978). As early as the 1960s, the President's National Advisory Commission on Rural Poverty (1967) became aware of the increasing number of services previously provided by small communities that were now being provided by small to medium sized cities. Stronger linkages between urban centers and surrounding rural communities emerged as these services moved to regional centers.
Affiliations of residents to groups and organizations located outside the community are seen as potentially disrupting the rural community itself. Wilkinson (1991:85) suggests that these external ties are now so dominant that the "rural community," conventionally defined as a self contained system, will cease to exist if in fact it exists today.

The past decade saw declining farm land values and a reduction in the number of family farms. Communities outside the primary influence of urban growth centers generally lost population and retail trade, experienced a continuing depreciation of public infra-structure (Rasmussen and Bowers, 1988; Ginder et al., 1986) and a reduction of the capacities of rural governments to provide public services (U.S. Senate Subcommittee on Intergovernmental Relations of the Committee on Governmental Affairs, 1986).

Wilkinson (1986a) sees the rural crisis in the 1980s as creating problems similar to those discussed two decades earlier by the President's National Advisory Committee on Rural Poverty (1967). Poverty and underemployment, deteriorating infrastructure, and problems involving family and community cohesion resurfaced, leading Wilkinson (1986a:341) to conclude that the gap between urban and rural communities in their abilities to meet the daily needs of their residents was increasing, thereby creating a trend of leaving rural communities "behind-again."

A recent national study indicates a continued troubled state for most rural communities. Johansen and Fuguitt (1990) randomly selected 5 percent of all non-metropolitan villages that had populations under 2,500 in 1960. Collectively, these communities lost manufacturing and retail firms from 1960 to 1987.
The loss of retail establishments suggested near "ghost town" conditions for the average village by the late 1980s (Johansen and Fuguitt, 1990:4).

Johansen and Fuguitt also note that with the exception of villages located in the northern part of the country, most towns did not lose population during this same period. Rather, many small towns took on new roles as residential rather than employment or trade centers. This suggests a growing interdependency with nearby urban employment centers.

Iowa Trends

Stone (1989) reports that most communities in Iowa experienced a downturn in retail sales in the early 1980s. However, from 1979 to 1990, the total market share of retail sales for cities with populations of 50,000 or more increased from 35.5% to almost 45%, a gain of over 25% (Stone, 1991). In contrast, communities under 5,000 population lost a substantial market share, and rural communities (under 2,500 population) lost over 40% of their market from 1979 to 1990 (Stone, 1991).

Iowa's rural communities mirror the national trends identified by Johansen and Fuguitt; most suffered major declines in the volume of retail trade during the 1980s as a result of a troubled farm economy, and corresponding increase in competition from regional mall development in urban centers (Borich et al., 1984; Stone and McConnon, 1982). Additionally, small town manufacturing employment in sectors related to agriculture continued to decline.

Unlike national demographic trends cited by Johansen and Fuguitt, most of Iowa's small towns lost population during the 1980s. The farm crisis of the 1980s
had a profound impact on this trend. Goudy (1991) found two-thirds of Iowa's communities with populations under 2,500 grew between 1970 and 1980; however, four out of five lost population during the 1980s. All but seven of Iowa's 99 counties lost population between 1980 and 1990 with the most severe percentage losses occurring in Iowa's most rural counties (Goudy and Burke, 1991).

Rural Iowa found itself in the middle of the farm crisis unprepared within an economy heavily dependent upon both agriculture and the production of agricultural inputs, common beliefs held that the state's economy was immune to national recessions; in many respects, community leaders were unprepared to deal with the economic and social crisis (Bultena et al., 1986). While chronic problems of out migration have plagued rural communities in Iowa since the turn of the century (Goudy and Burke, 1991; Goudy, 1991), these problems have been greatly exacerbated during the last decade.

**Forms of Adaptation**

With the closing of public offices and local retail outlets, more people in Iowa's rural communities now must travel greater distances for employment, basic goods and services. Additionally, this increasing diffusion of rural service and employment locations has forced Iowa's rural institutions to adapt. One form of adaptation has been the consolidation of services and agencies. Consolidation of local rural institutions combines existing parties into a new organizational unit. The impetus for this merger may be voluntary or coerced. As a form of adaptation, however, consolidation implies the termination of existing institutions; schools,
businesses, and churches coinciding with the continual loss of rural population (Bultena, et al, 1986).

Another form of adaptation is collaboration. Gray (1989) defines collaboration as an emergent process where interdependent stakeholders seek solutions to problems by (1) constructively dealing with differences, (2) having joint ownership of the decisions involved, and (3) taking collective responsibility for future joint direction. Whereas consolidation forms new institutions through mergers of old ones, collaboration pertains to the formation of new interdependent relationships. Rather than dissolving the old order of institutions, collaboration is an attempt to increase their joint capacities to address common problems. Alternative power systems are created that complement rather than compete with existing organizations (Trist, 1985).

The differences between consolidation and collaboration can be illustrated with Iowa's school districts. Consolidation merges existing educational institutions into new organizations, creating a net decline in their total numbers. As an example, the number of Iowa's school districts dropped from 438 in 1985 to 425 in 1991 through consolidation (ISEA, 1991). A more significant trend among Iowa's rural school districts has been in collaborative arrangements. Legislative changes in the 1980s allowed for increased state funding for local school districts that shared programs and administration (IASB Committee on Strategies for Excellence, 1987). In 1985, only two school districts participated in whole-grade sharing and only four shared superintendents. By 1991, 104 school districts were involved in whole grade sharing and 110 were sharing superintendents (ISEA, 1991). Existing institutions have been maintained by forming new collaborative arrangements.
Movements Toward Inter-community Collaboration

The ability of most rural Iowa communities to cope with major changes in their social and economic environments is limited. Declining or depleted human and financial resources inhibit adequate responses to larger structural or environmental forces (Voland, 1986; and Wilkinson, 1986). In many situations, size constrains their potential to meet local development goals. The capacity of small towns to "go it alone" is further inhibited by the growing number of external or vertical linkages affecting local decisions (Warren, 1978).

As the social and economic linkages between traditionally autonomous communities become stronger (SRI International, 1989), some local leaders have begun to question traditional definitions of community. Statewide media have suggested the "Reinventing of Iowa" (Des Moines Register, 1991) with local city and county governments merged as a means of institutionalizing the increasing linkages among communities. Others advocate the development of cooperative "clusters," or collaborative arrangements, between small towns in close proximity (SRI International; 1989). These clusters would emphasize such areas as education, public services, and infrastructure development and maintenance.

The Iowa Code, under section 28E, allows for local governments to develop agreements with other governments for purposes of joint service provision, consolidation of the government units, or privatization of a service. Otto and Edelman (1990) studied these agreements registered in Iowa between 1984 and 1986. They found an average of almost eight agreements per county with over 82% of them involving local units of government. The greatest number of agreements dealt with law enforcement (15%), road maintenance (12%), fire protection (12%), and job training and economic development (11%).
remaining agreements included work services, utilities, health services, housing, education, and corrections. A greater amount of sharing was found in counties with declining tax bases and higher percentages of agricultural land.

A Conventional Definition of Community

Critical to any study of multicommunity development and the growing patterns of interaction between communities is the often poorly defined concept of community. A community may be looked upon as a grouping of people where place or territory has significance. This territorial grouping is given shape by a local ecology through which members meet their collective needs (Wilkinson, 1986; and Hawley, 1950). The community as a place has organizational features separating it from the surrounding environment, allowing its members to act collectively (Kaufman, 1959; Wilkinson, 1970). Three key features used for defining community include the presence of a local human ecology, a discernable pattern of organization, and the capacity for collective actions that are locality based. People in communities spend most of their time and meet most of their needs within their collective local ecology (Wilkinson, 1986). Yet, communities are not closed systems isolated from the outside world (Warren, 1978). Individuals and groups within a community carry on relations both inside and outside their given territorial area of residence. While the community has a local ecology, it may be heavily influenced from external factors. Consistent with human ecology is the view that communities result from serving as territorial units where adjustments are made to their broader ecological environment (Murdock and Sutton, 1974).
The dominance of urban centers effects the ecology of rural communities and constrains their freedom of collective action. Most rural areas are dominated by regional metropolitan economies where modern highways and communication systems provide linkages (Dansereau, 1961). Human ecological studies have shown an association with a greater diversity in the division of labor and urbanization (Poston, 1984; Frisbie and Poston, 1976; Gibbs and Martin, 1962). Human ecologists view diverse communities as having a better capacity to adapt to changes in their ecology.

The second feature, a discernable pattern of organization, relates to a consistent pattern of social organization that extends beyond any one institution. As Wilkinson (1986:3) describes it, "the community as an organization of social life" contains a global structure that meets the daily needs and expresses the major categories of common interests of its residents. However, it has been noted that the rural settlement's role of meeting daily needs has waned as institutions come to be based externally to the territorial area of residence.

The third feature is the community's field of collective action. A "field" for action exists that is both dynamic and emergent (Kaufman, 1985). Community action can be studied at either the individual or association level (Kaufman, 1959). Community field theorists tends to look upon a local ecology as the backdrop in which community action takes place (Luloff, 1990).

Community Redefined

As modernization of society takes place, the conventional definition of community where daily needs of residents are satisfied on a regional basis is less
appropriate (Wilkinson, 1985). Inter-community linkages alter the human ecological boundaries of local territory where changes in communication and transportation technologies expand the local area for meeting daily needs.

As the number of external linkages increase, Iowa's small town patterns of interaction become more diffuse. Employment, shopping, and local education patterns that once took place within a relative small geographic region spread out over wider areas. Once self-sufficient communities become more interdependent as new patterns of extra-community interaction are formed. Community based organizations become more interdependent with extra-local organizations. As Mulford (1984:12) states, "organizations that are interdependent influence each other, and if dependencies persist we can speak in terms of the emergence of community structure." In the terms of Warren (1978), when does a vertical relation become a horizontal relation? The very definition of what is a "community" comes into question as interdependencies grow with neighboring communities and urban centers.

According to Wilkinson (1986b), "people live together in local ecologies even though the boundaries of those ecologies are blurred and tend to merge into one another horizontally and vertically." As a discernable pattern of organization becomes removed from a local ecology, the ability to act collectively becomes more uncertain. "Community" itself becomes blurred as local patterns of interaction extend beyond the territorial place of residence.

As trends mount toward blurring the areal community, applications of conventional definitions become problematic. This dissertation presents a new conceptualization of the rural community based upon a three tiered pattern of social interaction and organization. The three tiers of community are founded
upon a spatial dimension and demonstrated empirically. This new conceptualization examines vertical linkages to proximate communities and urban centers not as threat to the local community, but an extension of community itself. Accordingly, community escapes the constraining influence of spatial boundaries.

Policies for Promoting Endogenous Regionalism

Increased urbanization, declining rural population, and more social and economic linkages between rural and urban centers have led to a number of strategies to form larger, more efficient units from existing rural communities. This includes the advocacy of a latent resettlement policy whereby planned designated urban areas would become focal points for the state's development (Daniels and Lapping, 1987). Others have called for regionalism that would involve all levels of government within the state (Uhl, 1991).

Federally or state encouraged regional councils of governments (COGs) have existed in Iowa since the mid-1960s as a vehicle for funnelling external resources to rural communities. Patterned after the concept of functional economic areas based around a regional urban center (Fox, 1963), Iowa's 16 COG districts were developed on a multicounty basis, in some cases involving over 100 communities. While most of Iowa's COGs continue in operation today, the removal of much of the federal support has shown these alliances to be quite fragile and prone to disassociation (Lorenz and Muhwezi, 1989).

One form of rural multicommunity cooperation that is growing in popularity in Iowa is endogenous regionalism (Borich and Ryan, 1989; Schwab, 1990). Endogenous regionalism represents (1) a voluntary alliance between two or more
communities, (2) for the purpose of pursuing multiple activities to address common needs or interests, (3) on a scale that does not inhibit participation from the communities involved in decision-making at the regional level. This form of voluntary inter-community alliance is most frequently found on a smaller scale, thus allowing for greater local influence (Borich and Ryan, 1989). Impetus for organization is provided locally and not through upper levels of government (e.g., state or federal).

Coffey and Polese (1984) called for sustained growth in locales and regions through endogenous local development. They place emphasis on activities that would promote population and economic growth within a territorial area, and reduce economic dependency upon extra-local interests. Coffey and Polese (1984:3) see endogenous development as "a particular form of regional development in which 'local' factors—the local spirit of entrepreneurship, local firms, or local financial institutions—constitute the principal bases for economic growth." Endogenous in this sense applies to the type of economic development activity rather than the social construction of a territorial unit.

The term "endogenous" as used in this research, refers to the process by which communities of close proximity collaborate for mutual development with no mandate from external institutions. In this context, endogenous defines the process of emergence and not the economic development strategies taking place within it. Thus, an endogenous region may or may not emphasize endogenous development as defined by Coffey and Polese (1984).

Rather than delineating regional boundaries and compliance requirements at the state or regional level, multicommunity alliances emerge as a voluntary process based on common needs and interests. Leaders from participating
communities share in delineating the alliance's boundaries and decisions made with respect to alternative courses of action. Community action takes place on a multicommunity basis.

In examining an example of endogenous regionalism within Iowa, Schmandt et al. (1990) refers to the process of delineating rural communities to form "clusters." They studied the Area Community Commonwealth (ACC) as a cluster consisting of the communities of Thornton, Swaledale, Dougherty, Messervey, Rockwell, Sheffield and Chapin in north central Iowa. The ACC is a multicommunity development organization involved with a variety of economic and community development activities. In their report, Schmandt et al. (1990:155) defined the process of clustering as:

...a form of community development that addresses both the economic and social dimensions of the rural crisis. The goal of clustering is to empower residents of once separate and competing rural communities to work together as a single community to maintain quality schooling, retain medical services, preserve local retailers, and achieve other economies of scale. As a community development program, the aim of clustering is to preserve or increase the standard of living and the quality of life in rural communities by transforming the rural resident's conception of community.

Community development on a multicommunity basis may seem at face value to be a contradiction in terms. Using the conventional definition of community, external linkages are seen as weakening the community, and community development is an attempt to strengthen patterns of interaction within the community (Warren, 1978). Kaufman (1985) identifies the lack of an adequate conception of community structure and difficulty in discovering organizations of central importance to community development as two major weaknesses of
community subject matter. As organizations and individuals cross traditional
community lines to pursue common goals, a restructuring takes place that further
highlights these traditional weaknesses.

A number of sociologists and economists have called for more rural community alliances. Ryan (1988) suggests that such alliances reduce unnecessary and inefficient competitiveness among neighboring communities. Brown and Deavers (1989) argue that inter-community economic development efforts are more likely to succeed than are community-specific efforts. Blakely and Bradshaw (1985) call for more study of multicommunity organizational structures (e.g., circuit riders, multi-jurisdictional programs) to overcome efficiency problems in the delivery of rural services.

Because of the limited capacity of rural communities to control the events that affect local decision making, alliances of rural communities to support mutual goals has a ring of common sense. Although outside influences may decrease the autonomy of local decision making in most rural communities (Warren, 1978), collaboration with nearby communities can be a means by which the sphere of influence is expanded (Baker, 1990, Wells, 1990, Wells et al., 1991).

Statement of the Problem

Local development associations are convenient as a focal point for studying community as a field of collective action (Wilkinson, 1970). These organizations are seen as the structure through which community activity takes place. Endogenous regionalism applied to the economic or community development process results in what is labelled as a multicommunity development organization (MDO).
MDOs are development associations that operate on a multicommunity level. It became apparent to the Iowa State University Extension Service, the Iowa Department of Economic Development and other state agencies that frequent use of this strategy for rural development was growing in Iowa in the mid to late 1980s. "Consortiums," "commonwealths," "county wide economic development organizations," and multicommunity "alliances" were forming across the state.

As indicated through their study of the ACC, Schmandt et al. (1990) found that multicommunity development organizations address a wide variety of economic and community development issues. However, as these organizations emerged, some variations in the type of issues addressed can be expected by the needs of specific locations. Some emphasize multicommunity economic development utilizing such traditional methods as industrial recruitment and retail development; others are more involved in broader issues such as housing and education (Fogarty, 1990).

Multicommunity development organizations are good illustrations of endogenous regionalism. Their emphasis on economic and community development places them within a domain that had previously been dominated by autonomously acting communities. MDOs are organized on a voluntary and collaborative basis which allows for interdependence of decision making among the communities involved.

MDOs represent an emerging phenomenon overlooked, thus far, by community sociologists. Basic questions on definition, classification, and emergent processes have yet to be addressed. The emergence represents a challenge to sociologists to document their existence, and to provide a theoretical rationale for their recent development in rural Iowa.
The purpose of this research is to study the rural community in light of endogenous regionalism and growing urban linkages. Endogenous regions are examined as an outgrowth of the expanding linkages between small towns and their surrounding environments. Following Kaufman (1985), this research analyzes community as a place having key associations and actors that are located in endogenous regions within Iowa. By focusing on MDOs as an initial unit of analysis, a better understanding is gained of the interface between community and economic development as purposive action within endogenous regions.

This research focuses on three questions that parallel the conventional definition of community: How does the local ecology impact endogenous regionalism? Does the organization implied through multicommunity collaboration have an impact beyond the influence of the local ecology? What activities take place at the endogenous regional level? In utilizing the MDO as an indicator of an endogenous region these three questions can be related as: Is MDO emergence a product of local ecologies? Does the output of MDO organizations differ from what would be indicated by local ecological variables? Do MDOs differ in their activities and in the effect their activities have upon output?

There exists a lack of research that illustrating the variability found within endogenous regions. Therefore, a further objective of this research is to provide a description of endogenous regions through (1) a classification of MDOs by the activities in which they are involved, and (2) a comparison of MDOs categories by their local ecology, organizational structure and output. It is intended that this
comparison will assist in defining and describing some of the heterogeneity found among MDOs.

While the emergence of MDOs may be looked upon as a form of adaptation to a changing human ecology (Borich et al., 1991; Borich and Foley, 1990), there remains the question as to the output of the organization. Analysis of the impacts of MDOs will be made by controlling for the human ecological environ in which they operate through a path analysis. Through a series of 18 hypotheses, the relationship between settlement aggregation, community organization, and ultimate output will be analyzed. It is hypothesized that the larger the population, the lower the agricultural dependency, and the greater the competitive the position to other retail markets of an endogenous region the greater the economic development within the region. It is further hypothesized that once these local ecological variables are controlled, the greater the level of organization of multicommunity development organizations the higher the degree of economic development. By examining the activities and impacts of multicommunity development organizations, the effect of growing external linkages upon rural community structures can be assessed, and a new conceptualization of the rural community demonstrated empirically.

