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ENVIRONMENTS AND THEIR EFFECTS ON THE DELIVERY OF SOCIAL
SERVICES

Michigan State University

Ph.D. 1986

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THEIR ENVIRONMENTS AND THEIR EFFECTS
ON THE DELIVERY OF SOCIAL SERVICES

by

Patterson Armstrong Terry

A DISSERTATION

Submitted to
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ABSTRACT

LOCAL SOCIAL SERVICE INTERORGANIZATIONAL NETWORKS: THEIR ENVIRONMENTS AND THEIR EFFECTS ON THE DELIVERY OF SOCIAL SERVICES

by

Patterson A. Terry

This dissertation, based on data from twelve medium-sized cities in Michigan and Ohio, reports the derivation and testing of propositions about the interaction of variables -- at five levels of analysis -- that bear on social service delivery. Specifically:

- (1) the relationship of organizational variables to the formation of interorganizational dyads;
- (2) content development over time in interorganizational dyads;
- (3) the relationship of local social service network structure to the nature of interorganizational dyads;
- (4) the relationship of local environment characteristics to local social service network structure;
- (5) the relationship of links between local environments and the larger (national) system to local social service network structure.

Specific findings:

- (1) Centralization, internal communication, formalization, and efficiency are unrelated to dyad formation and innovativeness. Size is directly related to dyad formation, but complexity is not. Number of dyadic ties is directly related to innovativeness.
- (2) There is no consistent pattern to changes in content of interorganizational dyads.

- (3) Concentration of influence in interorganizational networks is inversely related to dyad density among non-influential organizations and to average multiplexity for all dyads. Dyad density between influential and non-influential organizations is directly related to dyad density among non-influential organizations.
- (4) Variables related to the concentration of political power in metropolitan areas are unrelated to the concentration of influence in local social service networks.
- (5) The amount of contact between a metropolitan area and the national system is unrelated to the concentration of influence in local social service networks.

General theoretical conclusions:

- (1) Individual social service organizations, and networks of social service organizations, are homeostatic: their structures are unresponsive to differential environments conditions.
- (2) Dyads formed between social service organizations are adaptive: their natures change in response to pressures exerted in the networks in which they occur.
- (3) Structural change in networks of social service organizations, in the form of an increase in the number of major resource centers, induces greater density and greater multiplexity in interorganizational relations.

For Paul, whose values forged my soul

For Catherine, my staunchest defender in my wars against myself

For Jon and for Eric, whose needs called me back from the abyss

For Phil, whose ideas are the germ of this work
and whose guidance brought it to completion

For Esther, who walked with me while I defined myself

For Patterson, who did the work

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CHAPTER 1

INTRODUCTION

A. The General Background of This Research

During the 1960's the availability of federal government money (particularly through the various programs associated with the "Great Society" legislation enacted at the urging of then-President Johnson) contributed to a proliferation of social service organizations and experiments with a wide variety of interorganizational arrangements for service delivery. Accompanying this increase in the number and variety of programs was a large amount of research on the characteristics, relationships, and effectiveness of social service agencies.

The gradual diminution in funds available for social service programs, and for social science research generally, curtailed research on social services drastically; by 1980 practically no such work was being published in mainline sociological journals. Issues raised in the research of that period, however, were not resolved and remain important: the functioning of and interrelationships among social service agencies are of vital concern to tens of millions of Americans and hundreds of millions of people world-wide. In addition, two ongoing streams of thought — one theoretical and the other methodological — are directly relevant to the types of problems addressed in the research of ten to twenty years ago.

1. Systems Theory

The theoretical stream of thought, systems theory, is a backdrop of assumptions about the workings of social structure. These assumptions are imbedded in a substantial proportion of the literature about organizations and interorganizational relations. Unfortunately this literature contains more debate about the value and manner of application of "the systems approach", and more generally benign nods in the direction of its jargon, than it does careful models of particular social systems (or parts of social systems) and tests of those models.

A good social system model must state the levels of analysis under consideration, define the relevant variables at each level of analysis, and specify the expected relationships among the variables at each level and between adjacent levels. Constructing such a model for a social system of any meaningful size is obviously an enormous task, and this very enormity helps explain the paucity of serious attempts. That task is nonetheless necessary if a theory of society is to be built; and this dissertation is intended as a step in that direction.

The variables used in this dissertation are taken from five levels of analysis: (1) individual organizations, (2) dyadic interorganizational relationships, (3) networks of interorganizational relationships in a local community, (4) the local community environment, and (5) the larger environment (here conceived as the national system). The majority of the predicted relationships among variables cross levels of analysis. Cross-level predictions are more central to the development of a systems model than are predictions within a single level, since

each level serves as the immediate environment for operations in the level below.

2. Network Analysis

The methodological stream of thought, network analysis, has developed sufficiently that it provides several useful tools for examining relationships among entities defined at any level of analysis. Most of the research done ten to twenty years ago on social service agencies contained aspects of network analysis in at least rudimentary form, because most researchers came to realize that relationships among agencies were crucial to understanding the functioning both of individual agencies and of the social service system as a whole.

For a network analysis to be constructive, not merely suggestive, propositions must specify network processes, particularly across levels of analysis. Specifically, for example, it is not enough to predict and report that certain organizational characteristics correlate with certain tendencies in dyad formation; the organizational characteristics themselves must be interpreted in network terms so that a common fabric of explanation links phenomena internal and external to organizations. Similarly the local and extra-local environmental variables that are expected to relate to organizational network variables must be interpreted in network terms in the explanation of the predicted relationships and the obtained findings. Variables that are not network variables per se must have their effects upon network functioning carefully explicated.

In this dissertation, the analysis of interorganizational networks is central to the construction and testing of hypotheses. Variables at the other levels of analysis are chosen and interpreted so that a common language of explanation ties the entire set of hypotheses and report of findings together.

B. Boundaries around the Research

The data reported in this dissertation were gathered in response to a federal government request for research on the coordination of mental health services to the aging (NIMH grant # 31898-02). The data were gathered in the summer and fall of 1979, and analysis has been ongoing since 1980.

A generalized version of the concern that prompted the project from which this dissertation is derived is reflected in this question: How can a federal or state agency best use its resources to improve the delivery of (some) social service(s) to some category (ies) of its constituents? A careful definition of the elements of that question will delineate some boundaries for the research reported here.

1. What Are "Social Services"?

The analysis in this dissertation includes only individual services and not collective ones. Collective services, those defined with reference to the general welfare, include armed forces, a monetary and banking system, police and fire departments, prisons, water mains. Individual

services, those defined with reference to the specific needs of particular people, include provision of food, clothing, and shelter, haircuts, access to a counselor, enrollment in a vocational course.

The distinction is primarily a matter of perspective. Aggregated individual services become a collective service, and organizations defined for collective service provide individual services. The collective service we call a fire department, in carrying out its responsibilities, usually provides the individual service of responding with fire-fighting equipment if someone calls to say his house is on fire. So thoroughly a collective service as the armed forces occasionally make headlines when their facilities are used to help citizens with urgent personal needs.

The term "social services" implies a complementary category of "non-social services". When considering individual services, such a distinction is pointless. At a particular time, in a particular place, some material good or personal service may seem so luxurious or harmful as to be completely beyond the connotation of the term "social services"; but different times and places might offer different perspectives. Providing snowmobiles to Michigan hunters might seem an unlikely project for the Michigan Department of Social Services; providing snowmobiles to Inuit hunters might be a quite sensible project for the equivalent Alaska agency.

Thus while a particular situation will impose limits on what can be considered a social service, providing any material good or personal

service to individuals is potentially a social service. In this dissertation, social services in any particular situation will be assumed to include the provision of all material goods and personal services that an intervening government agency is concerned about.

2. What Does It Mean to "Improve the Delivery" of Social Services?

In this dissertation improvements in social service delivery will be defined on two dimensions.

- a. The first dimension is the expansion of existing service capability, including creation of services not currently delivered. This dimension is contained in the concept Aiken et al. (1975, pp. 10-12) call the comprehensiveness of programs.
- b. The second dimension is improvement of access to existing services; it involves ease of access to service locations, and the responsiveness and accountability of service organizations to clients (Aiken et al., 1975, pp. 13-14; Gilbert and Specht, 1977, p. 56).

One apparently obvious service dimension omitted here is the quality of service -- the actual effect of services on individual clients. The project on which this dissertation is based contained no data that could be used to measure this service dimension. Such omission is endemic to research on social service delivery. After discussing the difficulties of measuring service quality, Gilbert and Specht (1977, p. 57) conclude: "In the absence of qualitative measures of program

output, funding agencies must often settle for surrogate measures such as concrete measures showing the numbers of programs in operation, numbers of staff delivering services, numbers of clients served, and the like."

A thorough search of the literature uncovered no study of interorganizational relations among social service agencies that also gathered data to measure effects of resulting service arrangements on clients, or even client perceptions of those effects. Statements about the effects of social service networks on clients must therefore be based on assumed relationships between client impact variables and variables at a higher level of analysis. Aldrich provided an illustration of such an assumption in one article on his study of manpower organizations (1976b, p. 238): "Although I have no direct measures of client well being, I am proceeding with the analysis on the assumption that client welfare is affected by the extent and nature of coordination between organizations involved in the manpower training system." It is significant that the effects are left undefined.

The absence of service quality in measures for evaluating programs suggests an important understanding: in a service delivery system, the clients are little more than grist in a mill composed of the organizations that process them. After working assiduously to establish counseling services for residents of a children's home, Crow (1970, p.121) came to this conclusion: "As a conceptual point, it seems that an external agency must think of its services as being offered to an institution as opposed to the residents of that institution."

There is good reason to argue that clients' perceptions and reactions as individuals are immaterial to the workings of social service delivery systems. Whether or not an individual likes his/her treatment is of no consequence unless that individual can in some way convince an organization that her/his opinion matters. In general, unless a client's part is taken by an organizational actor (such as an organization of clients, a parents' organization, or a political group) that client's concerns have no effect.

The relative powerlessness of individual clients stems from the organization of funding for social services in our society. Clients are the source of little or none of the funding given social service agencies; their satisfaction therefore does not affect the livelihood of an agency unless a funding source becomes concerned. If social services were funded on the basis of a voucher system, as Warren (1971, pp. 123-4) once suggested, aggregate client demand could become the most important factor in determining social service delivery policies; and individual client satisfaction presumably would become a matter of more concern. Under the present system, there is no compelling reason to include client satisfaction as a variable.

The organizations that allocate resources within communities have an additional concern relevant to the concept of "better service". Since in any community there are typically more demands than available resources can meet, better service means equivalent results for less cost — an approach that leads to the concept of integrated service delivery and to coordination of agency programs. In some discussions,

integrated service delivery and the efficiencies it presumably provides are taken for granted. A stream of thought introduced by Warren (1971), however, suggests that comprehensiveness and accessibility for clients may be greater when service is not particularly well integrated. In this dissertation the amount of integration of service delivery will be treated as a dependent variable determined by features of a community, its environment, and its overall social services network; the effect any particular service integration has on service delivery will be considered in the context of each separate analysis.

Finally, a government agency providing resources may be interested in the aggregate effectiveness of the service: is the level of unmet need that provoked the response diminishing as a result of the service being provided? This dimension, which touches on the issues of how a need becomes defined, who decides what reactions are appropriate, and who judges the results of those reactions, is beyond the scope of this dissertation; but its political nature means that the systems theory and network analysis that underlie this dissertation will also be essential to its analysis.

3. What Are the "Resources" of a Government Agency?

A government agency has three resources at its disposal that are relevant to this study: (1) money (or resources that would cost money) that it may grant to other organizations; (2) the power to create (directly, or through request to another government agency) a new organization; and (3) the power to regulate existing organizations -- by means of administrative control in the case of lower-level

government agencies, and by means of law enforcement in the case of non-governmental organizations.

Governments also have the power to tax and, by means of the taxes collected, to transfer wealth among categories of persons. Although these more general powers clearly can be and are used to affect social service delivery, to analyze their impact would require data not collected in the research project on which this dissertation is based; so such powers will not be considered here.

4. What is a "Category of Constituents"?

The categorization of constituents is central to the political organization of a social services system. Two different approaches to categorization provide quite different bases of power for service recipients.

In the first approach, a category is based on non-service-related characteristics and the service needs of individuals in the category are then specified. Such categories typically have social or political significance: women, blacks, Hispanics, inhabitants of the Sixth Ward. Because of this more general social or political significance, members of the category have, or potentially have, access to centers of political power that can require social service organizations to change their delivery behavior. In such a situation clients are more nearly on an equal footing with the social service organizations that serve them: existing organizations can serve as intermediaries for them.

In the second approach, a category is defined on the basis of service(s) needed. Typically medical services, mental health services, and vocational services are organized on this basis. This approach to categorization leaves the client group, taken as a whole, without organizational ties to political centers of power. In such a situation clients have a less than equal relationship with organizations providing services, since the very structure of the situation means that the service organizations define clients' needs -- or at least the proper means of meeting them.

The analysis in this dissertation does not include political systems at any level, so no hypotheses directly relate to the categorization of clients. Such categorization will be considered only in proposing further research on the effect of the local and national environment on community social service agency networks.

C. The Context of Service Delivery

Earlier five levels of analysis were identified for use in this dissertation:

1. individual organizations;
2. relationships between organizations (organizational dyads);
3. networks of social service organizations;
4. the local environment of the social service network; and
5. the larger (national) environment of the social service network.

The focal level of analysis in this dissertation will be the network of relations among agencies that deliver social services in a community (level 3).

Higher levels of analysis are not the focus because social services must be delivered where people are. Future communication and transportation systems may make it possible to deliver services at long range, or to gather clients from great distances for service. For now, however, most material goods and personal services are directly provided by local organizations.

It is true that organizations at many levels affect service delivery at the local level. Local organizations of all sorts affect social service delivery through economic impact and political influence. Regional, state, national, and international organizations strongly affect the economic and political environments that surround local communities and their social service organizations, and in many cases more directly affect the community through a local office or branch.

Yet no matter how significant organizations beyond the local level may be, no matter how highly variables at some other level may correlate with service delivery at the local level, the effects of these organizations and variables will be mediated through the activities of local organizations; and the aggregate effects of local organizational activities will be mediated through the activities of the specific organizations providing social services. Any intervening agent, therefore, must understand the functioning of the local social services network in a community if intervention — no matter at what level — is to have a reasonable chance of accomplishing the outcomes the intervenor intends.

Aldrich, reporting his study of manpower training organizations in New York cities, concluded that level four (the local environment) was the most appropriate level of analysis (1972, p. 16): "...[L]ocal conditions are important determinants of actual behavior of the network of manpower and related organizations. These considerations suggest that the relevant level of analysis is the community, or metropolitan area...." His conclusion is consistent with the focus here on level three in two ways: (1) since the range of organizations he studied was much narrower than that studied for this dissertation, what he considered "local conditions" included the majority of the network of social service agencies generally; (2) if local conditions strongly affect social service network behavior, then intervention at that level must be informed by a careful explication of the consequences of various local conditions for actual social service network behavior.

Organizational behavior is not the focus of this dissertation because, at least for cities of the size studied, the number of organizations capable of providing any given social service is large enough that the character of service delivery — at least on the two dimensions used here — depends on more than organizational characteristics. Similarly the number of dyads among service organizations is great enough that the effects of individual dyad characteristics are swamped by the operation of the overall system.

Nearly two decades ago Warren identified the local social service network (level 3) as crucial to understanding social service delivery. Following research on social service delivery in three major cities, he

defined the "interorganizational field" as a key to understanding social service agency interaction (1967a, p. 308): "The concept of interorganizational field is based on the observation that the interaction between two organizations is affected, in part at least, by the nature of the organizational pattern or network within which they find themselves." This assessment was echoed by the executive manager of a major project that was part of a national experiment on ways of coordinating social service delivery (Buckman, 1971, p. 30).

The analysis in this dissertation, then, will focus on the network of relationships among those organizations in a community that are providing social services. To articulate the forces that affect that network and the effects that network has, we will look at the impact of dyads on the network, and vice versa, the impact of both local and nonlocal phenomena on that network, and the relationship between dyads and organizational characteristics. To provide a common framework for analysis, variables at all levels will be interpreted in network terms.

CHAPTER 2

A DISCUSSION OF RELEVANT, PREVIOUSLY PUBLISHED LITERATURE

The range of analysis in this dissertation is sufficiently great that a complete review of all relevant literature would overshadow the report of the research itself. The formation of hypotheses and the interpretation of data involve the orienting framework of systems theory and the methodological framework of network analysis -- each area having a sizeable literature. The variables are from five levels of analysis -- from individual organizations to the national system -- and each level of analysis also encompasses an extensive literature.

In most of these seven literatures only one or a few key articles and/or books provided specific guidance for this dissertation. The review of the literature will consist primarily of a detailed discussion of these articles and books. Certain other articles and books will be mentioned as they relate to the central points of these key works.

A. Systems Theory as an Orienting Framework

The elements of a systems orientation were explored by Walter Buckley in Sociology and Modern Systems Theory (1967). A discussion of certain parts of Buckley's presentation will provide the necessary introduction to the concepts used here.

1. What Are Systems?

Buckley says (1967, p. 41): "The kind of system we are interested in may be described generally as a complex of elements or components directly or indirectly related in a causal network, such that each component is related to at least some others in a more or less stable way within any particular period of time." This quotation specifies four ingredients central to the concept "system":

- (1) entities of some sort;
- (2) defined relations among the entities;
- (3) a causal quality to the relations -- analysis of the effects generated in (through) the relations;
- (4) relative stability to the relations.

The first, second, and fourth elements are common to any theoretical model. Defined entities and relations among them are necessary to describe any phenomena; and relative stability is a methodological necessity: only "relatively stable" phenomena stay around long enough to be studied, or are sufficiently differentiated from random background signals to be noticed. (Obviously as observational tools improve in any field, "relative stability" requires less duration and permits greater variability.) The crucial discriminator between a systems and a non-systems approach is ingredient three. For a model to represent a system, it must contain more than taxonomic or correlational connections. A systems model must be constructed to describe and explain whatever is "going on" -- the motive forces.

2. Levels of Systems

Buckley identifies three levels of complexity in systems models. He argues that social systems are inadequately described by the lower two levels -- mechanical (equilibrium) and organismic (homeostatic) models. They require instead the most complex level: adaptive systems models.

Equilibrium models, he defines, have "elements in mutual interrelationships, which may be in a state of 'equilibrium', such that any moderate changes in the elements or their interrelationships away from the equilibrium position are counterbalanced by changes tending to restore it" (p. 9). They describe "types of systems which, in moving to an equilibrium point, typically lose organization, and then tend to hold that minimum level within relatively narrow conditions of disturbance" (p. 40). "Homeostatic models apply to systems tending to maintain a given, relatively high, level of organization against everpresent tendencies to reduce it" (p. 40).

On the other hand, Buckley says, "The complex adaptive system model applies to systems characterized by the elaboration and evolution of organization; ... they thrive on, in fact depend on, 'disturbances' and 'variety' in the environment" (p. 40). Buckley asserts that adaptive systems models are needed for the psychological, phylogenetic, and sociocultural levels of analysis (p. 5).

3. The Analysis of Adaptive Systems

Buckley is careful to say that "when we deal with the more open systems with a more flexible structure, the distinction between the boundaries and the environment becomes a more and more arbitrary matter, dependent on the purposes of the observer" (p. 41). It is therefore more useful to talk about an adaptive process, where a system and its environment are matched in such a way that the process becomes possible. Although a system may be capable of engaging in an adaptive process, its doing so depends on its location in an appropriate environment.

Hawley (1981, p. 225) for example suggests that the nature of a community system depends on the changeability of its environment: "[I]n the absence of change it might be assumed that the power distribution approaches an equilibrium." In Buckley's terms, without the stimulus of the external environment the system becomes homeostatic. Similarly, in his model of oligopolistic interfirm behavior, Williamson's (1965) assumptions lead to an equilibrium arrangement when only his interfirm variables are varied; the environmental variable is the source of change in equilibrium point.

Since a system cannot be determined to be adaptive in Buckley's sense simply by examining the system itself, identification of adaptive systems requires analysis of the adaptive processes that encompass both the systems and their environments. The key distinction to be made is between homeostatic and adaptive systems; so if adaptive systems cannot be identified without reference to their environments, then neither can homeostatic systems. The situation devolves to this: if one identi-

fies an adaptive process, then one has by definition found an adaptive system; but if one identifies a homeostatic system within its environment, one cannot know whether the system is at best homeostatic or whether the environment contains too few "disturbances" and too little "variety" to cause the system to display "the elaboration and evolution of organization" that is the defining characteristic of adaptive systems.

There is also the difficulty, in trying to distinguish homeostatic from adaptive systems, of recognizing built-in developmental sequences that occur relatively uniformly in the presence of necessary conditions. Systems displaying such developmental sequences would show elaboration of organization of a sort that should be distinguished from the relatively idiosyncratic development to be expected from an adaptive system in the presence of sufficient conditions.

If then, one intends to make empirical distinctions between homeostatic and adaptive systems, knowledge of the type of system under study should be sufficiently advanced that some models of the developmental sequences of the system have attracted general agreement among researchers, and that the behavior of specimens of the system in a variety of environments have been described and modeled in detail (which would require some theoretical framework for specifying relevant dimensions of environments). Yet the study of organizations, the level of analysis used in this dissertation that has the greatest volume of literature, is so little advanced that it is still meaningful to write a beginning taxonomy (McKelvey, 1982).

For Buckley's distinctions to be meaningful in an analysis of social structure, therefore, one must assume the level of system exemplified by entities at a certain level of analysis, and use the fruitfulness of the overall model that includes one's assumptions as an indirect test of the correctness of the assumptions. One cannot expect, at this stage of social science, to find or develop precise measures to distinguish examples of homeostatic and adaptive systems.

4. What Levels of Social Systems Are What Types of System?

In general, sociologists' characterizations of social systems have tended to be homeostatic. Hawley, for example, says (1981, p. 340):

"It is important to recognize, moreover, that a social system is a loosely knit fabric of relationships. In consequence there is a certain amount of independent variability among the interdependent parts. But flexibility of this nature should not be taken for changeability. On the contrary, it is just that flexibility which enables a structure of relationships to withstand random shifts and pressures. Too great a rigidity would subject a system to a continuous risk of destruction in an unstable environment."

At the organizational level of analysis, Hannan and Freeman (1984, p. 150) note three currents of thought on structural and behavioral changes in populations of organizations: (1) population ecology, which assumes that changes occur because new organizations replace old ones, and that individual organizations change little; (2) rational change, which assumes that individual organizations change significantly in order to adapt to their environments; and (3) random change, which assumes that individual organizations change significantly but not in response to their environments. Only the second of these is consistent with the view that organizations can be adaptive systems.

The first view, which is consistent with an assumption that organizations are homeostatic systems, is supported by diverse writers. Stinchcombe (1965), examining the pattern of organizational founding in recent history, concluded,

"The organizational inventions that can be made at a particular time in history depend on the social technology available at the time. Organizations which have purposes that can be efficiently reached with the socially possible organizational forms tend to be founded during the period in which they have become possible. Then, both because they can function effectively with those organizational forms, and because the forms tend to become institutionalized, the basic structure of the organization tends to remain relatively stable" (p. 133).

Emery and Trist (1965), having studied the difficulties of canning firms and individual farmers in postwar Great Britain, concluded that they operated in a "turbulent" environment: one in which "dynamic properties arise not simply from the interaction of the component organizations, but also from the field itself"; so that for organizations in the environment, "[t]he consequences which flow from their actions lead off in ways that become increasingly unpredictable ..." (p. 275). They further concluded that organizations in the modern world cannot possibly obtain enough information to predict the consequences of their actions, and that the stabilization of organizational behavior will have to come from the development of a new set of values which will relate organizations to the wider society and thus institutionalize the organizations (p. 279).

Emery and Trist's conclusion is echoed by Hannan and Freeman themselves: "Selection in populations of organizations in modern societies favors forms with high reliability of performance and high levels of

accountability" (1984, p. 154). They go on to contend (p. 155) that "[s]election within populations of organizations in modern societies favors organizations whose structures have high inertia." Such a perception apparently underlay one of the most sophisticated models of organizational behavior developed to date, that of Hummon, Doreian, and Teuter (1975); for their mathematical model builds in an explicitly homeostatic process.

Work consistent with the assumption that organizations are homeostatic systems does not represent a single research stream. Hannan and Freeman's particular theoretical framework has, however, precipitated a sizeable amount of reported research in the past decade (Freeman and Hannan, 1975, Hannan and Freeman, 1977; Hannan and Freeman, 1978; Brittain and Freeman, 1980; Carroll and Delacroix, 1982); Delacroix and Carroll, 1983; Freeman, Carroll, and Hannan, 1983; Freeman and Hannan, 1983; and Carroll, 1984).

The second perspective, that organizations deliberately change to adjust to their environments, is consistent with an assumption that organizations are adaptive systems. Dill (1958) conducted an early study examining environmental effects on organization structure and functioning. The two businesses he studied both confronted significant changes in their environments, but one flourished and the other declined. Dill detailed several factors in the environments and structures of the two organizations that interacted to produce the different results; his analysis suggested that management practices contribute greatly to an organization's ability to react to its environment.

This theme was elaborated by Lawrence and Lorsch (1967) in their report of their 1963 study of some U. S. firms in the plastics, standardized container, and consumer food industries. They rejected the notion that there is a single best way to organize, and their data supported their contention that different organizational practices and structures are best suited to different environments (in their study, the industry as a whole stood for the environment). Although their data did not provide any basis for selecting a rational choice model rather than a population ecology model to explain their results, they did develop a rational choice model -- contingency theory -- which assumed that organizations could and would use information to adapt themselves to their environments.

Child (1972) elaborated basic contingency theory with his concept of "strategic choice": the deliberate choices of the "dominant coalition" in an organization as to what the structure and preference of the organization ought to be. His description of coalitional struggle, however, an example of the third perspective identified by Hannan and Freeman, does not tie the outcome to conditions in the environment.

The weight of evidence to date is that organizations in different environments differ significantly, but there is no decisive evidence to compel a choice between a homeostatic and an adaptive systems model of organizations. What can be said is that no research demonstrates patterns of organizational structure that cannot be explained by a homeostatic model, and that the most active current stream of research on the relationship between organizational variables and organizational

environment is grounded in a theory (population ecology) that presumes organizations are not adaptive systems.

No research on organizational dyads provides a good test of the usefulness of a homeostatic versus an adaptive systems model. Most research involving organizational dyads uses their presence or absence as a variable in studies focussed on other levels of analysis. Individual studies focussing on dyads as the object of research contain assumptions more nearly consistent with one model or the other, and the particular studies relevant to this dissertation will have those assumptions identified in the discussion of those studies.

The situation is only a little better with respect to networks of organizations. While some studies consider the environments of networks, there are none that directly test hypotheses about the relationship between network characteristics and environmental variables. The conclusion from one study of interrelationships among government agencies in nine Missouri counties contained this interesting statement, however (Benson et al., pp. 124-5):

"[I]t should not be assumed that a system of interagency relationships (even the relatively small one studied here) is subject, to any large degree, to rational manipulation and control. Clearly, some of the variables we have identified are susceptible to some degree of rational manipulation.... However, it seems likely that the limits of such rational manipulation and control are quite restrictive.... If we take too narrow a view of the problem we may overestimate our capacities as social analysts and change-agents."

A homeostatic system, no matter what its complexity, is ultimately understandable and rationally controllable because its operations are

finite. Benson and his colleagues therefore point toward the conclusion that networks of organizations can be considered adaptive systems.

The question of the level of system model appropriate to local and national environments need not be investigated for this dissertation. Since the focal level of analysis is the network of social service agencies in a community, whether the entities at the levels above are homeostatic or adaptive has no bearing on their effect on the focal level. The only issue is the complexity of those environments relative to the local social service networks, and that issue must be addressed individually for each city.

B. Social Network Analysis

The concept "network" is intuitively straightforward: "a set of units (or nodes) of some kind and the relations of specific types that occur among them" (Alba, 1982, p. 42). Some version of the concept is inevitable in the investigation of any type of phenomenon at any level of analysis once the focus of research turns from the characteristics of entities to the nature of connections among the entities.