This dissertation will analyze the place, key associations, actions, and actors found in endogenous regions within Iowa. By utilizing MDOs as an initial unit of analysis, a better understanding of the community and economic development efforts through the practice of endogenous regions will be gained.

The dissertation is divided into four parts: (1) a theoretical treatise redefining the rural community based upon its changing structure; (2) a methods section detailing how Iowa's multicommunity development organizations were
(1) Data collection; (2) an analysis of the strengths and weaknesses of Iowa's endogenous regions involved with community/economic development; (3) a description of Iowa's endogenous regions involved with community/economic development and an analysis of their effectiveness; and (4) a conclusion outlining possible policy implications.
ENDOGENOUS REGIONS AS COMMUNITY FIELDS

As a voluntary alliance of multiple communities capable of community action, how does the endogenous region relate to the concept of community? A multicommunity regional approach to the study of community implies a multiplicity of community fields. Since Tonnies' (1957) conceptualization of Gemeinschaft and Gessellschaft, much has been written comparing rural and urban communities, and discussing the interaction between mass society and the local community. Much less has been said about the relationships between rural communities. Where their relationships have been examined, emphasis has been given to the nature of the distinct community fields rather than to study the interface between and among multiple fields.

Kaufman (1959) and Wilkinson (1970a) identify three key features in "conventional definitions" of community: (1) a human ecology, (2) a discernable pattern of organization, and (3) a capacity for collective actions that are locality based. Each of these community characteristics are examined in this chapter as they apply to the endogenous region. From this application, a modification of community field theory is posited to allow for the presence of multicommunity fields.

### Human Ecology

Rural communities are not closed systems isolated from the outside world (Warren, 1978). Individuals and groups within a community carry on relations both inside and outside their given territorial area of residence. The human ecological
approach gives emphasis to the production, distribution, and consumption of goods and services, the interdependence among groups and individuals involved within these activities, and their collective relationships to the external environment (Namboodiri, 1988).

Communities are seen in competition with one another for the resources that allow them to retain their populations. The ecological view of cities has been summarized by Donald Bogue (1961: 531) as:

(a) The human community (including city communities) is an organization one purpose of which is adaptation to the environment.

(b) New techniques of transportation and production (technological change) have permitted great cities to dominate smaller cities and other communities surrounding them.

(c) The outlying communities are subordinate to the metropolis and are integrated with it.

(d) This integration of outlying territory (hinterland) with the metropolis has become a standard form of social organization throughout the entire United States.

Thus, the dominance of urban centers effects the ecology of rural communities and constrains their freedom of collective action. Dominance in this context refers to the control over materials, energy and information (Duncan, 1964).

Most rural areas are dominated by the regional metropolitan economies in which modern highways and communication systems provide linkages (Dansereau, 1961). Human ecological studies have shown an association with a greater diversity in the division of labor with urbanization (Poston, 1984; Frisbie and Poston, 1976; Gibbs and Martin, 1962). A greater division of labor allows for
better adaptation in diverse environments and for urban areas to bring in material from great distances (Gibbs and Martin, 1962). Through their diversity, cities are capable of drawing resources from the surrounding hinterland, thereby limiting their hinterland's capability to effect change.

The Ecological Complex: P.O.E.T.

Otis Duncan (1959) devised a human ecological approach to study the factors effecting a local ecology. His "ecological complex" includes four interrelated categories of variables: population, organization, environment and technology (POET). According to Lyon (1987), variables used in the POET framework may include size and heterogeneity of population, organizational types (developed to assist the community in survival), variables exogenous to the community to assess environment, and variables measuring skills or tools to aid adaptation to technology. Although seen as interdependent, the POET variables can be used to demonstrate the cause and effect within the complex (Duncan, 1961; Lyon, 1987; Micklin, 1984). As an example, the environment and technology of a community can effect its population and organization over time.

Human ecologists define a population as a collectivity that is territorially distinct and involved in interdependent activities (Ryder, 1964). Populations can be characterized collectively through such attributes as size, rates of reproduction, growth, and density (Micklin, 1984). While changes in the size of populations can give the human ecologist indicators of important changes in the structure of society, size itself can also give a rough indication of a community's capacity for collective action (Hawley, 1986).
Environment refers to conditions and events external to the population that impinge directly on the behavior of the population. Poston et al. (1984) categorize environment into two types: physical and social. Physical environment refers to characteristics like climate, natural resources and topography; social environment focuses on the influence of other populations and organizations on the population under study.

Technology within Duncan's ecological complex incorporates materials, information and energy utilized in adaptation (Poston et al., 1984). Characteristics like capital, equipment, techniques and knowledge are often used as indicators of technology. Thus, technology can be seen as a routinized behavior pattern combining tools and methods used to sustain population (Hawley, 1986).

The organization of the ecological complex normally serves as the dependent variable in human ecological studies. Organization is the enabler that allows populations to act as a unit (Hawley, 1986). A major focus of human ecology traditionally is sustenance organization, defined as the patterning of social relationships that are manifested in activities engaged by individuals to maintain a livelihood (Gibbs and Martin, 1959). Income distribution, interdependence among production sectors, the degree of exchange of goods and services, status differentiation of sustenance roles, and the volume of sustenance produced are common measures of sustenance organization (Poston et al., 1984).

**Organization Defined**

While organization is most frequently measured in terms of sustenance organization of population, ecological approaches may also be used to study formal organizations. Hawley (1986) divides complex units of organization into
two categories: corporate and categoric. He (1986:68) defines the corporate unit as, "An assemblage of simple units that are functionally differentiated and symbiotically integrated." A symbiotic interdependency occurs among members of the corporate unit through specialization of roles. Territorial corporate units include the village and city where populations occupy locations.

A categoric unit can be applied to complex units when the underlying interdependence is based on similarities of constituent units, e.g., guilds, clubs, and professional associations (Namboodiri, 1988). The basis of the categoric unit is common interests of its members; its emergence often is due to the process of collaboration between pre-existing competitive units. As Hawley (1986:71) states:

Units with similar characteristics make similar demands on their environment or on the system in which they are included. When aggregate demand exceeds the supply of material, the space, the customers, the employment opportunity, or whatever is the requirement, competition ensues. The greater the degree of likeness among units - the more they have in common - the greater the probability of competition among them when scarcities develop. The resulting contest, if uncontrolled, can be destructive, or at least costly. Thus like units sooner or later enter into collusive arrangements in order to limit, channel, or otherwise control the competitive relationship.

Hawley sees units of territory whose occupants coact as categoric units. Within the category of territorial units, he includes neighborhoods, ethnic enclaves, and ghettos. A polity is described as a territorially based combined corporate and categoric unit whose members share a common interest in the maintenance of common facilities and institutions (Hawley, 1986).

Namboodiri (1988) advocates a merging of a demographic and a human ecological approach for studying social organizations. He points out that organizations serve people and that any study of interdependence within and
among organizations has to take into account the demographic and environmental dynamics involved. Kasarda and Bidwell (1984) are even more specific in advocating a human ecological approach for studying both formal and sustenance organizations:

if human ecology is to help us understand the organization of modern society, its framework must be specified and applied beyond the territorial unit. Of special importance... is the formal organization, the most central organizational unit of modern society."

Drawing upon Hawley (1986), Namboodiri (1988) and Kasarda and Bidwell (1984), the human ecological study of organization may be useful for understanding how sustenance organizations enable the communities to maintain population and/or formal community oriented organizations. Therefore, studies of formal organizations which attempt to alter sustenance activities may be a topic of study as well as how those activities are themselves organized.

The Local Ecology and Endogenous Regionalism

The sustenance organizational features of rural communities mirror the economic crisis existing in agriculturally-dominated regions. When changes in technology and a restructured global economy threatens the local agricultural base, the entire community suffers. As residents can no longer depend on the local territory to satisfy basic economic and social needs, some form of adaptation is necessary.

Adaptation in the human ecological sense is a process by which a viable relationship is modified between a community's population and its environment (Hawley, 1986). One form of adaptation is the increasing rate of rural commuters
who rely on the organizational structure of larger neighboring communities for employment (Hawley, 1986). Symptomatic of rural community maladaptation is population loss (Frisbie and Poston, 1975).

Alternatively, residents may attempt to restore the organizational structure of the local community through collective action. However, declining resources available in communities dominated by an agricultural or natural resource based economy have limited the success of this form of adaptation. Better educated rural residents frequently are among those migrating to better paying employment in urban centers, thus depriving rural areas of a major source of future community leadership (Voland, 1986).

The influence of environmental conditions on the decline of rural communities is reflected in the drain of rural retail sales to metropolitan centers (Borich, et.al., 1985; and Pulver, et. al., 1982). Metropolitan cities are in effect providing consumable goods for their surrounding hinterland by acting as trade centers. Patterns of sales migration to these metropolitan and secondary trade centers suggest the development of a larger community setting (Hassinger, 1978).

Mark and Schwirian (1967) studied the process of urbanization and industrialization in Iowa from an ecological perspective. They found a decline in the importance of central place function as a community-building activity in rural agricultural settlements. Traditionally, agricultural communities provided points of exchange for goods and services to local farmers. However, the industrialization and economic diversification allowed some urban centers to grow. This trend coupled with improvements in transportation left a number of rural Iowa communities as little more than "dormitory satellites" (Mark and Schwirian, 1967:32).
Hawley (1986) hypothesizes that competition, arising whenever demand exceeds supply, is a source of categoric-unit formation. Rural settlements suffering from economic decline can be expected to form collusive organizations in an effort to counter these trends and maximize resources. Thus, to counteract the effects of urban dominance, rural settlements, through the formation of endogenous regions, address joint settlement sustenance organization through the creation of new multisettlement formal organizations.

Community Field Theory

While human ecology emphasizes the sustenance organization of a population, community field theory considers the social relationships emerging from local organization. Although social relationships within the community are seen as influenced by a local human ecology, collective community action can be consciously goal directed. Persons within the community have the capacity to act collectively toward common goals (Kaufman, 1959).

Drawing upon social field theory (Lewin, 1951), a field becomes an emergent, dynamic, and unbounded configurations of social interaction with direction toward some outcome (Wilkinson, 1970). Patterns of individual or organizational interaction may be studied without a predisposition to political boundaries. Demarcations of communities are determined by identifying where patterns of interaction cease to exist. The absence of predetermined natural boundaries and the study of the field from the core outward is advocated from this perspective (Wilkinson, 1970). The contemporaneous nature and constant
emergence of social interaction is emphasized over the study of institutions as social systems (Anderson, 1984).

Wilkinson's (1970a) concept of the community field's "core" is used to counter an over-emphasis on the identification of community boundaries. However, the concept of core itself is never clearly defined nor operationalized. Wilkinson (1970a) posits the best alternative to the demarcation of communities is to identify locality oriented actions and subsequently the organizations and networks of individuals that initiate and guide them. What is seen as delineating communities from one another is a set of actions taken by organizations and individuals to the benefit of the community as a whole rather than for personal gain (Kaufman, 1959; Wilkinson, 1970b). For the purposes of this research, the core of a community shall be defined as a set of organizations and actors that initiate locality oriented actions whose beneficiaries include persons other than the actors themselves.

The Community Field

Every social field of interaction does not necessarily create community and the type of collective expressions of local identity which community creates. According to Kaufman (1959), what makes community fields distinctive from other fields are (1) the comprehensiveness of the needs met and interest pursued; (2) the degree to which the action is identified in the context of the locality; (3) the relative number, status, and degree of involvement of local residents; (4) the number and significance of local associations involved; (5) the degree the action maintains or changes the local society; and (6) the extent of organization of the action. Community fields contain social actions covering a wide range of interests,
involving large numbers of individuals and organizations, and directed toward a goal reflecting a perceived common community good. Although other types of social fields may exist within a community, they are more narrow in focus, organization, and individual involvement.

Community field theorists view community action as both planned and organized. Wilkinson (1970b) details two types of activities occurring within a community action process: first, programs of action can be directed toward the accomplishment of goals, secondly, acts by individuals directing a program of action that benefits others. In citing Cartwright and Zander (1968), Wilkinson (1970b) categorizes these two types of actions, respectively, as task accomplishment and structure development. In this context, community action can be carried out by existing organizations that modify their actions, or through the development of new organizations.

The diffusion of interaction patterns over time due to changes in communication and travel technology has greatly changed the context in which rural community action takes place. As rural residents are forced to look outside their locale for basic services, behavioral ties are weakened along with psychological ties that connect individuals to their community (Wilkinson, 1986). As the human ecology of rural locales changes, so too have the social fields within communities. Yet, despite the turbulence that exists within community fields, people within given locales may still collectively act to reinforce or protect what they perceive to be their common interests (Wilkinson, 1986; Tilly, 1973).

According to Wilkinson (1986:5), "people live together in local ecologies even though the boundaries of those ecologies are blurred." Local activities
coexist with activities in the larger society. The blurring is irrelevant, he argues, if one is searching for the core of the community rather than its outer reaches.

Warren (1978) details the influence of vertical linkages upon the horizontal patterns of interaction within the community. If horizontal and vertical networks become blurred as Wilkinson (1986) states, then by definition the core of the community field must be affected. The dependency of rural settlements on vertical linkages to fulfill basic needs tends to suppress community identity and action Wilkinson (1986, 1991). As the core of the field becomes increasingly influenced by extra-local force, the delineation of community becomes more difficult and the community itself is less able to act collectively.

**Community Field Theory and The Emergence of Endogenous Regions**

Community field theory emphasizes the delineation of community by a pattern of interaction. This pattern should be distinguishable from other types of patterns and other communities. With the number of business, organizational and political linkages growing between Iowa's rural communities of close proximity, the concept of horizontal and vertical ties becomes confused. To state the existence of horizontal ties between communities would be a contradiction in terms by Warren's (1978) definition. Yet to call them vertical ties would belie the existence of the multiple forms of collaboration and institutional alliances that are emerging.

However, community field theory does provide some insight into the processes of endogenous regional emergence. Communities are constantly emerging with dynamic boundaries. Endogenous regional leadership structures, development activities, and community organizational linkages are possible topics of study. Field theory should provide some answers as to how endogenous
regions affect preexisting communities from which the region has emerged. Wilkinson (1992) notes that the field perspective should assist in analyzing (1) how barriers between rural communities may be removed and (2) how collaborative relationships over an expanded rural territory may be expanded.

The emergence of endogenous regions represents a major change in the local ecology of Iowa's rural communities. Indications of this trend include the increased collaboration of Iowa's school districts and among local units of government. With the number of collaborative efforts increasing, one of the foundations of community delineation comes into question. By its very existence, the endogenous region fundamentally changes the social field in which community operates and creates an empirical anomaly in the conventional definition of community as multiple areal communities come to coexist within a given place.

A Redefinition of Community

Community sociology need not ignore the impact of increasing extra-local patterns of interaction on the local conceptualization of community. Shared residence may continue to play a significant role in how people define community and collectively act upon that definition. However, as local ecologies blur vertical and horizontal relations, communities in the conventional sense become blurred. When does the distinction between horizontal and vertical patterns of interaction no longer exist?
Using the conventional definition of community, vertical patterns of interaction can become horizontal if (1) they lead to the formation of a local ecology, (2) institutions or organizations are formed to maintain a pattern, (3) the pattern leads to increased common social identity related to place, and (4) when ultimately collective action occurs based upon that identity. Therefore, community needs to be identified beyond a singular social community field that is distinguishable from other fields by only organization and purpose. Within this context, community occurs at multiple levels with overlapping and coexisting fields.

The Three Fields of Community

Three fields of community may exist within any location at any given time. These three fields have been frequently discussed from a variety of theoretical perspectives. However, no evidence was found of prior attempts to integrate the three perspectives into a comprehensive conceptualization of community. To emphasize the territorial basis of these fields, they are referred to as "settlement field," the "endogenous region" and the "urban domain."

Wilkinson (1986) states the case for the need to study the community field from its core. While emphasis often is placed on identifying "the" community field, this should not presuppose the presence of multiple fields where all may be studied from a single core. What should result is a holistic framework that more encompasses the conventional definition of community that has a local ecology, a comprehensive organization of institutions and associations, and the potential for collective action. Thus, the three fields may co-exist in any given location (Figure 1).
The three community fields in Figure 1 are presented in spheres of increasing spatial size. However, these spheres should not be considered as concentric zones. An endogenous region located on the fringe of two urban domains may be crosscut by both, or a settlement field may be affected by multiple endogenous regions. Thus, on all three levels of community the spatial clarity of community boundaries is perceived as variable.

The Settlement Field

The settlement field most closely parallels the conventional definition of the community, especially in an ecological sense. In the Midwest, the small town has
often has been utilized as an example of community at this level. Wilkinson (1985:87) describes the ecology of the community as a "relatively small territory where people live together, meeting their daily needs in interaction with a common physical and social environment." However, as Kaufman (1985) points out, the community of residence and the community of employment often are at separate locations in both urban and rural settings.

The concept of settlement field does not necessarily represent the field through which the daily needs of residents are satisfied. What is required for a settlement field is a small territory where people reside, and interact together in a common physical and social environment. The settlement field continues to exist as an important field in many locations, and they will continue to exist as communities so long as people have at least a latent common interest in their area of residence (Wilkinson, 1985).

A number of common latent interests within the settlement field can become manifest through community organization. Logan and Molotch (1987) point out that collectively protecting the value of property ownership within a locale often serves as a motivation for community organization. Common political, recreational or public safety interests can also lead to communities acting at this level. Local governments (e.g., towns, townships, or municipalities) often provide a basic comprehensive organization for settlement fields. Community and economic development organizations may or may not operate at this level.

In rural settings, settlement fields historically have served as centers of trade and employment. The degree of these sustenance activities occur within the settlement field, however, is highly variable. With increasing rates of out migration of retail trade and population, the human and financial resources available to rural
communities have declined. Thus, the condition of growing linkages to nearby communities and urban centers is paired with a diminished resource base for collective action.

Rural trade centers that were at one time relatively autonomous have become more interdependent as their number of public and private linkages increased. As Hassinger (1978:125) states:

Differentiation of the functions of trade centers has transformed the meaning of the rural trade center community. The area has expanded and is no longer a single trade center and its hinterland, but includes the service-social relations of people living in a number of centers which in combination provide the institutional requirements of the population. In this situation of change, the working out of relationships among service centers is not simple and results are not clear-cut. The process involves trade centers in contention for domain and arriving at some kind of accommodation.

The degree of independent sustenance organization in settlement fields is highly variable; outside linkages to locations of employment and essential services may weaken the ability of settlement fields to act as a community. The remaining common interests and patterns of interaction that are shaped by sharing a given locale make community action possible within the settlement field.