Social network analysis has two underpinning traditions. The first, sociometry, was introduced by Moreno (1934) and developed over the next 25 years primarily in the context of small group analysis. Advanced mathematical approaches to the data were introduced as early as 1949 by Festinger. The beginning of social network analysis beyond the small group level is associated with Barnes' report of his 1952-3 study of

the social structure of a Norwegian island parish (1954). Although earlier writers are cited (particularly Simmel (1908)), Barnes' article initiated anthropological work in which the metaphor of a network began to take shape as a working tool. A decade later, the application of graph theory (Harary, Cartwright, and Norman, 1965) and the exploration of bias parameters in comparing random networks to actual network data (Fararo and Sunshine, 1964) had laid a methodological foundation for systematic sociological exploration.

1. The Basic Decisions in Network Research

The most basic decision in undertaking a network analysis is the definition of boundaries. The world populations of persons and organizations are completely linked, as illustrated by Milgram's "small world" research (Milgram, 1967; Travers and Milgram, 1969; Korte and Milgram, 1970). Given this complete linkage, any social network analysis must be based on a subnetwork: a subpopulation of entities defined on the basis of one or more characteristics, or a subset of linkages chosen on the basis of one or more criteria. Barnes recognized this issue in the beginning; describing the interpersonal connections linking his study population, he observed (1954, pp. 43-44):

"A network of this kind has no external boundary, nor has it any clear-cut internal divisions.... Certainly there are clusters of people who are more closely linked than others, but in general the limits of the clusters are vague."

The underlying danger, discussed at some length by Alba (1982, pp. 43-45) and by Laumann, Marsdon, and Prensky (1983), is that arbitrary selection of entities and links for study can easily omit others whose

importance to the subnetwork is greater than many of those selected. A primary responsibility of a network researcher, then, is to show that the subnetwork selected for study is meaningfully bounded for purposes of the study.

The second pivotal issue in network research is the multiplexity (strandedness) of relationships: the number and types of links between entities. The multiplexity of relationships is worth studying in its own right, since it provides a clue to the overall strength of ties between entities (Kapferer, 1969; Granovetter, 1973); but in general the problem is choosing what links to record in order best to study the phenomena on which the research is focussed. A well-reasoned explication relating the particular linkages chosen to the substance of the research is rare in the social network literature; in the absence of such a justification it is difficult to know just what it is that has been measured. Burt (1983) has detailed a pretesting technique, for determining overlap in linkage concepts within individual human subpopulations, that permits the selection of questions most likely to obtain the information wanted by a researcher.

2. Data Collection Issues in Network Research

Once a subpopulation among which to examine relationships, and the aspects of relationships to be measured, have been defined, knotty problems in the collection of data must be addressed. One central concern is the source of data: typically social network data have been gathered by asking participants in the network to provide information. Killworth and Bernard have done a series of studies, however, that call

into serious question how closely informants' attributions of network linkages correspond to objective measures of those linkages (Killworth and Bernard, 1976; Bernard and Killworth, 1977; Killworth and Bernard, 1979; Bernard, Killworth, and Sailer, 1980; Bernard, Killworth, and Sailer, 1981). Burt and Bittner (1981) reason convincingly that basic structural features are the same in both the attributional and objective data sets that Killworth and Bernard analyzed; but the exchange underscores the fact that the Killworth and Bernard research has made untenable earlier naive assumptions about the isomorphism of the two data sets, and has forced more sophisticated assessment of the conditions under which attributional can safely be used in place of objective data.

A second, related major concern is the working definition of a link between two entities. When objective measures are used, this concern is primarily a matter of definition; but when informants are used to identify the relationships in which they are involved, the interpretation of reciprocity becomes problematic: does a network link exist if either party reports it, or only if both do? Some studies (such as Fararo and Sunshine, 1964) use the proportion of reciprocated choices as data in its own right; but most network research does not involve such questions, and the decision on unreciprocated choices is often made with no particular justification and without regard to the dangers shown by Bernard and Killworth's research. In this dissertation, particular choices to use one or the other definition will be based on (and explained in the context of) the particular question that must be answered. This concern will prove important in the study of very large

networks whose size requires sampling; exploration of this area has only recently begun (Granovetter, 1976; Beniger, 1976; Burt, 1981; Erickson and Nosunchuck, 1983).

A third major decision is the level of data to be collected. The social network research literature almost exclusively consists of studies based on binary data -- a link between entities either exists or it doesn't -- although some major computer programs available for network analysis (NEGOPY (Richards, 1975) and STRUCTURE (Burt, 1977)) permit a range of values to be associated with network links. Binary data are obviously poor measures of relationships. They equate links that differ drastically in duration, volume of resource exchange, and frequency -- to name three dimensions that obviously affect the actual workings of any social network. Binary data, nevertheless, are simpler to collect; and the level of graph theory that has provided many of the mathematical tools for network analysis assumes binary data. As a result, most studies (including the one on which this dissertation is based), use binary data.

3. Measures of Network Characteristics

A number of measures of networks can be subsumed under the concept connectedness. When the focus is on an individual entity, this concept refers to the existence (and length) of chains of connections between that entity and other entities of interest (an egocentric network). When comparing entire networks, one compares them on the distribution of chains relating pairs of entities or types of entities. Many early social network studies dealt with egocentric networks and their zones:

first-order zones (those entities linked directly to the entity focussed on), second-order zones (those entities linked to the entity focussed on via entities in the first-order zone), etc. (See Barnes' (1969) discussion of network analysis and the various studies in Mitchell (1969).) Such work is less frequent now. Measures relevant to connectedness include the diameter (the greatest number of links necessary to connect two entities in a network), average distance (the mean number of links between pairs of entities in the network), and density (the number of direct links divided by the number of pairs of entities).

An important stream of research on patterns in connectedness has involved the definition and application of various forms of bias in network formation. The concept of bias refers in general to a tendency for certain types of linkage patterns to occur more often than would be expected if network links were generated in simple random fashion. If A, B, and C represent entities in a network, then:

- reciprocity bias is a tendency for choices from A to B to be accompanied by choices from B to A;
- transitivity bias is a tendency for choices from A to B and from B to C to be accompanied by choices from A to C;
- sibling bias is a tendency for choices from A to B and from A to C to be accompanied by choices from B to C and C to B;
- inbreeding bias is a tendency for members of predefined aggregates of entities to choose others within their aggregate rather than those outside it.

Fararo and Sunshine (1964) provided a good description of bias generally (pp. 11-30), and of reciprocation and sibling bias in particular (pp. 25-27). Fararo (1981) discussed both of these and also inbreeding bias.

Another category of important network measures is measures of centrality. With respect to an individual entity, the concept of centrality is intuitively obvious, although examination has shown that there are multiple measures with different implications. In entire networks, measures of centrality have to do with the distribution of centrality measures for entities. Linton Freeman (1977, 1979) has done the basic exploration of measures of centrality, at length concluding that betweenness (placement on chains of links between other entities) is the best (Freeman, Roede, and Mulholland, 1980).

A large literature has developed around the concept of position and methods of determining entities that share a common position in a network. The first widely used algorithm for detecting jointly occupied positions in networks was published by Harrison White (White, Boorman, and Breiger, 1976; Boorman and White, 1976). The concept has been explored in detail in numerous articles by Burt (see Burt, 1982, for a summary of his initial work and a complete bibliography), and has provoked a plethora of methodological and substantive articles. The basic concept is that entities with identical sets of links in a network are equivalent for purposes of analysis. Methodological work has focussed on efficient mechanisms for detecting such sets of equivalent entities, and on the consequences of relaxing the degree of similarity in linkage required to define equivalence. Substantive work has aimed at describing the equivalence structures (called blockmodels) of as-sorted networks.

4. The Number of Entities Considered at Once

In general, network studies are concentrated in two levels of analysis: the dyadic link that is the basic unit of information, and the overall structure of the network under consideration. Whole network studies normally are based on statistical measures derived from dyadic relational counts. Networks could be examined using entity subsets larger than two, however, and in fact a great deal of work has been done with triads.

The advantage to using larger subsets than pairs is that they provide much greater complexity for examining network data. For binary, potentially reciprocal relations, a dyad has four possible states: no connection, asymmetric connection in one direction, asymmetric connection in the other direction, and symmetric connection. These four states represent three combinations of types of tie (no tie, one asymmetric tie, and one symmetric tie), and three sets of structurally equivalent states. For triads in the same type of data, there are 64 possible states, 10 combinations of type of tie, and 16 sets of structurally equivalent states. For tetrads there are 4,096 possible states, 28 combinations of type of tie, and over 200 sets of structurally equivalent states. (The last set of numbers helps explain why work with entity sets larger than three has been virtually nonexistent).

The basis for triad research lies in the fact that in a random network, triads in different states but with the same number of links would be equally common. Given a probability for forming any given link, the expected frequency of each of the 16 structural types of triads in a

random net can thus be computed. To the extent, then, that a researcher's question can be posed as a bias in favor of certain triad configurations, a network can be analyzed and the departure from random tested for statistical significance. Summaries of triad research are given in Davis (1979) and Holland and Leinhardt (1983). Obviously the research on bias parameters in networks mentioned earlier overlaps substantively with triad analysis; but the two have been developed parallel to each other without theoretical combination.

C. The Interaction of Organizational Characteristics and Dyad Formation

The lowest level of analysis in this dissertation is that of the individual organization. The first analysis of interest concerns the relationships among variables at the organizational level and variables at the level of dyadic interaction between organizations. The most often cited empirical study of this sort is the one done by Aiken and Hage (1968). Subsequent work has been replication and elaboration of their original research.

Aiken and Hage found that organizations participating in larger numbers of joint programs with other organizations were likely (a) to be more complex, (b) to be more innovative, (c) to have more active internal communication channels, and (d) to have more decentralized decision-making structures (although this result was not statistically significant). They had also expected to find an inverse relationship with formalization, but their data were inconsistent with this expectation.

Their data, gathered in 1967, were obtained from sixteen "health and welfare organizations in a large midwestern metropolis [Milwaukee, Wisconsin] ... that provide ... services for the mentally retarded" (pp. 376-7). Their dependent measure was the number of joint programs in which an organization participated that required a commitment of resources. Their independent measures, the zero-order Pearson correlations with the dependent variable, and the significance levels, are shown in table 2C-1.

Table 2C-1
The Aiken-Hage Independent Variables
and Their Zero-Order Correlations with Number of Joint Programs

variable	correlation
1. Complexity	
-- index of professional training	.15 (p > .10)
-- index of professional activity	.60 (p < .05)
-- number of occupations	.87 (p < .001)
2. Innovation	
-- no. of new programs (incl. joint)	.71 (p < .01)
-- no. of new programs (excl. joint)	.74 (p < .001)
3. Internal Communication	
-- no. of committees	.47 (p < .10)
-- no. of committee meetings monthly	.83 (p < .001)
4. Degree of centralization	
-- index of participation in decision-making	.30 (p > .10)
-- index of hierarchy of authority	.33 (p > .10)
5. Degree of formalization	
-- index of job codification	.13 (p > .10)
-- index of rule observation	-.06 (p > .10)
-- index of specificity of job	-.06 (p > .10)

Because Aiken and Hage studied only 16 organizations, a true multivariate analysis was not possible with their data; but they examined

several possible sources of error. Nonparametric zero-order correlations were compared to their Pearson correlations to test the possibility that the results stemmed from a skewed distribution of the dependent variable; the results were equivalent. Partial correlations were used to control for type of organization, size, source of funding, and routineness of work activity (considered a technology variable); none showed a significant change from the zero-order correlations.

Aiken and Hage also used partial correlation to examine patterns of relationships among their independent variables. Their results showed that both measures of internal communication (number of committees and frequency of meetings), one measure of complexity (external professional activity by staff), and innovation (number of new programs introduced), were all strongly interrelated.

Aiken and Hage postulated that effects flow both from organizational variables to dyadic interaction, and from the dyadic interaction to organizational variables (pp. 374-376). Their interpretation was that more complex organizations are more innovative, but that the innovations create a need for resources that can best (or only) be met through interdependencies with other organizations. These interdependencies, however, increase problems of internal coordination and control, thereby leading to increased internal communication, decentralized decision-making, and reduced formalization. Finally, the interdependencies themselves increase the complexity of the organization, completing the feedback loop. This model represents the interaction of an organization with one aspect of its environment as an adaptive, not

a homeostatic, process: the model specifies no internal mechanism that would limit the increase of complexity and thus halt the growth of the process.

A possible explanation of the unexpected results for formalization is provided by a study of sixteen general service hospitals done by Morse (1977). He broke down the concept of formalization into 10 different measures: 6 having to do with the generation of information, 2 with the coordination of processes within the hospital, and 2 with the control of financial expenditures. Morse's results showed that formalization of information generation and financial expenditure correlated positively with innovation, while formalization of process coordination correlated negatively. He concluded that formalization cannot be considered a single dimension in studying organizational behavior.

Upon close examination, it is clear Aiken and Hage's measures of formalization do not separate the three dimensions Morse identifies: each of the opinion questions used in each of their three measures could apply to any or all of Morse's three dimensions. This failure to separate dimensions may explain the absence of a statistically significant relationship between formalization and interorganizational relations in Aiken and Hage's data, and also the tendency (counter to that hypothesized, but statistically insignificant) for organizations with more new programs to show greater formalization.

Aiken and Hage's work, based on so few cases and thus supporting only a rudimentary analysis, was more suggestive than compelling. A clearer

test of their ideas required a study that could support a more complex analysis. In 1974 Paulson reported a study of 138 public health agencies in Iowa. To the variables used by Aiken and Hage in their 1968 study he added four others used by Hage in a 1965 article proposing an axiomatic theory of organizations: stratification, efficiency, job satisfaction, and effectiveness. An initial correlational analysis of these data replicated Aiken's and Hage's basic findings.

Paulson assumed that organizational variables explained the development of interorganizational relations -- an asymmetric model rather than the reciprocal one suggested by Aiken and Hage. He therefore established a causal ordering among the ten variables and carried out an initial, fully recursive, path analysis. Paths with probabilities less than 0.15 in the initial analysis were eliminated; as a result the variable "job satisfaction" was dropped. The remaining paths were then examined in a second path analysis. The matrix of resulting path coefficients (Paulson, 1974, p. 327) is given in Table 2C-2.

Table 2C-2
Path Coefficients in Paulson's Model

[illegible]

As the table shows, Paulson found large direct relationships between involvement in interorganizational relations and each of the four variables (complexity, centralization, communication, and innovation) for which Aiken and Hage had gotten large correlations. The negative correlation for centralization is consistent, since Paulson measured centralization in the opposite sense from Aiken and Hage. Also, like Aiken and Hage, Paulson found formalization to have no effect; and, like theirs, his measure confounds the dimensions Morse's research suggests must be separated.

Of the additional variables Paulson introduced, only efficiency (the ratio of administrative positions to expenditures) proved particularly important. Job satisfaction occurred on no significant paths in the preliminary, fully recursive path analysis; stratification showed only weak indirect effects on the formation of interorganizational relations; effectiveness showed a stronger indirect effect through innovation, but no direct effect.

Paulson's analysis, although methodologically more sophisticated than Aiken and Hage's and involving more variables, assumed a simpler model of organization-environment interaction. He posited no mechanism for the dyadic relationships formed by an organization to affect the workings of the organization itself, nor did he specify any other environmental variables that condition the organization's behavior. Paulson's is therefore an equilibrium model -- the lowest-level model of a system. While his findings are useful for confirmation and extension of Aiken and Hage's initial work, his model has no utility.

Klonglan et al. (1976), using data obtained from 156 organizations at state, district, and county levels of health organizations in Iowa, replicated the findings of the 1968 Aiken and Hage study. They suspected that there would be dissimilarities among levels, however, and separately analyzed the three levels. They found (p. 684), in fact, that the overall results were not duplicated at any level. They concluded that the processes that lead to interorganizational relationships cannot be assumed to be the same for organizations at different hierarchical levels. Although Klonglan et al. do not propose a specific model, their conclusion supports an adaptive interpretation of organizations; for it implies differing reactions in differing environments.

A startling aspect of all three of these studies is the absence of size as an independent variable. Blau (Blau and Schoenherr, 1971, pp. 62-67, 183-185) firmly established the strong relationship between staff size and the number of types of organizational positions -- the measure of complexity used by Aiken and Hage, and a central variable in their model. While Blau's results were published after the initial Aiken and Hage article, the later studies were carried out after that time. Aiken and Hage did use size as a control variable in a partial correlation and found no effect; but a partial correlation does not properly test for the importance of a potential independent variable. Clearly any further research in this area must include size as a variable.

Of the variables used in these studies, organizational complexity showed the strongest and most consistent relationship to the formation of interorganizational relations; internal communication was also fair-

ly consistent, but its relationship was not as strong; centralization displayed an erratic relationship, with Paulson finding the largest. The results with these variables have been strong enough to require their inclusion in any further analyses along the same lines. Formalization never showed the statistically significant relationship with IOR formation that was predicted for it; but a measure taking Morse's distinction into account has not yet been tried, and should be included in further work. Efficiency, used only by Paulson, showed a strong enough direct effect on IOR formation to warrant its use in future analyses.

The part played by the variable innovation seems anomalous. The zero-order correlation with IOR formation was consistently present, but Paulson's analysis showed a relatively weak direct effect and effects on it by several other variables. In addition, a study by Czepiel (1975) of innovation adoption in 26 steel firms showed that firms with more employees involved in external professional activities (one of Aiken and Hage's measures of complexity) were less likely to adopt early. (Such firms tended to be the larger ones, again implicating size as a crucial variable.) The results to date suggest that a better explanation is needed of the place of innovation in the interaction between organizational variables and IOR formation.

D. The Development of Dyadic Interaction

Studies of dyadic interaction among organizations, while they have often been imbedded in research that examined the larger environment,

have not theoretically articulated relationships between environmental and dyadic variables. Models of dyadic interaction, therefore, have not been models of adaptive systems, although some are consistent with the assumptions needed to model an adaptive system.

Aldrich (1972, pp. 26-31), following Marrett (1971), identified four dimensions to organizational dyadic relationships, each with two sub-dimensions:

- (1) formalization: (a) agreement (contracts), and (b) structural (designated boundary personnel);
- (2) intensity: (a) size of resource investment, and (b) frequency of interaction;
- (3) reciprocity: (a) resource reciprocity, and (b) definitional reciprocity — mutuality of agreement;
- (4) standardization: (a) unit standardization (of the things exchanged), and (b) procedural standardization.

In a later article (1976b, p. 239) on relations between manpower organizations and the local Employment Service in New York cities, Aldrich hypothesized the causal order of these four variables as they affect cooperation to be formalization, intensity, reciprocity, and standardization. He interpreted his results to substantiate this ordering, and concluded (p. 260) that " 'cooperation' is [not] a resource that can be relied on in future transactions." In another article the same year on the relations between manpower organizations and social service organizations generally (1976a), he concluded that formalization drives intensity, intensity feeds back on itself, intensity drives standardization, and perceived cooperation is a function of the value of resources invested in the relationship (one dimension of intensity).

Aldrich's propositions define only an incomplete system, for no feedback mechanisms are suggested within the dyad (other than the self-increasing nature of intensity) nor between the dyad and its environment. His propositions are consistent, however, with either a homeostatic or an adaptive system model. Added organizational variables serving to limit growth of the dyad would be consistent with Aiken and Hage's contention that dyadic relationships are entered into to meet internal needs (homeostatic model). Added environmental variables could serve to limit the resources available or control the level of formalization (adaptive model).

Benson et al. studied the relationships formed among the county-level offices of four government agencies in a nine-county area of rural Missouri (Benson et al, 1973; Benson, 1975). They tested the hypothesis that the following four variables should be at roughly equivalent levels (see page 51 for precise definitions, pp. 56-58 for the operational measures). The variables are listed in the causal order postulated by Benson et al.:

- (1) domain consensus (agreement as to each other's turf);
- (2) ideological consensus (agreement regarding the tasks to be undertaken and the approaches to use on them);
- (3) evaluation (of each organization by the other);
- (4) work coordination.

Benson's propositions clearly suggest a homeostatic model of dyadic interaction. The balancing mechanisms are not specified, but there is a clear assumption that an imbalance among the four components provokes some sort of adjustment.

The models suggested by these two studies are complementary. Benson et al. studied a system where conflict and potential conflict permeated the situation (Benson et. al, 1973. pp. v, vi) — hence their emphasis on contextual agreements (boundaries and goals) and interorganizational evaluation as precursors to work coordination. Aldrich studied a system with minimal conflict (1976b, p. 234), and his variables can easily be interpreted as a differentiation of Benson's fourth variable — work coordination.

A homeostatic model of dyadic interaction synthesized from these studies would include conflict-moderating processes to make possible the coordination of work; the coordination then would develop (according to the processes specified by Aldrich) to a point relatively in balance with (and inversely related to) the level of conflict. An adaptive systems model would add variables from the larger environmental system to affect the dyadic system's conflict-moderating processes and in turn be affected by work coordinated by the dyad.

The studies discussed above contain no propositions about the content of interaction, an area addressed by Rogers (1974) and Klonglan et al. (1976). Rogers interviewed heads of ten public and five private organizations in sixteen Iowa counties -- organizations chosen for their countywide responsibilities and involvement in development programs. Since not all agencies had offices in each county, there were only 116 interviews. In each interview Rogers asked the agency head the following six questions about the other agencies with offices in the same county (p. 64):

1. Are you acquainted with the director of agency X?
2. Have you met with the director of agency X in the past year?
3. Is agency X on your agency's mailing list, or vice versa?
4. Has your agency shared, loaned, or provided resources to agency X in the past two years, or vice versa?
5. Does anyone from agency X serve on your Board of Directors, or vice versa?
6. Does your unit have any written agreements with agency X?

Rogers used Guttman scaling on his one-time data to test for a uniform progression to the content of dyadic relationships. His results -- a highly reproducible¹, moderately scalable² Guttman scale for the various levels of relationship -- supported his proposition that a dyadic relationship at any given level of commitment would be likely to exist only if a relationship at the next lower level of commitment had previously existed.

¹ In Guttman scaling, one measures how nearly invariant a set of binary items is in the order of their occurrence. If item 2 only occurs when item 1 is present, item 3 only occurs when item 2 is present, and so on, then the items form a perfect Guttman scale. The reproducibility of the scale formed by any set of items is 1 minus the ratio of inconsistent responses to total responses. Reproducibility can therefore range from 0 to 1 in value. Reproducibility is 1 if the items form a perfect scale (no inconsistent responses). A reproducibility of 0.9 or better is usually taken to mean that the items form a valid scale (Nie et al, 1975, pp. 532, 533).

² Scalability is a ratio. Its numerator is the difference between the reproducibility for the scale formed by a set of items and the minimum reproducibility possible for that set of items given the number of positive responses to each item. The denominator is the difference between 1 and that lowest possible level of reproducibility. Scalability is thus the proportion of improvement a set of items provides over the lowest reproducibility possible for that set of data. Like reproducibility, scalability may range between 0 and 1. Scalability is normally considered adequate only if it exceeds 0.6 (Nie et al, 1975, p. 533).

The Guttman scale resulting from the 1119 response sets had a reproducibility of 0.91, and a scalability of 0.66 (p. 66). Seventy-four percent of the responses conformed to the ordering predicted. Examination of the exceptions (p. 66) showed (1) that overlapping boards could well have been another dimension and thus deleted from the scale; and (2) that resource and information exchange (levels 3 and 4) were almost interchangeable as to which occurred first. A re-analysis of the data omitting level five and combining levels three and four would be expected to show higher reproducibility and much higher scalability.

Klonglan et al. (1976) performed the same type of study and data analysis on 156 Iowa health organization offices at the state, district, and county levels. Organization managers at each level were asked to identify the relationships between their own and other agencies at the same level in the same area. Two relational content questions were added to the six Rogers had used: (1) awareness of Agency X, inserted below Rogers' first question; (2) participation in joint programs with Agency X, inserted between Rogers' questions 5 and 6.

Klonglan et al. expected to find results similar to Rogers' at each level (state, district, county); instead their reproducibility was below 0.9 for the state-level offices and their scalability was below 0.6 for both the state and county offices. To explore further, they dropped their a priori assumptions about the ordering of the items and obtained the best empirical ordering at each level. The best empirical orderings did not provide an acceptable scale at either the state or county level, however; only the district level data showed scalable

responses. The best orderings, moreover, varied among levels. Unfortunately Klonglan et al. did not analyze cases with responses inconsistent with the scale, so there is no way to determine which of their items is weakest. It is therefore not possible, as it was with Rogers' study, to predict if the deletion of certain items and the combination of others would produce an acceptable scale.

Three items retained their theoretically predicted order in each of the empirical orderings: director awareness of Agency X (lowest), director acquaintance with the director of Agency X (next to lowest), and written agreements with Agency X (highest). In addition, overlapping boards was consistently ordered next to highest (one position higher than its theoretically predicted ordering). The other four items showed no consistency among levels of organization nor with their theoretically predicted ordering. In light of their findings, Klonglan et al. modified their approach and suggested (pp. 685-6) that the most basic component of interorganizational interaction (after basic recognition and acquaintance) varies with the level. At the state level, they concluded, the exchange of information precedes other exchanges; at the district level, joint programming precedes other exchanges; and at the county level, exchange of resources precedes other exchanges.

The findings of Rogers and of Klonglan et al. appear to contradict Aldrich, for the formal agreements that Aldrich claims drive the development of interorganizational relationships show up in Rogers' and Klonglan's data as relatively rare final products after a developmental sequence of several steps. The disparity almost certainly stems from

the difference in organizations studied. The raison d'être of the relatively new manpower organizations Aldrich studied required the development of relations with the local employment service, and the mandates of these various organizations overlapped (Aldrich, 1976b, pp. 237-238). The government and community organizations studied by Rogers (1974, p. 63) were mostly well-established, their tasks were not defined in ways that demanded relations with the others, and there was relatively little overlap in their defined responsibilities. The health-related organizations studied by Klonglan et al. (1976, p. 678) included more recently formed organizations and much more overlap in defined responsibilities, but those responsibilities did not require relations with the others. The findings are complementary: Aldrich's model can be assumed to apply to dyadic interaction in an environment where there is already large number of formalized dyads, Rogers' and Klonglan's in an environment where there is not.

Rogers' results support a homeostatic interpretation -- dyadic relational developments tend toward an invariant sequence. A synthesis of Aldrich's and Benson's findings invites an adaptive systems interpretation: political considerations (themselves presumably conditioned by variables in the larger system) condition whether or not working arrangements will occur and what their nature will be. The findings of Klonglan et al. also support an adaptive systems model: the environment (as determined by the relative level) of an organization conditions the type of exchange that is most crucial to the development of dyadic relations. What would have to be added to develop a complete adaptive systems model would be a description of the mechanisms that

permit a dyadic relationship to adapt to environmental changes; and such a model would require longitudinal data to test.

E. The Conditioning of Dyadic Relationships by Network Characteristics

The two basic categories of effects that a network of relationships can have on particular relationships within the network are the determination of (1) which relationships will occur, and (2) what the content of particular relationships will be. Research relevant to this section, then, must explore what characteristics of an existing set of relationships affect the probability of a nonexistent tie coming into existence, or an existing tie going out of existence, or the adding or subtracting of relational content in an existing relationship, and what those various effects are.

Three particular case studies illustrate different facets of the impact of local networks on organizational relationships. Levine, White, and Paul (1963) describe an organization established in a community they studied. Although the organization began with all the internal resources one would expect to be needed, no mechanism for relating it to other organizations in the community were provided and the organization did not seek out such ties. Its effectiveness dropped, and the organization itself eventually withered.

The case outlined in the previous paragraph contrasts sharply with the behavior and fate of the Tennessee Valley Authority, documented by Selznick in his study of that organization (1949). To achieve its ends

the TVA was impelled to seek links with existing local organizations. The nature of those links substantially determined the details of TVA service delivery to farmers, while removing much of the most potent resistance to TVA at the local level. Selznick circumspectly decries the change in service focus enforced by the local organizations -- testimony to the difficulty of bypassing an existing local network in delivering services, and to the fact that other organizations, not their individual clients, are the predominant environmental factor for organizations.

Finally, Maniha and Perrow (1965) reported the case of an organization that was formed against the wishes of many powerful social service organizations in a community. Despite the best efforts of most concerned officials to keep the new organization out of any meaningful activity, a series of coincidences caused it to become thoroughly imbedded in the local network during its second year of existence. Maniha and Perrow concluded that the imbedding offered a good prognosis for continued survival.