The Endogenous Region

The concept of the endogenous region fully encompasses the interdependency of proximate settlement fields for sustenance organization and in some cases collective community action. As patterns of individual interaction grow between settlement fields, organizational emergence, collaboration and consolidation often result. Activities that cannot be organized at the settlement level due to limited resources may be attempted through the endogenous region.
Endogenous regions are relatively small territorial units that involve two or more settlement fields. They are made up of organizations and institutions that provide some of the basic needs of its residents and can serve as the basis for community action and organization. As social and economic interdependency grows among settlement fields, the emergence of institutions to maintain and develop linkages into more formal units of collaboration are likely. Thus, an endogenous region is created as a new form of community field.

In their study of 17 endogenous regional organizations in rural Michigan, Aronoff and Vlasin (1992) found numerous reasons for their emergence: need for obtaining more resources, solving common problems, taking advantage of opportunities posed by higher levels of government, obtaining a better political power base, and a reduction of local uncertainty.

Although lacking the immediate proximity experienced by residence in settlement fields, rural endogenous regions emerge from the common interests derived from the expanding patterns of interaction between settlement fields. Close proximity combined with increased interaction create the new local ecology leading to an organization of a community co-existing with the settlement field on a geographically broader level. As indicated by the conventional definition of community, a strong community field exists within the endogenous region when there is a clear local ecology, a holistic pattern of organizations and institutions providing for common needs of local residents, and the region demonstrates the ability to collectively act.

Suttles and Janowitz (1979) identify the basic community unit in urban areas as social blocs. Like settlement fields, the social bloc emerges out of a social interaction among individuals attempting to reduce anonymity and to ensure
a sense of mutual safety. However, unlike rural settlement fields where local
government is possible, the social bloc has no organized government. Suttles and
Janowitz (1979) see the social bloc in urban settings as relatively powerless and
its actions often ineffective and episodic. Rather, they see most community action
taking place through confederations of contiguous urban social blocs. Entitled as
organizational communities, member social blocs obtain representation in a larger
organization through a grass roots form of participation. Action among the
confederate social blocs often involves adjacent neighborhoods making
compromises toward an ultimate mutual gain.

Within the urban setting, organizational communities tend to stabilize at the
district level (Jacobs, 1961; Suttles and Janowitz, 1979). This may include service
delivery areas as education, police, fire, or sanitation. They are established along
geographic lines across social blocs and make an effort to recognize them in the
formation of the organizational community. Like the concept of the endogenous
regions, urban organizational communities are not imposed on pre-existing
communities, but seek their involvement through voluntary association.

Through voluntary association, social fields of interaction are established.
The concept of voluntary association involved in rural multicommunity
collaboration was often lacking in past regional planning models. According to
Lapping (1992:21) forms of rural multicommunity collaboration must "...not be
forced or defined by officials or 'experts' far removed from the communities in
question. If collaborations are to have any potential for success, they must be the
result of local initiative and subject to a high degree of local control."

Why "endogenous" region? By definition, the process of association must
be driven by the people impacted by its presence. Just as a community represents
in part a voluntary pattern of social interaction, endogenous regions cannot be arbitrarily created by external organizations. This is not to say that the adaptive process of endogenous regions cannot be consciously facilitated as noted by Wells (1991) and Wells et al., (1991).

The endogenous region takes on an identity of its own as institutions serve needs across settlement fields. Kaufman (1959) and Luloff (1990) include four measures to determine whether actions in a locality are community oriented: (1) the comprehensiveness of interests pursued; (2) the degree that action is taken is identified with the locality; (3) the relative number and significance of local associations involved in the action; and (4) how well the action is organized. The formation and organization of multicommunity development organizations across settlement fields provides one mode through which endogenous regions emerge as a community field.

As endogenous regions evolve, residential social identity with place may change. Existing settlement fields, however, may be altered but not necessarily merged. Place may take on somewhat of a different meaning as the patterns of community interaction become more diffuse over space. Yet the settlement field does not disappear as a setting for community action. What does emerge is a new field that augments the existing fields as an arena of community action. A strong endogenous region is indicated by (1) the establishment of multicommunity organizations among rural communities of close proximity, and (2) the development of consistent patterns of interaction among organizations and individuals residing within a given set of settlement fields. Few multicommunity ties or a diffuse pattern of ties would indicate a weak endogenous region.
Warren (1978) refers to the psychological identification people have with their place of residence as an indicator of community strength. An endogenous region allows for multiple identities with place. A typical resident of small town of Iowa may participate in community oriented actions on multiple levels. As an example, I might be a resident of a small community but work in a nearby urban center. As I would drive into town, I would notice not only the town's sign, but a second sign pronouncing I am entering town belonging to an MDO. However, water is provided through the local municipality in the settlement field, but the local Christmas lighting contest is done on a multicommunity basis, and the my children attend school in a nearby community. This school district now shares whole classes with the other school district within the endogenous region. Discussions have begun about merging the two schools and on setting up toll-free telephone service between the settlement communities. As in other endogenous regions, one community field has come to overlap others and numerous points of reference to my place of residence occurs.

The Urban Domain

The third sphere of the community field represents the urban domain. While human ecologists (Hawley, 1950; Bogue, 1961; Dansereau, 1961) find urban centers dominating the rural communities of their hinterland, community field theorists (Lloyd and Wilkinson, 1984 and 1989) maintain that rural communities continue to act in their collective interests. Warren (1978) posits that urbanization, and the vertical linkages it creates, inhibits the development of community by disrupting horizontal linkages.
Yet, the influence of urban centers on rural communities need not be disruptive. Instead, rural areas may be looked upon as being contained within larger rural-urban fields and not separate rural community fields (Wilkinson, 1991). Technological changes that have increased linkages between rural and urban communities have created a basis for such fields to develop. Within the new field, rural settlements take on new roles as residential rather than employment or trade centers. When rural communities lose business activity at a faster rate than population, former rural trade centers begin to serve as residential centers with most employment located in urban areas (Johansen & Fuguitt, 1990).

Suttles and Janowitz (1979) define the largest tier of the urban community as the aggregated metropolitan community. Often these are derived from alliances created by the organizational communities in a metropolitan area. They are seen as having shifting memberships as organizational communities come into and out of alliances. They provide a mechanism through which a large number of local organization communities mount efforts in areas that effect more than one community (e.g., expressways, building programs, and housing). Unlike Suttles and Janowitz's (1979) concept of the aggregated metropolitan community, the urban domain has a more holistic view of community. Within the urban domain, virtually all the basic needs and services are provided for its residents.

The same technologies that allow for a person's place of residence to be removed from their place of work also allow for the patterns of interaction found within the urban domain. Daily newspapers, television, and radio link people within the urban domain with common sources of information. The same highways that provide rural commuters a mode of transportation to the urban center for employment also provide transportation for weekend shoppers to the rural factory.
discount outlet or campers to the local state park. Indicative of a strong urban domain are consistent patterns of interaction between rural communities and a single urban center. A weak urban domain is indicated either by few ties to urban centers or a diffuse pattern of ties to numerous centers.

Kaufman (1985) also sees the possibility of a community field operating through linkages created by employment patterns within metropolitan and multicounty regions. Multicounty regions have become significant in rural areas as a growing number of services have been organized at this level (Kaufman, 1985). Vocational training centers, regional planning offices, regional health services, and community colleges are examples of services provided across larger geographical areas.

As the urban domain provides the basis for local sustenance activities, mutual interests revolve around coordination and development activities. Health, secondary education, and environmental protection are potential areas of common interest existing within the urban domain. However, community action can be problematic as more diverse interest groups become involved in decision making.

Contrasting Types of Community Fields

Suttles and Janowitz (1979) see their three types of urban communities building to develop national linkages in a fourth type of community—national neighborhood lobbies. In a hierarchical sense, each type is an aggregate of a lower form; organizational communities are a composite of social blocs, aggregated metropolitan communities are formed through the confederation of organized communities, and national neighborhood lobbies are formed to support
lower levels of organizations. Each provides a unique specialization of tasks (e.g., housing, anti-poverty, civil rights) and each develops links through its specialization with higher levels in the hierarchy.

The three levels of community fields defined as settlement field, endogenous region, and urban domain are more holistic in serving the needs of its residents. Implicit within the multiple fields is a hierarchy of increasing geographic size and capacity of an ecological area to satisfy the needs of residents. Unlike Suttles and Janowitz's conceptualization of multiple levels of community, sequential existence is not always a prerequisite. The relative strength of each level of community exists independent of lower levels. As an example, a strong urban domain may exist even in the absence of endogenous regions.

Consistent with Wilkinson (1986) is the notion that communities should be studied from their core. As an example, one can study the "core" of each of the three fields beginning at rural settlement field site. An investigation may also begin at the "core" of the endogenous region to assess what patterns of linkages and organizations exist between settlements within the region and with urban centers. Finally, one may begin with the "core" of the urban domain, to investigate what patterns of interaction exist between an urban center and its rural hinterland. In each case, a core of institutions and leaders must be identified through which purposive community action can take place.

Examining each of the three fields from the conventional perspective would lead to a variety of study topics. How is the social referent of the settlement community affected as endogenous regions become more prominent within patterns of local interaction? How are time and space relations related to urban domain formation and endogenous region formation? Does a dominant urban
domain weaken community action at the settlement field level? What are the linkages among the leadership structures of the three levels?

From the framework of the three spheres of community, patterns of interaction and community organization can be studied without the constraints of a vertical-horizontal dichotomy. The existence of the relatively closed system of the autonomous settlement field is contained within this framework. While community remains spatially based, proximity becomes an ordinal level variable of increasing areal size that rises through three tiers with the potential for community action existing on all three levels.

A note of caution is warranted when studying the three fields of community: the territorial hierarchy does not imply fields that can simply be aggregated. It is not appropriate to utilize smaller units as a control for actions occurring at larger community levels in the fashion of an quasi-experimental design (see Cook and Campbell, 1979). While multilevel studies are possible, each level must be treated as a separate unit of analysis. An analogy would be the analysis of individuals and organizations. Each may be studied in their own right, but inferences drawn from aggregated data and applied to individuals often lead to false interpretation or an exaggeration of apparent relationships (Robinson, 1950; Abrahamson, 1983). Similarly, mixing the levels of community through aggregation makes interpretation problematic.

Arbitrary aggregation action of settlement fields as a control on the effects of endogenous regions also violates the principles of community emergence and voluntary association. Such a comparison would use the concept of community as a treatment and ignore the configuration of community organization. Communities emerge in a local ecology with institutions and organizations through which action
takes place. An arbitrary aggregation of a population cannot be assumed to represent a community. The capacity through which the potential for collective action must be empirically demonstrated.

The focus of this research is on the endogenous region. Considerable research has focused on the independent community existing as a discernable field and on the effects of urban centers on their rural hinterlands. Much less research has been done on the endogenous region of communities.

Hypotheses

Endogenous regionalism is viewed as an adaptation by subdominant settlements to a changing local ecology. From the human ecological perspective, the greater size, diversity, and the relative position of dominance the individual units bring to bear upon collaborative multisettlement action, the more likely the collaboration will impact the local ecology. Benefits will be minimal unless the collaboration generates an adequate population size for greater diversity and a less subdominant position in its areal ecology.

Defining the endogenous region as a community field, a number of hypotheses are possible. Organizationally, the formal structure of community development associations are a convenient starting place to study local activities and interactions (Wilkinson, 1970a). Community development from a field theory perspective involves a network of institutions and organizations in a broad spectrum of activities to meet the interests of the local population (Wilkinson, 1989; Kaufman, 1959). Indications of community are found through community action or response. Endogenous regions are expected where there is organized, collective,
and purposive action involving large numbers of organizations and individuals. However, to differentiate the endogenous region from the settlement field, patterns of community organization and interaction must (1) involve multiple settlement fields, and (2) that voluntary purposive action is taken in an attempt to create impacts greater than the impact of individual settlement fields expected when acting independently.

Local organizations, including community development organizations, may be distinguished on the basis of size, structure, and function (Garkovich, 1989). Organizational size can be represented by the number of members involved (Garkovich, 1989) or the amount of expendable funds under its control (Galaskiewicz, 1979). Structure may include such variables as hierarchy of authority, length of existence, and degree of formalization. Function relates to goal orientation, including goal time horizons, degree of emphasis on locality, and number of goals the organization is attempting to achieve. Garkovich (1989) does not indicate an interrelationship between the three variables.

A Model of Endogenous Regionalism

By combining field theory with human ecology, endogenous regionalism is seen as an adaptation to a changing local ecology. Utilizing Garkovich's (1989) characteristics of community organizations as indicators of organizational development, specific relationships between the local ecology and the development of endogenous regions are suggested. Duncan's (1959, 1961) POET framework synthesizes the ecological context of endogenous regionalism.

The local population (P), environment (E) and technology (T) are treated as measures of the aggregated ecology (Figure 2). They represent collectively what
the individual settlement fields bring to the emerging linkages and collaborative arrangements. This in turn leads to the reorganization (O) of the community field.

Organization is represented by the size, structure and function of existing multicommunity development organizations. It is posited that population, environment and technology could directly effect the size, structure and function of a community organization operating within the endogenous field. A net output from the endogenous (community) field that is greater than the population, environment, and technology of the aggregate settlements is also indicated in Figure 2.

The size, structure and function of the community organization create a net result toward community adaptation through collective output. Thus, the process of aggregating multiple settlements is seen leading to organizational formation which in turn should lead to an output that allows the region to better adapt to its environment.

The relationships in Figure 2 suggest a number of hypotheses. Consistent with a human ecological perspective, interrelationships between the first set (P E T) of variables (Duncan, 1959) include:

H1: The greater the aggregate diversity in the local technology of an endogenous region, the higher the level of aggregate settlement population maintained (T<-->P).

H2: The greater the level of aggregate settlement population, the more dominant the endogenous region will be in its environment (P<-->E).

H3: The more diverse the aggregate technology of the settlements involved, the more dominant the endogenous region will be in its environment (T<-->E).
Figure 2. The local ecological and organizational characteristics of community organizations operating in endogenous regions
Population, environment, and technology within a local ecology are seen as effecting the characteristics of community organizations within the endogenous region. Obtaining a critical mass is important to obtaining the added benefits of multicommunity collaboration (Baker, 1992). A larger population is expected to support more specialized, formal and larger community organizations (Suttles and Janowitz, 1979). Expected hypotheses of relationships between local ecologies and community organizations at the endogenous regional level include:

H4: The larger the population, the fewer the functions carried out by the endogenous regional organization (P→O1).

H5: The larger the population, the greater the size of the endogenous regional organization (P→O2).

H6: The larger the population, the greater the formality in the structure of the endogenous regional organization (P→O3).

Diversity in technology and dominance within the community's environment have an impact on the how organizations emerge at the endogenous regional level. In general, more diverse technologies and communities in ecologically dominant positions are likely to support larger populations (Bogue, 1961), and larger, more formal, and specialized organization (Hawley, 1986). Dominance relationships and diversity are also effected through the collaboration process itself. Accordingly:

H7: The more dominant the position of the member settlements of the endogenous region, the fewer the functions carried out by the endogenous regional organization (E→O1).

H8: The more dominant the position of the member settlements of the endogenous region, the greater the size of the endogenous regional organization (E→O2).
H9: The more dominant the position of the member settlements of the endogenous region, the more formal the structure of the endogenous regional organization (E-->O₃).

H10: The greater the diversity in local technology, the fewer the functions carried out by the endogenous regional organization (T-->O₁).

H11: The greater the diversity in local technology, the larger the endogenous regional organization (T-->O₂).

H12: The greater the diversity in local technology, the more formal the structure of the endogenous regional organization (T-->O₃).

In examining outputs generated by organizations operating within endogenous regions, larger populations are expected to enhance the capacities of communities for collective action by making more resources locally available (Hawley, 1986). A lack of diversity in a local technology may hinder a population's ability to adapt. As an example, Frisbie and Poston (1975) found the tendency of rural populations dependent upon agriculture to lose population. A high level of subdomination of a community would be reflected in a lessening of the community's ability to control information and materials (Duncan, 1964).

In treating the endogenous region as a community, the ability to produce any output (Y) through collective action would be tempered by its local ecology. Accordingly:

H13: The larger the aggregate population, the greater the output of an endogenous region (P-->Y).

H14: The more dominant the aggregate position of the member settlements of the endogenous region, the greater the output of an endogenous region (E-->Y).

H15: The more diversified the aggregate technology, the greater the output of an endogenous region (T-->Y).
Available resources are enhanced as the population is increased through the formation of the endogenous region. There is a greater likelihood of technological diversity or the development of diversity as multiple units initiate joint action. The influence of the environment will be further inhibited as resources from multiple communities are applied to regional community maintenance. However, it is the development of organizations across the endogenous region that causes output to exceed simple settlement aggregation. Therefore, Figure 2 indicates the output generated from the community organization operating at the endogenous regional level differs from what simple aggregation of settlements would infer. Consistent with Kaufman (1959) and Wilkinson (1970), the fewer activities of a community organization are seen as being associated with a lower level of community development. Therefore, fewer functions are seen as lowering overall output of a community organization. Stated in terms of hypotheses:

H16: The more functions conducted by a regional community organization, the greater its output \( (O_1 \rightarrow Y) \).

H17: The larger the regional community organization, the greater its output \( (O_2 \rightarrow Y) \).

H18: The more formal the structure of the regional community organization, the greater its output \( (O_3 \rightarrow Y) \).

**The Model's Application of Theory**

Human ecology provides a theoretical backdrop for explaining endogenous regionalism. Community field theory allows for the study of community in a dynamic and emergent form. This makes the theory conducive to the study of emerging endogenous regions. Yet, community field theory often emphasizes
methods that delineate unique communities rather than establishing overlapping community fields of collaboration and interdependency.

Integrating the two theories allows for the analysis of the context in which multicommunity collaboration takes place, and a study of the processes and structures through which it emerges. Based on collaboration in a multicommunity field, a framework of three spheres of community is suggested. While each sphere expands the territorial area in which community is found, no sequence of emergence is implied. Each level may exist with variable strength at any given level. The presence of community is measured by utilizing the conventional definition of having (1) a distinct local ecology, (2) holistic organizations and institutions that meet most of the basic needs of its residents, and (3) a field of collective local action.

By concentrating on organizations that facilitate community action on a multisettlement basis, the community field at the endogenous regional level is demonstrated. Controlling for the population, environment, and technology, the effect of organizations involved in community action are used to demonstrate how the endogenous region impacts its locality beyond the mere aggregation of settlement fields.
DATA COLLECTION AND CLASSIFICATION

Iowa's Multicommunity Development Organizations (MDOs) are representative of endogenous regional organizations. These organizations involve two or more rural settlement fields in a joint effort toward economic and community development. As rural development organizations, MDOs frequently deal in a wide variety of activities (Fogarty, 1990). Other than their territorial areas covered, MDOs are typical development associations as described by Wilkinson (1970), or local community organizations as defined by Garkovich (1989).