Research on interorganizational networks among social service agencies has emphasized that exchange is essential to understanding the patterns of interaction. In one of the earliest such research projects, Levine and White studied 22 health-related organizations and their interrelations in one New England city of 200,000, and 55 similar organizations in another area city of about the same size. Their work, carried out in the late 1950's, was published a few years later (Levine and White, 1961; Levine, White, and Paul, 1963). They laid the groundwork for

emphasis on exchange in interorganizational networks, identifying three dimensions to exchange: resources (like clients and staff), organizational objectives, and domain consensus (agreement over location and content of services to be offered).

Benson and his associates studied the interrelationships among four specific government agencies in nine Missouri counties in 1969. In their report and analysis of their work (Benson et al., 1973; Benson, 1975) they described interorganizational networks as political economies, with resources and authority (the recognized right to work a given turf -- another name for domain consensus) as the "coins" in the economy.

Aldrich (1976a), reporting on the networks formed among manpower organizations in several New York cities, emphasized the central role of actual resources in interorganizational exchange networks; such dimensions as domain consensus, he concluded, are derivative from the actual resource exchange structure established (p. 423). He also found formal authority to be a crucial resource among service organizations, its importance stemming partly from the fact that for social service organizations, "...their market ... is not clearly defined and their product is difficult for consumers to evaluate" (p. 422). He did not add that almost the only buyers are other organizations, since individuals are seldom empowered to negotiate their own social services.

Cook (1977) explored expected results of unequal power distributions in networks. She identified four courses of action open to an entity

faced with dependence on one or more other entities for resources: (1) withdrawal, (2) extension of its network to include new entities, (3) increasing the value of the resources it could offer in exchange, and (4) forming coalitions with other entities. She predicted that organizations with complementary resources would be likely to establish exchange relations, and that organizations with similar resources would be more likely to form coalitions.

Laumann and Marsden (1982), distilling the resource dependence perspective, suggested several consequences of arrangements of resources in interorganizational networks for the formation of relationships among the organizations. In particular they identified these three principles as governing interorganizational interaction (pp 331-334):

1. resource inequality -- the resources organizations need are not uniformly available to all.
2. reciprocity of resource transfer -- to avoid dependence, organizations attempt to enter into mutual exchanges of similar resources (like exchanges of information, or client referrals) or balanced asymmetric exchanges of different resources (like information exchanged for organizational support).
3. redundancy -- to protect important relationships that provide needed resources, organizations build multiple links, such as adding an exchange of directors to their ordinary resource exchange.

On the basis of their reasoning and earlier research findings, Laumann and Marsden predicted the following (pp. 334-336):

1. mutual exchange (exchange involving similar resources) will be most common where there is the least concentration of resources;

2. balanced asymmetric exchange (exchange of one resource for a different one) will be most common where there is the least concentration of resources.
3. multiplexity in relations will be most common where there is the least concentration of resources.

Laumann and Marsden's characterization of organizational dyads is homeostatic with respect to the behavior they identify. Organizations aim to achieve certain states (adequacy of resources, lack of dependence, redundancy), and the dyads they form reflect these aims. While the environment (degree of resource concentration in the network) conditions outcomes, the environment is basically a matter of sufficiency — given sufficiently diffuse resource concentration, a characteristic pattern develops in dyadic interactions.

In the presence of relative resource concentration, however, we would expect to find interorganizational relations overwhelmingly dominated by those agencies with the most resources. Since few organizations would have much to trade, most would have to compete for the resources available from the well-endowed, and hence would have little incentive to develop relations with each other. To the extent that relationships with well-endowed organizations are developed, however, they should provide resources for further exchange with other organizations.

A resource dependence perspective, then, as interpreted by Laumann and Marsden, leads us to expect that:

1. formation of relationships among organizations with few resources depends on formation of relationships between those organizations with few resources and those with many;

2. networks with less resource concentration generate more relationships;
3. networks with less resource concentration generate more multiplexity in relationships.

F. The Effect of the Local Environment on the Local Social Service Delivery Network

The term "local environment", in its most general sense, is used here to refer to every aspect of the metropolitan area in which a local social services network exists. With regard to direct impact on that network, however, the local environment consists of other organizations. Variables of other sorts, like basic changes in the character of the local population (the level of poverty, the level of education, the level of physical and mental health) affect the network of services; but because payment of social services is routinely brokered through organizations rather than managed through a voucher system, such changes would still have their effects mediated through interorganizational interaction. For purposes of this study, then, the local environment will be understood primarily to be those organizations in the metropolitan area that are not in the social services network, and the network(s) formed among them and with social service agencies.

No research has specifically related the nature of a social services network to the larger network of organizations around it; but several studies have examined features of cities' organizational structures as they affect outcomes that would bear on the activity of the social services network. Some of these studies suggest usable conjectures

about the articulation of social services networks with their local organizational environments.

Aiken (1969, 1970) and Aiken and Alford (1970a, 1970b) published a series of articles on their research on federal programs in United States cities. In their report on urban renewal (1970a) they reported the results of testing several standard hypotheses about the variables that affect events in cities. On the basis of their findings, they rejected these hypotheses and suggested an alternative in terms of the interorganizational network within the cities (pp. 661-663): older, large cities were more likely to participate in urban renewal because they had more effective networks: (1) more stable organizational nets and a concomitant higher state of knowledge about the community system among organizational actors; and (2) a larger and more diverse set of special-purpose organizations that served as multiple centers of power. They concluded that multiple centers of power are important because they make it more likely that a coalition of resources adequate to a given political task can be formed -- a conclusion based on the assumption that absolute size, not relative power share, is the crucial determinant of action in such systems. Their analysis of data on involvement in federal programs for public housing supported the same conclusions (Aiken and Alford, 1970b, pp. 863-4). The same pattern of results was also present in their research on Model Cities and War on Poverty programs (Aiken, 1970, p. 513).

A little earlier Clark (1968) had studied decisions to participate in urban renewal programs in 51 U. S. cities. He concluded (pp. 587-8)

that "fragile" issues, those without a significant prior imbedding in the community's structure, are more easily vetoed in a decentralized power structure because there are more centers of power. However, when once a program has become imbedded, he suggested, it tends to be harder to uproot in a decentralized power structure because several of those same multiple centers of power now have a vested interest in maintaining the new program. His findings are consistent with Aiken and Alford's with respect to participation in urban renewal (p. 587); but he pointed out (pp. 587-88) that earlier researchers had gotten different results, and concluded that urban renewal programs had during the meantime become more imbedded -- explaining his own (and thereby Aiken and Alford's) results.

Clark's data showed (1968, p. 587) that the zero-order relationship between community poverty level and urban renewal expenditures was relatively low, but that the path coefficient was considerably higher -- an indication that prima facie "need" is not a strong predictor of program participation unless other conditions are met. Aiken and Hage's data showed the same low correlations between measures of poverty and level of program participation in three of the four programs they studied (Aiken, 1970, p. 513). Turk (1970), using data from the 1960's on 130 American cities, found that measures of the extent of poverty in a city predicted the amount of federal funding obtained for poverty programs in those cities that were fairly strongly organized, but not in those less organized. He concluded (pp. 14-16) that level of involvement in the poverty programs was a multiplicative function of need (poverty) and capacity (interorganizational integration). Writing

later about a wider range of city government functions and activities, Turk (1977, p. 186) generalized his conclusion to the full range of needs a city might address.

These studies all suggest that the effectiveness of a city in mobilizing resources to meet individual human needs depends primarily on the presence of a well-integrated interorganizational network with multiple centers of power. It seems reasonable to conclude, then, that the better-integrated the overall network in a metropolitan area, the more resources its social services network will have. That conclusion leads to this question: what conditions in metropolitan areas encourage the development and maintenance of well-integrated networks with multiple centers of power? Three types of variables have been identified: those that affect the stability of the network, those that provide resources to build alternative loci of power in the interorganizational network, and those that affect the manner in which the dyadic microstructure network will likely be built up.

Aiken and Alford (1970a, pp. 654, 657-8, 662) identified in-migration as a principal factor that can reduce the stability of an interorganizational network. Rapid population growth in a metropolitan area provides a basis for new organizations in any case. When the growth is a function of in-migration, the new population brings with it ties to other organizations and demands for particular organizational arrangements. The result is changes in the pattern of connections among organizations. Unfortunately, they did not explore the opportunities for new centers of power that growth in the number of organizations

would provide, nor how the effects of these opportunities interact with the instability in the overall network.

Clark (1968, pp. 588-9) was startled by the very large relationship he found between the percentage of Catholic population in a city and its urban renewal and general budget expenditures. In his search for a plausible explanation, he was impressed by attitude studies showing Catholics to be favorably disposed toward increased governmental activities and more extensive welfare state activities. He also, however, reported a profile of the communities with largest Catholic populations: Northeastern U. S., fairly high population density, slightly more industrialized, somewhat less educated populations. But this is exactly the type of city with the largest variety of ethnicity and the largest proportion of foreign-born population, and this ethnic diversity is a principal component of the heterogeneity that Aiken and Alford (1970a, p. 660; 1970b, p. 859) cite as predictive of greater involvement in urban renewal and public housing projects.

Aiken and Alford (1970a, pp. 660-1) also tested the dispersion of economic power as a predictor of involvement in urban renewal. They found that the number of manufacturing establishments of size 100 or more and the number of independent banks with assets of fifty million dollars or more were each significantly correlated with involvement in urban renewal. The percent of plant workers unionized also showed significant relationship with some of their measures.

Hawley (1963) reported that the smaller the proportion of managers, proprietors, and officials in a city's population, the more likely it was to have participated in urban renewal. He interpreted the "MPO ratio", as he named it, as a measure of concentration of power in a city, arguing (p. 466) that the number of such persons reflect the number of such positions needed. His findings supported his supposition (p. 465) that a concentration of power is needed to focus the resources required to initiate programs like urban renewal.

Aiken (1970, pp. 502-505), like Hawley, reported that the MPO ratio in cities was inversely related to involvement in urban renewal (and other federal welfare) programs. He tested Hawley's supposition, however, that the MPO ratio is indicative of greater concentration of power, by correlating it with his index of diffusion of political power. The correlation was negative, and Aiken argued that the MPO ratio therefore measures power concentration directly, rather than inversely as Hawley had reasoned.

Aiken's findings suggest that the MPO ratio is perhaps better interpreted as a demographic than a structural variable, indicative of higher average socioeconomic status among city inhabitants. Aiken and Alford (1970a, p. 658; 1970b, p.859) showed that two other measures of SES -- median family income and percent of adult population that had graduated high school -- were related to participation in federal housing and urban renewal programs in exactly the same way as the MPO ratio. Although these results suggest that higher SES is negatively related to involvement in the federal programs studied, Clark (1968)

provides evidence to the contrary. He also found the negative correlation between a measure of SES (proportion of highly educated population) and urban renewal expenditures; but he used a path analysis for his study, and the path coefficient between those two variables was as strongly positive as the zero-order coefficient was negative (p. 587).

A higher level of average socioeconomic status in a city would surely correspond to a lower level of need, and the zero-order correlations found are therefore hardly surprising; but there is also reason to argue that higher SES will lead to better interorganizational integration and more centers of power. Granovetter (1973) introduced the concept of the "weak tie" in networks. He argued that relationships that are less frequent, intensive, and intimate provide the connections that link disparate primary groups together; consequently, integration into a broader social network is dependent on such ties. His study of personal contacts leading to jobs in Boston (1974) supported his contention empirically; Fararo (1981) demonstrated the logical necessity that connectedness in a net is greater when inbreeding bias (the tendency for entities to be connected to others in the same category as themselves) is less. But it is characteristic of higher SES persons that they maintain a greater proportion of weak ties (Granovetter, 1982). It is reasonable to expect, then, that the interpersonal network structure of a city will be better connected the higher the average SES. Since organizational leaders tend to be higher SES persons in general, this tendency should be even stronger in the interpersonal connections that link organizations.

In summary, prior research leads to the expectation that cities with relatively high average socioeconomic status, relatively low in-migration, heterogeneity in ethnic stock, and multiple centers of economic power will be better integrated in the sense that the organizations in the metropolitan area will have greater density of interaction. This better overall integration, since it has been shown to be related to higher levels of participation in federal government programs, can be expected to lead to higher levels of resources, from more sources, for the local social services network.

G. The Effect of the Nonlocal Environment on the Local Social Service Delivery Network

Research demonstrating the effect of varied U. S. national environments on local metropolitan environments is sparse, a result of the small number of cases and the short longevity of researchers compared to that of the cases being studied. Instead the relevant literature consists mostly of abstract assertions about the nature of environments generally, illustrated by specific features of national (or international) environments.

Aldrich (1972) listed seven dimensions to organizational environments, of which two involve nonlocal influences: the carrying capacity of (quantity of resources in) the environment, which for social service organizations in the United States clearly is affected by national organizations; and the turbulence of the environment, which, as originally defined by Emery and Trist (1965), results from the global

interlock of interorganizational ties (Warren's interorganizational "field" (1967) writ large). These two dimensions encompass the substance of other literature relevant to this topic.

Two empirical findings are specifically relevant to this level of analysis. Turk (1970) showed that the level of connectedness in a metropolitan area is strongly related to the number of external connections -- as measured by the number of national organization headquarters in the area. Aiken (1970, p. 498) added his own findings to a long list of prior research that shows that the proportion of absentee ownership in a local economy is inversely related to the centralization of the local political decision-making process.

These findings can be interpreted to mean that ties to the external environment have the effect of providing variety (turbulence) in the local environment, encouraging adaptive behavior. Certainly additional ties to the external environment would increase the number of independent sources of power and resources, diminishing tendencies toward concentrations of power in the local system. Evan (1965) contended that as the input of resources is more concentrated, authority is too. In a more turbulent environment, then, we could expect decentralization in local systems.

Clark (1965), interpreting the relations among institutions of higher education and the government agencies that affect them in the United States, noted that the resulting interorganizational network did not display the tight control mechanisms of a standard bureaucracy; instead

decision-making processes and supervisory functions are relatively decentralized and not authoritarian. His distinction resembles van Poucke's (1980) between interest and power networks: interest networks generate informal control mechanisms based on the interests of the parties; power networks (he used organizations as the prototype) have a formal central control mechanism that orients the parties regardless of [in addition to?] their interests. To the extent that national inter-organizational networks operate as interest networks, greater numbers of ties to them in a local area should bring that local network to look more nearly like the national one.

Roy (1983), analyzing the interlocks in the directorates of 12 United States industries between 1886 and 1905, uncovered a revealing pattern. The years studied are significant because, as Roy pointed out (p. 248), these two decades span the time when the U. S. economy shifted from a primarily non-corporate to a primarily corporate structure. Roy's analysis shows graphically how the interlocking of directorates over this twenty year period began with domination by three core industries and gradually spread out to involve interlocks between many industries not in that core. He cites Mizruchi's (1982) study of corporate interlocks over the following 70 years as evidence that the decentralization, though gradual, has been continuing. These studies suggest that the phenomenon Clark described in higher education has occurred within the industrial sector of the economy as well.

Emery and Trist (1965) are generally cited as the originators of the concept of a turbulent environment. They used as their example a firm

in Britain that, continuing in what had been a highly successful manner, was totally undone by circumstances it could not have foreseen. They concluded that the extent of interconnection among organizations in the modern world has made it impossible to forecast the effects which ripple through those interconnections.

Their conclusions may stem in part from the size of organization they considered. Wilensky (1967), using much larger organizations as examples (primarily the United States government, and occasionally some other governments), was much more optimistic about the capability of organizations to obtain the information they need to operate effectively in their environments. In any case, regardless of the adequacy of an organization's information-gathering apparatus, it seems reasonable to assume that in a turbulent environment organizations with more contact points in the network of organizations around them will be better able to foresee coming events and better able to fashion effective responses to them. From this we can conjecture that turbulent environments, generated by the interlocking of organizations in the first place, will induce pressures for even more interconnection.

Haire (1959) presaged later arguments about the effect of the environment on organizational labor specialization. Pursuing an organismic analogy, he contended that organizations would build up personnel positions in places where they are stressed. In a turbulent environment, pressures from the environment are particularly severe, and would be reflected in the development of many externally-oriented positions. The existence of many such positions in many local organizations would

in and of itself contribute to the development of local networks, because the personnel would already be present to carry on the relationships. We should therefore expect the best connected local networks in metropolitan areas that have the most contact with the external environment.

In summary, there is evidence to suggest that the interorganizational structure of the entire United States has grown more diffuse in its decision-making patterns. There is even stronger evidence to suggest that the nature of the national system tends to induce a similar nature in local systems. There is good reason to expect, then, that in the United States more ties to the national system will result in a less centralized decision-making structure at the local level. In the United States this means that more ties to the external environment result in less centralized decision-making structures at the local level.

CHAPTER 3

DATA, ASSUMPTIONS, HYPOTHESES, AND METHODS OF ANALYSIS

A. The Data Available from the Study

The data analyzed in this dissertation were gathered in response to a federal government request for research on the coordination of mental health services to the aging (NIMH grant # 31898-02). The design of the study involved the selection of 12 cities, 6 each from Michigan and Ohio, with populations in the range of 100,000 to 500,000. Project staff visited each of the cities to gather information, meet with local persons at the center of the social services network, and request cooperation. Telephone directories, printed information from United Way offices, and interviews with knowledgeable persons were used to compile a list of the social service agencies in each city.

From the list of agencies identified in each city a population was defined for interview. In general, agencies were included that had five or more permanent paid staff positions, an independent board, and direct provision of social services to clients. Physical health was not included in the working definition of "social services", so hospitals and other agencies concerned only with physical health were excluded. State facilities located in a city, but that provided custodial or in-patient services only on a statewide basis (prisons, mental hospitals), were also excluded. A handful of programs were included that had gained community recognition in their own right despite placement within larger institutions (like a university or

hospital). Of 527 agencies in the identified populations, 479 (90.9%) agreed to take part in the study. An examination of the agencies declining to take part showed that there was no consistent pattern among the cities with respect to the particular organizations or the types of organizations that did decline. Specific details of the selection process, lists of organizations, and other information relative to the data-gathering process can be found in the final report prepared for this project (Marcus and Sheldon, 1982).

During interviews an expanded list of organizations was used to ask agency directors about their agencies' interconnections within the city. The expanded list included all agencies in the original population targeted for interview, certain general categories of public agencies (courts, hospitals, schools), and certain specific umbrella organizations providing no direct services but coordinating or providing money to others (United Way, Mental Health Boards). Analysis in this dissertation is limited to actual organizations, excluding the general categories but including the umbrella organizations not interviewed.

The research team assembled three survey instruments to gather data from the interviewed organizations, and compiled a large amount of archival data on the counties containing the twelve cities studied. The county-level data (a list of these variables is given in Appendix B) included updated values of the variables used by Turk (1970, 1973a, 1973b, 1977) in his earlier study of 130 American cities. Once the survey instruments were completed, a private organization, Market Opinion Research, was hired to conduct interviews and prepare the raw

data base. Interviews were carried out in the summer and early fall of 1979.

The first instrument was a questionnaire administered by interviewers from MOR during interviews with agency heads or their designates. The second instrument was left behind with the person interviewed to be filled out and returned at his/her convenience soon after. The third instrument was left to be filled out by that person in the organization most knowledgeable about the personnel and budget aspects of the agency. Budget and personnel information can be assumed to be based on records, but answers to other questions represent the perceptions of agency heads. Items in the interview instrument are almost uniformly present in the data base, but the original return rates on the two instruments left behind were 77%. Telephone calls to agencies which had not responded were used to obtain certain information, raising return rates to 86% at worst -- and 93.5% in one case -- for the items pursued.

The first, interview, instrument contained the following information relevant to analyses in this dissertation. The entire instrument is contained in Appendix A-1.

1. A 3-point scale of increase or decrease over past five years in:
 - a. number of clients served;
 - b. number of services/programs offered;
 - c. amount of funding (after controlling for inflation);
 - d. number of sources of funds;
 - e. number of service locations.
2. Proportions of clients referred in and referred out.

3. A 2-point scale of addition, in the past three years, of:

- a. new programs mandated by outside organizations;
- b. new programs not mandated;
- c. client groups mandated by outside organizations;
- d. client groups not mandated.

4. 21 questions about relations with other agencies:

- a. 5 questions about similarity to own agency:
 - (1) similar services provided,
 - (2) similar clients served,
 - (3) similar sources of funds,
 - (4) compete for resources,
 - (5) compete for clients;
- b. 4 attributions about other agencies:
 - (6) have influence over own agency,
 - (7) good opinion is important to own agency,
 - (8) have influence over human services decisions in the community,
 - (9) have prestige in the community;
- c. 12 questions about interaction with other agencies:
 - (10) other agency provides cooperation and support,
 - (11) conflict with other agency in past few years,
 - (12) other agency refers clients,
 - (13) own agency refers clients to other agency,
 - (14) exchange opinions, information and ideas with other agency,
 - (15) own agency on same community committees and planning task forces as other agency,
 - (16) rely on other agency to deliver own agency's services,
 - (17) have cooperative informal relationship,
 - (18) have formal relationship: run program(s) for other agency,
 - (19) have formal relationship: other agency runs programs for own agency,
 - (20) have formal relationship: operate joint program,
 - (21) have formal relationship: other kind.

In addition, respondents were asked to name a contact person for formal programs, and these individuals were asked independently to list agencies involved. Ultimately these results and those for questions 18 through 20 were combined, and question 21 eliminated. Analysis suggested that respondents did not adequately discriminate among the first three types of programs, and showed that no "other" type was corroborated by the contact person except where it had already been listed as a different type.

5. A matrix of most important sources of influence over 10 different organizational decision areas (list of decision areas on page 16, Appendix A-1; list of sources of influence given in Appendix A-2.

The second instrument, left behind to be filled out by the person interviewed, contained the following information relevant to this dissertation (the complete instrument is in Appendix A-3):

1. a matrix of 8 categories of staff involved in 7 organizational decision areas (p. 3 in Appendix A-3);
2. a 5-point scale of use of written criteria in 9 areas of organizational work;
3. a 5-point scale of use of permanent staff committees for 8 organizational decision areas.

The third instrument, left behind to be filled out by an administrator knowledgeable about budget and personnel, contained the following information relevant to this dissertation (the complete instrument is in Appendix A-4):

1. the number of full-time-equivalent positions of paid staff;
2. the number of full-time-equivalent paid administrative positions;
3. a count of the number of professional and occupational specialties employed by the organization;
4. the total dollar income in the most recent complete fiscal year prior to the interview.

B. General Assumptions

1. Practical Consequences

The practical aim of the analysis in this dissertation is to obtain results that could guide government agencies wishing to intervene to improve service delivery in one or more metropolitan areas. Because the study on which this dissertation is based collected no data directly related to the quality of service delivery, we must make some assumptions about the type of conditions that can be expected to lead to better service delivery. These assumptions are not open even to indirect testing with the data from which this dissertation is drawn, so their accuracy will have to be shown (or disproved) in other research.

The first assumption is that service provision through the cooperation of agencies, whether on an informal or a formal basis, leads to better service delivery. Such cooperation should lead to the development of services beyond the resources of any single organization to develop, and that would therefore not otherwise be available to clients; it should result in additional service locations because joint operations allow small organizations to provide services that can compete with those offered by larger organizations.

The presence of cooperative programming among agencies, then, will be assumed to increase the quality of service delivery in both ways identified as relevant to this dissertation in Chapter 1: increased numbers of services and improved access to existing services. If this assumption is correct, it becomes important to look for intervention

strategies that encourage such cooperative programming with a minimum of effort on the part of an intervening agency. Mandating such programs may be an efficient way to meet specific demands, but it is inordinately expensive in administrative terms to analyze a whole network and manage it by mandating a broad spectrum of cooperative projects. It would therefore be more useful to develop guidelines for routine resource input into a system that will likely lead to more cooperative programming, and reserve mandatory procedures for select situations.

The second assumption is that clients' needs are best met when a different organization in the social service network is devoted to each particular type of service offered. This assumption is based on Warren's (1967) argument that values [types of service] need to be represented in the social service network in order to have resources flow to them. So long as a service is only one part of existing organizations, it is subject to internal priority-setting mechanisms, and thus not as available to the community priority-setting mechanisms. The existence of an organization dedicated to a particular type of service presumably provides a better likelihood of service delivery per se. To the extent that such an organization has the resources to invite cooperative programming and establish client referral mechanisms with other agencies, the results should be service at more locations and in other cooperative arrangements that make service more readily available to clients. Ideally, then, such a new organization would be very well-endowed. Since that is often not the case, however, it is essential to identify conditions of creation that can help such an organization to make the most use of the resources it has.

The third assumption is that a generally high level of exchange of information and client referrals within a local social services network is advantageous in both ways defined to be of interest -- the more organizations know about each other, and the more willing they are to exchange client referrals, the more likely it is that individual clients can locate the service they want (need) and the easier it is for them to do so, and the more likely it is that needs not currently being addressed will be identified and programs begun to address them. It therefore is important to identify conditions that will lead to greater levels of exchange of information and clients within a social services network; specifically, it is important to identify feasible interventions that can foster those conditions.

2. Theoretical Conjectures

The analytic distinction between homeostatic and adaptive systems implies a neat typology that does not correspond to experience; many systems (perhaps all living systems) contain elements of both. For example, the human body is clearly a homeostatic system; but the human being includes a psychological system which Buckley maintains is adaptive (1967, p. 5). If one is going to study human beings, does one assume the system to be bounded by the homeostatic body or freed by the adaptive psychological component? Relatively narrow studies solve this dilemma by concentrating on subsets of the human being that are consistent. Many philosophical difficulties in grasping the nature of entire human beings stem precisely from the interplay that results from tremendously complex systems at two levels being conjoined in a single entity. One advantage of such an arrangement, however, is that envi-

ronmental processes can provide operant conditioning to shape initially non-homeostatic processes into dependable responses that thus become part of the homeostatic system of the entity and increase the range of environmental conditions within which that homeostatic system can function effectively.

Any living system is built from the homeostatic components of the lower-level structures that compose it, for it is those components that can be counted on to perform in predictable ways within their normal operating environments. When a higher-level system provides the needed normal operating environment, it can incorporate the homeostatic components of the lower-level structures into itself and thus gain in homeostatic complexity. Any adaptive components of such lower-level structures are, at the point of incorporation, mere tag-alongs unrelated to the usefulness of those structures to the higher-level system.

The nature of a higher-level entity's environment becomes crucial at this point. To the extent that the homeostatic system in the higher-level entity (built from the homeostatic components of its lower-level structures) is adequate to cope with the exigencies of the environment, the adaptive components of the lower-level structures inherited with the homeostatic are not useful -- either to the upper-level entity, which is coping well already, or to the lower level entity, which is now incorporated in an environment that is relatively stable; they will therefore tend to wither away. This is the process by which the entities in a relatively simple environment gradually become strictly

homeostatic. Even before they have, an observer would not be able to detect adaptive behavior because the environment requires nothing from the entities in it that their homeostatic systems cannot provide.

If the environment of the upper-level entity, however, makes demands that cannot be met by the homeostatic system of that entity, the adaptive components may become usable. If their functioning permits an effective response to the environment, and if they interlock dependably with any other components of the upper-level entity, they will be added to the upper-level homeostatic system. Since such components were not part of the original homeostatic system, responses based on them entail changes in the overall structure of the upper-level entity, and it is by this mechanism that fundamental changes in the homeostatic system of the entity can be made.

Even in a very complex environment, however, entities will tend to become strictly homeostatic. Every time an adjustment in the homeostatic system of an entity is made by converting a previously non-homeostatic component, two things happen. The first is that the flexibility of the homeostatic system is improved, so that fewer circumstances will now require responses not available from the homeostatic system. The second is that the store of possible adaptive responses is reduced. In the long run, therefore, the processes described should for every entity either produce a homeostatic system capable of meeting every environmental exigency, or exhaust the store of non-homeostatic components and leave the entity at mortal risk when the next unexpected change in the environment arrives.

There are two ways in which this seemingly inevitable result is prevented. The first is that ever-larger entities keep forming from the incorporation of smaller ones. In the social sphere, for example, this has resulted in gigantic entities built up from many, many layers of lower-level structures; but by itself such a process would ultimately produce only one strictly homeostatic social system over the entire earth. As living systems become more and more complex, however, they appear to reach a point where they become their own sources of "environmental" variation. That is to say, sufficiently complex living systems contain internal contradictions that, by providing continuing challenges to one or another component, ensure the generation of new non-homeostatic components.

Presumably it is such types of systems that Buckley had in mind when he talked about adaptive systems. Whether in fact such systems "thrive on" or "depend on" environmental variation, they certainly would be much better able, in the long run, to survive in an ever-changing environment than could any strictly homeostatic system -- no matter how complicated.

It is not automatically true, however, that upper-level systems whose lower-level structures are adaptive in the sense just described are themselves adaptive. Since the basic process of system-formation involves the homeostatic -- not the non-homeostatic -- elements of constituent structures, there is no assurance that the adaptive nature of those lower-level structures will have any effect on the upper-level entity. Such an outcome depends on whether the homeostatic system

constructed is adequate to meet the vicissitudes of the environment of the upper-level system. The one difference in such a case would be that the lower-level structures provide an ever-ready source of variety; upper-level entities built from such structures would not lose their adaptive potential in a simple environment.

With Buckley we will assume that human beings are genuinely adaptive entities with regard to their social and mental processes. This assumption means that any social system, at any level, has a never-ending source of non-homeostatic components. If such an entity shows only homeostatic behavior, we must conclude that its environment does not require more than the existing homeostatic system of the entity for effective response.

We shall assume that United States society is a genuinely adaptive system; but that no level of social system within it is (although computerization and communication linkages may soon lead to much smaller adaptive social systems). Organizations, organizational dyads, networks of social service organizations, and the entire interorganizational networks of metropolitan areas we shall assume to be homeostatic with a never-ending source of non-homeostatic components. Such systems will then display more or less adaptive behavior in response to their environments. The practical question that results is how to distinguish homeostatic from adaptive responses.

We shall treat as homeostatic responses those that are all or none. Although this is certainly a great simplification, it depends on the

notion that a homeostatic response occurs if the necessary conditions are present in the environment. Where a set of responses can be described as a smooth function (in the cases of our analyses, a linear function) of environmental variables, we will conclude that an adaptive process is ongoing. Ideally we would follow the process in single systems over time; instead we must here assume that the set of organizations (and sets of higher-level systems) studied are sufficiently similar in their construction that one-time data across the set can be substituted for longitudinal data.

3. The Adequacy of the Network Data

The organizations examined in this study are a subset of entire metropolitan area interorganizational nets; indeed, since physical health, criminal justice, and educational organizations were excluded during data-gathering, the organizations examined are subsets of local mental health and welfare agencies. Trying to draw conclusions about such a subset requires caution, since there are no data to determine if links to organizations outside the sets studied are a major influence on the processes reflected in the data actually gathered. There are two reasons, however, to assume that the organizations studied do make a meaningful subset.

First, the development of United Way organizations has regularized the gathering of private funding for social service purposes, and all United Way funded organizations that met the size criterion are in the sets of organizations studied. Similarly, the organizations that receive state and federal mental health and social services funding for

local community services are uniformly in our subsets. We have nearly complete sets of organizations, therefore, defined by funding.

Secondly, the organizations in our sets are the totality of those which, at the local level, substitute officially for interpersonal networks that are inadequate. While schools and hospitals obviously dispense a form of social service, and while their clientele obviously include persons with profound social needs, they are organized primarily to provide a service to the entire community that anyone might be expected to need. The criminal justice system, while it contains a high proportion of persons with profound social needs, is organized primarily to protect others from its clients — not to help the clients themselves. It is the organizations we are studying that are specifically designed to help those whose interpersonal networks are inadequate to meet the needs of their lives. Although some of the organizations studied (the Red Cross, the Boy Scouts) are aimed at more nearly "normal" clientele, their inclusion (given their common funding sources) should have little effect on overall interpretations.

The next concern is the objectivity of the data collected on interorganizational links. The data are all gathered from agency head perceptions, with the exception of formal relationships that took place within a project with a separate manager — in which case the project manager became a source of information. As the review of network literature made clear, such attributional data cannot be assumed to be isomorphic with actual relationships. To minimize the problem, interactional links are routinely considered to exist only if both parties

to the potential link reported it. This does not completely eliminate bias, since the same conditions that cause one agency head to name a particular agency may work in reverse for the head of the other agency. More damaging, social processes may introduce a systematic bias into the omission of agencies from those with whom links are reported; and given our criterion, unilateral behavior could eliminate an actual link from consideration. We shall have to assume, without adequate support therefore, that the interactional linkages discovered by using only mutual reporting properly reflect the actual social services network.

A number of umbrella agencies which dispensed or coordinated funding were on the list of organizations that could be chosen, but were not interviewed themselves. Because these agencies did not deliver direct social services, there is good reason to believe that interagency interaction related to actual service delivery is properly reflected in the ties among the remaining agencies. Again, without proper support, we shall have to assume that this is true, and also that the handful of direct-service agencies who chose not to participate in this study did not bias the results.

A final concern is that the data collected are binary, and thus equate relationships that may be quite different in volume and in importance to the overall network. We will assume that the differences in organization size in the cities under consideration are not large enough to render any organization completely unimportant; and our hypotheses will be framed around the degree of connectedness in networks rather than the volume of interaction between various pairs. If our assumption is

correct, the nature of our hypotheses may ensure that the findings point in the proper direction.

C. The Interaction of Organizational Characteristics and Dyad Formation

1. Theoretical Explication

Since the level of analysis serving as the primary focus for this dissertation is the network of social service organizations in a city, the importance of organizational characteristics as variables lies in their effects on the formation of interorganizational relationships. If organizational processes impel some social service agencies to seek out relationships with other organizations, but hinder other agencies from doing so, then intervenors wishing to alter the network of social service agencies in a city must pay attention to the nature of the individual organizations in the network, and use their resources to help alter existing organizations (or create new ones) to be of the type that will form the desired relationships. If, on the other hand, social service organizations generally tend to form relationships as a reaction to environmental conditions, regardless of their internal characteristics, then it would be necessary for an intervenor to put its resources into environmental changes. If both levels of processes affect the outcome, a thorough knowledge of the interaction between levels is essential to permit an intervenor to obtain the most effect for the resources available.

A handful of assumptions will help guide us back through the area traversed by Aiken and Hage and by Paulsen. The first is that organizations tend to form relationships with other organizations. These relationships are used to obtain resources, to protect themselves through building alliances, and to provide a means for gaining information about and controlling their environment -- which consists primarily of other organizations.

A second assumption is that organization size is a crucial variable to include in any study relating organizational characteristics to each other and to variables at other levels of analysis. Besides the fact that a strong relationship between size and complexity has been empirically established, the number of employees an organization has obviously affects the volume of relationships it can carry on, whether one assumes the effect is linear or some other function. (Haire (1959) assumed that the effect depends on the number of positions allocated to external relations, which he concluded increases as the cube root of the square of size.) It is essential to determine the proportion of the total variance size accounts for, and not simply to test (as Aiken and Hage did) whether the correlation remains proportionately large after size is controlled.

A third assumption is that innovation is a byproduct of the interaction between an organization and its environment, and not a variable with explanatory power in its own right. To the extent that certain types of innovations directly affect either internal processes or interorganizational contacts, those types of innovations should be separated as

particular variables, not treated as indices of innovation generally. While the creation of new programs may stimulate internal demand for additional resources, as Aiken and Hage assume (1968, p. 372), such a measure hardly serves to represent the effects of all types of innovations. The assumption here will be that new programs serve as a mechanism by which an organization increases in size and/or complexity, and by which it forms relations with other organizations to help control its environment, and therefore reflect demand for resources rather than generate it.

A fourth assumption is that the internal functioning of an organization is not related to the formation of relationships with other organizations. Since we conceive organizations to be homeostatic systems, their internal workings should be relatively buffered from the external environment. External relationships should depend, rather, on the capabilities and pressures that increasing size and complexity entail. The enabling aspect of size was discussed earlier. Complexity, conceived as variety in the types of positions in an organization, represents the variety in the ties to other organizations that employees' past histories bring to an agency and the breadth of ties that therefore may be activated by the staff of an agency.

In summary, then:

- (1) On the basis of established findings, agency staff size is expected to be strongly and directly related to organizational complexity as measured by the number of types of positions in the agency.

- (2) Because of its enabling function in the development of interorganizational relationships, agency size is expected to be strongly and directly related to the number of such relationships formed.
- (3) Because of its enabling function in the development of interorganizational relationships, agency complexity is expected to be strongly and directly related to the number of such relationships formed.
- (4) Because the tendency of agencies to develop new programs reflects a complicated interaction between the capacity of the organization and demands of the environment, innovation is expected to show no relationship to the formation of interorganizational relationships, size, or complexity if the other two are controlled; nor is it expected to show a relationship to internal organizational variables when size, complexity, and IOR are controlled.
- (5) Since organizations are assumed to be homeostatic, interorganizational relations are assumed to be (from the perspective of organizations) a tool in maintaining their functioning. There is therefore expected to be no relationship between dyadic and intra-organizational variables when size and complexity are controlled.

2. Data and Method of Analysis

Below are the working definitions of the variables used in this part of the analysis:

1. Size -- the square root of the total number of full-time-equivalent paid positions.
2. Complexity -- number of occupational specialties employed by the agency. Agency heads were asked to list the occupational special-

ties their agencies employed, and the entries were later counted by project staff.

3. Innovation -- Agency heads were asked whether, in the last five years, their agency had:
 - (a) begun new programs because they were legally mandated;
 - (b) begun new programs that were not legally mandated;
 - (c) offered service to new client groups because of legal mandate;
 - (d) offered service to new client groups where not legally mandated;
 - (e) increased the total number of services and programs it offered.

Answers to these questions were used to form an index with possible values ranging from 0 to 5.

4. Centralization -- Seven different areas of decision-making were specified (see list in Appendix A-3, p. 3), and agency heads were asked to identify those categories of employees (from a list of 8) which participated in the decision-making in each area. One point was added each time senior professional staff, junior professional staff, or paraprofessional staff were listed for an area. The resulting index ranged from 0 (none of the three groups participating in decision-making in any area) to 21 (all three groups participating in decision-making in all 7 areas). This score was then subtracted from 21 so that high scores would indicate relative centralization of decision-making.
5. Formalization -- agency heads were asked to identify, on a 5-point scale, the extent to which written criteria were used in each of 9 areas of organizational operation. Observing Morse's (1977) distinctions among substantive types of formalization, only those

6 areas that directly related to the work content of professional staff were used to form the index (see list in Appendix B-3). The resulting index was constructed to range in value from 0 to 24. The construction of this measure permits a better test of Aiken and Hage's fifth hypothesis than their own did, and predicts results in the same direction.

6. Internal Communication -- agency heads were asked to identify, from a list of eight (see list in Appendix 4), those areas of agency decision-making for which permanent staff committees were used, and the extent to which the committees were used (5-point scale). The resulting index was constructed to range in value from 0 to 32.
7. Interorganizational relations (IOR) -- Agency heads were asked to identify other organizations in their city for whom they carried out programs, who carried out programs for them, and with whom they had formal joint programs. In addition, where joint programs were identified, the name of a key administrator in the program was identified, and separate questionnaires were sent to these persons to obtain complete information on the nature of the program and the list of organizations participating in it. Links with other organizations resulting from mutual selection in response to the three questions on the questionnaire, or being identified by a program administrator in the special joint-program survey, were counted for each organization. The resulting variable value is the number of organizations to which a particular organization is linked by formal agreement.

8. Efficiency -- The agency budget divided by the number of administrative positions.

COMPARISON OF THE DATA TO AIKEN AND HAGE'S AND TO PAULSON'S DATA

1. Size. Paulson did not use this variable. Aiken and Hage did not specify how their measure of size was obtained, and they used rank order rather than actual size as the variable (p. 391), which makes the measure suspect as a control in a partial correlation. In addition, they only used it as a control variable.
2. Complexity. Aiken and Hage had a more careful version of the same thing: they counted specialties themselves based on the employees' descriptions of their work (p. 381). Paulson had a quite different measure: number of administrative positions with title of (or similar to) "assistant" (p. 334).
3. Innovation. The measure used in this study is very weak. Aiken and Hage obtained a count of the number of successfully implemented new programs in the eight years before their study (p.385). Paulson used a count of the major changes in geographical location and service activities over the past five years and anticipated in the coming five years (p. 335).
4. Centralization. Aiken and Hage's measure is similar to the one used here. The four decision-making areas they used were were among those used here. In addition, they used mean employee responses rather than agency head estimates in forming their index (p. 388). Paulson's description of his measure is vague: "Composite: frequency of new program initiation by unit plus level of autonomy in decision-making which affects unit" (p. 334).

5. Formalization. Aiken and Hage had three measures of formalization, none of which correspond closely to ours. The closest is the one they call "specificity of job" which was formed by combining answers to 6 questions about the strictness of job procedures (p. 390). Paulson formed his measure from the frequency of use of written procedures and the level of detail in written policies (p. 334).
6. Internal communication. Our measure does not exactly correspond to either of Aiken and Hage's: number of committees and number of number of committee meetings per month (p. 386). Paulson uses only the number of committee meetings per month (p. 334).
7. IOR. Aiken and Hage consider only formal joint programs (pp. 379-80). Paulson includes both the giving and receiving of resources and participation in joint programs (p.335).
8. Efficiency. Aiken and Hage did not use this variable. Paulson used the multiplicative inverse of the variable as it is defined here (p. 334).

The present study provides three advantages over the earlier ones. First of all, the number of organizations examined is much greater: 272 agencies provided data on all variables. Secondly, the variety of organizations is much greater, encompassing the full range of social service and mental health organizations. Finally, data are present from twelve cities, providing twelve case studies that can be double-checked against the overall data. Unfortunately, one of the greatest drawbacks to earlier work is present in this study as well -- the absence of longitudinal data. It is not possible to test the basic

mechanism proposed here -- that increasing size and its correlate, increasing diversity both enable a greater number of interorganizational relations, and that each is in turn augmented by an increase in organizational relations (up to some limit set by available resources) -- without such data. As a consequence, only the existence of a relation between each pair can be tested for.

The method of analysis to be used will be correlational. Each hypothesis to be tested specifies the effects of controls on a zero-order Pearson correlation between two variables. Control will be carried out using ordinary partial correlation, which shows the proportion of variance remaining to be explained, after controlling for a set of variables, that a particular other independent variable accounts for (Nie et al., 1972, pp. 332-334).

The use of size as a variable raises the question of what transformation of it (if any) is appropriate for the analysis. Blau and Schoenherr (1971) used the logarithm of size to compare it to complexity. Haire (1959) used the square of the cube root of size to compare it to the number of positions with external contact. The use of the square root transformation here is based on the fact that the number of relationships among a set of entities increases as the square of the number of entities. If the entire staff of an agency is considered available for maintaining external relations, therefore, IOR should be related to the square root of staff size. Our data are not adequate to support fine distinctions in the exponent applied to size for analysis. We will assume that the square root is an adequate approximation. With

twelve subsets (our cities) contained within the overall set of organizations it is possible to test whether the phenomena we predict are widespread, or whether the results obtained in the combined data set simply reflect very strong results in certain cities. The probability of obtaining correlations of a given sign in sets of data is distributed binomially with a probability of 0.5. If enough cities have a positive correlation, therefore, regardless of the statistical significances of the correlations, we can reject the null hypothesis that the correlations in cities like ours are not positive. The number of cities in a sample of 12 that must have positive correlations for the binomial probability to drop below 0.05 is 10 (Computation Laboratory of Harvard University, 1952, p. 404).

3. Specific Hypotheses

1. (a) For all organizations, agency size will have a significant positive zero-order Pearson correlation with agency complexity.
(b) When partial correlation is used to control for the effects of IOR and of agency centralization, formalization, internal communication, and efficiency, agency size will still have a significant positive correlation with agency complexity.
(c) Positive zero-order and partial correlations (as specified in parts (a) and (b) above) will occur in the organizations sets of at least ten of the twelve cities studied.
2. (a) For all organizations, agency size will have a significant positive zero-order Pearson correlation with IOR.

- (b) When partial correlation is used to control for the effects of agency complexity, centralization, formalization, internal communication, and efficiency, agency size will still have a significant positive correlation with IOR.
 - (c) Positive zero-order and partial correlations (as specified in parts (a) and (b) above) will occur in the organization sets of at least ten of the twelve cities studied.
3. (a) For all organizations, agency complexity will have a significant positive zero-order Pearson correlation with IOR.
- (b) When partial correlation is used to control for the effects of agency size, centralization, formalization, internal communication, and efficiency, the partial correlation between agency complexity and IOR, agency complexity will still have a significant positive correlation with IOR.
- (c) Positive zero-order and partial correlations (as specified in parts (a) and (b) above) will occur in the organizations sets of at least ten of the twelve cities studied.
4. Given as a dependent variable agency innovation, and given as independent variables the size, complexity, and IOR count of the agency (set 1); and the centralization, internal communication, formalization, and efficiency of the agency (set 2):

- (a) when partial correlation is used to control for the effects of the other variables in set 1, each variable in set 1 will fail to have a significant positive correlation with the dependent variable;
 - (b) when partial correlation is used to control for the effects of the variables in set 1, each of the variables in set 2 will fail to have a significant positive correlation with the dependent variable;
 - (c) the partial correlations specified in (a) and (b) above, when examined separately for the twelve cities studied, will in each case not be significantly more of one sign than the other.
5. Given as dependent variables the centralization, formalization, internal communication and efficiency of an agency, as an independent variable the IOR count of the agency, and as control variables the complexity and size of the agency:
- (a) when partial correlation is used to control the effects of the control variables, the independent variable will fail to have a significant positive correlation with each of the dependent variables;
 - (b) the partial correlation specified in (a) above, when examined separately for the organization sets of the twelve cities studied, will in each case not be significantly more of one sign than the other.

D. The Development of Dyadic Interaction

1. Theoretical Explication

A replication of Rogers' and Klonglan's method provides a very general test for the relative complexity of the environment in which organizational dyads are formed. Since organizational dyads are here assumed to be adaptive systems, they should show adaptive behavior in environments complex enough to evoke it. In environments too simple to evoke adaptive behavior, adaptive systems would be expected to show behavior indistinguishable from homeostatic systems.

In network terms, Rogers and Klonglan et al. studied the development of multiplexity in organizational dyads. A dyad can be interpreted to "grow" simply by increasing frequency of contact or volume of exchange along a single dimension. Nothing about such growth patterns can be detected without longitudinal data. Dyadic "growth" can also mean the addition of types of links to those already existing. Detection of this type of growth in a single dyad also requires longitudinal data. In a population of dyads, however, if the addition of links follows an invariant sequence, dyads observed at any point in time will exhibit the presence of a given type of link only if the types of links that are precursors are present. It thus becomes possible with one-time data to test hypotheses about one aspect of dyadic growth over time.

Two aspects of the environments of the dyads studied here lead to the prediction that they are complex enough to evoke adaptive behavior. The first is the variety of resources available: 51% of the agencies

indicated that their sources of funding had increased over the past five years. Ninety-six percent of the organizations providing data on the question reported more than one source of funding, and 77% reported more than two. While funding is fairly concentrated in many organizations, over 40% got at least 25% of their funding from outside their primary source.

The second condition leading us to predict that environments are complex enough to evoke adaptive behavior is the amount of change in the networks providing resources to and controlling the organizations forming the dyads. Most of the organizations composing the networks are relatively young: the majority came into existence in the two decades before this study was done in response to growing demand for mental health services and services to the aging, to women, and to ethnic minority groups; most relationships that make up the networks, therefore, are also still relatively new. The relative newness of most of each network, combined with other sources of change, have resulted in a ferment of service-related changes: 85% of the organizations interviewed indicated changes in number of programs, 56% indicated changes in sources of funds, 48% indicated changes in number of service locations, 41% indicated that they had been mandated to participate in new programs or services over the three years prior to the study, and 31% indicated that they had been mandated to serve new client groups in the 3 years prior to the study. Only 5% indicated no change on any of these parameters, and 54% indicated changes on three or more. Thus the circumstances surrounding dyad formation and existence have been in a state of flux along several dimensions for several years.

Since an invariant sequence to the building of multiplexity in dyads is evidence of homeostatic behavior; since it is assumed here that organizational dyads are adaptive systems, and thus will display homeostatic behavior only in environments too simple to evoke adaptive behavior; and since the environments of the dyads here studied appear to be complex enough to evoke adaptive behavior in dyads; then the development of multiplexity in this population of dyads should be highly variable. Specifically, attempts to scale types of links between organizations should fail.

2. The Data and Method of Analysis

The data useful for scaling relational components are the responses to the twelve network questions that describe interaction between agencies:

1. other agency provides cooperation and support;
2. conflict in past few years;
3. other agency refers clients;
4. own agency refers clients to other agency;
5. exchange opinions, information, and ideas;
6. serve on same community committees and planning task forces;
7. rely on other agency to deliver own agency's services;
8. have cooperative informal relationship;
9. have formal relationship: run program(s) for other agency;
10. have formal relationship: other agency runs programs for own agency;
11. have formal relationship: operate joint program;
12. have formal relationship: other kind.

This list as a whole is not usable for the analysis here. Since a relationship has been defined to occur only if acknowledged by both participants, items 1 and 7 cannot be used at all since neither has a complementary question. Mutual acknowledgment of conflict (item 2) and of each of the four types of formal arrangements (items 9 through 12) is so rare that the resulting data sets are unusable for scaling. The referral of clients (items 3 and 4) can be verified in each direction; the intersection of those two sets, however, which provides a mutual relationship, is likewise too small to be usable for scaling.

The only three items left are the exchange of opinions, information, and ideas (item 5); mutual group membership (item 6); and informal cooperative relationships (item 8). A fourth item can be constructed however, from the union of the very small data sets created from mutual responses to items 9 through 12, adding in the dyads identified by project managers for joint programs. The resulting type of link (formal cooperative relationship) is a set large enough to use for scaling.

The construction of the links identified was different in one significant way from the data that Rogers and that Klonglan analyzed. In each of their studies, the actual responses of agency heads were analyzed, so that they actually measured the tendency of agency heads to report given patterns rather than the actual patterns. As the reviewed work by Russell and Bernard established, it cannot be assumed that the two are isomorphic. Since the interorganizational tie data in this study are based on mutual reports, they should more nearly correspond to the actual pattern of ties in the sets of organizations, and thus

more adequately test the propositions that Rogers and Klonglan put forth. Any differences in findings here compared with theirs may be in part or in total a result of the difference in measures.

Since the hypothesis here is that scaling should not occur, the most exacting test possible is to scale only three items, and to use the best empirical ordering rather than any pre-chosen one. A Guttman scale cannot be formed with fewer than three items; to use three items is the most exacting test because each added item increases the likelihood that irregularities in the data will reduce scalability. To use the best empirical ordering is most exacting because no theoretical ordering can do better. Preliminary scaling runs showed that the three items that are prima facie candidates for a scale of progressive commitment to relationship out of the four possible, also show highest scaling potential. These three items are:

- exchange opinions, information, and ideas
- have cooperative informal relationship
- have formal cooperative relationship

The links to be analyzed in this study were not chosen to correspond to those used by Rogers and Klonglan. "Exchange of opinions, information, and ideas" is much more inclusive than the existence of an agency on another's mailing list -- the closest equivalent item used by Rogers and Klonglan. A "cooperative informal relationship" probably includes the sharing, loaning, and providing of resources used as an item by Rogers and by Klonglan; but it also may include joint programming arrangements that have not been formalized in writing -- a category

that is included by Klonglan (who does not distinguish between formal and informal joint program arrangements). Finally, "formal joint programs" includes both the concept of joint programming -- a separate item on Klonglan's list -- and formal written agreement, which is the topmost level of relationship for both Rogers and Klonglan.

Clearly, then, the analysis here replicates Rogers and/or Klonglan very generally, not in any specific sense. Two additional contrasts with their studies need comment. First, the populations of organizations (and, presumably, dyads) in this study more nearly resemble Klonglan's county-level set than Rogers' set in being providers of direct services to clients. There is therefore some empirical reason, beyond the theoretical reasons already given, to expect results like Klonglan's (low scalability of items) rather than Rogers' (much higher scalability of items). Second, the agencies studied here are all local-level organizations equivalent to the county level in Klonglan's study. There is therefore no reason to expect the wide variability in best empirical ordering that he linked to differential administrative level.

3. Specific Hypothesis

A Guttman scaling procedure applied to these three types of dyadic interaction -- exchange of opinions, information, and ideas; informal cooperative relationships; and formal cooperative relationships -- even if using the best empirical ordering, will fail to produce a scale with both reproducibility greater than 0.9 and a scalability greater than 0.6. This failure will occur both for all dyads across the twelve cities, and for the dyads in each particular city.

E. The Conditioning of Dyadic Relationships by Network Characteristics

1. Theoretical Explication

A network concept usefully relevant to the literature reviewed on interorganizational networks is centrality. The resource dependence perspective defines networks as a set of exchanges, in which organizations with many resources have the potential to form (negotiate) more relationships than organizations with few resources. The relative number of relationships of an organization is one aspect of centrality -- one L. Freeman calls degree (1979, pp. 219-221).

The larger number of direct relations of organizations with many resources to exchange, combined with their importance as a source of resources within the network generally, make them likely to be very few exchange links away from any other organization and thus to have a very low average distance from other organizations in the network. The average distance is a second aspect of centrality, which Freeman labels closeness (pp. 224-226).

Finally, the greater number of direct links formed by organizations with many resources, combined with the wider variety of relationships those resources are likely to enable, will tend to make those organizations serve as trading hubs, linking many other organizations indirectly. Existence on the indirect links joining other organizations is a third aspect of centrality, which Freeman labels betweenness (pp. 121-124).

These three aspects of individual organizational centrality can be generalized to measures of centralization in an entire network (Freeman, 1979, pp. 226-231). Each is generalized in the same way: as the sum of differences between the most central organization and each other organization, divided by the maximum possible such sum given the number of organizations in the network.

In the organizational networks we are studying, legal coercive power normally comes from outside the networks; so that power within the network is going to stem primarily from resource availability. Then organizations more endowed with resources would be expected to become most central; and centralization in the entire network would be expected to diminish as the number of organizations with substantial resources of their own increases.

If we start with a fairly centralized network with a certain number of relations, there are three ways to change the level of centralization: (1) replace ties to a central node with ties between two nodes that are not central; (2) add ties to the network that are disproportionately between non-central nodes; (3) subtract ties from the network that are disproportionately from those involving central nodes. Laumann and Marsden (1983, pp. 334-336) maintain that networks with less concentration of resources will generate more exchange ties. It is consistent with both their substantive assertion and the logical one above to propose this: if new centers of resources are added to a network (by inserting new organizations, or better endowing existing ones), the number of ties developed between relatively poorly endowed organiza-

tions will increase proportionately more than the number of ties involving relatively well-endowed organizations (a multiplier effect). This proposition, if true, would provide useful guidance to an intervenor desiring to increase the rate of interconnection among agencies — for example to encourage joint programming as a way to provide more services to clients.

For any single organization in a network, however, regardless of its level of endowment, the network analysis above shows that it will be most central (at least in the sense of closeness and betweenness) if it has connections to one or more organizations that are already central (in any sense). This point is crucial to the planning for new organizations in social service networks. If the logical argument proves to describe what occurs in actual networks, an intervenor planning to create a new organization for providing certain services would be well advised to mandate relationships to it by those organizations already central in the network.

Finally, when only a few organizations have resources, not only the basic exchange relationships but other relationships (the redundancy that Laumann and Marsden refer to (p. 336)) are likely to be concentrated on the well-endowed organizations. Contrary to their assertion, however, this multiplexity should diminish when resource concentration and its consequent network centralization is reduced. Redundancy (seen from the perspective of an individual organization) can be achieved by multiplexity, but it can also be achieved by multiple simplex relationships. The choice between multiplexity and multiple relationships

should ultimately depend on which is the more costly (this is an analogue of Williamson's contention that internal hierarchies are built as alternatives to external market [exchange] relationships based on the relative costs of each (1975, pp. 8-10). In at least some cases, multiple relationships should prove advantageous, and thus reduce the overall multiplexity of the network.

In summary, we are predicting that:

1. organizations with ties to central organizations in a network will have more exchange relationships generally;
2. networks with more centers of resource concentration will have a higher density of ties between non-central organizations;
3. networks with more centers of resource concentration will tend to have a lower overall level of multiplexity.

2. Data and Method of Analysis

The analysis for this section requires a working definition of those organizations that are "centers of resource concentration". The study on which this dissertation is based contains no measures of the resources directly available for exchange that various organizations have. There are data on budgets and staff sizes, and these might make adequate substitute measures; but an analysis of the bias among cases with missing data showed that any analyses based on organizational characteristics (such as budget and staff size) would be highly suspect if they depended on the available data to estimate the actual distribution of those characteristics in the entire set.