MDOs are organized on a collaborative basis and an interdependence of decision making among member communities. From a community field perspective, organizations developing linkages between structurally disconnected interest fields are presumed to increase the capacity of a community to mobilize (Anderson, 1984). MDOs are usually small enough so that size alone does not inhibit local settlement community leaders from active participation. The examination of MDOs provides a foundation for defining community fields in a multisettlement arena.

A local ecology can be determined by the territory covered by MDOs. Furthermore, their scope of activities and local interests represented provide indications of how holistic organizations and institutions are in serving the basic needs of area residents on a multisettlement basis. Finally, measures of inputs (e.g. volunteers, budget, paid staff) and outputs (jobs created, extra-local organizations contacted, local groups coordinated) provide an indication of the level of activity at the endogenous region.
Identifying MDOs

A census of Iowa's multicommunity development organizations was conducted by the Department of Sociology at Iowa State University. This research was supported by the Iowa State University Agricultural and Home Economics Experiment Station, the Iowa State University Extension Service and the Iowa Department of Economic Development. A two-stage process incorporating Freeman's techniques (1968, and Freeman et al., 1970) for studying leadership in Syracuse, and Beaulieu and Ryan's (1984) study of rural Indiana communities, was used in collecting these data. The first stage involved compiling and verifying a list of all rural endogenous economic and/or community development organizations existing in Iowa and a contact, or knowledgeable, from each organization. The second stage involved interviewing these contacts as to the history, organization and operation of the organization.

Initial Identification

An initial list of MDOs was compiled in Iowa in June, 1990. This list combined the December 1989 list of county-wide economic development groups of the Iowa Department of Economic Development (IDED) and the list of member organizations participating in the multicommunity economic development network supported in part by the Iowa State University Extension Service (ISUE). Forty-seven MDOs were identified. To update the list, field staff of the Iowa Department of Development and staff in the Community Progress Division reviewed it and added new organizations not mentioned. Five additional inter-community organizations were added to the June 1990 list. Upon completion of this review,
the MDOs were separated into lists for each substate region of ISUE, the Regional Economic Development Districts (RED), and Council of Governments or Regional Planning Districts (COGS). The staff from these regional offices are knowledgeable about emerging economic development organizations as each office actively works in different aspects and roles of community economic development.

The total number of ISUE, RED, and COG substate offices existing in Iowa total 38. Each office was sent a letter containing the names and addresses of MDOs located within their respective jurisdiction. Substate regions having no MDOs were not sent letters. However, complete coverage of the state was achieved as all counties were included within at least one jurisdiction of the responding substate agencies. The person contacted at each office was listed as being responsible for their agency's economic development efforts.

The letter was followed by a phone call to each agency to determine the accuracy of the list. Knowledgeables from regional offices were asked to verify the existence of the listed MDOs within their respective areas, and to add any economic and/or community development organizations with the following characteristics:

1. More than one rural community is involved in the organization's activities and benefits.
2. The organization covers a small geographic area, usually the size of one county or smaller.
3. The organization is involved in a number of economic and/or community development issues, not just a single issue (e.g., water, electricity, transportation, tourism promotion, etc.).
The organization is usually initiated through the efforts of local private leaders or governments rather than mandated through state or federal authority.

A number of changes were made in the list. Forty additional MDOs were identified. Thus, a total of 92 MDOs were identified by the state and substate rural development knowledgeable.

Only one knowledgeable was contacted in cases where a substate agency played both the RED and the COG role. If there was any question as to the suitability of the proposed case additions as proposed by the substate knowledgeable, they were included in the updated list.

Further Defining the Population

The second stage was completed by conducting a telephone survey of MDO contact persons. The 92 individuals identified as MDO contact persons were interviewed from February through June of 1991. Four broad categories of questions were included: (1) how and why the MDO first started, (2) how it is presently organized and financed, (3) what other organizations does the MDO work with, and (4) what types of activities does the MDO perform? If the respondent was unable to answer specific questions, they were asked to suggest another knowledgeable source. (The interview schedule is included in Appendix A.)

Interviews were completed for all 92 MDOs. From the interviews, a number of MDOs were found to be missing one or more of the four characteristics through which they were originally identified. Confusion as to whether development organizations represented a single or multiple communities was particularly apparent. For example, "Iowatown Area Economic Development Association"
may operate solely in Lowatown or include formal membership from other cities; or organizations that appear by name to the "county economic development organization" might operate with the support of all communities in the county, some communities in the county, or just one community in the county.

Based on the results of the telephone interviews, nine of the 92 MDOs were found to contain only one community; two others contained only urban communities; one was no longer in operation; one was a subsidiary of another MDO; one was a duplicate under two organizational names' and one covered a large geographic area extending over at least four counties. Subtracting these 15 left 77 rural MDOs operating in Iowa.

The study of the emergence of any organization is problematic if there is no clear demarcation of when the organization actually begins. A number of the 77 MDOs had not legally organized and/or had no intention of doing so in the near future. They represented loose associations that crossed community lines with little power to act as legal entities (e.g., enter into agreements, accept grants, or possess assets); in some cases, there was no governing body. Accordingly, those with no legal standing or having no intent to become legal organizations within the next twelve months were deleted. This left 69 formal MDOs for further study.

The MDOs identified are well dispersed throughout the state (Figure 3). There is no quadrant of the state without at least ten MDOs. Some settlement communities are represented in more than one organization, suggesting a diffuse patterning of endogenous organizations. The areas highlighted on the map lack the uniformity found in the grids outlining the county jurisdictional lines. Lack of
uniformity also is indicative of the voluntary nature of the associations. Universal participation within county based organizations was rare. In many cases, MDOs were formed in a fashion that crossed county lines.
Interviewing MDO Knowledgeables

During summer 1991, the data on Iowa's MDOs was compiled and tabulated. The MDO contacts were then asked to verify their answers to the telephone interview. A form with a summary of their responses was mailed to each respondent with a self-addressed return envelope. (The verification form is contained in Appendix C.) The MDO contacts were then asked to respond and indicate any omissions, additions, or corrections. All but three of the 69 respondents verified their information by mail. The frequencies of the verified responses may be found in Appendix A.

MDO Classification

The lack of prior classification makes a descriptive analysis difficult when dealing with emerging entities such as MDOs. An objective method of classification is necessary to provide a basis for further analysis.

Cluster analysis has been defined as the "art of finding groups in data," (Kaufman and Rousseeuw, 1990:1). It attempts to classify a set of objects into groups based upon similarity or dissimilarity (Jain and Dubes, 1988). Anderberg (1973) sees cluster analysis as a device for suggesting hypotheses where clusters are not thought of as a finished result, but as a means of viewing a set of data with different but meaningful classifications.

A Method of Classification

Cluster analysis is most useful when classification of data is unknown and prior assignment is impossible. Methods have been developed over the last thirty
years with advent of a variety of mathematical algorithms and computer programs (Jain and Dubes, 1988). Data simplification and prediction are listed by Gordon (1981) as the two primary purposes of cluster analysis. Large volumes of complex data are ordered into groups of objects enabling a summarizing and simplification of the data. Cluster analysis is often viewed as an exploratory or descriptive analysis of multivariate data (Gordon, 1981; Kaufman and Rousseeuw, 1990).

The absence of prior classification distinguishes cluster analysis from discriminant analysis (Jain and Dubes, 1988). Factor analysis is often used for reducing data to more manageable levels (Anderberg, 1973) but most forms of factor analysis classify variables rather than individuals or objects (Gorsuch, 1983). While Q factor analysis can assist in classification of objects, sizable factor loadings on more than one factor often confuses interpretation (Everitt, 1977).

Two major forms of cluster analysis methods have evolved: hierarchical and partitioning or non-hierarchical (Kaufman and Rousseeuw, 1990; Jain and Dubes, 1988; Anderberg, 1973). The hierarchical technique is used to find the most efficient step at each stage in a progressive subdivision or synthesis of a population (Everitt, 1977). Hierarchical methods ultimately reduce the data to a single cluster containing all objects. A hierarchical representation is the most commonly used summary of structure that allows a portrayal of data at different levels simultaneously (Gordon, 1981).

The second form is frequently referred to as partitioning. Unlike the hierarchical form where levels of structure are of interest, partitioning methods are used to determine the best classification of objects into a predetermined number of groups. According to Kaufman and Rousseeuw (1990:38):
A partitioning method constructs \( k \) clusters. That is, it classifies the data into \( k \) groups, which together satisfy the requirements of a partition: 1) each group must contain at least one object, and 2) each object must belong to exactly one group. These conditions imply that there are at most as many groups as there are objects:

\[
k \leq n
\]

The second condition says that two different clusters cannot have any objects in common and that the \( k \) groups add up to the full data set. It is important to note that \( k \) is given by the user. Indeed the algorithm will construct a partition with as many clusters as desired. Of course, not all values of \( k \) lead to "natural" clusterings, so it is advisable to run the algorithm several times with different values of \( k \) and select that \( k \) for which certain characteristics or graphics look best, or to retain the clustering that appears to give rise to the most meaningful interpretation.

Kaufman and Rousseeuw (1990) go on to state that the algorithm of partitioning method attempts to find a "good" partition where objects of the same cluster should be close or related to each other, and objects of different clusters should be far apart. Jain and Dubes (1988) find the most commonly used partitional strategy is based on the the square-error criterion. Methods using the square-error strategy attempt to obtain partitions that minimize the square-error for the predetermined fixed number of partitions. The centroids (mean vector or center) of each cluster is viewed as a prototype around which the square-error is calculated.

The Nearest-Centroid Method

A nearest centroid method of cluster analysis was used to partition the multicommunity development organizations into three categories for further study. Multicommunity development organizations were classified to determine types of organizations that could be used for comparative analysis. Identifying types of
MDOs provides a framework of classification from which the data may be analyzed.

Unlike the model of hierarchical communities posed by Suttles and Janowitz (1979), the three spheres of community posed in this research need not necessarily be constructed sequentially upon one another. No hierarchical formation is suggested. Furthermore, since the purpose of using the cluster analysis was to obtain a limited number of clusters for comparative purposes, the partitional nearest centroid method of cluster analysis was chosen in preference to hierarchical methods.

Partitioning Three Types of MDOs

Consistent with Kaufman and Rousseeuw (1990) and Manly (1986), a range of values of \( k \) were used to identify the best clustering pattern based on ease of interpretation. The number of clusters partitioned was set at a range of three to five.

To classify the MDOs, references were used to a series of sixteen questions (Appendix A) on activities in which their respective MDOs were involved in. Each knowledgeable was asked to indicate whether the MDO had been involved in each activity during the past two years. Activities were selected to measure a broad scope of interests and activities possible in a community field (Kaufman, 1985 and 1959). Respondents were requested to answer "yes" or "no" to organizational involvement in each activity. Dichotomous nominal variables were used to meet data level assumptions for cluster analysis.

A cluster analysis was completed utilizing the nearest centroid method (Anderberg, 1973) with \( k \) equal to five. One of the five clusters contained 45 of the
69 MDOs. The remaining four categories contained from four to eight MDOs. This distribution of cases made interpretation problematic.

A second cluster analysis was performed using the same methods of classification with a \( k \) equal to four. While the distribution of MDOs was improved with two categories containing 38 and 17 MDOs respectively, the remaining two categories contained only seven MDOs each.

A third cluster analysis utilizing the nearest centroid method was completed with a \( k \) equal to three. The three categories contained 32, 17 and 20 MDOs respectively. With the distribution of the 69 MDOs more evenly dispersed, each category became more readily interpreted and analyzed.

Comparing Cluster Categories

Community and economic development activities may or may not take place as an integrated process. While economic development can contribute to community development by providing a sustenance base, efforts void of broad local involvement can lead to inequitable returns (Molotch, 1976; Wilkinson, 1989). Furthermore, broad-based representation has a positive effect of allowing rural communities to better sustain economic development efforts over a longer period of time (Ryan, 1988).

There is a great diversity as to what type of activities should be defined as economic development (Ryan, 1988). Accordingly, two broad categories of activities were included in the interviews. One type relates to direct economic development efforts (e.g., industrial recruitment, starting new businesses, local tourism, and industrial retention activities), while the second type relates to
secondary community improvement activities (e.g., local education, recreation, leadership development programs, day care, and housing). While direct economic development may lead to individual and possibly community benefits, the positive benefits of secondary community improvements tend to be distributed more equally across the community. It is unlikely that any singular activity will lead a community to economic growth or maintenance, but the combination of multiple strategies should benefit the local area (Wade and Pulver, 1991; John et al., 1988).

Pulver (1979) offers an activity framework of five community economic development strategies that demonstrates how a variety of community activities can be utilized to promote economic vitality. No single strategy, according to Shaffer (1989), is capable of creating jobs and income over a period of time.

The first strategy is to attract new basic employers. This strategy tends to fit the classic industrial recruitment activity, but also may include activities that are used to develop a site for employer location. The strategy includes all activities designed to relocate jobs from extra-local sites.

The second strategy, improving efficiency of existing firms, is designed to make existing businesses more competitive. More competitive firms are in a better position to add jobs and income to the community. Technology transfer programs, and retention and expansion of local businesses programs are two examples of activities that incorporate the strategy of improving the efficiency of existing firms.

Improving the ability of the community to capture dollars is the third strategy. Even in rural locations where an industrial or agricultural economic foundation exists, the money earned is often spent elsewhere. The capturing local dollars strategy includes activities to minimize the leakage of dollars from the area. This
includes activities related to the promotion of tourism, retail promotion, buy local campaigns, and downtown improvement programs.

The fourth strategy, encouraging new business formation, pertains to all activities that promote the creation of new businesses within the locale. Investment programs, market analyses, and entrepreneurial counseling programs are examples of activities related to this strategy.

Increasing aids and transfers received is the fifth strategy. This group of activities concentrates upon bringing in dollars to the local community from broader units of governments. This would include educational programs to maximize legitimate transfers of payments to individuals and applications for grants for public infrastructure projects.

The Three Patterns of MDO Activities

The cluster analysis of the MDOs activities revealed a pattern that was consistent with Pulver (1979) and Shaffer's (1989) five strategies. The first cluster category contained 32 MDOs that tended to be active in virtually all areas (Table 1).

A plurality of the MDOs were selected into this category (N=32). The MDOs in this first category were not only active in such traditional economic development activities as industrial recruitment and starting new businesses, but active as well in more community and social development areas such as local health care and parks or recreation. Thus, this category or cluster of MDOs was titled "holistic" as they tended to address a wide variety of community interests and issues.

The second cluster of MDOs was classified as an "efficiency" category. As in the case of the MDOs classified as "holistic," these organizations tended to be
Table 1. Mean responses to activities by cluster

<table>
<thead>
<tr>
<th>TITLE</th>
<th>Holistic Clustering N = 32</th>
<th>Efficiency Clustering N = 17</th>
<th>Capture $ Clustering N = 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Recruitment</td>
<td>1.0313</td>
<td>1.2353</td>
<td>1.1500</td>
</tr>
<tr>
<td>New Business Start Up</td>
<td>1.0000</td>
<td>1.2353</td>
<td>1.1500</td>
</tr>
<tr>
<td>Expand Existing Industry</td>
<td>1.0625</td>
<td>1.1176</td>
<td>1.3500</td>
</tr>
<tr>
<td>Retain Existing Industry</td>
<td>1.0625</td>
<td>1.1176</td>
<td>1.3000</td>
</tr>
<tr>
<td>Local Rental Housing</td>
<td>1.5313</td>
<td>1.8235</td>
<td>1.9000</td>
</tr>
<tr>
<td>Housing to Own</td>
<td>1.6250</td>
<td>1.7647</td>
<td>2.0000</td>
</tr>
<tr>
<td>Local Health Care</td>
<td>1.2000</td>
<td>1.6905</td>
<td>1.8462</td>
</tr>
<tr>
<td>Local Tourism</td>
<td>1.0313</td>
<td>1.5882</td>
<td>1.0000</td>
</tr>
<tr>
<td>Local Retail</td>
<td>1.0938</td>
<td>1.8824</td>
<td>1.3000</td>
</tr>
<tr>
<td>Env. Protection or Recycling</td>
<td>1.2500</td>
<td>1.8235</td>
<td>1.4000</td>
</tr>
<tr>
<td>Parks or Recreation</td>
<td>1.1875</td>
<td>1.8824</td>
<td>1.6500</td>
</tr>
<tr>
<td>Grant Writing (for Local Organizations)</td>
<td>1.1875</td>
<td>1.7059</td>
<td>1.3000</td>
</tr>
<tr>
<td>Public Events</td>
<td>1.1250</td>
<td>1.9412</td>
<td>1.3500</td>
</tr>
<tr>
<td>Child Care Services</td>
<td>1.4375</td>
<td>1.9412</td>
<td>1.9500</td>
</tr>
<tr>
<td>Local Education Issues</td>
<td>1.2813</td>
<td>1.5882</td>
<td>1.9000</td>
</tr>
<tr>
<td>Leadership</td>
<td>1.0938</td>
<td>1.4118</td>
<td>1.3000</td>
</tr>
</tbody>
</table>

¹ Activity responses were scaled: 1 = yes, 2 = no
active in such economic development areas as industrial recruitment and starting new businesses. However, distinguishing this category from the first cluster was their tendency not to address broader community issues such as housing, health, parks, or education. A strong focus is given to expanding and retaining existing industry.

The third category was defined as "capturing local dollars." These MDOs were less likely to be involved in community development activities when compared with the holistic MDOs. They tend to focus more upon such activities as tourism development and local retail development when compared to the "improving efficiency" category. Thus, the name of capturing local dollars was applied to this third cluster category.

The Euclidean Distance of MDO Types

The 69 MDOs were classified using cluster analysis into three categories based upon their activities. A Euclidean distance (d) measure was used to compute the distance between the pairs of the final cluster centers. Euclidean distance measures the distance between each pair of centers (i and j). It is frequently used to measure the separation of clusters (Kaufman and Rousseeuw, 1990):

\[ d(i,j) = \sqrt{(x_{i1} - x_{j1})^2 + (x_{i2} - x_{j2})^2 + \ldots + (x_{ip} - x_{jp})^2} \]

The results of the Euclidean distance measuring each pair of centroids appear in Table 2. Clusters #1 and #2 are less similar than any other pair of clusters. However, it should be noted that the pattern of distances between each
pair does not indicate a high degree of similarity between any two clusters. Slight similarity between the efficiency (cluster #2) and the capture local dollars (cluster #3) categories can be seen among the means in Table 1. The holistic cluster (cluster #1) of MDOs is more dissimilar to the other clusters as higher levels of activity are indicated on virtually every item.