Aldrich maintains (1976b, p. 423), however, and the resource dependency literature generally echoes the contention, that predominance in terms of resource availability will result in general predominance within a network. While the data available do not provide an adequate direct measure of resource availability, they do include responses to three separate attributive questions that can provide indirect measures:

1. What agencies have the most prestige in this community?
2. What agencies have the most influence over social service decisions in this community?
3. What agencies influence what your agency does and the decisions it makes?

The degree of centrality an organization has in the resource allocation system of a local network should be reflected in the proportion of all choices made in any of these influence dimensions that are directed at that organization. Since the three questions address the issue of influence differently, however, it is unlikely various agencies' proportions will be the same on each. This difference can be used as a strength, however, by combining the three into a single index.

Preliminary analysis showed that, for any given question, using 5% as the criterion level provided a usable result: in all cities the number of organizations meeting that criterion was at least two and at most eight on each dimension. A close examination of cases showed that many organizations showed up as influential on two dimensions, but very few on three; that a handful of organizations barely meeting the criterion on one dimension received almost no choices on the other two; and that a few organizations almost but not quite met the criterion on all three

dimensions. The constructed measure was designed to take all these facts into account: an organization was defined to be central if the sum of its proportions of choices received across the three questions exceeded 10%.

Next it was necessary to construct a measure of overall centralization at the city level. Ideally such a variable would have a sufficient range of values that the twelve cities would each have a different value. The number of organizations defined as central (as given above) proved much less than ideal, with only eight different values occurring. An alternative, related way to approach measuring centralization in a network is to examine the number of organizations necessary to accumulate a certain percent of the choices made in response to a given question. This measure also has the value that it reflects the actual number of centers of power, rather than the proportion those centers are of the total number of organizations. Within the range of network size in our cities (38 to 66), we assume the absolute number of centers to be much more crucial than the proportion they are of all organizations.

The measure constructed was the sum of the numbers of organizations needed to accumulate 50% of the choices received in response to the three questions separately. The resulting values ranged from 4 to 25, and there were 10 different values among the 12 cities.

The measures defined provide a way to distinguish influential from non-influential organizations, and to measure the overall level of

concentration of influence in a city's social service network. It is still necessary to define the density and multiplexity measures for our networks. There are four dimensions of interaction that can serve as a basis for these measures. They are represented by the following five questions:

With which agencies does yours exchange opinions, information, and ideas?

With which agencies does yours informal cooperative relationships?

With which agencies does yours have formal cooperative relationships?

Which agencies send people to your agency for services?

To which agencies does your agency send people for services?

In this case our interest is in actual relationships, not attributions; so a relationship will not be counted unless it is acknowledged by both parties. The exception to this is with formal relationships: where directors of joint programs named participants, the relationship was assumed to exist without regard to responses of the participants. The referral of clients from one agency to another was assumed to occur if the one reported receiving and the other reported sending.

The density of relationships in a network is simply the number that occur divided by the number that can occur. In the case of reciprocal ties (like exchange of information, informal cooperative relationships, and formal cooperative relationships), the number of possible ties is equal to $(N \times (N-1))/2$, where N is the number of organizations. In the

case of asymmetric ties, (like the referral of clients from one organization to another), the number of possible ties is $N \times (N-1)$. In this section, since we are concerned with density of ties among non-central organizations, N is the number of organizations that did not meet the criterion for inclusion in the set of central organizations.

The same set of questions serves as the basis for the definition of multiplexity. For any dyad, the multiplexity score had one added for any of these: exchange of information, informal cooperative relationships, and formal cooperative relationships. Client referral posed a problem. On the one hand, to give a full point for exchange in either direction seemed out of proportion, since organizations sending clients both ways would then add two points to their dyad multiplexity score; but requiring referral both directions in order to add to the score seemed unduly restrictive. Referral in either direction, then was counted as half a point, so that referral in both would count as a full point.

For an entire network, average multiplexity was defined as the total of multiplexity scores, for those dyads with any of the defined relationships, divided by the number of such dyads. This definition was made specifically to prevent confounding the density variable (which is concerned with the actual existence of a link) with the multiplexity variable (which is concerned with the content of the link).

3. Specific Hypotheses

1. The more influential organizations a non-influential organization is related to, on any or all of the three dimension specified below, the more relations it will have with other non-influential organizations on all three dimensions.
 - exchange of opinions information, and ideas
 - informal cooperative relationships
 - formal cooperative relationships
2. The less concentrated the structure of influence is in a social services network, as measured by the sum of the numbers of organizations necessary to accumulate 50% of the choices made in response to the three questions listed below, the greater will be the density of relationships among non-influential organizations on the three dimensions listed in hypothesis 1 above.
 - What agencies have the most prestige?
 - What agencies have the most influence over social service decisions?
 - What agencies influence what your agency does and the decisions it makes?
3. The less concentrated the structure of influence in a social service network, as defined in hypothesis 2 above, the lower will be the average multiplexity of those relationships that exist in the network, where multiplexity is defined over the following four dimensions:
 - exchange of opinions information, and ideas;
 - informal cooperative relationships;
 - formal cooperative relationships;
 - referral of clients.

F. The Effect of the Local Environment on the Local Social Service Delivery Network

1. Theoretical Explication

The data collected for this project contain no direct measures of the degree of integration of the various metropolitan areas, so the argument to be followed must be indirect. Measures are present of some important demographic preconditions of metropolitan integration indicated in the earlier research: average socioeconomic status of inhabitants, economic dispersion, level of in-migration, and diversity of ethnic stock.

We begin by assuming, consistent with the research reviewed in Chapter 2, that higher average SES of inhabitants, greater economic dispersion, a lesser proportion of in-migration, and greater diversity of ethnic stock are conditions that lead to more stable, better connected metropolitan interorganizational networks with multiple centers of power. We next assume that the condition of the social services network will reflect the condition of the larger metropolitan network: that well-connected social services networks with multiple centers of power will be found in similar metropolitan networks, and that relatively poorly connected social service networks dominated by one or a few organizations will be found in cities with similar networks. This assumption requires some explanation.

For purposes of delivering social services to individuals, we have considered the social service organizations a proper network in its own

right; for, by definition, other organizations cannot form relationships with the social service organizations for purposes of service delivery. For the gathering of funding and the setting of policies, however, the social service organizations are closely tied to a whole range of organizations of other sorts. Much United Way money comes from organizational campaigns carried out by large employers. Public funding comes from several layers of governments and is affected by lobbying on behalf of a wide range of organizational interests. To the extent that there are multiple power centers (sources of resources) in the metropolitan network, social services agencies will have better opportunities to build power and resource bases independent of others. The same forces operating to link organizations generally in the larger network will link them within any subnet as well.

In general, then, the basic hypothesis here is that the better the preconditions for an integrated metropolitan interorganizational network, the better integrated the social services network will be, both in the sense of its overall level of connection and in the number of centers of power.

2. The Data and Method of Analysis

The dependent variable for this section is the concentration of influence in the social services network. The measure for the variable will be the one described in section D, which combines information about agency head perceptions of influential organizations on three dimensions.

There are four independent variables: population turnover, degree of economic dispersion, ethnic diversity, and average socioeconomic status of residents. Population turnover is measured by the proportion of the 1970 population of each county containing one of the cities studied that migrated into the county between 1965 and 1970. High proportions of in-migration are considered to generate instability in a metropolitan network, but out-migration is not (Aiken and Alford, 1970a), so actual in-migration rather than net migration is the measure used.

The measure of economic dispersion is the number of economic organizations in the county with 100 or more employees, which measures dispersion in the sense of the number of centers of power. It assumes an absolute rather than a relative interpretation of power; the latter would be better measured by the Gini coefficient of organization size. A Gini coefficient, however, would equate cities with only small organizations except for a handful of larger ones and cities with many large organizations but a handful of very large ones. It is our contention that the small city would have a tremendous concentration of power since only a few organizations would be large enough to serve as a resource base; whereas in the second city, although a few organizations might have disproportionate power, there would be many organizations large enough to serve as a resource base.

Ethnic heterogeneity is measured by the percent of the non-black population with both parents born in the United States -- actually the complement of heterogeneity. The proportion of Hispanic population in each city was quite small, and should contain a large proportion of

persons with parents born outside the U. S., and so was not used in constructing this measure.

The measure of socioeconomic status is an index based on work done by Berry (1972). In his factor analytic study of U.S. cities, he obtained a strong factor that he labeled socioeconomic status containing 12 variables (p. 22). Seven of these variables are identical to or nearly the same as the asterisked variables in Table 3F-1 below, taken from the data gathered for this project.

TABLE 3F-1
Variable Loadings on SES Factor

Variable	First stage loading	Second stage loading	Third stage loading	Fourth stage loading	Loading of equivalent variable in Berry (p.22)
*median education	0.998	0.999	0.990	0.994	0.805
*% of HS graduates in over-25 pop.	0.950	0.948	0.929	0.938	0.834
*% of families with annual income < \$3000	-0.759	-0.762	-0.778	-0.747	-0.747
per capita value of real property	0.870	0.865	0.844	0.851	-----
*median family income	0.839	0.844	0.861	0.860	0.876
*% of families with annual income > \$10000	0.799	0.801	0.819	0.814	0.897
*% of employed that are white-collar	0.841	0.841	0.834	0.833	0.783
% of employed that are prof-tech	0.929	0.935	0.929	0.945	-----
*percent of over-16 pop. employed	0.620	0.617	0.638	-----	-0.514
ratio of suburban to central city per capita income	-0.566	-0.553	-----	-----	-----
per capita value of all bank deposits	0.201	-----	-----	-----	-----

To obtain an SES index, all variables in Table 3F-1 were forced into a single factor during a factor analysis, and the variable with the lowest loading was dropped. This process was repeated until each remaining variable had at least half its variance accounted for by the factor (loading greater than 0.707). The results of the steps, and a comparison with Berry's results, are shown in the table. Following the last step, factor scores were prepared for each city by multiplying the factor loading of each variable times that city's standardized score for the variable, and summing the products (Nie et al., 1975, pp. 487-489).

If the four independent variables adequately measure the underlying concepts they represent, and if the conclusions drawn from earlier research are correct, then a multiple regression using the four variables should predict each dependent variable quite well. With only twelve cases, it will require a large multiple R to obtain a probability less than or equal to 0.05; that criterion will serve as an adequate test of the theoretical construction.

3. Specific Hypothesis

In a multiple regression of the dependent variable specified below on the independent variables listed below, the multiple R will be statistically significant.

Independent variables (all variables refer to the county containing the city):

- a. number of in-migrants, 1965-70, divided by 1970 population;
- b. number of economic organizations employing 100 or more persons;

- c. 1970 population minus black population minus persons with either parent born outside the U. S., divided by the total 1970 population;
- d. SES factor score constructed as detailed above.

Dependent variable:

The sum of the numbers of organizations necessary to accumulate 50% of the responses to the questions: "What agencies have influence over what your agency does and the decisions it makes"; "What agencies have the most influence over social service decisions in this community"; and "What agencies have the most prestige?"

G. The Effect of the Nonlocal Environment on the Local Social Services Delivery Network

1. Theoretical Explication

As in section F, the argument here must be made in multiple steps because no data on metropolitan networks were collected in the study on which this dissertation is based; it is therefore not possible directly to test predictions about the effect of the extralocal environment on the local environment. A chain of reasoning across three levels of analysis, however, leads to the conclusion that the effects of the extralocal environment on the local metropolitan area will have consequences for the social services network in that metropolitan area; and this chain of reasoning provides a hypothesis to test.

Based on the research cited, we assume (1) that the environment of the United States is relatively decentralized with respect to its relation to local metropolitan environments; and (2) that the more points of contact a metropolitan area has with the extralocal environment, the

more decentralized the overall interorganizational network in the local metropolitan area will be. Since we have already predicted that less concentration of power in overall networks will be reflected in less concentration of influence in social service networks, it follows that the more points of contact between the extralocal environment and a metropolitan interorganizational network, the less concentrated the influence structure of the social services network will be. Similarly, since we expect a strong negative relationship between the concentration of influence and the density of interaction in social service networks, more points of contact with the national system should be positively related to interaction density.

2. Data and Method of Analysis

There are two measures of the independent variable in the data collected for this study: the number of voluntary organizations with their headquarters in the city, and the number of Fortune 1000 industrial organizations in the city. Because none of the cities studied had a large number of either, a single independent measure, formed by summing the two, has been constructed.

There are two types of dependent variables. The first is the concentration of influence in the local social services network. The measure of concentration described in section D and used there and in section E will be used here as well. The second type is a set of density measures along the same dimensions as used in section E: communication, informal cooperative relationships, formal cooperative relationships, the union of those three dimensions, and the referral of clients. The

earlier measures, however, were restricted to links among non-influential organizations; in this part of the analysis, the densities including both influential and non-influential organizations will be the measures. As before, existence of a link between agencies is assumed only if both agencies reported it.

3. Specific Hypothesis

The zero-order correlations between the sum of the number of national voluntary organizations with headquarters in a city and the number of Fortune 1000 industrials in that city, and the following list of dependent measures, will have the signs indicated and will be statistically significant:

- (1) the concentration of influence in the social services network (negative);
- (2) the density of communication ties among organizations (positive);
- (3) the density of informal cooperative ties among organizations (positive);
- (4) the density of formal cooperative ties among organizations (positive);
- (5) the density of the union of communication, informal cooperative, and formal cooperative ties among organizations (positive);
- (6) the density of client referral among organizations (positive).

Chapter 4

FINDINGS

A. The Interaction of Organizational Characteristics and Dyad Formation

In general, the expected findings in this section are:

- (1) a strong positive relationship between size and complexity;
- (2) a strong positive relationship between size and IOR;
- (3) a strong positive relationship between complexity and IOR;
- (4) no relationship between innovation and any other variable when size, complexity and IOR are controlled, nor between innovation and size or innovation and complexity if the other variable and IOR are controlled;
- (5) no relationship between IOR and any internal organizational variables when size and complexity are controlled.

The specific hypotheses will be repeated one at a time, and the findings relevant to them shown and discussed immediately afterward.

1. The Relationship of Size to Complexity

- (a) For all organizations, agency size will have a significant positive zero-order Pearson correlation with complexity.
- (b) When partial correlation is used to control for the effects of IOR and of agency centralization, formalization, internal communication, and efficiency, agency size will still have a significant positive correlation with agency complexity.

- (c) Positive zero-order and partial correlations (as specified in parts (a) and (b) above) will occur in the organization sets of at least ten of the twelve cities studied.

Table 4A-1 summarizes the results from the data analysis. For the correlation values of the organization sets in the individual cities see Table C-1 in Appendix C.

TABLE 4A-1
The Relationship of Size to Complexity

zero-order correlation and significance for all cases*	0.4865 p < 0.001
number of cities with positive correlations**	11 p = 0.003
partial correlation and significance for all cases*	0.4281 p < 0.001
number of cities with positive partial correlations**	11 p = 0.003
* N of organizations = 272	
** N of cities = 12	

All correlations are based on those organizations for which all variables are present. All probabilities are one-tailed.

As Table 4A-1 shows, the data overwhelmingly confirm earlier findings that organization size and complexity are strongly related. The over-all finding is supported in almost every city, and the level of statistical significance is very high. Controlling for every other variable used in the study barely affects the proportion of variance that size and complexity account for in each other.

2. The Relationship of Size to IOR Formation

- (a) For all organizations, agency size will have a significant positive zero-order Pearson correlation with IOR.
- (b) When partial correlation is used to control for the effects of agency complexity, centralization, formalization, internal communication, and efficiency, agency size will still have a significant positive correlation with IOR.
- (c) Postive zero-order and partial correlations (as specified in parts (a) and (b) above) will occur in the organization sets of at least 10 of the 12 cities studied.

Table 4A-2 summarizes the results from the data analysis. For the correlation values of the organization sets in the individual cities see Table C-2 in Appendix C.

TABLE 4A-2
The Relationship of Size to IOR Formation

zero-order correlation and significance for all cases*	0.2847 p < 0.001
number of cities with positive correlations**	11 p = 0.003
partial correlation and significance for all cases*	0.2426 p < 0.001
number of cities with positive partial correlations**	11 p = 0.003
* N of organizations = 272	
** N of cities = 12	

All correlations are based on those organizations for which all variables are present. All probabilities are one-tailed.

Overall the hypothesis is strongly supported, although not as strongly as the previous one. The correlations are smaller and the proportion of reduction in explained variance in the partial correlation is greater here than for the first hypothesis. Nonetheless, the statistical significance of every result is far beyond 0.05.

3. The Relationship of Complexity to IOR Formation

- (a) For all organizations, agency complexity will have a significant positive zero-order Pearson correlation with IOR.
- (b) When partial correlation is used to control for the effects of agency size, centralization, formalization, internal communication, and efficiency, agency complexity will still have a significant positive correlation with IOR.
- (c) Positive zero-order and partial correlations (as specified in parts (a) and (b) above) will occur in the organization sets of at least ten of the twelve cities studied.

Table 4A-3 summarizes the results from the data analysis. For the correlation values of the organization sets in the individual cities see Table C-3 in Appendix C.

TABLE 4A-3
The Relationship of Complexity to IOR Formation

zero-order correlation and significance for all cases*	0.1483 p = 0.007
number of cities with positive correlations**	8 p = 0.194
partial correlation and significance for all cases*	0.0087 p = 0.444
number of cities with positive partial correlations**	3 p = 0.073
* N of organizations = 272	
** N of cities = 12	

All correlations are based on those organizations for which all variables are present. All probabilities are one-tailed.

The results are almost unequivocally contrary to prediction. The overall zero-order correlation is statistically significant, but the amount of variance accounted for is barely above 2%. The partial correlation is very close to zero, showing that complexity has practically no predictive power unshared with other variables; specifically, when size is controlled, almost no predictive power remains to complexity. The number of cities with positive zero-order correlations is not statistically significant; most of the the cities have negative partial correlations, and none of them has a significant positive partial correlation.

The hypothesis is therefore disconfirmed. Complexity has almost no predictive power when size is controlled. These results call one aspect of the research of Aiken and Hage, Paulson, and Klonglan et al. into serious question: all of these studies used complexity but not size as an independent variable. The repeated finding of a relationship between complexity and IOR formation must, in the light of the

results here, be interpreted as a consequence of the relationship between size and IOR formation.

4. The Relationship of Innovation to Other Variables

The basic prediction is that no internal organizational variable will correlate with innovation if size, complexity, and IOR formation are controlled; and that none of those three variables will correlate with innovation if the other two are controlled.

Given as a dependent variable agency innovation, and given as independent variables the size, complexity, and IOR count of the agency (set 1); and the centralization, internal communication, formalization, and efficiency of the agency (set 2):

- (a) when partial correlation is used to control for the effects of the other variables in set 1, each variable in set 1 will fail to have a significant positive correlation with the dependent variable;
- (b) when partial correlation is used to control the effects of the variables in set 1, each of the variables in set 2 will fail to have a significant positive correlation with the dependent variable;
- (c) the partial correlations specified in (a) and (b) above, when examined separately for the twelve cities studied, will in each case not be significantly more often of one sign than the other.

The zero-level correlations suggest definite relationships of some variables with innovation, though none are very strong. In keeping with previous findings, there is a statistically significant zero-order result for IOR formation. Complexity also shows a significant zero-order result, and internal communication comes close. The summaries of results for each variable are given in Table 4A-4. Correlations for the organization sets in each city are given in Table C4-1 to C4-7 in Appendix C.

TABLE 4A-4
The Relationships of Innovation to Other Variables

Variable	zero-order correl.* (signif.)	partial correl.* (signif.)	n of cities** with positive zero-order cor. (signif.)	n of cities** with positive partials (signif.)
size	0.0941 (p=0.122)	0.0067 (p=0.914)	7 (p=0.774)	7 (p=0.774)
complexity	0.1197 (p=0.048)	0.0842 (p=0.168)	10 (p=0.039)	6 (p=1.000)
IOR	0.1570 (p=0.010)	0.1360 (p=0.026)	9 (p=0.146)	8 (p=0.388)
centralization	-0.0713 (p=0.242)	-0.0574 (p=0.348)	5 (p=0.774)	5 (p=0.774)
internal communication	0.1055 (p=0.082)	0.0985 (p=0.106)	10 (p=0.039)	9 (p=0.146)
formalization	0.0107 (p=0.862)	0.0001 (p=0.998)	7 (p=0.774)	7 (p=0.774)
efficiency	0.0632 (p=0.298)	0.0313 (p=0.610)	5 (p=0.774)	4 (p=0.388)

* N of organizations = 272

** N of cities = 12

All correlations are based on those organizations for which all variables are present. All probabilities are two-tailed.

The results, with the exception of IOR, conform to the predictions. The partial correlation for IOR with innovation remains significant at the 0.05 level; moreover, only one of the nine cities with positive zero-order correlations between IOR and innovation had a negative partial. Although the number of cities with positive partial correlations between IOR and innovation is not significant at the 0.05 level, the lack of change following the application of controls supports the still-significant overall partial correlation. Although the amount of variance accounted for is less than 3%, there clearly is a relationship between innovation and IOR formation that cannot be explained away by size and complexity.

Aside from that one exception, the predicted absence of relationship is obvious. It is important to note that the one exception (IOR) is a variable external to the organization; no organization-level variable retains a significant relationship to innovation (by either criterion) after controls are in place.

5. The Relationship between IOR Formation and Internal Organizational Variables

The basic prediction is that any relationship between IOR formation and the internal workings of an organization is an artifact of the size and complexity of the organization, and will disappear when those two variables are controlled. The specific predications are given below:

Given as dependent variables the centralization, formalization, internal communication and efficiency of an agency, as an independent variable the IOR count of the agency, and as control variables the complexity and size of the agency:

- (a) when partial correlation is used to control the effects of the control variables, the independent variable will fail to have a significant positive correlation with each of the dependent variables;
- (b) the partial correlations specified in (a) above, when examined separately for the organizations sets of the twelve cities studied, will in each case not be significantly more often of one sign than the other.

Summaries of the results for each variable are given in Table 4A-5. The correlations for the organizations sets in each city are given in Tables C5-1 to C5-4 in Appendix C.

None of the internal variables even approaches statistical significance in its zero-order correlation with IOR formation -- contrary to previous findings for internal communication and efficiency. Earlier findings with regard to centralization were not uniformly statistically significant; the results here lead to the conclusion that the true state of affairs is a lack of relation, not just a low-level relation that requires a large sample to detect. Finally, since the measure of formalization used here carefully takes account of Morse's distinctions, the absence of a significant result suggests that formalization in any sense is not related to IOR. The overall hypothesis that there

TABLE 4A-5
The Relationships of IOR to
Internal Organizational Variables

Variable	zero-order correl.* (signif.)	partial correl.* (signif.)	n of cities** with positive zero-order cor. (signif.)	n of cities** with positive partials (signif.)
centralization	0.0142 (p=0.816)	0.0304 (p=0.618)	5 (p=0.774)	7 (p=0.774)
internal communication	0.0360 (p=0.584)	0.0058 (p=0.924)	6 (p=1.000)	5 (p=0.774)
formalization	0.0100 (p=0.870)	0.0064 (p=0.916)	7 (p=0.774)	7 (p=0.774)
efficiency	0.0709 (p=0.244)	0.0435 (p=0.476)	4 (p=0.388)	6 (p=1.000)

* N of organizations = 272

** N of cities = 12

All correlations are based on those organizations for which all variables are present. All probabilities are two-tailed.

is no systematic relationship between internal organizational variables and IOR is definitely supported.

B. The Development of Dyadic Interaction

The general theoretical expectation for this section is that the variety and change in the environments of the dyads studied, combined with their assumed adaptive system nature, would lead to idiosyncratic development of multiplexity in dyadic interaction. The specific hypothesis to be tested in this section is:

A Guttman scaling procedure applied to these three types of dyadic interaction -- exchange of information, ideas, and opinions; informal cooperation; formal joint programs -- even if using the best empirical ordering, will fail to produce a scale with both a reproducibility greater than 0.9 and a scalability greater than 0.6. This failure will occur both for all dyads in the twelve cities and for the dyads in each particular city.

Table 4B-1 shows the results of the Guttman Scale analysis. It is clear the expectations specified by the hypothesis are all met. Because by far the largest number of dyads had no links, and they and the handful of dyads with all three types of link are by definition consistent with any scaling, the reproducibility is exceptionally high everywhere. The scalability score depends on those dyads with only one or two links; and as the table shows, the highest scalability attained was 0.4426 -- far below the 0.6 level normally set as a requirement for adequate scaling. (The negative values for scalability result from instances where the default empirical ordering, which places items in order of the frequency of their occurrence, does not work well because the pattern of links among dyads with only one link is inconsistent with the pattern of links among dyads with two.)

An examination of columns 3 and 4 supports the scalability scores. Column three shows the number of dyads with either one or two types of link. Column four shows the number and percent of those dyads with one or two links in which the links were consistent with the most common ordering. As the percentages make clear, in no city did an ordering encompass even 2/3 of the dyads with 1 or 2 links.

Table 4B-1

Guttman Scalability for Three Types of Links

Unit	N of dyads	all dyads with 1 or 2 links	dyads with 1 or 2 consistent links	Reproducibility	Scalability
all dyads	9453	946 (10.0%)	447 (47.3%)	0.9648	0.2227
city 1	666	50 (7.5%)	23 (46.0%)	0.9730	0.1429
city 2	1081	99 (9.2%)	59 (59.6%)	0.9753	0.3651
city 3	703	89 (12.7%)	57 (64.0%)	0.9697	0.3905
city 4	703	92 (13.1%)	46 (50.0%)	0.9564	0.3381
city 5	861	79 (9.2%)	35 (44.3%)	0.9659	0.0737
city 6	946	86 (9.1%)	51 (55.3%)	0.9753	0.4118
city 7	946	109 (11.5%)	61 (56.0%)	0.9662	0.4286
city 8	496	18 (3.6%)	7 (38.9%)	0.9852	-0.2222
city 9	820	75 (9.1%)	32 (42.7%)	0.9650	0.2321
city 10	465	88 (18.9%)	54 (61.4%)	0.9513	0.4426
city 11	946	89 (9.4%)	45 (50.6%)	0.9690	0.3231
city 12	820	72 (8.7%)	27 (37.5%)	0.9634	-0.0345

The data therefore overwhelmingly support the specific hypothesis and the general conclusion that dyad formation among social service agencies does not follow a consistent pattern.

C. The Conditioning of Dyadic Relationships by Network Characteristics

1. The Effect of Relationships with Influential Organizations

The first hypothesis is that non-influential organizations with a greater number of ties to influential organizations will also have a greater number of ties to other non-influential organizations. Specifically:

The more influential organizations a non-influential organization is related to, on any or all of the three dimension specified below, the more relations it will have with other non-influential organizations on all three dimensions.

- exchange of opinions, information, and ideas
- informal cooperative relationships
- formal cooperative relationships

An influential organization is defined to be one that received a total of ten percentage points of responses to three different questions about relative influence in a network of social service agencies: (1) which organizations have influence over your own agency; (2) which agencies have the most influence over human services decisions in this community; and (3) which agencies in this community have the most prestige.

Because agencies without direct service to clients were not interviewed, the United Way offices, mental health boards, Area Offices on Aging, and health planning agencies were not among the interviewed agencies; and yet these organizations are 4 of the 5 most influential (averaged across all cities) by the measure used here. Since the types of linkages used to test the hypothesis are constructed from reciprocal mentions, they are therefore limited to the interviewed agencies; and the number of interviewed influential agencies is so small in some cities as to reduce variability drastically in the number of possible relationships to influential organizations. The six cities in which fewer than five influential organizations were interviewed have been dropped from this part of the analysis. In addition, since the number of interviewed influential agencies differs in most cities (4 different numbers in the six cities analyzed), and since the number of non-influential organizations varies in every city, the results are not combined -- each city is analyzed as a separate case.

There are four separate measures of ties: (1) exchange of information, opinions, and ideas (COMM); (2) informal cooperative relationships (INF); (3) formally negotiated relationships (FORMAL); and (4) the union of the three previous sets (UNION). There are therefore 16 sets of correlations: the correlations between each type of link with influential agencies and each type of link with non-influential agencies. The hypothesis is tested by comparing the number of positive and negative correlations. If the hypothesis is true, then there should be relatively few negative correlations. Table 4C-1 shows the count of positive correlations for each comparison.