Table 2. Euclidean distances between final cluster centers

<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.8620</td>
<td>.0000</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.3390</td>
<td>1.3203</td>
<td>.0000</td>
</tr>
</tbody>
</table>

MDOs in the efficiency and the capture local dollars categories employ variations of strategies emphasizing economic development through the business sector. While each category is unique in its approach to community economic development, a slight similarity is noted in these nonholistic approaches (Table 2). As capture local dollars MDOs tend to employ a wide variety of activities in business development orientation (e.g., retail and tourism) their distinctiveness to holistic MDOs is somewhat less than the narrowly focused efficiency MDOs.
An Analysis of Variance of MDO Types

A one-way analysis of variance was computed to determine the relative strength of each MDO activity variable in constructing the three clusters (Table 3). Since the same variables were used to construct the original set of clusters, F-tests are computed to assess the contribution of each variable to the cluster rather than to test the hypothesis (Norusis, 1986). The large ratios and small significance levels of almost every variable indicate their importance for maximizing the differences among the three clusters. Only the activity areas of industrial recruitment and retaining industry were found to be poor determinants of the MDO categories. These two variables were not significant at the .05 level (Table 3).

Consistent with community field theory, the MDO categorization is based on the activities of MDOs. The MDO classification provides a framework for making further comparisons and determining how inputs and outputs are effected by the strategies of multiple activities indicated.

Operationalizing Ecological Variables

It has been hypothesized that population, environment, and technology effect the development of the MDO's organization, measured by function, size, and structure. Hawley (1968) sees a community's ability to provide for a greater diversity of sustenance functions increasing with size. Communities with larger populations are seen as more able to adapt to change in their local ecology. To measure population, the summation of the populations of all municipalities involved in each MDO is used (1990 U.S. Census). Population outside of the
Table 3. Analysis of variance of activities by cluster

<table>
<thead>
<tr>
<th>Title</th>
<th>Between Cluster MS</th>
<th>Between Cluster DF</th>
<th>Within Cluster MS</th>
<th>Within Cluster DF</th>
<th>F</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ind. Recruitment</td>
<td>.2474</td>
<td>2</td>
<td>.0997</td>
<td>66</td>
<td>2.4829</td>
<td>.091</td>
</tr>
<tr>
<td>New Business</td>
<td>.3405</td>
<td>2</td>
<td>.0850</td>
<td>66</td>
<td>4.0069</td>
<td>.023</td>
</tr>
<tr>
<td>Exp. Existing Ind</td>
<td>.5283</td>
<td>2</td>
<td>.1241</td>
<td>66</td>
<td>4.2578</td>
<td>.018</td>
</tr>
<tr>
<td>Retain Industry</td>
<td>.3555</td>
<td>2</td>
<td>.1188</td>
<td>66</td>
<td>2.9929</td>
<td>.057</td>
</tr>
<tr>
<td>Rental Housing</td>
<td>.9818</td>
<td>2</td>
<td>.1854</td>
<td>66</td>
<td>5.2942</td>
<td>.007</td>
</tr>
<tr>
<td>Housing to Own</td>
<td>.8655</td>
<td>2</td>
<td>.1600</td>
<td>66</td>
<td>5.4101</td>
<td>.007</td>
</tr>
<tr>
<td>Health Care</td>
<td>2.0448</td>
<td>2</td>
<td>.1901</td>
<td>66</td>
<td>10.7549</td>
<td>.000</td>
</tr>
<tr>
<td>Local Tourism</td>
<td>2.0800</td>
<td>2</td>
<td>.0771</td>
<td>66</td>
<td>26.9895</td>
<td>.000</td>
</tr>
<tr>
<td>Local Retail</td>
<td>3.4844</td>
<td>2</td>
<td>.1316</td>
<td>66</td>
<td>26.4834</td>
<td>.000</td>
</tr>
<tr>
<td>Env. Protection</td>
<td>1.8430</td>
<td>2</td>
<td>.2011</td>
<td>66</td>
<td>9.1658</td>
<td>.000</td>
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<tr>
<td>Parks/Recreation</td>
<td>3.0283</td>
<td>2</td>
<td>.1695</td>
<td>66</td>
<td>17.8620</td>
<td>.000</td>
</tr>
<tr>
<td>Grant Writing</td>
<td>1.5239</td>
<td>2</td>
<td>.1910</td>
<td>66</td>
<td>7.9794</td>
<td>.001</td>
</tr>
<tr>
<td>Public Events</td>
<td>3.7218</td>
<td>2</td>
<td>.1362</td>
<td>66</td>
<td>27.3200</td>
<td>.000</td>
</tr>
<tr>
<td>Child Care</td>
<td>2.2184</td>
<td>2</td>
<td>.1480</td>
<td>66</td>
<td>14.9917</td>
<td>.000</td>
</tr>
<tr>
<td>Local Ed. Issues</td>
<td>2.3865</td>
<td>2</td>
<td>.2228</td>
<td>66</td>
<td>4.6181</td>
<td>.000</td>
</tr>
<tr>
<td>Leadership Dev.</td>
<td>.6267</td>
<td>2</td>
<td>.1672</td>
<td>66</td>
<td>3.7480</td>
<td>.029</td>
</tr>
</tbody>
</table>

municipalities is not included as no definitive boundary of the area covered by the MDO could be determined.
To measure environment, a regional pull factor of retail sales is calculated based on 1990 retail sales tax receipts (Iowa Department of Revenue, 1991) and population (1990 U.S. Census). It represents an index of retail trade pulling power which is used as a proxy for the size of the trade area (Deller et al., 1992). The pull factor is a sensitive indicator of the competitive status of a community compared to other communities in a given area. Changes in retail sales have been used as a measure of environmental influence on how local communities function as a central place (Mark and Schwirian, 1967). A pull factor of less than 1.00 indicates a net market leakage to other retail centers outside of the community. A weighted modification of the formula devised by Stone and McConnon (1980, 1984) is used:

$$PF_e = \frac{\sum_i (AS_i/POP_i)(POP_i/POP_e)}{AS_s/POP_s}$$

where $PF_e$ represents the pull factor of the endogenous region as represented by the MDO, $AS_i$ denotes actual total retail sales of community $i$th within the region, $POP_i$ denotes the population of the $i$th community, $POP_e$ denotes total population of the endogenous region (here measured as the sum of the population of the settlement communities), $AS_s$ represents the actual total sales in the state of Iowa, and $POP_s$ is the total population in the state of Iowa. $PF_e$ provides a regional pull factor that is weighted by the populations of the communities involved. Thus, within the same endogenous region, a city of 20,000 population with a strong pull factor will have more affect on the $PF_e$ than a village of 200 with a relatively weak pull factor.

To measure the technology of an endogenous region, an agricultural dependency ratio for the county was used. Using income data from the U.S.
Bureau of Economic Analysis (BEA) for 1989, agricultural income was divided by total income. With an agricultural dependency ratio derived from BEA data (1975-1979), Brown and Deavers (1988) show how many of Iowa's counties tend to have an economic dependency upon agriculture.

Nationally, these counties tend to have twice the income dependency upon agriculture as other nonmetropolitan counties (Brown and Deavers, 1988). The farm crisis of the 1980s may have also had profound effects on both total incomes and farm incomes in given counties. Updating the data to 1989 provides a better picture of the continued dependency for sustenance on agricultural technologies within each given county.

As noted in Figure 2, however, all MDOs do not fit within a county jurisdiction. Where the MDO was contained within a county jurisdiction, the county agricultural dependency ratio was used. In cases where MDOs crossed county lines a weighted average was used as follows:

\[ AD_e = \sum_i (AD_i \ast (POP_i/POP_e)) \]

where \( AD_e \) is the agricultural dependency ratio for the endogenous region as defined by the MDO, \( AD_i \) is the agricultural dependency ratio within the county \( i \)th settlement community is located, and \( POP_i/POP_e \) represents the percentage of the total population of the endogenous region located within the \( i \)th settlement community.

The use of the total population, the retail pull factor and the agricultural dependent ratio should provide at the very least a cursory assessment of the population (P), environment (E) and technology (T) effecting each respective
endogenous region. These three indices of Duncan's (1961) framework provide measures of what has been aggregated as multiple settlements collaborate to form MDOs. As Baker (1992) points out, a major rationale for multicommunity collaboration is to obtain the critical mass needed for community action.

**Operationalizing Organization**

To measure Garkovich's (1989) three characteristics of community organizations (size, structure and function), the following measures of organization (O) are developed. Size is measured by the annual budget of each MDO. Information on budgets was obtained during the interview with the organization's contact. As Galaskiewicz (1979:63) posits, "The greater the amount of expendable funds organizations control in the local community, the more central they will be in community interorganizational networks of money, information, and support." As a major purpose of most MDOs is to coordinate development activities across communities, budgets provide an excellent measure of organizational size.

Structure is measured by the number of full time employees supported by the MDO. Development activities in rural communities often are restricted by the limited number of paid professional staff (Ryan, 1988; Lapping et al., 1989). One reason for multicommunity collaboration is to gain the critical mass needed to support paid staff. The number of full time paid staff is an important measure of MDO structure.

Function is measured by the classifications of MDOs derived through the cluster analysis. Holistic MDOs are involved in virtually all the development activities listed, the efficiency and capture local dollars MDOs tend to be more
focused in their strategies. Holistic MDOs tend to be involved in the more nontraditional indirect activities focusing on broad based issues, while nonholistic MDOs tend to focus on different direct strategies of economic development. Where dichotomous nominal data are called for to meet statistical assumptions, the three types will be collapsed into two categories: holistic and nonholistic. The holistic/ nonholistic dichotomy will still give a measure of the comprehensiveness of the community based activities of the MDO and thus a measure of function.
Cluster analysis is used to categorize the 69 MDOs since previous classification is unknown, making prior classification of MDOs impossible. Classification allows for a comparative analysis of variations of MDOs as they have emerged. Consistent with community field theory, categorization is based on the actions of the organizations rather than systemic or structural characteristics. The clustering of MDOs provides a framework for further comparisons and analysis of how inputs and outputs are affected by the MDO's activities.

A critical need for comparative studies of rural communities continues to exist (Goudy and Ryan, 1982). Most studies have been completed utilizing a case study approach. A comparison of MDOs by cluster categories provides further information on MDOs as an indication of emerging multisettlement communities. Thus, by comparing the variations among MDOs as clustered in three classifications, a clearer descriptive picture of Iowa's MDOs emerges.

A Descriptive Comparison of Multicommunity Development Organizations

Questions were asked of respondents on (1) why the MDO was initiated, (2) how it is structured, (3) what organizations outside of the endogenous region does it have contact with, and (4) with what local organizations does the MDO coordinate its activities. The ecological variables were compiled based on information provided by the respondents, and secondary data to calculate regional retail pull factors and the regional population.
Since the data being used represent the population of MDOs in Iowa, inference or generalization to larger population is not possible. Tests of significance, however, are utilized to determine whether covariation among variables is large enough to be considered systematic (Winch and Campbell, 1969). On any given measure, significance levels are used to test the homogeneity of the population between subsets.

Two statistics are used for comparisons of the three types of MDOs. For interval level data, one-way analysis of variance is used to determine if there are differences among MDOs as clustered by their activities. An F test is used to determine whether the magnitude of the variance between the three clusters exceeds the variance within the clusters. Significance is determined at the .05 level (p < .05).

Data compiled at the ordinal level are compared using of the Kruskal-Wallis test. This test compares mean ridits for multiple groups. A ridit score for a response category equals the proportion of the observations below the category plus half the proportion in that category (Agresti and Finlay, 1986). A mean ridit score (r) is calculated for m groups (i = 1,...,m). Thus, a rank is provided for each observation. The sum of squares (Σni(r_i - r_m)) is weighted by the sample size upon which it is based. Differences among mean group ranks are then tested with the following formula (Agresti and Finlay, 1986):

\[ W = \frac{12N}{(N+1)T} \sum \sigma_i (r_i - r_m) \]
A correction factor \( T \) is applied for ties in ranking, where \( t_i \) is the number of observations tied at the \( i \)th level of the variable. The complete correction formula reads as follows (Agresti and Finlay, 1986):

\[
T = \frac{1 - \sum (t_i^3 - t_i)}{N^3 - N}
\]

In most cases of a the Kruskal-Wallis test, a chi-square distribution with a degrees of freedom of \( m-1 \) is used as an approximation for the sampling distribution of \( W \).

**Reasons Given For Emergence**

Respondents were presented with nine possible reasons for the formation of an MDO (Appendix A). Each was asked to indicate whether the reason cited "discouraged," "encouraged," or had "no effect" on the emergence of the MDO they represented. Responses were coded from one to three with discouraged represented by a one and encouraged represented by a three.

Little variance is known between MDOs in the reasons cited for organization formation. A number of factors encouraging their formation tended to be cited by most of the respondents. Consistent with human ecological perspective, a high number of respondents indicated that the state of the economy (88%), local population decline (78%) and competition from other counties (65%) encouraged the formation of the MDO. The need to meet a critical mass of financial resources was indicated by 87 percent of the respondents. The need for a critical mass of human resources also was apparent as 57 percent cited local leadership as a concern leading to the formation of the MDO. Factors that might have inhibited collaboration among settlements (e.g. local main street competition,
ethnic background, and sports rivalries) were cited by over 80% of the respondents as having no effect on multisettlement cooperation. Over three fourths (78%) indicated that past school consolidation had no effect on the degree of cooperation between communities in the MDO area.

Kruskal-Wallis one way analysis of variance was used to assess differences between MDOs using the three classifications (Table 4). Higher means indicate a tendency for the reason given to encourage community cooperation and therefore MDO development. Little variance is shown between MDOs in the reasons cited for organization formation.

In summary, Iowa's MDOs were founded as a response to a changing local ecology. Population decline, increased competition, limited local resources, and the overall state of the economy led to a structuring of collaborative development efforts allowing rural communities a greater potential to adapt. The indication exists that multicommunity collaboration represents a series of conscious decisions by leaders in the communities involved to collectively maintain and improve local sustenance activities and not a subsocial adaptation to external phenomena.

**Organizational Ecology**

An examination of the MDOs organizational ecology was also made using a combination of primary and secondary data. While no truly "average" Iowa MDO exists, a composite profile can be obtained. The average MDO organization involves eight settlement communities with a total population of 14,200.

The average population of a settlement community involved in an MDO is 2,400. However, it should be pointed out that a number of outliers had the effect of
Table 4. A Kruskal-Wallis Test of reasons given for organization formation by MDOs^1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Mean</th>
<th>Holistic</th>
<th>Efficiency</th>
<th>Capture $</th>
<th>Corrected Chi-Square</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports Rivalries</td>
<td>2.2</td>
<td>2.3</td>
<td>2.2</td>
<td>2.1</td>
<td>1.259</td>
<td>.533</td>
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<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
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<tr>
<td>Competition Between Main Streets</td>
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<td>2.1</td>
<td>2.0</td>
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<td>.808</td>
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<td>(16)</td>
<td>(20)</td>
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<td></td>
</tr>
<tr>
<td>State of Economy</td>
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<td>1.1</td>
<td>1.3</td>
<td>1.1</td>
<td>3.702</td>
<td>.157</td>
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<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
<td></td>
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<tr>
<td>Competition from Other Counties</td>
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<td>1.3</td>
<td>1.4</td>
<td>1.4</td>
<td>.209</td>
<td>.901</td>
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<tr>
<td></td>
<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited Resources of Each Community</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
<td>.118</td>
<td>.943</td>
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<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
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<tr>
<td>Need for Local Leadership</td>
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<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>.223</td>
<td>.895</td>
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<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past School Consolidation</td>
<td>1.9</td>
<td>1.8</td>
<td>2.0</td>
<td>2.0</td>
<td>2.094</td>
<td>.351</td>
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<tr>
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<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
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<tr>
<td>Population Decline</td>
<td>1.3</td>
<td>1.2</td>
<td>1.4</td>
<td>1.4</td>
<td>4.035</td>
<td>.133</td>
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<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
<td></td>
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<tr>
<td>Ethnic Background of communities</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
<td>2.0</td>
<td>1.930</td>
<td>.381</td>
</tr>
<tr>
<td></td>
<td>(68)</td>
<td>(32)</td>
<td>(16)</td>
<td>(20)</td>
<td></td>
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</tr>
</tbody>
</table>

^1 Reason coding scale: 1 = encouraged, 2 = no effect, 3 = discouraged
increasing mean measures of population. Thus, the median population size of the settlement communities involved was 1,213 and the median total MDO population was 8,200.

The mean total retail sales of the communities involved in MDOs during the year 1990 was 119.8 million dollars with median MDO sales of 45.7 million dollars. The average MDO has a pull factor of 1.0, indicating that collectively the communities involved in an MDO generate sales at rate consistent with their aggregate population. Agricultural dependency, or the amount of agricultural income earned as a percentage of total income, average 18.5 among the MDOs. The one-way analysis of variation indicates no significant variation between the MDO types by the seven ecological variables listed (Table 5).

**Organizational Structure**

Respondents were asked how many people served on committees and how many persons served as volunteers. The response categories for both questions were collapsed and coded as follows: (1) 0 to 20 persons; (2) 21 to 50 persons; and (3) 51 persons and over.

Holistic MDOs tend to have more people involved as volunteers (Table 6). In the context of field theory, this suggests that MDOs working on a broad perspective of issues and activities involve more people than do MDOs that narrowly focus on business development. A significant difference in the number of volunteers was noted between MDOs.