TABLE 4C-1
Positive Correlations between Ties to Influentials
and Ties to Non-Influentials
for Non-influential Organizations

	COMM ties to non- influential	INF ties to non- influential	FORMAL ties to non- influential	UNION of ties to non- influential
COMM ties to influentials	6	5	3	5
INF ties to influentials	4	6	5	6
FORMAL ties to influentials	2	2	6	6
UNION of ties to influentials	4	6	5	6

N of cities = 6

Certain patterns are immediately noticeable in the table: (1) the diagonal cells are positive for every city; (2) the number of ties of any sort to influentials is positively related to the number in the union of ties to non-influentials in all but one case; (3) the number in the union of ties to influentials is positively related to each specific type of tie in more than half the cities.

On the other hand, the relationships are not altogether general: in none of the six off-diagonal cells involving the three types of interaction is the relationship positive in all six cities, and in only half these cells is the relationship positive in more than half the cities. If we hypothesized the absence of a tendency toward the posited pattern in relationship formation, it would take positive correlations in all six cities to reject that assumption (Computation Laboratory of Harvard

University, 1955, p. 403). There is therefore no basis here to conclude that a relationship of one sort with influential organizations leads to relationships of other sorts with non-influentials; but clearly relationships of the sorts examined here occur more frequently with non-influentials if they occur more frequently with influentials.

These results by themselves cannot distinguish the hypothesis proposed here — that ties to influential organizations generate ties to non-influential organizations -- from a simpler one: that organizations vary in their propensity to form relationships, and that those that tend to form relationships of a particular kind do so indiscriminately with respect to the influence of their partners. If this simpler hypothesis were true, however, one would expect it to be true for influential organizations also; but that is not the case. A comparison of the

TABLE 4C-2
Positive Correlations between Ties to Influentials
and Ties to Non-Influentials
for Influential Organizations

	COMM ties to non- influential	INF ties to non- influential	FORMAL ties to non- influential	UNION of ties to non- influential
COMM ties to influentials	3	2	1	2
INF ties to influentials	2	5	2	4
FORMAL ties to influentials	1	1	3	2
UNION of ties to influentials	2	4	3	3

N of cities = 6

equivalent data for influential organizations (Table 4C-2) with the data for non-influential organizations (Table 4C-1) shows a lower level of relationship in every cell. None of the cells in Table 4C-2 reaches statistical significance.

Apparently, then, although the data are not as favorable as could have been hoped for, there is evidence for a process that matches the description given -- that ties to influential organizations by non-influentials tend to produce more ties to non-influentials as well; but the same process does not seem to occur for influentials.

2. The Relationship of Influence Concentration to the Formation of Organizational Dyadic Relationships

The second hypothesis is that when influence is concentrated in an interorganizational network, it tends to inhibit the formation of dyads -- particularly among non-influential organizations. Specifically:

The less concentrated the structure of influence is in a social services network, as measured by the sum of the numbers of organizations necessary to accumulate 50% of the choices made in response to the three questions listed below, the greater will be the density of relationships among non-influential organizations on the three dimensions listed in hypothesis 1 above.

- What agencies have the most prestige?
- What agencies have the most influence over social service decisions?
- What agencies influence what your agency does and the decisions it makes?

Concentration of influence in a city is measured by the sum of the numbers of organizations needed to reach 50% of the total choices on each of three dimensions listed in the hypothesis. The resulting values produce a reasonable variable: the range of values is from four to twenty-five, and there are ten values out of the twelve cities. The sum described is actually the opposite of concentration of power: in order to get a direct rather than an inverse measure, each value has been subtracted from 26 (the largest value) so that the resulting values range from 1 (least concentrated) to 22 (most concentrated).

To carry out the analysis for this section, the variable just defined was with the densities of five measures of interaction: (1) exchange of information, ideas, and opinions (COMM); (2) informal cooperative relationships (INF); (3) formally negotiated relationships (FORMAL); (4) the union of these three (UNION); and (5) referral of clients (REFER). Referral of clients was not combined with the others because it was measured asymmetrically: referral was counted in either direction separately, whereas the other three type of relationships were counted only when a link was acknowledged in both directions. The results are shown in Table 4C-3.

TABLE 4C-3
Correlations of Influence Concentration
with Density of Dyad Formation
among Non-Influential Organizations

variable	COMM	INF	FORMAL	UNION	REFER
correlation	-.5861	-.6183	-.5493	-.6299	-.4692
significance	.023	.016	.032	.014	.062

The results strongly support the hypothesis. All the correlations are strongly negative, as predicted, and the probability of all but one is less than 0.05.

3. The Relationship of Influence Concentration to Dyadic Multiplexity

The hypothesis tested here is that in networks with greater concentration of influence, organizations will focus more energy on their most important relationships; whereas in networks with less concentration of influence, relational control will more commonly be obtained through multiple relations. Specifically:

The less concentrated the structure of influence in a social service network, as defined in hypothesis 2 above, the lower will be the average multiplexity of those relationships that exist in the network, where multiplexity is defined over the following four dimensions:

- exchange of opinions, information, and ideas;
- informal cooperative relationships;
- formal cooperative relationships;
- referral of clients.

The concentration of influence in a network is defined here as in section 2. The measure of multiplexity is the average number of ties (among four possible) in those dyads for which there is any tie at all. Exchange of information, ideas, and opinions; informal cooperative relationships; and formal cooperative relationships each counted as 1. Referral of clients in either direction counted as 0.5; if clients were referred in both directions, then, client referral could contribute 1 to the total.

The correlation has been predicted to be positive: we have concluded earlier that increased concentration of influence is associated with increased multiplexity of relationships. The actual correlation, however, is strongly negative, -0.7541 , with probability 0.002 . The results clearly refute the hypothesis proposed here, supporting instead the contending notion that relationships once formed tend to be protected by the development of multiplexity: for greater multiplexity accompanies the greater tendency to build dyadic relationships that is associated with lesser concentration of influence.

D. The Effect of the Local Environment on the Social Service Network

The general theoretical expectation for this section was that in a metropolitan area, conditions that foster a stable, well-connected network of interorganizational relations with multiple centers of power throughout the area will lead to networks among social service agencies that are also better connected and show less concentration of influence. The specific hypothesis is given below:

In a multiple regression of the dependent variable specified below on the independent variables listed below, the multiple R will be statistically significant.

Independent variables (all variables refer to the county containing the city):

- a. number of in-migrants, 1965-70, divided by 1970 population;

- b. number of economic organizations employing 100 or more persons in 1966;
- c. 1970 population minus black population minus persons with either parent born outside the U. S., divided by the total 1970 population;
- d. SES factor score.

Dependent variable:

The sum of the numbers of organizations necessary to accumulate 50% of the responses to the questions: "What agencies have influence over what your agency does and the decisions you make?"; "What agencies have the most influence over social services decisions in this community?"; "What agencies have the most prestige?"

The basic statistics of the regression are shown in table 4D-1.

Table 4D-1
Regression of Population Turnover, Economic Dispersion,
Ethnic Heterogeneity, and SES
on Influence Concentration in Social Service Networks

Multiple R	0.189	overall F	0.065	
Multiple R ²	0.036	significance	0.990	
variable	F to enter or remove	signif.	simple r	Beta
ethnic heterogeneity	0.178	.682	-0.132	0.091
in-migration	0.032	.862	-0.107	-0.263
socioeconomic status	0.061	.811	0.036	0.193
number of large firms	0.054	.823	0.029	-0.093

The results make obvious that the proposed hypothesis is overwhelmingly rejected. None of the independent variables has a significant F at its

entry into the equation. The overall multiple R is so small that it would be very unlikely to obtain in a set of random data. Moreover, for only one of the variables, ethnic heterogeneity, is the simple correlation in the expected direction; and only for economic dispersion (number of large firms) is the beta weight in the expected direction.

On the possibility that this measure was simply a poor one, the densities of the various ties used in the last section were substituted into the regression equation. In all five cases, the multiple R failed to be significant, each individual variable failed to be significant, and at least three of the simple correlations and at least two of the beta weights had signs opposite to that expected.

Moreover, certain findings from the earlier studies reviewed proved unsubstantiated for the cities studied here. Socioeconomic status was overwhelmingly and positively correlated with the proportion of in-migration ($r = 0.838$, $p < 0.001$). It was negatively, though not significantly, correlated with the number of large firms ($r = -0.163$, $p = 0.307$) and with ethnic heterogeneity ($r = -0.269$, $p = 0.199$). The proportion of in-migration was even more strongly correlated with these two variables: with number of large firms the correlation was -0.322 ($p = 0.153$) and with ethnic heterogeneity it was -0.397 ($p = 0.101$).

Apparently in these cities in-migration, where it occurs, is predominantly the influx of higher SES persons into the county. Such persons would tend to be white and middle class, and they would be more likely to move to a less ethnically heterogeneous place in the first place and

would by their moving make it less so anyway. However, given that the negative correlations nowhere resulted in a significant F for a variable in any of the regression equations, the whole set of variables has proven irrelevant to the concentration of influence in the social services networks in the cities studied.

As explained earlier there are two steps of reasoning leading to the single test in this section: (1) that the independent variables directly affect the concentration of power in the overall interorganizational network in a city, and (2) that the concentration of power in the overall network will be reflected in the concentration of influence in the social services subnetwork. The result is that it is more difficult to interpret the failure to obtain significant results. It is possible that the independent measures chosen are not adequate, but their similarity to measures used in prior research argues against this interpretation. It is also possible that the dependent measure is not appropriate; but its performance as expected in section D argues against this interpretation. It could be argued that the small number of cases makes the level of significance difficult to meet; but in this analysis the value of the overall F is so small and the amount of variance accounted for so little that the negative results cannot so easily be discounted.

It seems most likely, then, that one of the two steps of reasoning leading to the prediction is faulty. Of these, the first step has fairly solid grounding in prior research work; so it seems most reasonable to conclude that the second step of reasoning -- that the concen-

tration of power in the overall interorganizational network in a city will be reflected in the concentration of influence in its social services network -- is the one that has failed. Perhaps the basic structures of social services networks are not particularly affected by their environments once they are established. Although it seems unlikely that the nature of a subnetwork could avoid strong influence from its larger context during the time of its initial construction; perhaps once in place its original structure is more resistant to change. This interpretation, which suggests that social service networks once established are relatively homeostatic in their behavior, will be taken up at greater length in the concluding chapter.

E. The Effect of the Nonlocal Environment on the Local Social Service Delivery Network

The general hypothesis tested in this section is that a larger number of external ties to the larger (national) environment will generate a less concentrated power structure in a metropolitan area, and thus a less concentrated influence structure and greater density of interaction in its social services network. Specifically:

The zero-order correlations between the sum of the number of national voluntary organizations with headquarters in a city and the number of Fortune 1000 industrial in that city, and the following list of dependent measures, will have the signs indicated and will be statistically significant:

- (1) the concentration of influence in the social services network (negative);

- (2) the density of communication ties (COMM) among organizations (positive);
- (3) the density of informal cooperative ties (INF) among organizations (positive);
- (4) the density of formal cooperative ties (FORMAL) among organizations (positive);
- (5) the density of the union of communication, informal cooperative, and formal cooperative ties (UNION) among organizations (positive);
- (6) the density of client referral (REFER) among organizations (positive).

Since the results reported in section D showed no relationship between local environmental variables and the network variables measured, we would now expect to find no relationship here; and that is exactly the result. The correlation between the number of external connections in a city and the concentration of influence in the social service network is negligibly small and in the opposite direction from that predicted. None of the correlations with density variables approaches significance at the 0.05 level, and four of the five are in the direction opposite to that predicted. Table 4E-1 shows the specific results.

TABLE 4E-1
Correlations of the Number of External Ties
with Influence Concentration and Interactive Density
in Social Service Networks

variable	Influence concentration	COMM	INF	FORMAL	UNION	REFER
correlation	0.040	-0.254	-0.122	0.234	-0.181	-0.113
significance	0.451	0.213	0.353	0.232	0.287	0.364

As in section D, it is tempting to try to explain the results by inadequacy of variables or the small number of cases. As there, however, the use of the independent variables in earlier research and the success of the dependent variables in a lower level of analysis in this research argue against blaming the variables; and the persistence of results in the opposite direction from that expected points to a theoretical problem, not the small sample size.

The first step of the reasoning, that the national system generates similarity effects in a local metropolitan area, is supported by evidence in the literature reviewed; however, given that the cities studied here are all in one section of the country, it is possible that those composite findings obscure significant regional variations. The second step of the reasoning, that the nature of the overall local network is reflected in the social services network, was identified as suspect in section D, and these results do nothing to suggest the contrary.

The zero-order correlations between the independent variable and metropolitan area variables provide support for the first step of the reasoning on which this section's general hypothesis was based. The number of external ties has a positive correlation with all four local area variables used in section D: proportion of in-migration, economic diversity, ethnic heterogeneity, and the SES index. Of these the correlations with SES ($r = 0.791$, $p < 0.001$) and proportion of in-migration ($r = 0.640$, $p = 0.013$) are highly significant.

The results of this section, therefore, underscore the likelihood that the structures of local social service networks are not strongly influenced by the structure of the overall interorganizational network of their metropolitan areas. While there is some evidence that local metropolitan areas function as adaptive systems within the environment of the national system, they may not provide sufficient diversity to evoke adaptive behavior from their social service component. Alternatively, of course, the social services component may simply be strongly homeostatic.

CHAPTER 5

SUMMARY OF FINDINGS AND RECOMMENDATIONS

A. Summary of Findings

On a very general level, the data analysis in this dissertation was designed to show that:

- a. internal organizational variables do not affect the likelihood of formation of interorganizational dyads in any systematic way, but organizational size and complexity do;
- b. the substantive development of interorganizational dyads does not follow any systematic pattern;
- c. structural features of interorganizational networks significantly condition the rate at which dyads are formed among the organizations in the network, which dyads are formed and the extent to which dyads will be multiplex in nature;
- d. characteristics of local metropolitan environments condition the nature of their interorganizational networks, and these effects are reflected in subnetworks such as those formed among social service agencies; and
- e. the extent of connection to the national environment conditions local metropolitan environments and thus the nature of local interorganizational networks and their social service agency subnetworks.

The design of the analysis was guided by a systems approach to the various levels of analysis involved. Buckley's distinction between

homeostatic and adaptive systems provided a basis for propositions about system-environment interactions at each level, and these propositions guided the development of predictions. The most crucial proposition is that for the three lowest levels of analysis in this dissertation -- organizations, organizational dyads, and networks of social service organizations -- the entities involved are capable of more than homeostatic behavior, but will not display adaptive behavior unless their environments are sufficiently variable to require it. Behavior is considered homeostatic if it is all-or-none in the presence of necessary conditions, adaptive if it is a smoother function of environmental demands; this distinction permits the use of correlation and regression to detect adaptive behavior. The entities studied were assumed to be sufficiently similar that one-time data on them could be substituted for longitudinal data on fewer cases. Within these assumptions, the specific analyses were designed to show the presence or absence of adaptive behavior at various levels.

The analysis was also undertaken with the assumption that a local network of social service organizations provides the most crucial level of analysis for understanding and intervening in the delivery of social services to individuals. The findings taken as a whole strongly support this assumption; both the findings that confirm predictions, and several that do not, underscore the central nature of the local social service network in determining the delivery of social services to clients.

1. Internal Organizational Variables

Past research has suggested that complexity, centralization, level of internal communication, and administrative efficiency are related to the development of interorganizational links in social service organizations. A hypothesized relation between formalization and formation of IOR links has also been repeatedly sought, though never found. Finally, the innovativeness of organizations had been suggested as a key element in any model linking organizational functioning to the external environment.

One assumption underlying the present analysis was that organizations are predominantly homeostatic, leading to the conclusion that the relationships previously found (or hoped for) between internal organizational variables (centralization, internal communication, formalization, and efficiency) and IOR formation would disappear when organization size and complexity were controlled. Similarly, innovation was expected to show no relation to any variable at any level once size and complexity were controlled. Size and complexity of organizations were expected to show strong relationships to IOR formation because of their enabling role in the formation of such links.

The findings, with two exceptions, confirmed the predictions made and contradict several conclusions in past work. No internal organizational variable showed a statistically significant zero-order correlation with the number of interorganizational relationships, nor did any of them show a significant partial correlation when size and complexity were controlled. Innovation similarly lacked any relationship to size,

complexity, or internal organizational variables. Size showed its traditionally established relationship to complexity, and its predicted relationship to the number of interorganizational relationships.

A statistically significant relationship between innovation and number of IOR links, however, remained even after controls. Although this result is contrary to prediction, it reinforces the importance of the social services network for determining social service programming: the number of external contacts is the only variable that shows a persistent impact on the development of new programs.

The expected relationship between organizational complexity and number of IOR links appeared in the zero-order correlation, but disappeared when size was controlled. This result, too, was contrary to prediction. It strongly underscores the original assumption that organizations are homeostatic in their behavior. Only size, a very clear enabling variable in forming ties to other organizations, shows an impact on IOR formation.

2. Interorganizational Dyad Development

Previous research has suggested that there is a pattern to the development of interorganizational dyads; that relationships requiring greater degrees of commitment and formalization are built on earlier stages involving lesser commitment and formalization. The present research, using more objective criteria for the existence of relationships than previous work, and involving larger numbers of organizations, leads to the conclusion that such a process is not universal. The earlier

research, conducted in rural settings, may simply demonstrate a contention on which this research is based: in a relatively placid environment, dyads may display homeostatic behavior that is not present in more tumultuous environments like the cities studied here. It may also reflect the fact that earlier analyses looked for patterns only in unilaterally reported links, while this study relied on mutually reported links.

The prediction that dyads would show adaptive behavior was based on the variegated environment social service networks provide for the dyads formed within them. The analysis strongly confirmed the prediction -- there was no discernible pattern to the development of substantive content of dyadic relationships in our data.

Although the results of this portion of the analysis were quite convincing, the inverse nature of the hypothesis (that statistically significant results would not occur) and the findings leave open the question of whether any systematic patterns may exist in the development of the content of interorganizational dyads, and under what conditions. Definitive research on this question would have to be longitudinal, and based on objective measures of organizational interaction; but while future research may fruitfully pursue the circumstances under which such patterns might occur, there can no longer be a simple assumption that they will be present.

3. The Effect of Interorganizational Networks on Dyad Formation and Content

The resource exchange perspective on interorganizational relations emphasizes the importance of resource control in determining the pattern of interaction. Since organizations with the most resources are assumed to dominate interaction, the larger the number of organizations in a network that has substantial resources, the larger the number of interorganizational links that can be expected. Most importantly, however, greater numbers of resource centers should generate greater interaction among those organizations with few resources; and a resource-poor organization with ties to more resource-rich organizations should show relationships to more of its fellow resource-poor organizations. Where there are many centers of resource control, moreover, the use of multiplexity in relationships as a way to protect them was predicted to decline, because in such an environment alternative relationships provide equivalent interactional control.

The prediction of increased density of interaction was strongly supported by the data; the expectation for individual resource-poor agencies, however, was only weakly supported; and the prediction regarding multiplexity was very strongly refuted: the increase in number of relationships accompanying wider resource dispersion also involved greater multiplexity in the relationships formed. One possible implication of these results is that greater resource dispersion in a system has its effects because of the greater availability of resources (resource-poor organizations do not have to compete so vigorously for relationships with one or a few organizations), not through changes in

relationship-formation at the level of individual organizations; but further research will be required to determine the exact mechanisms involved.

4. The Impact of the Local Environment on Social Service Networks

Since the social service network in any city is a subset of the overall interorganizational network in that metropolitan area, it was predicted that a greater number of centers of power in the overall network would be reflected in a similar dispersal of influence in the social services subnetwork. Since there were no direct measures for the overall network, however, four substitute variables were used that had been shown in previous research to be predictive of greater resource dispersion in metropolitan areas.

The results were exceptionally unsupportive of the prediction -- the four variables together accounted for almost none of the variance in social service network influence dispersion. Since the variables used had been shown to have the expected effect on overall metropolitan networks, the proposition most seriously called into question by the results of the analysis was that the nature of the overall network is reflected in the social services network. The conclusion from these results is that the social services networks in the cities studied are predominantly homeostatic -- relatively unresponsive to differences in their environments.

5. Connection to the National Environment

The results and conclusion from the last section were reinforced by the absence of any effect of the number of ties to the larger (national) system within metropolitan areas to the concentration of influence in their social services networks. Again the chain of reasoning depended on the assumption that the structure of the overall local network is reflected in the social services network. The other parts to the argument -- the variables used, and the proposition that more external ties lead to greater power diffusion in the overall network -- were sufficiently supported by past research to make the connection between the local overall network and the social services network the suspect link in the reasoning.

6. Overall Summary

There are two general conclusions from these analyses that have strong implications for understanding or intervening in social service delivery systems. The first is that the pattern of results from every level strongly underscores the centrality of the social services network in the process of social service delivery. Organizational processes are unrelated in any systematic way to dyad formation, whereas network processes are strongly related. Variables that have been shown to affect the interorganizational networks of entire metropolitan areas are not related to social service network structure, suggesting that those networks are able to function homeostatically in their surroundings, relatively unaffected in their basic structure by environmental variation.

B. Recommendations for Further Research

The chief deficiency in research on organizational networks generally and social service networks in particular is the lack of longitudinal data. Although some studies have been carried out over two or three years, the processes which were the subject of this dissertation occur over decades. If research on interorganizational processes is to advance our knowledge of those processes significantly, ongoing studies of the same systems must be maintained for several decades -- much in the manner of the major studies that have established a groundwork of knowledge about the relationship of lifestyle to heart attacks in humans. Different studies by different researchers in different places in different years is no substitute for genuine longitudinal research.

A second major deficiency of interorganizational research is that resource flows are not documented. In many cases the data have not been available; in all cases it has been (and will always be) simpler to collect binary data on the existence of contact. It will be impossible, however, to develop realistic models of interorganizational systems so long, for example, as a flood of client referrals between major agencies has the same value in analysis as an occasional trickle between small ones; or so long as attributions of influence must substitute for direct measures of economic power. Increasing computerization of budgetary and expenditure records in the public sector is ushering in an age when the technical work of retrieving and analyzing the data will no longer be a formidable barrier. It is time to begin developing projects to use them.

A third major deficiency in interorganizational research, particularly research in social service networks, is the absence of information on the interface between subnetworks and the larger networks of which they are a part. As some of the findings in the present research illustrate, it cannot simply be assumed that a subnetwork reflects the larger entity in which it is imbedded. Techniques for this sort of research have been developed and applied in interpersonal networks, but the tremendous expense and effort involved in gathering equivalent data for organizations has inhibited the application of the techniques at that level. Without the information such projects can provide, however, it will be impossible to examine how social service networks actually are affected by (or avoid being affected by) their environments, or to identify conditions under which findings different from those obtained in this research should be expected.

An area of research that would be extremely fruitful to pursue is the effect of interorganizational structures on dyadic formation and content. As the present research has shown, the effects are strong, but the mechanisms are not clear. An understanding of these mechanisms, and a clearer understanding of the effects themselves, is central to any theoretical grasp of modern advanced societies. Again, techniques have been developed and applied in the study of interpersonal networks; they need to be used in interorganizational research as well.

Finally, an area of crucial concern to the design of social service delivery is the relationship of client satisfaction to other variables. The research needed is not a simple assessment of the levels of

satisfaction related to certain delivery variables, but rather the way client satisfaction affects service arrangements in different structural configurations for service delivery. One important dimension is the basis for definition of clients: political groupings versus symptom-based; a second important area for investigation is the use of voucher systems, where individual clients control the actual flow of money. Research in each area that treats client satisfaction seriously can answer questions about effects on the relative power of clients vis-a-vis providers, the effectiveness of service when measured objectively, and the integration of service delivery into the larger political system that generates demand for it.

C. Recommendations to Agencies Intervening to Improve Social Service Delivery

The key understanding relevant to intervention in social service systems that derives from the present research is that multiple centers of resource concentration generate system-wide effects in social service networks in the form of more joint programming and greater density of communication and client referral. The first principle of intervention should thus be, do not funnel money through existing major agencies in attempts to change the system. Not only is such a strategy likely to reinforce whatever patterns of interaction already exist, but the administrative effort required to harness the resulting resource flows into desired channels will be horrendous.

Instead, if intervention is intended to change the functioning of the social services system, resources should be funneled to new or previously unimportant organizations. The resources provided to such organizations must be substantial enough that they become centers of influence and thus increase the number of such centers in the network.

It may be necessary, to achieve specific ends, to mandate the formation of certain relationships between agencies in a social service network. What is important is to avoid overusing such a tactic. Since increasing the number of centers of influence will generate denser interaction through the network anyway, the cost required to administer and enforce a host of mandated relationships would be better applied to supplementing the resources of potential new influence centers. The mandating of interaction, then, can be reserved for crucial connections that show continued resistance to more indirect encouragements.

Also, it is essential not to waste effort attempting to adjust the environment of social service systems in the vain hope that they will adapt in specified ways. While future research may uncover connections that make such projects feasible, the evidence of the present research is that the structure of social service systems (in medium-sized U. S. cities, at least) is relatively impermeable to environmental variation.

Finally, it is necessary to avoid overinflated expectations about the results of intervention. The social service networks of even medium-sized cities are very complex; the planned effects of intervention may be deflected and unplanned effects strongly propagated by the processes

already at work in such networks. This underscores the importance of using resources to achieve generally useful results, like increasing interaction density through building additional power centers, rather than struggling to force specific outcomes.

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APPENDIX A-1

Survey Instrument -- Part A:

Interviewer Questionnaire

1

Hello, I'm _____ from Market Opinion Research. I am assisting the Department of Social Science at Michigan State University and the Department of Sociology at Wayne State University. These two departments are jointly conducting a study of voluntary and public agencies in Michigan and Ohio.

You should have received a letter or have been told about this research project. (IF RESPONDENT HAS NOT RECEIVED LETTER, SHOW YOUR COPY OF LETTER AND ALLOW RESPONDENT TO READ).

As the letter says, any answers you give us will be kept strictly confidential.

As you may know, university research projects funded by the federal government are required to get permission from respondents prior to interview. Would you sign this release form for me. Again, I point out that neither your name nor the name of your agency will ever be used in reporting the results of this research.

RECORD INTERVIEW START TIME _____

2

Cd 1

THESE RESPONDENTS ARE NOT EXPECTED TO GIVE "DON'T KNOW" OR NO RESPONSE ANSWERS. IF THEY DO, ALWAYS PROBE FOR BEST ESTIMATE/GUESS FROM ANSWER CODES.

1. What are the major services and/or programs offered by this agency?
(RECORD ALL MENTIONS)

1st mention _____	20-22 V1
2nd mention _____	23-25 V2
3rd mention _____	26-28 V3
4th mention _____	29-31 V4
5th mention _____	32-34 V5
(PROBE FOR ADDITIONAL MENTIONS)	35-37 V6
	38-40 V7

XP ONLY Total No. Mentions

41-42 V8

2. At how many different locations do you provide services? (RECORD NUMBER) _____

43-44 V9

3. What are the major changes in the work of your agency during the past five years?

a. Has the number of clients served . . . (READ RESPONSES)	Decreased. 1 Stayed the same. 2 Increased. 3 Don't know. 8 No response. 9	45 V10
b. Has the number of services and/or programs. . . (READ RESPONSES)	Decreased. 1 Stayed the same. 2 Increased. 3 Don't know. 8 No response. 9	46 V11
c. And, how about funding dollars? When inflation is excluded, has the amount of dollars in the agency's yearly budget(READ RESPONSES)	Decreased. 1 Stayed the same. 2 Increased. 3 Don't know. 8 No response. 9	47 V12

Question 3, continued.

d. And how about sources of funds? Has the number of sources of funds.... (READ RESPONSES)	Decreased.....1 Stayed the same.....2 Increased.....3 Don't know.....8 No response.....9	48 V13
e. Finally, has the number of service locations....(READ RESPONSES)	Decreased.....1 Stayed the same.....2 Increased.....3 Don't know.....8 No response.....9	49 V14
4. Approximately, what proportion of your clients are referred from other human services agencies in this community? (WRITE IN PERCENTAGE)	_____ %	00-38 Act. 99,100-98 99-No Ans 50-51 V15
5. Approximately, what proportion of your clients are referred to you by information and referral services? (WRITE IN PERCENTAGE)	_____ %	52-53 V16
6. Approximately, what proportion of people coming to your agency are referred to other agencies? (WRITE IN PERCENTAGE)	_____ %	54-55 V17
7. Approximately, what proportion of your agency's clients can be adequately served without using the services or programs of other agencies or groups? (WRITE IN PERCENTAGE)	_____ %	56-57 V18 58-74 811
8. What services or programs do people coming to your agency need that are not available within your own agency? (WRITE IN SERVICES)		Cd 2 1-19 as :
1st mention _____		20-22 V19
2nd mention _____		23-25 V20
3rd mention _____		26-28 V21
4th mention _____		29-31 V22
5th mention _____		32-34 V23
(PROBE FOR ADDITIONAL MENTIONS)		35-37 V24 38-40 V25
KP ONLY Total No. Mentions		41-42 V26

4

Cd 2

9. What requirements about services must you meet?

	No	Yes.	Don't Know	No Response		
a. Are you required to provide referral services for clients?	1	2	8	9	43	V27
b. Are you required to accept referrals from another agency?	1	2	8	9	44	V28
c. Are you required to submit records about clients to another agency?	1	2	8	9	45	V29
d. Are you required to get approval from any organization before making changes in the services your agency provides?	1	2	8	9	46	V30
e. Are you required to participate in any inter-agency committees or groups?	1	2	8	9	47	V31
f. Are there any other requirements under which the agency must operate?	1	2	8	9	48	V32
10. Has this agency developed or participated in any new programs or services since January 1, 1976 in response to federal/state/local regulations, rules or policies? In other words, are you involved in any new programs because they are mandated?	No 1 Yes. 2 Don't know. 8 No response. 9				49	V33
11. Has this agency been involved in any new programs since January 1, 1976 that are <u>not</u> mandated?	No. 1 Yes. 2 Don't know. 3 No response. 9				50	V34
12a. Is your agency serving any <u>client groups who are new since January 1, 1976</u> (clients your agency did not previously serve) in response to any federal/state/local regulations, rules or policies? In other words, are you serving any new client groups because of mandate?	No. 1 Yes. 2 Don't know. 8 No response. 9				51	V35
12b. Is the agency serving any new client groups without being under any mandate to do so?	No. 1 Yes. 2 Don't know. 8 No response. 9				52	V36

13. What people outside this agency do you regularly check with before making important decisions about agency policies, programs, procedures, funding, etc.? (WRITE IN, PROBE)

Cd 2

_____ POSITION _____	_____ ORGANIZATION OR GROUP _____
_____ POSITION _____	_____ ORGANIZATION OR GROUP _____
_____ POSITION _____	_____ ORGANIZATION OR GROUP _____
_____ POSITION _____	_____ ORGANIZATION OR GROUP _____
_____ POSITION _____	_____ ORGANIZATION OR GROUP _____

No
Coding

KP ONLY

ORGANIZATION OR GROUP

Total No. of People Named

Respondent doesn't check with anybody. 90

No response. 99

53-54
V37

14. In your opinion, are there particular client groups for whom it is particularly difficult to develop and carry out collaborative or cooperative programs?

No. 1
Yes. 2
Don't know. 8
No response. 9

55 V38

(IF YES, Q.14)

- a. Which client groups? (WRITE IN)

- b. (IF "DON'T KNOW" Q.a, ASK PROBE) I mean are there any types of clients for whom it is difficult to work out collaborative or cooperative programs with other agencies? Which groups would those be?

56-69 V39
V40
V41
V42
V43
V44
V45

- c. (IF NO GROUPS NAMED IN Q.a or Q.b, ASK:)
Is it difficult to develop projects for the . . . (READ CHOICES)

	No	Yes	Don't Know	No Response
a. Elderly	1	2	8	9
b. Mentally ill	1	2	8	9

70 V46

71 V47

6

15. (HAND CARD Q.15 -- LIST OF AGENCIES, LEAVE WITH RESPONDENT FOR Q.15-35. Cd 3
 ALLOW RESPONDENT TIME TO SCAN. FOR EACH AGENCY NAMED, WRITE DOWN ID NUMBER). 1-19
 Looking at this list of agencies from the community, I am going to ask you a as 1
 number of questions about different kinds of relationships your agency may
 have with others. For each question, please give me the names, if any, of
 the agencies that best answer the question. If the question is inappropriate
 for your agency, please tell me. In order to save some time, please look
 over the entire list of agencies first, and then tell me the agencies involved
 in the relationship. (HAVE RESPONDENT READ NAME AND ID NUMBER TO YOU. YOU
 CONFIRM NUMBER AS YOU RECORD IT BY READING AGENCY NAME BACK FROM YOUR CARD.
 IF RESPONDENT MENTIONS AGENCY NOT ON THE LIST, ENTER NAME.)

Now which agencies provide services that are similar to those your agency
 provides? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V48 V49 V50 V51 V52 V53 V54
 a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____ 20-33

h. _____ i. _____ j. _____ k. _____ l. _____ KP More than 7
ONLY mentions .77

← Other (RECORD NAMES AS
 OPEN END) 88 V55
 None. 90 34-35
 No response. 99
 All (DO NOT ACCEPT AS ANSWER,
 PROBE FOR TOP SEVEN)

16. Which agencies generally serve the same client group(s) that your
 agency serves? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V56 V57 V58 V59 V60 V61 V62
 a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____

h. _____ i. _____ j. _____ k. _____ l. _____ KP More than 7
ONLY mentions .77 36-49

← Other (RECORD NAMES AS
 OPEN END) 88 V63
 None. 90 50-51
 No response. 99
 All (DO NOT ACCEPT AS ANSWER,
 PROBE FOR TOP SEVEN)

17. Which agencies have influence over what your agency does and the decisions
 it makes? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V64 V65 V66 V67 V68 V69 V70
 a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____

h. _____ i. _____ j. _____ k. _____ l. _____ KP More than 7
ONLY mentions .77 52-65

← Other (RECORD NAMES AS
 OPEN END) 88 V71
 None. 90 66-67
 No response. 99
 All (DO NOT ACCEPT AS ANSWER,
 PROBE FOR TOP SEVEN)

68-74 31

18. Which agencies' good opinion is important? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V72 V73 V74 V75 V76 V77 V78
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____
h. _____ i. _____ j. _____ k. _____ l. _____

XP More than 7
ONLY mentions .77

20-33

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

V79
34-35

19. Which agencies provide your agency with cooperation and support? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V80 V81 V82 V83 V84 V85 V86
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____
h. _____ i. _____ j. _____ k. _____ l. _____

XP More than 7
ONLY mentions .77

36-49

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

V87
50-51

20. And, with which agencies has your agency had some direct conflict during the past few years? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V88 V89 V90 V91 V92 V93 V94
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____
h. _____ i. _____ j. _____ k. _____ l. _____

XP More than 7
ONLY mentions .77

52-65

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

V95
66-67

63-74 8

21. Which agencies have the most influence over decisions about human services in this community? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED) Cd 5
1-19 as1

a. b. c. d. e. f. g.
h. i. j. k. l.

KP More than 7
ONLY mentions .77

20-33

← Other (RECORD NAMES AS
OPEN END) 88
None. 90
No response. 99
A11 (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN.

V103
34-35

22. Which agencies send people to your agency for services? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

a. b. c. d. e. f. g.
h. i. j. k. l.

KP More than 7
ONLY mentions .77

36-49
50-63

← Other (RECORD NAMES AS
OPEN END) 88
None. 90
No response. 99
A11 (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

64-65
V118
66-74 B11

22a. (ASK FOR EACH AGENCY MENTIONED)

What percentage of your referrals came from the agencies you mentioned?
(WRITE IN PERCENTS BELOW EACH ITEM IN Q.22)

Cd 6
1-19 as1

23. And which ones do you send people to for services? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

a. b. c. d. e. f. g.
h. i. j. k. l.

KP More than 7
ONLY mentions .77

20-33
34-47

← Other (RECORD NAMES AS
OPEN END) 88
None. 90
No response. 99
A11 (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

48-49
V133

23a. (ASK FOR EACH AGENCY MENTIONED) What percentage of your referrals do you send to each agency mentioned? (WRITE IN PERCENTS BELOW EACH ITEM IN Q.23)

24. Which agencies have the most prestige? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V134 V135 V136 V137 V138 V139 V140
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____
h. _____ i. _____ j. _____ k. _____ l. _____

KP More than 7
ONLY mentions .77

50-63

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

V141
64-65

66-74 B1k

25. With which agencies do you exchange opinions, information and ideas? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V142 V143 V144 V145 V146 V147 V148
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____
h. _____ i. _____ j. _____ k. _____ l. _____

KP More than 7
ONLY mentions .77

20-33

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

V149
34-35

26. With which agencies is your agency involved on community committees and planning task forces? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V150 V151 V152 V153 V154 V155 V156
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____
h. _____ i. _____ j. _____ k. _____ l. _____

KP More than 7
ONLY mentions .77

36-49

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN)

V157
50-51

10

Cd 7

27. Which agencies does your agency rely on to deliver your own services/ programs to clients? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

V158 V159 V160 V161 V162 V163 V164
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____

h. _____ i. _____ j. _____ k. _____ l. _____ XP More than 7
ONLY mentions .77

52-65

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS
ANSWER, PROBE FOR TOP SEVEN)

V165
66-67

68-74 81k

29. Which agencies are most likely to get money from the same sources as your agency? (WRITE IN ID NUMBER, RECORD ONLY THOSE SPONTANEOUSLY MENTIONED)

Cd 8
1-19 as 1

V166 V167 V168 V169 V170 V171 V172
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____

h. _____ i. _____ j. _____ k. _____ l. _____ XP More than 7
ONLY mentions .77

20-33

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS
ANSWER, PROBE FOR TOP SEVEN)

V173
34-35

29. We are interested in knowing about any informal cooperative relationships your agency has with other agencies in this community (HAND YELLOW CARD). This card lists some of the common types of cooperative relationships social services agencies develop on an informal basis. By informal relationships we mean relationships that have no formal basis... that is, there isn't a written agreement or contract, probably very little, if any, money changes hands and most of the problems that arise or changes that are made are worked out by mutual adjustment. Using the list on the yellow card as examples of inter-agency cooperation, please identify any agencies with which your agency works on any sort of informal cooperative basis. (AFTER RESPONDENT IDENTIFIES AGENCIES, PROBE TO REVIEW COMPREHENSIVENESS OF LIST USING TYPES OF RELATIONSHIPS IDENTIFIED ON YELLOW CARD .

RECORD ID NUMBERS)

V174 V175 V176 V177 V178 V179 V180
a. _____ b. _____ c. _____ d. _____ e. _____ f. _____ g. _____

h. _____ i. _____ j. _____ k. _____ l. _____ XP More than 7
ONLY mentions .77

36-49

← Other (RECORD NAMES AS
OPEN END). 88
None. 90
No response. 99
All (DO NOT ACCEPT AS
ANSWER, PROBE FOR TOP SEVEN)

V181
50-51

11

Cd 9
1-19 as 1

Now, we want to ask you about agencies with which your organization has any kind of formal cooperative relationships. (HAND BLUE CARD -- TYPES OF FORMAL COOPERATIVE RELATIONSHIPS. USE FOR Q.30-33)

30a. Are there any agencies you run any type of program for? No (GO TO Q.31). 1
Yes. 2

20 V186

30b. What are the agencies for which you run programs? (RECORD IN COLUMN ONE BELOW)

30c. (ASK FOR EACH AGENCY NAMED IN Q.30b)
What is the program?
(RECORD IN COLUMN TWO BELOW)

30d. What other agencies are involved in the program?
(RECORD IN COLUMN THREE BELOW)

30e. What person should we contact for details about the way it operates?
RECORD IN COLUMN FOUR BELOW

30f. Where could we contact them?
(RECORD IN COLUMN FIVE BELOW -- RECORD NAME/PLACE TO CONTACT)

1. (30b) Agency ID or Name	2. (30c) Program Name or Topic	3. (30d) Other Agencies Involved	4. (30e) Person to Contact	5. (30f) Name/Place to Contact
V187		V194		
V188		V195		
V189		V196		
V190		V197		
V191		V198		
V192		V199		
21-34		35-48		

More than 6
mentions.....77
(CONTINUE RECORDING
BELOW)

V193

More than 6
mentions.....77
(CONTINUE RECORDING
BELOW)

V200

49-74 B1k

USE BLUE CARD

12

Cd 10
1-19 as 131a. Are there any agencies that run
programs for your agency?No (GO TO Q.32). 1
Yes. 2

20 V201

31b. What are the names of the agencies that run programs for your agency?
(ENTER ID NUMBERS OR NAMES -- RECORD IN COLUMN ONE BELOW)

(ASK FOR EACH AGENCY NAMED)

31c. What is the program? (RECORD IN COLUMN TWO BELOW)

31d. What other agencies are involved in the program? (RECORD IN COLUMN THREE
BELOW)31e. What person should we contact for details about the way it operates?
(RECORD IN COLUMN FOUR BELOW)31f. Where could we contact them?
(RECORD IN COLUMN FIVE BELOW -- RECORD NAME/PLACE TO CONTACT)

1. (31b) Agency ID or Name	2. (31c) Program Name or Topic	3. (31d) Other Agencies Involved	4. (31e) Person to Contact	5. (31f) Name/Place to Contact
V202		V209		
V203		V210		
V204		V211		
V205		V212		
V206		V213		
V207		V214		
21-34		35-48		
More than 6 mentions.....77 (CONTINUE RECORDING BELOW)		More than 6 mentions.....77 (CONTINUE RECORDING BELOW)		49-74 81k
V208		V215		

13

Cd 11
1-19 as 1

USE BLUE CARD

32a. How about any joint programs . . . No (GO TO Q.33). 1
 I mean programs you operate with another agency. Is this agency involved in any formal joint programs? Yes. 2

20
V216

32b. What are the names of the agencies in the joint program? (ENTER ID NUMBERS OR NAMES -- RECORD LEFT IN FIRST COLUMN BELOW)

(ASK FOR EACH AGENCY NAMED)

32c. What is the program? (RECORD IN COLUMN TWO BELOW)

32d. What other agencies are involved in the program? (RECORD IN COLUMN THREE BELOW)

32e. What person should we contact for details about the way it operates? (RECORD IN COLUMN FOUR BELOW)

32f. Where could we contact them? (RECORD IN COLUMN FIVE BELOW -- RECORD NAME/PLACE TO CONTACT)

1. (32b) Agency ID or Name	2. (32c) Program Name or Topic	3. (32d) Other Agencies Involved	4. (32e) Person to Contact	5. (32f) Name/Place to Contact
V217		V224		
V218		V225		
V219		V226		
V220		V227		
V221		V228		
V222		V229		
21-34		35-48		

More than 6
mentions.....77
(CONTINUE RECORDING
BELOW)

V223

More than 6
mentions.....77
(CONTINUE RECORDING
BELOW)

V230

49-74 31k

14

Cd 12
1-19 as 1

USE BLUE CARD

33a. How about any other types of formal cooperative relationships listed on the card -- such as formalized arrangements to share staff or facilities or information about clients or any other formal relationships. Is this agency involved in any programs related to those topics?

No (GO TO Q.34). 1

Yes. 2

20
V231

33b. What are the names of the agencies? (ENTER ID NUMBERS OF NAMES -- RECORD LEFT IN FIRST COLUMN BELOW)

(ASK FOR EACH AGENCY NAMED)

33c. What is the program? (RECORD IN COLUMN TWO BELOW)

33d. What other agencies are involved in the program? (RECORD IN COLUMN THREE BELOW)

33e. What person should we contact for details about the way it operates? (RECORD IN COLUMN FOUR BELOW)

33f. Where could we contact them? (RECORD IN COLUMN FIVE BELOW -- RECORD NAME/PLACE TO CONTACT)

1. (33b) Agency ID or Name	2. (33c) Program Name or Topic	3. (33d) Other Agencies Involved	4. (33e) Person to Contact	5. (33f) Name/Place to Contact
V232		V239		
V233		V240		
V234		V241		
V235		V242		
V236		V243		
V237		V244		
21-34		35-48		

More than 6
mentions.....??
(CONTINUE RECORDING
BELOW)

V238

More than 6
mentions.....??
(CONTINUE RECORDING
BELOW)

V245

TAKE BACK BLUE CARD

15

Cd 12

34. Which agencies compete with yours for resources? (RECORD ID NUMBERS)

V246	V247	V248	V249	V250	V251	V252	
a. _____	b. _____	c. _____	d. _____	e. _____	f. _____	g. _____	49-62
h. _____	i. _____	j. _____	k. _____	l. _____	KP More than 7 ONLY mentions .77		

← Other (RECORD NAMES AS
OPEN END) 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN) 65-74 8

Cd 13
1-19 as 1

35. Which agencies compete with your agency for clients? (RECORD ID NUMBERS)

V254	V255	V256	V257	V258	V259	V260	
a. _____	b. _____	c. _____	d. _____	e. _____	f. _____	g. _____	
h. _____	i. _____	j. _____	k. _____	l. _____	KP More than 7 ONLY mentions .77		20-33

← Other (RECORD NAMES AS
OPEN END) 88
None. 90
No response. 99
All (DO NOT ACCEPT AS ANSWER,
PROBE FOR TOP SEVEN) 34-35
V261

(TAKE BACK Q.15 LIST OF AGENCIES CARD)

36. Here is a list of persons, groups and things which may have an influence over decisions in your agency. (HAND CARD Q.36 TO RESPONDENT). As I read each type of decision, please tell me the persons, groups or things other than yourself, which most influence that decision. I will record the numbers from your card. (IF RESPONDENT NAMES "OTHER," RECORD AS OPEN END)

V262	V263	V264	V265	V266	V267	V268	V269	20-35
------	------	------	------	------	------	------	------	-------

V270 (RECORD NUMBERS) V271 V272 V273 V274 V275 V276 V277 36-50

V278 V279 V280 V281 V282 V283 V284 V285 51-65

[illegible]

V294	V295	V296	V297	V298	V299	V300	V301	36-50
------	------	------	------	------	------	------	------	-------

V302 in new or different ways. (RECORD NUMBERS) V307 V308 V309
V303 V304 V305 V306
51-65

[illegible]

V318	V319	V320	V321	V322	V323	V324	V325
							36-50

V326	V327	V328	V329	V330	V331	V332	V333	ST-65
------	------	------	------	------	------	------	------	-------

V334 the agency V335 (RECORD NUMBERS) V336 V337 V338 V339 V340 V341 1-19 as
20-35

66-74 51
Cd 4
1-19 as

17

Cd 16

37. Considering the elderly in this community, do senior citizens have any special service needs? (ASK AS OPEN END) What are these?

V342	V347	36-59 V350
V343	V348	
V344	V349	60-61
V345		
V346		

KP ONLY
More than 8 mentions...77

- a. Which of these are the three most pressing needs?
(CIRCLE ABOVE TOP THREE NEEDS IDENTIFIED BY RESPONDENT)
DO NOT PROBE FOR NEEDS

V351
V352
V353
62-70

38. From your perspective, how effective is planning for services for the elderly in this community? (ASK AS OPEN END. DO NOT READ RESPONSES BUT CIRCLE ONE CLOSEST TO OPINION RESPONDENT GIVES)

Not effective.....1
Slightly effective.....2
Somewhat effective.....3
Very effective.....4
Extremely effective.....5
Don't know.....8
No response9

71 V354

39. And what is your opinion about planning for services for the mentally troubled or mentally ill. How effective is it? (ASK AS OPEN END. DO NOT READ RESPONSES BUT CIRCLE ONE CLOSEST TO OPINION RESPONDENT GIVES)

Not effective.....1
Slightly effective.....2
Somewhat effective.....3
Very effective.....4
Extremely effective.....5
Don't know.....8
No response.....9

72 V355

I want to thank you for participating in this interview. The research team from Wayne State University and Michigan State University does need some additional information. In order to conserve your time, we'd like to leave with you a questionnaire which you can fill out within the next few days and mail back in this envelope to Market Opinion Research. Your cooperation will be greatly appreciated. Of course, the information in the questionnaire will also be confidential just as the information from our interview is. (LEAVE PART II QUESTIONNAIRE WITH ENVELOPE)

This study project also needs some information about this agency's clients, staffing patterns and some financial information. Is there a financial officer who should provide this information, or are you the person or is there someone else who should provide it? (RECORD NAME OF PERSON WHO SHOULD PROVIDE CLIENT, STAFF, FINANCIAL INFORMATION)

I'm going to ask you to give this final questionnaire to (NAME RECORDED ABOVE). Here's an envelope for mailing it back to Wayne State University. (LEAVE PART III QUESTIONNAIRE AND ENVELOPE)

40. Race: (BY OBSERVATION)	White. 1	73
	Non-white. 2	V356
41. Sex: (BY OBSERVATION)	Male. 1	74
	Female. 2	V357

75-76 Cd #
77-80 Job #

APPENDIX A-2

List of Influences on Social Service Agencies

Q.36

SOURCES OF INFLUENCE

01. ASSISTANT OR ASSOCIATE DIRECTORS
02. BOARD OR GOVERNING BODY OF AGENCY
03. CLERICAL OR TECHNICAL STAFF
04. CLIENT GROUPS
05. COMMUNITY GROUPS (SUCH AS LABOR, RELIGIOUS, BUSINESS, WOMEN'S MINORITY)
06. DEPARTMENT UNIT HEADS
07. DIRECTORS OF OTHER AGENCIES
08. FOUNDATIONS
09. GENERAL PUBLIC
10. GOVERNMENT OFFICIALS (ANY LEVEL)
11. LAWS AND REGULATIONS
12. LOWER ECHELON PROFESSIONAL STAFF
13. FAMILY
14. PARA PROFESSIONAL STAFF
15. PERSONNEL OF LOCAL PLANNING ORGANIZATIONS AND/OR PROBLEM-ORIENTED COMMITTEES
16. PROFESSIONAL STANDARDS
17. REQUIREMENTS OF FUNDING ORGANIZATIONS
18. SENIOR PROFESSIONAL STAFF
19. SPONSORING ORGANIZATION OR PARENT AGENCY
20. STAFF OF OTHER AGENCIES

APPENDIX A-3

Survey Instrument -- Part B:
Additional Agency Head Perceptions

MICHIGAN STATE UNIVERSITY, EAST LANSING - MICHIGAN 48824

SOCIAL SCIENCE RESEARCH BUREAU - BERKELEY HALL

Label goes
here

1-15
ID 16-19

Part II

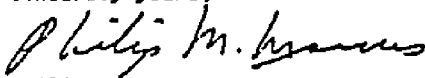
Interagency Delivery of Mental Health
To the Aging -- Agency

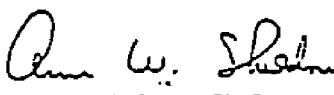
In order to conserve time, we have devised this self-administered questionnaire. As with the interview, your answers will be kept completely confidential; they will be punched on to cards and the data analyzed as a group. No person nor organization will ever be identified by name in any report.

This part of the interview will take about forty-five minutes of your time. Please feel free to comment on our questions as feedback from experts who actually deliver the local services is crucial to our study.

Thank you in advance for all the help you have given us. We sincerely appreciate your time and thoughtful inputs. When the full study is completed, we shall send you a copy as a token of our appreciation.

Sincerely yours,


Philip M. Marcus, Director
Social Science Research Bureau
Michigan State University


Ann W. Sheldon, Ph.D.
Assistant Professor
Wayne State University

2

Cd 1

Part II

1. If you could allocate funds in this community, what proportion of money currently available for human services would you allocate differently? (CHECK ONE)

☐ 0%
☐ 10%
☐ 20%
☐ 30%
☐ 40%
☐ 50%

☐ 60%
☐ 70%
☐ 80%
☐ 90%
☐ 100%

20-21
 V35B

2. For your organization, how important is participation in special programs or services to get additional funds through contracts, grants, Title XX contracts, and the like? (CHECK ONE)

☐ Not important 1
☐ Slightly important 2
☐ Somewhat important 3
☐ Very important 4
☐ Very greatly important 5

22 V359

3. And, how important is participation in cooperative or collaborative programs/ services? (CHECK ONE)

☐ Not important 1
☐ Slightly important 2
☐ Somewhat important 3
☐ Very important 4
☐ Very greatly important 5

23 V360

4. To what extent are the plans, policies and/or procedures of your agency determined by any parent or sponsoring agency (i.e., the national agency, state or federal departments, local agency responsible for funding your agency, etc.) (CHECK ONE BOX)

☐ Not at all 1
☐ Slight extent 2
☐ Some extent 3
☐ Great extent 4
☐ Very great extent 5

24 V361

5. How much competition exists between your agency and others for resources in this community? (CHECK ONE BOX)

☐ No competition at all 1
☐ Slight competition 2
☐ Some competition 3
☐ Great competition 4
☐ Very great competition 5

25 V362

3

Cd 2
1-19 as 1

6. From the list in the box below, select as many groups as appropriate to tell us what staff regularly participate in decision making about: (WRITE NUMBER FOR EACH LINE)

<u>Groups Participating</u>	<u>Decisions</u>
V405 V406 V407 V408 V409 V410 V411 V412	
_____	Developing new policies, plans and procedures
V413 V414 V415 V416 V417 V418 V419 V420	
_____	Changing policies, plans and procedures
V421 V422 V423 V424 V425 V426 V427 V428	
_____	Seeking new sources of funds
V429 V430 V431 V432 V433 V434 V435 V436	
_____	Adopting different programs/services
V437 V438 V439 V440 V441 V442 V443 V444	
_____	Serving different client groups
V445 V446 V447 V448 V449 V450 V451 V452	
_____	Participating in collaborative or cooperative projects with other agencies
V453 V454 V455 V456 V457 V458 V459 V460	
_____	Committing the organization

SELECT APPROPRIATE GROUPS FROM THIS LIST

1. Board or governing body of agency
2. Director
3. Assistant or associate director
4. Department unit heads
5. Senior professional staff
6. Lower echelon professional staff
7. Para professional staff
8. Clerical/technical staff

20-75
76 Cd #
77-80 Job #

7. To what extent does your agency use written criteria for each of the following?
(CHECK ONE BOX FOR EACH ITEM)

	1	2	3	4	5	
	<u>Not</u> <u>At All</u>	<u>Slight</u> <u>Extent</u>	<u>Some</u> <u>Extent</u>	<u>Great</u> <u>Extent</u>	<u>Very</u> <u>Great</u> <u>Extent</u>	
a. Client intake	☐	☐	☐	☐	☐	26V363
b. Handling clients	☐	☐	☐	☐	☐	27V364
c. Managing volunteers	☐	☐	☐	☐	☐	28V365
d. Promotion of staff	☐	☐	☐	☐	☐	29V366
e. Discipline of staff	☐	☐	☐	☐	☐	30V367
f. Work practices (hours of work, work load, reporting procedures)	☐	☐	☐	☐	☐	31V368
g. Job performance	☐	☐	☐	☐	☐	32V369
h. Referrals and follow-up	☐	☐	☐	☐	☐	33V370
i. Relationships with other organizations	☐	☐	☐	☐	☐	34V371

8. How much does your agency use permanent staff committees for each of the following? (CHECK ONE BOX FOR EACH ITEM)

	1	2	3	4	5	
	<u>Not</u> <u>At All</u>	<u>Slightly</u>	<u>Some</u>	<u>Great</u> <u>Amount</u>	<u>Very</u> <u>Great</u> <u>Amount</u>	
a. Allocation of funds	☐	☐	☐	☐	☐	35V371
b. Program evaluation	☐	☐	☐	☐	☐	36V371
c. Long range planning	☐	☐	☐	☐	☐	37V374
d. Personnel decisions	☐	☐	☐	☐	☐	38V375
e. Salary changes	☐	☐	☐	☐	☐	39V376
f. Review of staff discipline (grievance procedures)	☐	☐	☐	☐	☐	40V377
g. Review and determination of priorities	☐	☐	☐	☐	☐	41V377
h. Program development	☐	☐	☐	☐	☐	42V378

5

Cd 1

9. How much competition is there within your agency? (CHECK ONE BOX FOR EACH ITEM)

	1 No Compe- tition	2 Slight Compe- tition	3 Some Compe- tition	4 Great Compe- tition	5 Very Great Competition	
a. Among departments or work units	☐	☐	☐	☐	☐	43 V380
b. Among the professional staff	☐	☐	☐	☐	☐	44 V381
c. Among board members or members of the advisory committee	☐	☐	☐	☐	☐	45 V382
d. Among lower level staff	☐	☐	☐	☐	☐	46 V383

10. How much difference of opinion exists between the administrative and professional staff in your agency about each of the following? (CHECK ONE BOX FOR EACH ITEM)