Additional questions on organizational structure asked about the number of full time and part time employees, age of the organization, and annual budget. The MDOs have on average one full time employee. Less than half (48%) have
# Table 5. A one-way analysis of variance of MDO organizational ecology

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Mean</th>
<th>Holistic</th>
<th>Efficiency</th>
<th>Capture $</th>
<th>F- Score</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Settlement Communities in MDO</td>
<td>7.9</td>
<td>8.4</td>
<td>7.0</td>
<td>7.9</td>
<td>.578</td>
<td>.564</td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Dependency (Percentage of Agricultural Income)</td>
<td>18.5</td>
<td>18.4</td>
<td>17.6</td>
<td>19.6</td>
<td>.171</td>
<td>.843</td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Settlement Community Population (in Thousands)</td>
<td>2.4</td>
<td>2.4</td>
<td>3.6</td>
<td>1.3</td>
<td>1.523</td>
<td>.226</td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total MDO Population (in Thousands)</td>
<td>14.2</td>
<td>14.4</td>
<td>20.2</td>
<td>8.9</td>
<td>1.416</td>
<td>.250</td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total MDO Population (Log_{10})</td>
<td>4.0</td>
<td>4.0</td>
<td>4.1</td>
<td>3.9</td>
<td>2.309</td>
<td>.107</td>
</tr>
<tr>
<td>MDO Retail Sales (in Million Dollars)</td>
<td>119.8</td>
<td>127.6</td>
<td>171.8</td>
<td>63.2</td>
<td>1.059</td>
<td>.352</td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
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<tr>
<td>MDO Pull Factor</td>
<td>1.0</td>
<td>1.0</td>
<td>1.1</td>
<td>.9</td>
<td>2.163</td>
<td>.123</td>
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<tr>
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<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
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</table>
Table 6. A Kruskal-Wallis Test of the number of persons involved as volunteers or on committees by MDO

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Mean</th>
<th>Holistic</th>
<th>Efficiency</th>
<th>Capture $</th>
<th>Corrected Chi-Square</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number on Committees</td>
<td>1.5</td>
<td>1.7</td>
<td>1.4</td>
<td>1.3</td>
<td>4.490</td>
<td>.106</td>
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<tr>
<td></td>
<td>(68)</td>
<td>(31)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Volunteers</td>
<td>1.9</td>
<td>2.3</td>
<td>1.5</td>
<td>1.6</td>
<td>7.556</td>
<td>.023</td>
</tr>
<tr>
<td></td>
<td>(69)</td>
<td>(32)</td>
<td>(17)</td>
<td>(20)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Number of persons coding scale: 1 = 0 to 20 persons, 2 = 21 to 50 persons, 3 = 51 persons and over
part time employees. The median budget of the MDO's was $50,000 and their median organizational age was four. Mean responses for budget and age tended to be higher. The only significant difference found among the MDOs is in the area of full time employees. The holistic appear much more likely to have full time employees on staff than other MDOs (Table 7).

Respondents were also asked a series of questions as to the structure of their boards of directors. Virtually all of the MDOs included in the census had governing boards (97%) with a mean board size of slightly less than 14. The efficiency MDOs had larger boards than the other MDOs. The average term for board members was slightly more than two years.

Representation of local organizations on the board of the directors was similar among all of the MDOs (Table 8). Respondents were asked if county government, local utilities, chambers of commerce, community economic development organizations, local banks and other local organizations were represented on their respective boards. A majority of the MDOs had representatives from each of the local organizations listed. The only significant variation among the MDOs was the apparent tendency of holistic and efficiency MDOs to have more representation of local banks on their boards when compared to the capture dollars. Despite the tendency of having greater numbers of board members, the efficiency MDOs demonstrated little additional representation of local organizations as compared to other MDOs.

Organizational Output

Respondents were asked to indicate how many jobs the MDO was involved in creating over the last two years. A second, similar question asked how many
<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Mean</th>
<th>Holistic</th>
<th>Efficiency</th>
<th>Capture $</th>
<th>F- Score</th>
<th>Sign.</th>
</tr>
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<tr>
<td>Full Time Employees</td>
<td>1.0</td>
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<td>.8</td>
<td>.5</td>
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<td>.025</td>
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<tr>
<td>Part Time Employees</td>
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<td>.5</td>
<td>.8</td>
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<td>(32)</td>
<td>(17)</td>
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<tr>
<td>Age of Organization in Years</td>
<td>9.4</td>
<td>11.8</td>
<td>10.8</td>
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<td>1.765</td>
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<tr>
<td>Age of Organization (Log10 Years)</td>
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<td>.7</td>
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<td>.5</td>
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<td>Annual Budget (in Thousand Dollars)</td>
<td>107.5</td>
<td>163.3</td>
<td>73.4</td>
<td>42.4</td>
<td>.963</td>
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<td>Annual Budget (Log10 Dollars)</td>
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<td>Efficiency</td>
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<td>F-Score</td>
<td>Sign.</td>
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<tr>
<td>Number on Board</td>
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<td>13.5</td>
<td>16.2</td>
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<td>Board Member Term Length</td>
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<td>County Represented</td>
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<td>1.2</td>
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<td>Local Utility Represented</td>
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<td>Chamber of Commerce Represented</td>
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<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>0.121</td>
<td>.886</td>
</tr>
<tr>
<td></td>
<td>(66)</td>
<td>(31)</td>
<td>(16)</td>
<td>(19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Economic Development Organizations</td>
<td>1.3</td>
<td>1.3</td>
<td>1.4</td>
<td>1.2</td>
<td>1.459</td>
<td>.240</td>
</tr>
<tr>
<td>Represented</td>
<td>(67)</td>
<td>(31)</td>
<td>(17)</td>
<td>(19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Banks Represented</td>
<td>1.3</td>
<td>1.2</td>
<td>1.1</td>
<td>1.5</td>
<td>3.604</td>
<td>.033</td>
</tr>
<tr>
<td></td>
<td>(66)</td>
<td>(31)</td>
<td>(16)</td>
<td>(19)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Representation was scaled: 1 = yes, 2 = no
jobs were they involved in retaining locally. As seen by the mean responses in Table 9, holistic MDOs appear to create and retain jobs at higher rates than either efficiency or capture dollars MDOs.

The mean number of jobs claimed by the MDO to assist in creating over the previous two years was 225.5 with the mean of jobs retained at 74.1. Outliers in both questions tended to inflate the mean response. The median response for job creation was 50 while the median job retention was slightly over 29. Transforming the the two variables through a logarithm assisted in compensating for the outliers.

The pattern of both job creation and retention between MDO types was consistent between the transformed and original variables. These data suggest holistic MDOs tend to assist a higher rate of job creation and retention than either efficiency or capture dollars MDOs. It would appear that among these predominantly rural, Iowa communities, a more inclusive strategy involving more segments of the community may be a more effective economic development strategy than a focused strategy involving fewer local organizations. One possible explanation for this trend is that addressing quality of life issues (e.g., education, child care, housing, health care) in rural communities is critical for successful community economic development.

Analysis of Multicomunity Development Organizations

Since the number of jobs created and retained is self reported there may be some question as to the validity of the data used to measure the dependent variables. No claim is made as to the accuracy of the information on total area job creation. The data reflect what jobs the organization was involved in creating,
Table 9. A one-way analysis of variance of MDO outputs by MDOs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Mean</th>
<th>Holistic</th>
<th>Efficiency</th>
<th>Capture $</th>
<th>F- Score</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobs Created in Last Two Years</td>
<td>225.8</td>
<td>350.3</td>
<td>200.0</td>
<td>41.5</td>
<td>1.477</td>
<td>.237</td>
</tr>
<tr>
<td></td>
<td>(64)</td>
<td>(30)</td>
<td>(16)</td>
<td>(18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jobs Created in Last Two Years</td>
<td>1.7</td>
<td>2.0</td>
<td>1.5</td>
<td>1.2</td>
<td>6.420</td>
<td>.003</td>
</tr>
<tr>
<td>Log$_{10}$ (Y + 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(64)</td>
<td>(30)</td>
<td>(16)</td>
<td>(18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jobs Retained in Last Two Years</td>
<td>74.1</td>
<td>96.1</td>
<td>98.0</td>
<td>26.3</td>
<td>2.689</td>
<td>.077</td>
</tr>
<tr>
<td></td>
<td>(53)</td>
<td>(26)</td>
<td>(10)</td>
<td>(17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jobs Retained in Last Two Years</td>
<td>1.3</td>
<td>1.6</td>
<td>1.1</td>
<td>1.0</td>
<td>3.894</td>
<td>.027</td>
</tr>
<tr>
<td>Log$_{10}$ (Y + 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(53)</td>
<td>(26)</td>
<td>(10)</td>
<td>(17)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
which may or may not correspond to total job creation. However, there is no apparent explanation as to why any given subset of respondents would either embellish or undercount job creation and retention to a degree greater or less than any other subset. Therefore, it is assumed that the self reported data offers a measure by which the effectiveness of MDOs may be assessed.

To test the hypotheses of how population (P), environment (E) technology (T), and organization (O) relate to output (Y) and to each other, a zero-order correlation matrix is created (Appendix B). A logarithm of job creation (JOBLOG) is used to measure output. The logarithmic transformation of data used to measure job creation was utilized to minimize the effect of outliers. Consistent with Garkovich (1989), size (BUDLOG), function (CATEGORY) and structure (FULLTIME) are utilized to measure community organization. CATEGORY is reduced to a dichotomous nominal variable by collapsing the two categories of MDOs focusing on business development into a nonholistic category.

Population (POPLOG) is measured by the base 10 logarithm of the aggregated population of the communities involved in the MDO. Environment (PULLFACT) is measured by the average retail pull factors of the involved communities weighted by their respective populations. Technology is measured through a weighted 1990 agricultural dependency ratio.

**Coefficients of Determination**

Table 10 lists the hypotheses posited and the support or lack of support indicated through the coefficients of determination ($r^2$). The relationship is viewed
Table 10. Support of hypotheses indicated

<table>
<thead>
<tr>
<th>Title</th>
<th>Hypothesis</th>
<th>Symbol</th>
<th>$r^2$</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>The greater the diversity in the technology, the higher the level population maintained.</td>
<td>(T&lt;--&gt;P)</td>
<td>.239</td>
<td>Moderate</td>
</tr>
<tr>
<td>H2</td>
<td>The greater the level of population, the more dominant the community will be in its environment.</td>
<td>(P&lt;--&gt;E)</td>
<td>.207</td>
<td>Moderate</td>
</tr>
<tr>
<td>H3</td>
<td>The more diverse the technology, the more dominant the community will be in its environment.</td>
<td>(T&lt;--&gt;E)</td>
<td>.078</td>
<td>No</td>
</tr>
<tr>
<td>H4</td>
<td>The larger the population, the fewer the functions carried out by the community organization.</td>
<td>(P--O_1)</td>
<td>.000</td>
<td>No</td>
</tr>
<tr>
<td>H5</td>
<td>The larger the population, the greater the size of the community organization.</td>
<td>(P--O_2)</td>
<td>.029</td>
<td>No</td>
</tr>
<tr>
<td>H6</td>
<td>The larger the population, the more formal the structure of the community organization.</td>
<td>(P--O_3)</td>
<td>.285</td>
<td>Moderate</td>
</tr>
<tr>
<td>H7</td>
<td>The more dominant the position of member settlements within the endogenous region, the larger the community organization.</td>
<td>(E--O_1)</td>
<td>.055</td>
<td>No</td>
</tr>
<tr>
<td>H8</td>
<td>The more dominant the position of member settlements within the endogenous region, the more formal the structure of the community organization.</td>
<td>(E--O_2)</td>
<td>.094</td>
<td>No</td>
</tr>
<tr>
<td>H9</td>
<td>The more dominant the position of member settlements within an endogenous region, the fewer functions conducted by the community organization.</td>
<td>(E--O_3)</td>
<td>.001</td>
<td>No</td>
</tr>
<tr>
<td>Title</td>
<td>Hypothesis</td>
<td>Symbol</td>
<td>$r^2$</td>
<td>Support</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>H10</td>
<td>The greater the diversity in local technology, the fewer the functions conducted by the community organization.</td>
<td>(T--&gt;O₁)</td>
<td>.003</td>
<td>No</td>
</tr>
<tr>
<td>H11</td>
<td>The greater the diversity in local technology, the larger the community organization.</td>
<td>(T--&gt;O₂)</td>
<td>.010</td>
<td>No</td>
</tr>
<tr>
<td>H12</td>
<td>The greater the diversity in local technology, the more formal the structure of the community organization.</td>
<td>(T--&gt;O₃)</td>
<td>.080</td>
<td>No</td>
</tr>
<tr>
<td>H13</td>
<td>The larger the population, the greater the output within an endogenous region.</td>
<td>(P--&gt;Y)</td>
<td>.188</td>
<td>Weak</td>
</tr>
<tr>
<td>H14</td>
<td>The more dominant the position of member settlements, the greater the output within an endogenous region.</td>
<td>(E--&gt;Y)</td>
<td>.104</td>
<td>Weak</td>
</tr>
<tr>
<td>H15</td>
<td>The more diversified the technology, the greater the output within an endogenous region.</td>
<td>(T--&gt;Y)</td>
<td>.102</td>
<td>Weak</td>
</tr>
<tr>
<td>H16</td>
<td>The more functions conducted by a community organization, the greater its output within an endogenous region.</td>
<td>(O₁--&gt;Y)</td>
<td>.154</td>
<td>Weak</td>
</tr>
</tbody>
</table>
Table 10. (Continued)

<table>
<thead>
<tr>
<th>Title</th>
<th>Hypothesis</th>
<th>Symbol</th>
<th>$r^2$</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>H17</td>
<td>The larger the community organization, the greater its output within an endogenous region.</td>
<td>$(O_2 \rightarrow Y)$</td>
<td>.408</td>
<td>Strong</td>
</tr>
<tr>
<td>H18</td>
<td>The more formal the structure of the organization, the greater its output within an endogenous region.</td>
<td>$(O_3 \rightarrow Y)$</td>
<td>.229</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

to be 1) "weak" if the coefficient of determination is less than .20 but greater than .10, 2) "moderate" at levels .20 to .299, and 3) "strong" at levels of .30 and over.\(^1\)

Although correlations between the P.O.E.T. variables were in the direction predicted (Appendix B), many were not strong enough to support the hypotheses. However, all six independent variables at least weakly supported hypotheses (H13 to H18) related to the dependent variable of output as measured by job creation. The interdependent relationships between population, environment, and technology (H1 to H3) also tended to be supported, with one exception. The relationship of diversity in technology with community dominance was not supported.

\(^1\) The measures of strength of relationships have been set in a somewhat arbitrary fashion to ease interpretation of variance in the population of Iowa's MDOs. However, these terms of relationship strength are conservative when compared to a similar use of statistics. If the population were treated as a random sample, a Student's $t$ distribution could be applied to test significant levels. As a point of comparison, the application of a one-way Student's $t$ with 60 degrees of freedom would mean that $r^2$ of .09 would be significant at the .01 level, $r^2 = .13$ would be significant at the .001 level, and $r^2 = .17$ would be significant at the .0005 level.
The MDOs aggregate population appears to influence \( r^2 = .285 \) the structure of MDOs as measured by the total number of full time employees. However, no relationship is indicated between aggregate population the MDO's size and function as measured by budget and category type. Therefore, H4 and H5 are not supported by the data. There is no support indicated that the dominance position held by the endogenous region as measured by the weighted pull factor, impacts an MDO's functions, size, or structure (H7, H8, H9). There is also no relationship indicated between local technology, as measured by the area's agricultural dependency, and the functions, size, or structure of the MDO (H10, H11, H12).

The last six hypotheses (H13 to H18) posit relationships between the dependent output variable of job creation, and measures of population, environment, technology and organization. H13 is weakly supported as the larger the aggregate population of the endogenous region the greater the level of job creation through the MDO \( r^2 = .188 \). The respective relationships of the regional weighted pull factor \( r^2 = .104 \) and the agricultural dependency ratio \( r^2 = .102 \) to job creation are also weak. Therefore, the hypotheses that the more dominant the positions of member settlements (H14) and the more diversified the region's technology (H15), the greater the rate of job creation is only weakly supported.

All three measures of organization correlate with job creation. A weak relationship is noted between what strategy is evoked with "holistic" MDOs doing slightly better in job creation than "nonholistic" MDOs. This relationship supports the hypotheses (H16) that the more functions conducted by a community organization, the greater the output within an endogenous region \( r^2 = .154 \). The hypothesis that organizational size is positively related to output is supported as
the greater the budget of the MDO the higher the level of job creation \((r^2 = .408)\). The hypothesis of relating more formality of structure with greater output (H18) is also moderately supported as job creation is positively related to the number of full time employees employed by an MDO \((r^2 = .239)\).

In summary, few associations occur between population, environment, and technology (PET), and the MDO's size, structure, and function (O). Population affected formality in structure (H6) and, in turn, formality affected job creation (H18). A weak relationship was also noted between environmental dominance (retail pull factor) and structural formality (H11). No other relationship between the MDOs organizational characteristics and the regional population, environment, and technology was indicated.

It has been hypothesized that endogenous regions are created in rural areas to adapt to a human ecology of community subdominance, low population base, and a lack of diversity in technology. The aggregate level data compiled does tend to indicate that some adaptation may be taking place as output is effected by the total population, collective retail trade, and agricultural dependency. Therefore, the larger, more diverse, or dominant the collected aggregation, the more likely the endogenous region will generate a positive output.

However, one characteristic that makes endogenous regions distinct from other regional forms of aggregation is the formation of a multicommunity organization to perform community action. If endogenous regions are communities acting through MDOs, then the impacts of MDOs' organizational size, structure, and actions should be discernable beyond the effects of aggregation.
Aggregation may create a region of settlement communities, but organization and action leads to a community of settlement communities.

Path Analysis

A path analysis was used to isolate the impacts of organization from simple aggregation. This technique computes not only the direct effect of independent variables on a dependent variable, but also their indirect effects through other variables (Bailey, 1987). Path analysis specifies the causal relationships among the variables through a series of multiple regression equations (Agresti and Finlay, 1986).

The computed path analysis is recursive and overidentified (Figure 4). It assumes that the aggregation of a region's population, environment, and technology precedes organizational creation. The model is overidentified since Garkovich (1989) does not specify causal relationships between the three characteristics of community organizations.

The path coefficients represent the fraction of the standard deviation of the dependent variable indicate the direct effect of the hypothesized causal variable on the dependent variable (Wright, 1934; Pedhazur, 1982). Residual path coefficients of dependent variables ($\sqrt{1-R^2}$) account for the variation of the dependent variable left unexplained by the independent variables. Residual paths are labeled $e_1$ through $e_4$.

The exogenous variables (POPLOG, PULLFACT and AGDEP) show moderate correlations between population and agricultural dependency (.49), and population and the retail pull factor (.46). According to Althauser (1971), multicollinearity is considered problematic in data when the level of correlation
Figure 4. An outpath model of community organizations operating in endogenous regions
between two independent variables exceeds .85. Accordingly, multicollinearity among the exogenous variables was not seen as a problem within the model.

Three of the six variables show a sizeable job creation while controlling the influence of other variables: population (.305), category (.300) and budget (.540). Population, however, is only minimally related to either category (.073) or budget (.086). Each variable appears to effect job creation in its own right.

With one exception, the three aggregate variables have minimal impact upon the three organizational variables. Population appears to affect the number of fulltime employees among the MDOs (.520). However, number of fulltime employees has minimal impact on job creation once other variables are controlled (-.069). The path between the retail pull factor and budget (.199), indicated only a slight indirect effect of a region's retail trade on job creation through its impact on budgets. However, virtually no direct relationship between a region's retail pull and job creation (.012) was noted.

Three outliers were identified through the standardized residuals. Outliers were defined as having standardized residuals in excess of 2 standard deviations. Further examination showed that all three were relatively new organizations (in operation less than two years), and had yet to create new jobs. With this exception, all other assumptions underlining the application of path analysis were met (Pedhazur, 1982).

Decomposing the paths shows that 61 percent of the variance in job creation is explained by the model (Table 11). The indirect effect of the three aggregate variables was minimal. Budgets seem to have the greatest impact on job creation with population also showing some influences. While the log of the population aggregated (POPLOG) affected job creation, so did the CATEGORY or
Table 11. A decomposition of model paths

<table>
<thead>
<tr>
<th>Variables</th>
<th>Effect</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td>Independent</td>
<td>Total</td>
</tr>
<tr>
<td>CATEGORY</td>
<td>POPLOG</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td>PULLFACT</td>
<td>-.016</td>
</tr>
<tr>
<td></td>
<td>AGDEP</td>
<td>.047</td>
</tr>
<tr>
<td>BUDGLOG</td>
<td>POPLOG</td>
<td>.086</td>
</tr>
<tr>
<td></td>
<td>PULLFACT</td>
<td>.199</td>
</tr>
<tr>
<td></td>
<td>AGDEP</td>
<td>-.029</td>
</tr>
<tr>
<td>FULLTIME</td>
<td>POPLOG</td>
<td>.530</td>
</tr>
<tr>
<td></td>
<td>PULLFACT</td>
<td>.064</td>
</tr>
<tr>
<td></td>
<td>AGDEP</td>
<td>-.031</td>
</tr>
<tr>
<td>JOBLOG</td>
<td>POPLOG</td>
<td>.293</td>
</tr>
<tr>
<td></td>
<td>PULLFACT</td>
<td>.148</td>
</tr>
<tr>
<td></td>
<td>AGDEP</td>
<td>-.138</td>
</tr>
<tr>
<td></td>
<td>CATEGORY</td>
<td>-.300</td>
</tr>
<tr>
<td></td>
<td>BUDGLOG</td>
<td>.540</td>
</tr>
<tr>
<td></td>
<td>FULLTIME</td>
<td>-.069</td>
</tr>
</tbody>
</table>
the type of strategy evoked by the MDO. Thus, independent of the effects of obtaining critical mass as measured by population, retail trade area, and agricultural dependency, the size and function of community organizations operating at the endogenous regional level appears to effect jobs created.

In conclusion, organization does make a difference. The activities of multicommunity organization do influence community at the endogenous regional level. Independent of territorial aggregation, the size of the organization as measured by the financial resources available has a positive effect on job creation.

**Estimates of Independent Variables on MDO Output**

The model provides a comparison of MDOs to measure their efficiency. What the model does not establish is the efficiency for an individual settlement to join an MDO in contrast to conducting developmental efforts solely for their own benefit. However, an analysis among MDOs can be made at the endogenous regional level to estimate the effects of multisettlement aggregation and organization on job creation.

The relationship between budget, population and job creation is subtle. Since a logarithm is used as a measure of these variables, the model would indicate more of a curvilinear than linear relationship. In general, the larger the organization, both in its population base and budget, the less efficient it is in job creation.

The model would predict, holding all other variables constant, adding $5,000 to a $10,000 annual budget would increase job creation by almost five jobs over the two year period. Adding $5,000 to a $20,000 budget would bring
about an increase of four jobs. The rate of of job creation drops to less than two jobs created over two years by adding $5,000 to a budget of more than $50,000.

In the same vein, adding a community with a 1,000 population to an MDO with a population base of 10,000 increases job creation by almost four jobs. Increasing the population size by 1,000 of an MDO with 25,000 to 50,000 residents increases jobs created by three. However, adding 1,000 individuals to a population base of 100,000 results in virtually no new jobs over the two year period. Thus, a point of diminishing return in the aggregation of population and growth in organizational size is noted.

Additional support of the impact of endogenous regions is apparent in how the strategy evoked by MDOs affects job creation. Holistic MDOs achieved a higher rate of job creation than MDOs; their difference was sustained even after controlling the effects of other aggregation and organizational variables. Altering activities from a more business sector oriented strategy to a more holistic strategy tends to have a significant and positive impact on job creation.

Since the focus of MDO activity is measured with a dichotomous variable, moving from one strategy to another tends to create a large variance in job creation. The model estimates that switching from one of the non-holistic strategies to a holistic strategy increases job creation by almost 40 jobs.

Summary of Findings

The creation of MDOs represents a conscious decision on the part of local settlement leadership to collaborate rather than to compete for economic development. Consistent with the community economic development strategies
detailed by Pulver (1979) and Shaffer (1989), MDOs can be identified and classified according to their types of development activities. Three distinct patterns of activities were found to appropriately classify the MDOs.

"Holistic" MDOs are involved in a wide variety of community improvement activities beyond direct economic development efforts. MDOs in the second and third categories tended to focus more on direct economic development activities. The "efficiency" MDO focused primarily on the retention and expansion of existing industry, while the "capture dollars" strategy emphasized such activities as local tourism and local retail promotion. Virtually all of the MDOs indicated involvement with industrial recruitment and starting new businesses. Consistent with their broader strategy, holistic MDOs involved more people as volunteers. Holistic MDOs also tended to create and retain more jobs.

Population (P), organization (O), environment (E) and technology (T) were utilized to measure the effects of human ecology on job creation. Population, environment and technology were used as measures of aggregation, or the aggregated base of resources compiled to compensate for a changing local ecology. Three characteristics of organization (O1, O2, O3) measured the impact of the MDO's function, size and structure on job creation over a two year period. All six variables showed at least a weak association with number of jobs created by the MDO.

In the path analysis, the three aggregation variables precede organization to depict the causal relationship between aggregation, organization and MDO output. Aggregation effects output primarily through total population. In general, the larger the population, the greater the job creation.
An even stronger association was noted with the organizational variables of budget and activity category. Controlling for the effects of aggregation, the resource base (size) and activities (functions) of an MDO both strongly affect job creation. A large resource base combined with a holistic purpose has a positive effect on job creation. Yet, there exists a point of diminishing returns as MDOs grow larger both in population base and budget.
CONCLUSIONS

This study focused on three questions using MDOs as indicators of endogenous regions: (1) Is the MDO a product of local ecologies? (2) Does the output of MDOs differ from what would be indicated by local ecological variables? and (3) Do MDOs differ in their activities and in the effect their activities have upon output?

Responses from MDO knowledgeable as to the reasons MDOs were first organized supports the premise that MDOs were formed through conscious decisions by local leaders to changing local ecologies. The impacts of endogenous regions on settlement fields appears to go beyond that of mere aggregation, but are to a large extent determined by the actions of the multisettlement institutions formed. Much of this impact is due to the size and activities of the MDO acting as a community organization in the endogenous regions. Analogous to the settlement field, the conventional definition of community as location is utilized as a key to the existence of community within the endogenous region. Thus, the proposition that community may co-exist over multiple fields is supported as location base action was identified.

Does the endogenous region conform to the conventional definition of community? Does the endogenous region have a local ecology, a discernable pattern of organization, and the capacity for locally based collective action (Kaufman, 1959; Wilkinson, 1970a)? The data of this study support the notion that endogenous regions have the capacity for locally based collective action. The
types of activities carried out by holistic MDOs and the number of volunteers involved provide strong similarities to community organizations at the settlement level.

The local ecology of the endogenous regions in which Iowa's MDOs operate is less easily identified. More opportunities to commute and recent improvements in communications create diffuse ecological patterns. However, MDOs and endogenous regions reflect the reality of these diffuse patterns and provide for a mechanism by which community can be supported.

Perhaps the weakest point in identifying the endogenous region as community relates to a discernable pattern of organization. While the development association may be a convenient place to begin the study of community (Wilkinson, 1970), it does not provide evidence of a consistent institutional or service area as would be defined by Warren (1978). Nonetheless, the findings suggest that MDOs (1) operate within a defined area, (2) aggregate existing communities often continuous with existing local governments, and (3) may have parallel organizations operating contiguous or closely contiguous areas (e.g. county governments).

While a pattern of discernable organization is clearer at a settlement field level, patterns of interaction are rarely contiguous with municipal boundaries. Thus, as fields become more inclusive of local patterns of interaction, they often may become less defined by discernable patterns of organization. The endogenous region as measured through the MDO provides for a nominal indicator of community vis-a-vis its emergence as an organization.

Rather than the rural community lost, saved or liberated (Wellman and Leighton, 1979), the concepts of the endogenous region and overlapping fields of
community represent the community adapted. As indicated in the activities of the MDOs, place remains a significant factor in determining community. However, consistent with community field theory (Wilkinson, 1970a and Kaufman, 1959), "place" is socially defined through interaction, and thus may be redefined as fields of social interaction change over time.

Policy Implications

Rather than confirm the utilization of endogenous regionalism as the "best" approach to rural community economic development, these findings suggest that the endogenous region represents a whole greater than the sum of its parts. Federal and state policies toward rural communities are often been based on municipal or "place" level data. Such policies ignore the impact of the overlaying fields of the endogenous region and the urban domain.

To ignore the potential of multiple fields in the study of community is to study "place" in isolation. In essence, investigation rural municipalities as the sole units of analysis runs a risk of mixing distinct types of communities. Treating settlements as communities ignores their social, political, and economic inter-community relationships. The validity of settlement level as a sole measure of community should be called into question. At the very least, caution should be used in interpreting data at this level or establishing policy based upon it.

As an example, a settlement community may hold a symbiotic relationship with other settlements within the endogenous region. It may forgo retail and industrial development to concentrate on a housing or recreational strategy. Other nearby settlements with a better capacity for industrial growth might focus on
industrial development. Development policy based upon changes in settlement industrial employment would ignore the interrelated efforts of multiple settlements.

**The Policy of Community Triage**

A community economic development policy based on settlement fields is the application of community triage. In Daniels and Lapping's (1987:276) terms, "the triage strategy seeks to promote rural central places of 2500-5000 people which can provide appropriate services and some employment opportunities to the surrounding hinterlands." A triage strategy promotes planned development of rural growth centers over the present dispersed pattern of settlement now found in Iowa.

The concept of developmental triage is based on the analysis that remains exclusively on the level of settlement fields. A specific threshold population can be used as a criterion for rationing state and federal development dollars. Given settlement or central places as units of analysis, smaller units often are deemed inefficient as compared to larger more diversified settlements. Using the settlement as the unit of analysis, a triage or latent resettlement policy (Daniels and Lapping, 1987) would appear to make for good policy.

However, triage ignores the relationships between communities. The same transportation and communication systems that allow for migration of services and retail sales to growth centers may benefit settlements from distant employment centers. Estimates of local labor supply vary greatly upon the geographic size of the locale being assessed. The local ecology, interaction and institutional patterns, and local community activity patterns should be assessed before smaller settlement fields are summarily dismissed as inefficient units.
Viable, small settlements may coexist with growth centers, but with a different economic function. If planned change can take place at the endogenous regional level, why should the smaller communities be penalized even though they are part of a larger viable whole? An analysis of the overlapping fields of community should be considered before relegating small communities as targets of resettlement. Much like the case of the urban housing program, federal and state funding may be appropriate and effective to rural settlements that depend on viability to their relationship within a larger areal configuration.

**Federal Policy**

Any federal policy directed toward the generation of endogenous regions would need to be based upon a nurturing role. Although endogenous regionalism emerges from patterns of voluntary interaction, the process often is influenced by extra-local events and organizations. The question remains how voluntary is voluntary? When does "facilitation" take on the trappings of "coercion?"

There is an ease in program operation to delineate rural communities distinctly and uniformly along existing jurisdictions such as the city or the county. As Powers (1969:217) said over twenty years ago:

A philosophic and psychological question is whether man can be socialized enough to accept a continuous state of flux and multi-identities as the 'normal' way of life. He already meets his needs in multicommunities. If man learns to comfortably exist in a multiline world, then some argument might be advanced for purposely perpetuating, on a larger scale, the many overlapping and dissimilar size units for operationalizing various programs. The rush to delineation could be a contemporary version of earlier attempts at community Utopias that never worked.

Federal programs designed to operate in a multicommunity framework would allow for local patterns of interaction and institutions to establish
themselves. In essence, such an emphasis enables communities to form and develop across existing community patterns. Whether a large, rational bureaucracy such as the United States Government can deal with such unconformity of place would be a test not only for the communities involved but for the bureaucracy itself.

While no attempt at generalization to states outside of Iowa is made, consideration should be given to a federal policy that enables strategic community planning at the endogenous regional level. Assistance is needed to facilitate the development of demonstration projects (e.g., solid waste disposal demonstrations, joint housing projects, and health care provision) to fully explore endogenous regionalism as a method of rural community development. A policy of operating through local collaborative structures may prove to be more effective and efficient than dealing with individual rural settlement communities.

State Policy

Data from the path analysis indicate the relationship of budget to output is curvilinear with smaller units tending to be more efficient. If efficiency is to be considered, a policy of state support through small grants to smaller MDO units would appear to be warranted rather than a large infusion of state funds to individual MDOs. Data from the model would support the continuation if not expansion of such programs as the Rural Enterprise Fund (REF) of the Iowa Department of Economic Development. This program provides small grants to multicommunity development organizations. The funds are primarily used for short term action planning and organizational support.
While rural community development may be perceived as more manageable due to smaller scale (Wilkinson, 1986), the same scale may make impacts more systemic and immediate. The choices in housing, education, day care, health care and the environment frequently are more limited and thus apparent in rural settings. Holistic strategies of development including quality of life issues may be more successful because rural job creation is less easily isolated as an activity.

Consideration should also be given for educational and technical assistance programs to MDOs that facilitate a more holistic approach to rural community development. A component of on-going community development programs of agencies such as the Iowa State University Extension Service, the University of Northern Iowa Decision-Making Institute, and the Iowa Department of Economic Development should include education on the inter-relationship of community quality of life issues and economic development. Narrow job creation approaches focusing solely upon the business sector may be counter productive to job creation in rural Iowa.

Local Policy

A number of local policy decisions must be made in the formation and maintenance of endogenous regions as communities. The use of aggressive geographic expansion as a means of increasing job creation would appear to have limited success. When practical and consistent with existing patterns of interaction, increasing the population base of the smallest MDOs appears to be a worthwhile strategy to increase output.
However, the results imply important caveats to an expansionist strategy. Attempting diversity by involving settlements with strong retail or manufacturing sectors would appear to be of limited utility when seeking additional jobs in an endogenous region. Greater rates of job creation is indicated by MDOs as the population base grows. But limits to expansion are noted as the rate of improvement drops when the size of the population increases. A similar relationship exists between the the budget of the MDO and its output.

There are limitations to MDOs and their endogenous regions. Growth beyond a certain point reduces efficiency, indicating a need for smaller units. A consistent local policy of expansion would have limits just as a state or federal policy of combining endogenous regions into larger regional units. This limitation supports the distinction between the endogenous region and the larger urban domain and may explain in part the proliferation of smaller endogenous regions in Iowa.

Suggestions For Further Research

The purpose of this dissertation was to examine the changing social structure of the rural community in Iowa through the concept of endogenous regionalism. Beyond the aggregation of communities, the impacts of community organizations operating within Iowa's endogenous regions were found to depend more on how they are operated. Within this context, the whole of the endogenous region is greater than the sum of its component parts. In using a conventional
definition of community, the existence of community at the endogenous regional level is supported. However, in supporting this conclusion more questions are raised.

The output model presented still does not account for 39% of the variance of job creation by MDOs. A number of potential factors are not accounted for that might provide further insight. First, the relative impact of settlement oriented development organizations within endogenous regions has not been isolated, nor has the impact of larger regional organizations existing within the respective urban domains. Second, the location of endogenous regions to transportation systems and topographical barriers (e.g., rivers) are other areas that could warrant further study. Third, the effects of broad based exogenous variables have not been isolated (e.g., macro economic trends effecting the service and manufacturing sectors or international trade policies). Adding measures of any of these variables might further enhance the model.

In developing the model, informal development associations were deleted. How these associations operate in contrast to formal organizations could provide further insight on the development of endogenous regions. Further study is needed on the emergence process of multicommunity development organizations and endogenous regions in general. While community development organizations may represent a point from which a study of community may be initiated, the effects on endogenous regionalism of multisettlement institutions involved in a variety of functions need to be examined (e.g., health, education, business, and media).

Another area of study that should be considered is the effect of endogenous region upon Warren's (1978) four dimensions of the American community: local
autonomy, coincidence of service areas, psychological identification with locality, and the strength of horizontal patterns. The study of either settlement fields within endogenous regions or of the regions themselves using Warren's dimensions could prove to be useful. Attempts have been made to alter social identity with place toward a multisettlement field (Wells, 1990). While this study has focused upon a single community organization, identity should increase with the endogenous region as the number of organizations with coinciding service areas grows.

Utilizing Warren's (1978) concept of community autonomy, a study could measure the impacts of endogenous regionalism on rural settlement communities. Is there an inverse relationship between autonomy at the settlement level and autonomy at the endogenous region level? Is there a net gain in the autonomy of local decision-making as resources and efforts are combined with nearby settlements?

From the community field perspective, further analysis is needed upon the patterns of interaction and the leadership structures found in overlapping community fields. Are new leaders emerging at the endogenous regional level that operate in fields distinct from individual settlements? Do leadership structures function on multiple community levels? Does the leadership structure found within endogenous regions represent a pattern linking existing leaders found at the settlement level? How is leadership at both of these levels linked within the urban domain?

Further examination on how local ecologies are being effected by the growth of linkages between rural settlements is also needed. Continued treatment of organizations within endogenous regions as dependent variables within local
ecologies would provide additional information on how these regions emerge. While the outliers in the model presented demonstrate how caution should be used in prematurely examining the impacts of community organizations, study of the effects of endogenous regions upon local ecologies is still needed.

All endogenous regions may not be structured toward developing any given impact. Impact studies of endogenous regions need to consider both temporal and functional factors as a part of impact analysis. With the relative organizational youth of many endogenous regions, accurate measures of sustainable impacts may be years away.
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APPENDIX A: QUESTIONNAIRE
Hello, may I speak to ________________.

My name is ______ and I'm calling from the Sociology Department at Iowa State University. We are currently involved in a project that is looking at economic development practices in rural Iowa. You should have received a letter from Dr. Ryan and Mr. Borich that described the purpose of this study. Did you receive this letter?

1 = Yes
2 = No

We will mail you a letter and then call you.

As part of this project, we are completing an inventory of how neighboring rural communities work together on economic development projects. We are calling people like yourself who serve as contacts for local multicommunity development organizations like (NAME OF ORGANIZATION) to determine how they are organized, what kinds of needs they have, and the outcomes of various projects. From this information, we will prepare a directory of the multicommunity development organizations now existing in Iowa. This directory should allow organizations to better communicate and learn from each other. As a participant in this study, you will receive a copy of this directory.

The interview should take from 10 to 15 minutes. Is this a good time to begin?
I will begin with some questions about your multicommunity development organization. First, I'd like to verify that I have the correct name. Is it (NAME OF ORGANIZATION)?

NAME _________________________________________

What is your position in the organization?

______________________________________________________

Is this a paid or volunteer position?

Paid 45
Volunteer 24
REFUSED 0

First, I have some questions about how (NAME OF ORGANIZATION) first got started. Would you be able to answer some questions about this topic?

Yes 69
No [GOTO Q10] 0
REFUSED [GOTO Q10] 0

In what year did (NAME OF ORGANIZATION) begin operating?

1988-1991 40
1984-1987 16
1970-1983 1
1960-1969 5
Before 1960 7
In the formation of your organization a number of factors may have encouraged or discouraged cooperation between communities. I am going to read you a list of potential factors. As I read each possibility, please tell me whether it DISCOURAGED, ENCOURAGED or had NO EFFECT, on the cooperation between the communities that (NAME OF ORGANIZATION) serves?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Discouraged</th>
<th>Encouraged</th>
<th>No Effect</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports rivalries</td>
<td>11</td>
<td>0</td>
<td>56</td>
<td>2</td>
</tr>
<tr>
<td>Competition between main streets</td>
<td>10</td>
<td>10</td>
<td>47</td>
<td>2</td>
</tr>
<tr>
<td>The present state of the economy</td>
<td>0</td>
<td>60</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Competition from other counties</td>
<td>1</td>
<td>44</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Limited resources available to each individual community</td>
<td>1</td>
<td>59</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>The need for new local leadership</td>
<td>3</td>
<td>39</td>
<td>26</td>
<td>1</td>
</tr>
<tr>
<td>Past school consolidations</td>
<td>4</td>
<td>11</td>
<td>53</td>
<td>1</td>
</tr>
<tr>
<td>Local population decline</td>
<td>1</td>
<td>49</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>The ethnic background of the communities</td>
<td>0</td>
<td>4</td>
<td>64</td>
<td>1</td>
</tr>
</tbody>
</table>

(Q8) Are there other factors that encouraged cooperation?

(Q9) Are there other factors that discouraged cooperation?

[GOTO Q12]
(Q10)
Could you give me the name of a person who would be a good source for information on this topic? (How the organization got started.)

(Q11)
Could you give me his/her telephone number?

(Q12)
Next, I have some questions about how (NAME OF ORGANIZATION) presently operates? Would you be able to answer some questions about this topic?

Yes 69
No [GOTO Q28] 0
REFUSED [GOTO Q28] 0

(Q13)
How many communities are formally involved in (NAME OF ORGANIZATION)?

Less than 5 18
5 - 9 27
10 - 14 19
15 or more 5
(Q14a)
Could you tell the names of each community?

<table>
<thead>
<tr>
<th>Community Names</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

(Q15)
Are any counties formally involved through their governing bodies in (Name of Organization)?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>55</td>
</tr>
<tr>
<td>No [GOTO Q16]</td>
<td>14</td>
</tr>
<tr>
<td>DON'T KNOW [GOTO Q16]</td>
<td>0</td>
</tr>
</tbody>
</table>

(Q15a)
How many counties?

<table>
<thead>
<tr>
<th>Count</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>14</td>
</tr>
<tr>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
(Q15b)
Could you tell the names of each county?

(Q16)
Does your organization have a Board of Directors?

Yes 67
No [GOTO Q18a] 2
REFUSED [GOTO Q18a] 0

(Q17)
Which government bodies have at least one member on the Board of Directors?
I'm going to read a number of community-related activities that other multicommunity organizations have carried out. Please tell me if *(NAME OF ORGANIZATION)* has been involved in the activity during the past 2 years.

(Q18a)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial recruitment?</td>
<td>61</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Start up of new businesses?</td>
<td>62</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Expansion of existing industry?</td>
<td>58</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Retention of existing industry?</td>
<td>50</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Local rental housing?</td>
<td>20</td>
<td>49</td>
<td>0</td>
</tr>
<tr>
<td>Housing to own?</td>
<td>16</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Local health care?</td>
<td>28</td>
<td>41</td>
<td>0</td>
</tr>
<tr>
<td>Local tourism?</td>
<td>58</td>
<td>11</td>
<td>0</td>
</tr>
</tbody>
</table>

(Q18b)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local retail?</td>
<td>45</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Environmental protection or recycling?</td>
<td>39</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Parks or recreation?</td>
<td>35</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>Grant writing for local organizations?</td>
<td>45</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Public events (such as parades, award banquets, bike rides, festivals, etc.)?</td>
<td>42</td>
<td>27</td>
<td>0</td>
</tr>
<tr>
<td>Child care services?</td>
<td>20</td>
<td>49</td>
<td>0</td>
</tr>
<tr>
<td>Local education issues?</td>
<td>32</td>
<td>37</td>
<td>0</td>
</tr>
<tr>
<td>Leadership Development Programs?</td>
<td>53</td>
<td>16</td>
<td>0</td>
</tr>
</tbody>
</table>
(Q19) How many jobs would you estimate have been created through projects in which (NAME OF ORGANIZATION) has been involved in the last 2 years?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>1-99</td>
<td>27</td>
</tr>
<tr>
<td>100 or more</td>
<td>26</td>
</tr>
<tr>
<td>No Response</td>
<td>5</td>
</tr>
</tbody>
</table>

(Q20) How many jobs would you estimate has (NAME OF ORGANIZATION) helped to retain locally in the last 2 years?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>13</td>
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<tr>
<td>1-99</td>
<td>27</td>
</tr>
<tr>
<td>100 or more</td>
<td>13</td>
</tr>
<tr>
<td>No Response</td>
<td>16</td>
</tr>
</tbody>
</table>
To your knowledge, has (NAME OF ORGANIZATION) been in contact with or utilized the services offered by any of the following agencies within the last year?

(Q21a)  

<table>
<thead>
<tr>
<th>Agency</th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Dept. of Economic Development</td>
<td>67</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>USDA - Farmer's Home Administration</td>
<td>30</td>
<td>39</td>
<td>0</td>
</tr>
<tr>
<td>Iowa State University Extension Service</td>
<td>62</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Your Regional Planning Commission or COG's</td>
<td>61</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Your Area Community College</td>
<td>61</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Your Regional Economic Development Center (former Satellite Centers)</td>
<td>64</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>UNI - Institute of Decision Making</td>
<td>32</td>
<td>37</td>
<td>0</td>
</tr>
<tr>
<td>Local Utilities</td>
<td>64</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Small Business Development Centers</td>
<td>53</td>
<td>16</td>
<td>0</td>
</tr>
</tbody>
</table>

(Q22)  
What do you consider the one major success of (NAME OF ORGANIZATION)?
(Q23)
What do you consider the next most important or major success of (NAME OF ORGANIZATION)?

(Q24)
What do you consider the next most important major success of (NAME OF ORGANIZATION)?

(Q25)
What do you consider the greatest need for the future success of (NAME OF ORGANIZATION)?

(Q26)
What do you consider the next most important need for the future success of (NAME OF ORGANIZATION)?
(Q27)
What do you consider the next most important need for the future success of (NAME OF ORGANIZATION)?

___________________________________________

[GOTO Q30]

(Q28)
Could you give me the name of a person who would be a good source for information on this topic? (mission, goals and projects)

___________________________________________

(Q29)
Could you give me his/her telephone number?

IF NO, ASK WHAT TOWN LIVES IN.

___________________________________________

(Q30)
Next, I have some questions about the charter, budget, and organization of (NAME OF ORGANIZATION). Would you be able to answer some questions about this topic?

Yes [GOTO Q33] 6
No 0
REFUSED 0
(Q31)
Could you give me the name of a person who would be a good source for information on this topic? (How the organization got started.)

(Q32)
Could you give me his/her telephone number?
In your judgment, would you say *(NAME OF ORGANIZATION)* often, seldom or never coordinates its activities with...

<table>
<thead>
<tr>
<th>Organization</th>
<th>Often</th>
<th>Seldom</th>
<th>Never</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Community Development Groups</td>
<td>60</td>
<td>6</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Local Schools</td>
<td>34</td>
<td>26</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>City Governments</td>
<td>65</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>County Governments(s)</td>
<td>58</td>
<td>9</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Human Resources Agencies</td>
<td>22</td>
<td>37</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Community Service Clubs (e.g., Lions, Kiwanis, Women's League of Women Voters)</td>
<td>26</td>
<td>35</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Farm Organizations (Farm Bureau, Farmer's Union, etc.)</td>
<td>10</td>
<td>26</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>Rural Electric Cooperatives</td>
<td>41</td>
<td>15</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Other Public Utilities</td>
<td>60</td>
<td>6</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>
(Q34)
Next, I would like to ask you some questions about how (NAME OF ORGANIZATION) is governed.

How many members are on your Board of Directors?

<table>
<thead>
<tr>
<th>Number of Members</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-11</td>
<td>27</td>
</tr>
<tr>
<td>12-24</td>
<td>34</td>
</tr>
<tr>
<td>25 or more</td>
<td>3</td>
</tr>
<tr>
<td>No Response</td>
<td>4</td>
</tr>
</tbody>
</table>

(Q35)
Do members serve on the governing board for a specific period of time?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>54</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
</tr>
<tr>
<td>DON'T KNOW</td>
<td>0</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
</tr>
</tbody>
</table>

(Q36)
How long a term do they serve?

<table>
<thead>
<tr>
<th>Term</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (year)</td>
<td>15</td>
</tr>
<tr>
<td>2 to 3</td>
<td>36</td>
</tr>
<tr>
<td>4 or more</td>
<td>1</td>
</tr>
<tr>
<td>No Response</td>
<td>17</td>
</tr>
</tbody>
</table>

(Q37)
Are there other members on the governing board who are appointed or elected to specifically represent other agencies or organizations (e.g., banks, the county, chambers of commerce, etc.)?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>41</td>
</tr>
<tr>
<td>No</td>
<td>26</td>
</tr>
<tr>
<td>DON'T KNOW</td>
<td>0</td>
</tr>
<tr>
<td>No Response</td>
<td>2</td>
</tr>
</tbody>
</table>
(Q38)
I am going to read a list of agencies and organizations; for each please tell me if they are represented on your board?

<table>
<thead>
<tr>
<th>Agency</th>
<th>Yes</th>
<th>No</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The County (counties)</td>
<td>51</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Local Utility (utilities)</td>
<td>43</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Chamber(s) of Commerce</td>
<td>48</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Community Economic Development Organizations</td>
<td>47</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>Local Banks</td>
<td>49</td>
<td>17</td>
<td>3</td>
</tr>
</tbody>
</table>

(Q39)
Approximately how many persons presently serve on committees in your organization?

<table>
<thead>
<tr>
<th>Number of Persons</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10</td>
<td>12</td>
</tr>
<tr>
<td>1 to 20</td>
<td>14</td>
</tr>
<tr>
<td>21 to 30</td>
<td>17</td>
</tr>
<tr>
<td>31 to 40</td>
<td>9</td>
</tr>
<tr>
<td>41 to 50</td>
<td>3</td>
</tr>
<tr>
<td>51 and over</td>
<td>13</td>
</tr>
<tr>
<td>REFUSED</td>
<td>1</td>
</tr>
</tbody>
</table>
(Q40)
Approximately how many persons serve as volunteers to your organization?

<table>
<thead>
<tr>
<th>Range</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10</td>
<td>14</td>
</tr>
<tr>
<td>11 to 20</td>
<td>17</td>
</tr>
<tr>
<td>21 to 30</td>
<td>8</td>
</tr>
<tr>
<td>31 to 40</td>
<td>4</td>
</tr>
<tr>
<td>41 to 50</td>
<td>5</td>
</tr>
<tr>
<td>51 and over</td>
<td>21</td>
</tr>
<tr>
<td>REFUSED</td>
<td>0</td>
</tr>
</tbody>
</table>

(Q41)
Now I will ask you a few questions about how (NAME OF ORGANIZATION) is financed. Does your organization collect dues from its members?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>33</td>
</tr>
<tr>
<td>No [GOTO Q44]</td>
<td>36</td>
</tr>
<tr>
<td>DONT KNOW</td>
<td>0</td>
</tr>
</tbody>
</table>

(Q42)
How do you determine who pays how much?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Q43)
What are the membership dues?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(Q44) What was the primary source of funding during the last fiscal year? 

(Q45) What are other sources of funding? 

(Q46) What was the (NAME OF ORGANIZATION)'s total budget during the last fiscal year?

- $0: 4
- $1 to $34,999: 25
- $35,000 to $74,999: 22
- $75,000 to $199,999: 17
- $200,000 and above: 4
- No Response: 2

(Q47) Is (NAME OF ORGANIZATION) legally formed?

- Yes [GOTO Q49]: 66
- No: 3
(Q48) Do you plan to file (legal) papers in the next twelve months?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [GOTO Q50]</td>
<td>3</td>
</tr>
<tr>
<td>No [GOTO Q50]</td>
<td>0</td>
</tr>
<tr>
<td>Don't Know [GOTO Q50]</td>
<td>0</td>
</tr>
<tr>
<td>No Response</td>
<td>6</td>
</tr>
</tbody>
</table>

(Q49) Is (NAME OF ORGANIZATION) legally formed....

<table>
<thead>
<tr>
<th>Type of Organization</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>as a nonprofit corporation</td>
<td>56</td>
</tr>
<tr>
<td>as a profit corporation</td>
<td>3</td>
</tr>
<tr>
<td>under a 28E Intergovernmental Agreement</td>
<td>5</td>
</tr>
<tr>
<td>under some other legal charter</td>
<td>2</td>
</tr>
<tr>
<td>No Response</td>
<td>3</td>
</tr>
</tbody>
</table>

(Q50) How many people does (NAME OF ORGANIZATION) currently employ Full-time?

<table>
<thead>
<tr>
<th>Full-time Employment Level</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>More than 2</td>
<td>6</td>
</tr>
</tbody>
</table>

(Q51) Part-time?

<table>
<thead>
<tr>
<th>Part-time Employment Level</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>More than 2</td>
<td>1</td>
</tr>
</tbody>
</table>
Would you like a copy of the inventory report when it is completed (No Charge)?

Yes 69
No 0

Confirm name and address.

[Name]

[Address]

[City]
APPENDIX B: CORRELATION MATRIX OF MODEL VARIABLES
Correlation matrix of model variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. JOBLOG (Jobs Created in Last Two Years $\log_{10} (Y + 1)$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. BUDGLOG (Annual Budget $\log_{10} (Y + 1)$ Dollars)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. CATEGORY (MDO Holistic/Non-holistic Type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. FULLTIM (Number of Full Time Employees)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. POPLOG (Sum of Settlement Population $\log_{10}$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. PULLFACT (MDO Weighted Retail Pull Factor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. AGDEP (1989 Agricultural Dependency Ratio)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. JOBLOG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. BUDGLOG</td>
<td>.639</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. CATEGORY</td>
<td>-.393</td>
<td>-.195</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. FULLTIM</td>
<td>.479</td>
<td>.449</td>
<td>-.335</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. POPLOG</td>
<td>.434</td>
<td>.169</td>
<td>-.012</td>
<td>.534</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. PULLFACT</td>
<td>.322</td>
<td>.234</td>
<td>-.030</td>
<td>.307</td>
<td>.455</td>
<td></td>
</tr>
<tr>
<td>7. AGDEP</td>
<td>-.319</td>
<td>-.100</td>
<td>.051</td>
<td>-.284</td>
<td>-.489</td>
<td>-.279</td>
</tr>
</tbody>
</table>
APPENDIX C: DATA VERIFICATION FORM
Full legal name of organization:__________________________

Type of organization: OK □ Change to:__________________________
Year founded: OK □ Change to:__________________________

Community, County, Population, Sales, (data are from 1990 census and state retail sales reports) OK □
Make following corrections: __________________________________
________________________________________________________________________
________________________________________________________________________

Personnel
Board of directors summary should include number of members, length of terms, method of selection, groups officially represented. OK □
Change to:
________________________________________________________________________

Paid staff: Number of full-time and number of part-time employees. OK □
Blank = None. Change to: __________________________________________
________________________________________________________________________

Committees: Number of persons on committees. OK □ Change to: ________
Number of volunteers. Blank = None OK □ Change to: ________

Finances
Fiscal 1990 Budget: Total amount over which board has control.
OK □ Change to: ________
Primary funding sources: Major funders, public, tax, private?
OK □ Change to: ________
Other funding sources: Other funders, public, tax, private?
OK □ Change to: ________
Annual dues: Amounts, types of dues. Blank = None
OK □ Change to: ________

Successes
of (name listed will be the same as at top of page) (in order reported):
List up to three specific successes. Explanation and details appreciated.
OK □ Change to: __________________________________________
________________________________________________________________________

Jobs created in past two years: OK □ Blank = None. Change to: ________
Jobs retained in past two years: OK □ Blank = None. Change to: ________
Activities during past two years:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial recruitment?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start up of new businesses?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expansion of existing industry?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retention of existing industry?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local rental housing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing to own?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local health care?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local tourism?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local retail?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental protection or recycling?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parks or recreation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grant writing for local organizations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public events (such as parades, award banquets, bike rides, festivals, etc.)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child care services?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local education issues?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership development programs?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coordinates local activities and development efforts with the following agencies and organizations:

<table>
<thead>
<tr>
<th>Agencies and Organizations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Community Development Groups</td>
<td></td>
</tr>
<tr>
<td>Local Schools</td>
<td></td>
</tr>
<tr>
<td>City Governments</td>
<td></td>
</tr>
<tr>
<td>County Government</td>
<td></td>
</tr>
<tr>
<td>Human Resource Agencies</td>
<td></td>
</tr>
<tr>
<td>Community Service Clubs</td>
<td></td>
</tr>
<tr>
<td>Farm organizations</td>
<td></td>
</tr>
<tr>
<td>Rural Electric Cooperatives</td>
<td></td>
</tr>
<tr>
<td>Public Utilities</td>
<td></td>
</tr>
</tbody>
</table>

Maintains contacts and uses services of the following agencies and organizations:

<table>
<thead>
<tr>
<th>Agencies and Organizations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Department of Economic Development</td>
<td></td>
</tr>
<tr>
<td>USDA – Farmers Home Administration</td>
<td></td>
</tr>
<tr>
<td>Iowa State University Extension Service</td>
<td></td>
</tr>
<tr>
<td>Regional Planning Commission or COG</td>
<td></td>
</tr>
<tr>
<td>Area Community College</td>
<td></td>
</tr>
<tr>
<td>Regional Economic Development Center</td>
<td></td>
</tr>
<tr>
<td>UNI Institute of Decision Making</td>
<td></td>
</tr>
<tr>
<td>Small Business Development Centers</td>
<td></td>
</tr>
</tbody>
</table>