	1 None At All	2 Slight Difference	3 Some Difference	4 Great Difference	5 Very Great Difference	
a. Fund raising and seeking grants and contracts	☐	☐	☐	☐	☐	V384
b. Coordinating services with other agencies	☐	☐	☐	☐	☐	V385
c. Allocating money and other re- sources (e.g., staff, equip- ment, space for services or programs.	☐	☐	☐	☐	☐	V386
d. Modifying existing programs or services	☐	☐	☐	☐	☐	V387
e. Changing service or program priorities	☐	☐	☐	☐	☐	V388
f. Serving new client groups	☐	☐	☐	☐	☐	V389
g. Personnel policies and procedures (e.g., how promotions are deter- mined, work load, job classifi- cations, salary increases, etc.)	☐	☐	☐	☐	☐	V390

11. Some communities are trying to provide special preventive services for the aging and services for the elderly who are mentally impaired. In your opinion, how much of a problem is each of the following in providing services for the elderly? (CHECK ONE BOX FOR EACH ITEM)

	1	2	3	4	5		
	No Problem	Slight Problem	Some Problem	Great Problem	Very Great Problem		
a. Specially trained staff is required	☐	☐	☐	☐	☐	54	V391
b. Funds are not available	☐	☐	☐	☐	☐	55	V392
c. There is a low community recognition of the need for such services	☐	☐	☐	☐	☐	56	V393
d. People find it difficult to work with the elderly	☐	☐	☐	☐	☐	57	V394
e. Higher priority is given to needs of productive members of the community	☐	☐	☐	☐	☐	58	V395
f. Transportation is unavailable or complicated	☐	☐	☐	☐	☐	59	V396
g. People dislike being involved with the elderly	☐	☐	☐	☐	☐	60	V397
h. There are few rewards to any agencies that provide such services	☐	☐	☐	☐	☐	61	V398
i. Most people who are older do not need special services (need is not great)	☐	☐	☐	☐	☐	62	V399
j. Beliefs that not much can be done to help the elderly who are mentally impaired	☐	☐	☐	☐	☐	63	V400
k. Finding locations for serving the elderly	☐	☐	☐	☐	☐	64	V401
l. Special services are too costly	☐	☐	☐	☐	☐	65	V402
m. Elderly are not an effective pressure group	☐	☐	☐	☐	☐	66	V403
n. Older people fear loss of independence and dignity if they use services	☐	☐	☐	☐	☐	67	V404

68-75 B1x
76 C1 #
77-80 Job #

7

Cd 3
1-19 as 1

12. To what extent do each of the following affect the coordination of services or agency collaboration? (CHECK ONE BOX FOR EACH ITEM)

<u>Coordination/Collaboration Generally</u>	<u>1 Not At All</u>	<u>2 Slight Extent</u>	<u>3 Some Extent</u>	<u>4 Great Extent</u>	<u>5 Very Great Extent</u>	
a. Collaboration takes too much time	☐	☐	☐	☐	☐	20 V461
b. Financial costs are too great	☐	☐	☐	☐	☐	21 V462
c. It is difficult for staff from different agencies to work together	☐	☐	☐	☐	☐	22 V463
d. Staff like to work in collaborative programs	☐	☐	☐	☐	☐	23 V464
e. Previously unhelped clients receive services	☐	☐	☐	☐	☐	24 V465
f. Community resources are utilized in a better way	☐	☐	☐	☐	☐	25 V466
g. We cannot get cooperation from other agencies	☐	☐	☐	☐	☐	26 V467
h. Collaboration would mean our facilities would be over-used by other agencies' clients	☐	☐	☐	☐	☐	27 V468
i. Other agencies do not need the the services we provide	☐	☐	☐	☐	☐	28 V469
j. It is easier to expand your own agency than to work out joint programs with other organizations	☐	☐	☐	☐	☐	29 V470
k. Saves our agency's money and staff time	☐	☐	☐	☐	☐	30 V471
l. We lack control over other agency's staff	☐	☐	☐	☐	☐	31 V472
m. Coordination helps us serve our clients better	☐	☐	☐	☐	☐	32 V473
n. Our agency receives new funds for collaborating	☐	☐	☐	☐	☐	33 V474
o. Collaboration means other agencies may have too much say over how things are done in this agency	☐	☐	☐	☐	☐	34 V475
p. Good for public relations	☐	☐	☐	☐	☐	35 V476

13. How much of a problem to your agency is each of the following?
(CHECK ONE BOX FOR EACH ITEM)

	1 No Problem At All	2 Slight Problem	3 Some Problem	4 Great Problem	5 Very Great Problem		
a. Limited range of services in community to meet people's needs	[]	[]	[]	[]	[]	36	V477
b. Policies and actions of local Mental Health Board (Act 648 Board, Ohio; Community Mental Health Board, Michigan)	[]	[]	[]	[]	[]	37	V476
c. Policies and actions of local welfare or social service department	[]	[]	[]	[]	[]	38	V479
d. Policies and actions of local area office on aging	[]	[]	[]	[]	[]	39	V480
e. Policies and actions of local United Way	[]	[]	[]	[]	[]	40	V481
f. Attitudes of other agencies	[]	[]	[]	[]	[]	41	V482
g. Coordination of services with other organizations	[]	[]	[]	[]	[]	42	V483
h. Financial shortages	[]	[]	[]	[]	[]	43	V484
i. Integration of services in the community	[]	[]	[]	[]	[]	44	V485
j. Attitudes of community leaders	[]	[]	[]	[]	[]	45	V486

9

Cd 3

14. What changes do you think are needed for each of the following in this community? (CHECK ONE BOX FOR EACH ITEM)

	1 Should Be Decreased Substantially	2 Decreased Somewhat	3 Should Stay Same	4 Should Be Increased Somewhat	5 Should Be Increased Substantially
a. Amount of money set aside for services development and new services	☐	☐	☐	☐	☐ V487
b. Client advocacy programs	☐	☐	☐	☐	☐ V487
c. State involvement in local planning for human services	☐	☐	☐	☐	☐ V489
d. Amount of federal money available for human services	☐	☐	☐	☐	☐ V490
e. Joint public-voluntary agency planning for particular client groups. (Example, abused children, vocationally disadvantaged, elderly, rape victims, battered women, etc.)	☐	☐	☐	☐	☐ V491
f. Regional planning for the consolidation of separate human services systems (Example: physical health, mental health, welfare/income support, personal social services)	☐	☐	☐	☐	☐ V492
g. Funds for interagency programs and grants and contracts	☐	☐	☐	☐	☐ V493
h. Amount of money raised by United Way campaigns	☐	☐	☐	☐	☐ V494

10

Cd 3

15. How much are you pressured by each of the following to develop and/or participate in collaborative projects with other agencies?
(CHECK ONE BOX FOR EACH ITEM)

	1 No Pressure At All	2 Slight Pressure	3 Some Pressure	4 Great Pressure	5 Very Great Pressure	
1 a. Local United Way organization	[]	[]	[]	[]	[]	V49E
2 b. Area Office on Aging	[]	[]	[]	[]	[]	V49E
3 c. Mental health planning organization	[]	[]	[]	[]	[]	V497
4 d. Local community action organization (CAC/CAP)	[]	[]	[]	[]	[]	V498
5 e. Local department of welfare or social services	[]	[]	[]	[]	[]	V499
6 f. Local community development planning organization or city/county human services department.	[]	[]	[]	[]	[]	V500
7 g. Other agency directors and staff	[]	[]	[]	[]	[]	V501
8 h. Client groups	[]	[]	[]	[]	[]	V502
9 i. Staff of your agency	[]	[]	[]	[]	[]	V503
10 j. Board or governing body of this agency	[]	[]	[]	[]	[]	V504
11 k. Community committees	[]	[]	[]	[]	[]	V505

54-64
65-75 B1k
76 Cd #
77-80 Job#

11

Cd 4
I-19 as 1

16. For each of the following services please estimate the level of unmet need in this community. (CIRCLE YOUR ANSWER FOR EACH SERVICE)

	UNMET NEED LEVEL					
	1	2	3	4	5	
a. Advocacy	None	Low	Moderate	Great	Very Great	V506
b. Alcoholism and substance abuse program	None	Low	Moderate	Great	Very Great	V507
c. CHORE services	None	Low	Moderate	Great	Very Great	V508
d. Coordinated planning for new and improved services	None	Low	Moderate	Great	Very Great	V509
e. Counseling for children and youth	None	Low	Moderate	Great	Very Great	V510
f. Counseling for adults and families	None	Low	Moderate	Great	Very Great	V511
g. Crisis intervention services	None	Low	Moderate	Great	Very Great	V512
h. Day care for adults	None	Low	Moderate	Great	Very Great	V513
i. Day care for children	None	Low	Moderate	Great	Very Great	V514
j. Emergency assistance	None	Low	Moderate	Great	Very Great	V515
k. Employment services	None	Low	Moderate	Great	Very Great	V516
l. Family planning and programs	None	Low	Moderate	Great	Very Great	V517
m. Food and nutrition	None	Low	Moderate	Great	Very Great	V518
n. Friendly visiting programs	None	Low	Moderate	Great	Very Great	V519
o. Help for senior citizens	None	Low	Moderate	Great	Very Great	V520
p. Home health care	None	Low	Moderate	Great	Very Great	V521
q. Homemaker services	None	Low	Moderate	Great	Very Great	V522
r. Information and referral services	None	Low	Moderate	Great	Very Great	V523
s. Legal services for poor	None	Low	Moderate	Great	Very Great	V524
t. Long-term financial assistance (income maintenance)	None	Low	Moderate	Great	Very Great	V525
u. Mental health treatment programs	None	Low	Moderate	Great	Very Great	V526
v. Neighborhood development services	None	Low	Moderate	Great	Very Great	V527

12

Cd 4

16. (Continued)

	UNMET NEED LEVEL					
	1	2	3	4	5	
w. Outpatient medical care	None	Low	Moderate	Great	Very Great	V528
x. Programs for the retarded	None	Low	Moderate	Great	Very Great	V529
y. Protective services for children	None	Low	Moderate	Great	Very Great	V530
z. Protective services for adults	None	Low	Moderate	Great	Very Great	V531
aa. Recreational programs for older adults	None	Low	Moderate	Great	Very Great	V532
bb. Rehabilitation services for handicapped and disabled	None	Low	Moderate	Great	Very Great	V533
cc. Residential services for special groups	None	Low	Moderate	Great	Very Great	V534
dd. Social adjustment and informal education for children and youth	None	Low	Moderate	Great	Very Great	V535
ee. Socialization (resocialization)	None	Low	Moderate	Great	Very Great	V536
ff. Special transportation programs	None	Low	Moderate	Great	Very Great	V537
gg. Vocational counseling	None	Low	Moderate	Great	Very Great	V538
hh. Vocational training	None	Low	Moderate	Great	Very Great	V539

13

Cd 4

DEMOGRAPHICS

17. Which group describes your age? (CHECK ONE BOX)

- | | | | | |
|--------------------------|--------------|---|----|------|
| ☐ | Less than 29 | 1 | | |
| ☐ | 30-39 | 2 | | |
| ☐ | 40-49 | 3 | | |
| ☐ | 50-59 | 4 | 53 | V540 |
| ☐ | 60-69 | 5 | | |

18. What is the highest degree you hold? (CHECK ONE BOX)

- | | | | | |
|--------------------------|----------------------------|---|----|------|
| ☐ | Some college | 1 | | |
| ☐ | BA or BS | 2 | | |
| ☐ | Some graduate work | 3 | 54 | V541 |
| ☐ | Master's degree | 4 | | |
| ☐ | Coursework beyond Master's | 5 | | |
| ☐ | Ph.D. | 6 | | |

19. What was your major during the work for your most recent degree? (CHECK ONE BOX)

- | | | | | |
|--------------------------|------------------------|---|----|------|
| ☐ | Social Work | 1 | | |
| ☐ | Social Science | 2 | | |
| ☐ | Business and Economics | 3 | | |
| ☐ | Arts and Letters | 4 | 55 | V542 |
| ☐ | Other _____ | 5 | | |

(PLEASE SPECIFY)

20. Are you a member of any professional organizations?

- | | | | | |
|--------------------------|-----|---|----|------|
| ☐ | Yes | 2 | | |
| ☐ | No | 1 | 56 | V543 |

(IF YES)
a. How many?

(WRITE IN NUMBER)

57-58
V544

b. How many times in the past year have you attended professional meetings and conferences?

(WRITE IN NUMBER)

59-60
V545
61-752

21. What community social service planning committees do you serve on? (WRITE IN NAMES)

22. What agency boards or committees do you serve on? (WRITE IN NAMES)

23. What social service planning committees do you serve on? (WRITE IN NAMES OF COMMITTEES)

Thank you very much for contributing to our study of delivering mental health services to the aging. In the space below would you please tell us what additional information we need to know about improving services in your community?

Thank you again -- Please return your completed questionnaire in the self-addressed envelope we have provided or mail to:

Market Opinion Research
28 W. Adams
Detroit, MI 48226

APPENDIX A-4

Survey Instrument -- Part C:
Client, Personnel, and Budget Information

PART III
Interagency Delivery of Mental
Health To The Aging

1-15

Label goes
here

ID 16-19

Our study of service delivery systems at the local level focuses upon the relationships among different community agencies, perceptions of the agency directors toward collaborative efforts, and the impact of different types of structures in the total human services network. You have been suggested as a person who has great knowledge about your agency structure, and we would appreciate your completing the attached form, and mailing it back to our office for processing and analysis. Based on our previous research, we know almost all of the data requested is readily available and has been used in other reports you complete; this instrument will require very little of your time and will provide us with much needed information about your agency's formal structure. All information gathered in this study will remain confidential and no individual person or agency will ever be identified in any report.

If you have any questions about our research project, please do not hesitate to call and we shall be happy to answer your inquiries. Thank you in advance for contributing to our study; we sincerely appreciate your participation.

Sincerely,

Philip M. Marcus
Philip M. Marcus, Director
Social Science Research Bureau
Michigan State University

Ann W. Sheldon
Ann W. Sheldon, Assistant Professor
Department of Sociology
Wayne State University

Cd 1

-2-

1. About how many people (individuals or families) use the services or programs of your agency each month?

V546
(WRITE IN NUMBER OR ESTIMATE) 20-24

2. What types of clients is the agency currently (1979) serving? (We are not interested in eligibility, but in those actually using the agency this year.) (CHECK ALL THAT APPLY TO YOUR AGENCY)

V547	_____ Males	_____ White	V553	25-39
V548	_____ Females	_____ Black	V554	1=Y 0=N
V549	_____ Children and youth	_____ Spanish background	V555	
V550	_____ Young adults (under 30)	_____ American Indian	V556	
V551	_____ Middle age adults (30-59)	_____ Other racial/ethnic group	V557	
V552	_____ Older adults (60 and older)	_____ Low income	V558	
		_____ Physically handicapped	V559	
		_____ Mentally troubled or ill	V560	
		_____ Unemployed	V561	

3. In general, how similar are the people (individuals or families) who use or are eligible to use your agency's services and programs? (CHECK ONE)

_____ Not at all similar	1	
_____ Slightly similar	2	
_____ Somewhat similar	3	40
_____ Greatly similar	4	V562
_____ Very greatly similar	5	

41 B1k

Cd 1

-3-

4. What proportion of the individuals or families using your agency are in each of the following categories? (WRITE IN APPROXIMATE PERCENTAGES FOR EACH CATEGORY. IF YOUR AGENCY DOES NOT SERVE SUCH CLIENTS PLEASE WRITE IN "NONE.")

- | | | | |
|--|---------|-------|------|
| a. Need training or re-training of some sort | _____ % | 42-43 | V563 |
| b. Have multiple problems (i.e. require a variety of services) | _____ % | 44-45 | V564 |
| c. Require counseling of some sort | _____ % | 46-47 | V565 |
| d. Are not troubled in some way (i.e. want to use some service you provide such as using facilities, be a group member, receive some specific aid (nursing, food, etc.), take a class, etc.) | _____ % | 48-49 | V566 |

5. How many paid staff positions does your agency have? Please express part-time positions in full-time equivalents. (WRITE IN NUMBER)

- | | | | |
|--|-------|-------|------|
| a. Total number of employee positions | _____ | 50-52 | V567 |
| b. How many of these are administrative positions? | _____ | 53-55 | V568 |
| c. How many are professional positions? | _____ | 56-58 | V569 |
| d. How many are para-professional positions? | _____ | 59-61 | V570 |
| e. How many are clerical-technical positions? | _____ | 62-64 | V571 |
| f. Other positions (PLEASE SPECIFY) | _____ | 65-67 | V572 |

6. If your agency relies on volunteers as staff, approximately how many volunteer hours are contributed each month?

(WRITE IN HOURS)

68-72 V573

7. What proportion of the agency's staff were newly employed by the agency during the past year?

WRITE IN PERCENTAGE

73-74 V574

75 8

-4-

Cd 2
1-19 as 1

8. Are your staff represented by a union or staff association? (CHECK ONE)

☐ No 1
☐ Yes 2

20 V575

9. Has there been any strike or work stoppage of your staff during the past three years? (CHECK ONE)

☐ No 1
☐ Yes 2

21 V576

10. Please give us a list of job titles for your agency (if position is budgeted but not currently filled, please include on list). (PLEASE LIST JOB TITLES BELOW OR ATTACH INFORMATION)

22-23 V577

11. What different professional and occupational specialties does your agency employ? (PLEASE LIST SPECIALIZATIONS BELOW OR ATTACH INFORMATION)

24-25 V578

12. How many different departments (or work units with a supervisor) does the agency have?

(WRITE IN NUMBER)

26-27 V579

-5-

Cd 2

13. We need information about how the work of your organization is done, and specifically, how staff members who work with the agency's users and clients do their work.

For each of the following ways of working with people, please write in the approximate proportion of agency users or clients served by each way of working. If the approach listed is inappropriate for your agency, please write in none.

- | | | |
|--|-------|------|
| a. Staff members work together as a team.
(WRITE IN PERCENT OF INDIVIDUALS OR
FAMILIES SERVED BY THIS WAY OF WORKING) _____% | 28-29 | V580 |
| b. Several different staff members provide
service to the user/client but they
work pretty independently or in
sequence. (WRITE IN PERCENT OF
INDIVIDUALS OR FAMILIES SERVED BY THIS
WAY OF WORKING) _____% | 30-31 | V581 |
| c. One staff member provides the service.
(WRITE IN PERCENT OF INDIVIDUALS OR
FAMILIES SERVED BY THIS WAY OR WORKING) _____% | 32-33 | V582 |
| d. Other way of working (PLEASE DESCRIBE
BRIEFLY) _____% | 34-35 | V583 |

14. What proportion of the people who use your agency services and/or programs or are clients of your agency have the same problems?

_____%
(WRITE IN PERCENT)

36-37 V584

15. What proportion of your staff do the same work with the agency's users or clients?

_____%
(WRITE IN PERCENT)

38-39 V585

16. What proportion of your clients need specialized testing?

_____%
(WRITE IN PERCENT)

40-41 V586

-6-

Cd 23

17. Please attach an organization chart if one is available. If not, please use the space below to sketch the administrative structure of the agency.

Not coded

18. What was the total income or revenue of your agency for the calendar year 1978 (or the most recent year)? Please enter the total amount of all income and revenue from any source including fees, contracts, etc. If exact figures are not available, please estimate as closely as possible. Omit funds for client income maintenance.

000000000 - 999999999 Actual 9 digits

No response = 999999999

(WRITE IN NUMBER)

42-50 V587

18b

Funding sources

1=Mention
0=Not mentioned

City funds 51 V588
 State funds 52 V589
 Federal funds 53 V590
 United Way funds 54 V591
 Agencies funds 55 V592
 Foundation funds 56 V593
 Business funds 57 V594
 Gifts, sales, fees other 58 V595

18c

Major sources of funds

1 Public
 2 United Way 59 V596
 3 Agencies
 4 Foundations
 5 Business
 6 Gifts/other
 9 No information

18d % of budget 60-61 V597
 00-97 Actual
 98-100=98
 No response 99

19 Earmarked funds
 1 Mention 62 V598
 0 Not mentioned

24 variables

63-75 BIK
76-80 STRIP B

APPENDIX B

Metropolitan Area Variables Available

CODEBOOK - COMMUNITY STRUCTURE
(All Vars at COUNTY level, unless indicated)

<u>COLUMN</u>	<u>VAR.</u>	<u>DESCRIPTION</u>
1,2	ID	State, City-County 11--Ann Arbor/Washtenaw 12--Flint/Genesee 13--Grand Rapids/Kent 14--Kalamazoo/Kalamazoo 15--Lansing/Ingham 16--Saginaw/Saginaw 21--Akron/Summit 22--Canton/Stark 23--Dayton/Montgomery 24--Lima/Allen 25--Toledo/Lucas 26--Youngstown/Mahoning
3,4	Card	Card Number 01
<u>ECONOMIC CHARACTERISTICS</u>		
5-10	V1	Total employed 16 years and older.
		<u>Distribution of Employees by Occupation - 1970.</u>
11-15	V2	Professional, technical and kindred workers
16-20	V3	Managers and administrators (includes self-emp'd; excludes farm)
21-25	V4	Sales workers
26-30	V5	Clerical and kindred workers
31-35	V6	Craftsmen, foremen and kindred workers
36-40	V7	Operatives, transport equipment operatives
41-44	V8	Laborers, except farm
45-48	V9	Other (Farmers, farm managers; farm laborers; private household workers)
49-53	V10	Service workers (except private household)
		<u>Distribution of Employees by Industry - 1970</u>
54-57	V11	Agriculture, forestry and fisheries
58-60	V12	Mining
61-64	V13	Construction
65-69	V14	Manufacturing
70-73	V15	Transportation (includes RR service, trucking)
74-77	V16	Communications

END OF CARD 01

BEGINNING OF CARD 02

1,2	ID	State/City-County
3,4	Card	Card Number 02
5-8	V17	Utilities and sanitary services
9-12	V18	Wholesale trade
13-17	V19	Retail trade

2

18-21	V20	Finance (includes banking and credit agencies, insurance, real estate and other finance)
22-25	V21	Entertainment and recreation services
26-30	V22	Hospitals and Health services
31-35	V23	Education (includes government and private; other education and kindred services)
36-39	V24	Welfare, religious and nonprofit membership organizations
40-43	V25	Legal, engineering and misc. professional
44-48	V26	Public Administration
49-52	V27	Value added by Manufacturing - 1972 (in Millions) 9999- "Withheld to avoid disclosure"

53-57	V28	<u>Income of Families</u>
58-61	V29	Median Income
62-65	V30	Less than \$3,000. (Number of families)
66-70	V31	\$3000 - \$4,999.
71-75	V32	\$5000 - \$6,999.
76-80	V33	\$7000 - \$9,999.
		\$10,000 - 14,999.

END OF CARD 02

BEGINNING OF CARD 03

1,2	ID	
3,4	Card	Card Number 3
5-9	V34	\$15,000 - 24,999.
10-13	V35	\$25,000 - \$49,999.
14-17	V36	\$50,000 plus
18-23	V37	Number of all families - 1969.
24	V38	Headquarters of FORTUNE 1000 industrials, 1977.
		Type of establishment by size of work force - 1956.
		1956 AGRICULTURE
25-26	V39	1-3 employees
27-28	V40	4-7 employees
29-30	V41	8-19 employees
31-32	V42	20-49 employees
33-34	V43	50-99 employees
35-36	V44	100-249 employees
37-38	V45	250-499
39	V46	500 plus

3

		1956 MINING
40-41	V47	1-3 employees
42-43	V48	4-7
44-45	V49	8-19
46-47	V50	20-49
48-49	V51	50-99
50-51	V52	100-249
52-53	V53	250-499
54-55	V54	500 plus
		1956 CONTRACT CONSTRUCTION
56,57,58	V55	1-3 employees
59,60,61	V56	4-7 employees
62,63,64	V57	8-19 employees
65-66	V58	20-49
67-68	V59	50-99
69-70	V60	100-249
71-72	V61	250-499
73-74	V62	500 plus

END OF CARD 3

BEGINNING OF CARD 04

1,2	ID	
3,4	Card	
		1956 MANUFACTURING
5,6,7	V63	1-3 employees
8,9,10	V64	4-7 employees
11,12,13	V65	8-19 employees
14,15,16	V66	20-49 employees
17-18	V67	50-99
19-20	V68	100-249
21-22	V69	250-499
23-24	V70	500 plus
		1956 PUBLIC UTILITIES
25,26,27	V71	1-3 employees
28-29	V72	4-7 employees
30-31	V73	8-19 employees
32-33	V74	20-49 employees
34-35	V75	50-99
36-37	V76	100- 249
38-39	V77	250-499
40-41	V78	500 plus
		1956 WHOLESALE TRADE
42,43,44	V79	1-3 employees
45,46,47	V80	4-7 employees
48,49,50	V81	8-19 employees
51-52	V82	20-49 employees
53-54	V83	50-99
55-56	V84	100 - 249
57-58	V85	250-499
59-60	V86	500 plus

4

61,62,63,64	V87	1956 RETAIL TRADE	1-3 employees
65,66,67	V88		4-7 employees
68,69,70	V89		8-19 employees
71,72,73	V90		20-49 employees
74-75	V91		50-99
76-77	V92		100-249
78-79	V93		250-499
80	V94		500 plus

END OF CARD 04

BEGINNING OF CARD 05

1,2	ID
3,4	Card

5,6,7	V95	1956 FINANCE, INSURANCE & REAL ESTATE	1-3 employees
8-9	V96		4-7
10-11	V97		8-19
12-13	V98		20-49
14-15	V99		50-99
16-17	V100		100-249
18-19	V101		250-499
20-21	V102		500 plus

22,23,24,25	V103	1956 SERVICES	1-3 employees
26,27,28	V104		4-7 employees
29,30,31	V105		8-19 employees
32-33	V106		20-49
34-35	V107		50-99
36-37	V108		100-249
38-39	V109		250-499
40-41	V110		500 plus

42,43,44	V111	1956 (HEALTH SERVICES - subcategory of SERVICES)	1-3 employees
45-46	V112		4-7
47-48	V113		8-19
49-50	V114		20-49
51-52	V115		50-99
53-54	V116		100-249
55-56	V117		250-499
57-58	V118		500 plus

Type of establishment by size of work force-1966.

59-60	V119	1966 AGRICULTURE	1-3 employees
61-62	V120		4-7 employees
63-64	V121		8-19 employees
65-66	V122		20-49
67-68	V123		50-99
69-70	V124		100-249
71-72	V125		250-499
73-74	V126		500 plus

END OF CARD 05

5

BEGINNING OF CARD 06

	10 Card	Card No. 06
1,2		
3,4		
		1966 MINING:
5-6	V127	1-4 employees
7	V128	4-7
8	V129	8-19
9	V130	20-49
10	V131	50-99
11	V132	100-249
12	V133	250-499
13	V134	500 plus
		1966 CONTRACT CONSTRUCTION
14,15,16	V135	1-4 employees
17,18,19	V136	4-7 employees
20,21,22	V137	8-19 employees
23-24	V138	20-49
25-26	V139	50-99
27-28	V140	100-249
29-30	V141	250-499
31-32	V142	500 plus

31,36,35,36	V143	1-4 employees
37,38,39,40	V144	4-7 employees
41,42,43,44	V145	8-19 employees
45,46,47,48	V146	20-49 employees
49-50	V147	50-99
51-52	V148	100-249
53-54	V149	250-499
55-56	V150	500 plus

1966 MANUFACTURING

57,58,59	V151	1-4 employees
60-61	V152	4-7 employees
62-63	V153	8-19 employees
64-65	V154	20-49 employees
66-67	V155	50-99
68-69	V156	100-249
70-71	V157	250-499
72-73	V158	500 plus

1966 TRANSPORTATION & OTHER PUBLIC UTILITIES

END OF CARD 06

6

BEGINNING OF CARD 07		1966	
ID	Card	Card Number 07	
1.2			
3.4			
5.6,7, 8,9,10 11,12,13 14,15,16 17-18 19-20 21-22 23-24	V159 V160 V161 V162 V163 V164 V165 V166		1966 WHOLESALE TRADE: 1-1 employees 4-7 employees 8-19 employees 20-49 employees 50-99 100 - 549 750-499 500 plus
25,26,27,28 29,30,31 32,33,34 35,36,37 38-39 40-41 42-43 44-45	V167 V168 V169 V170 V171 V172 V173 V174		1966 RETAIL TRADE: 1-1 employees 4-7 employees 8-19 employees 20-49 employees 50-99 100-249 250-499 500 plus
46,47,48 49,50,51 52,53,54 55-56 57-58 59-60 61-62 63-64	V175 V176 V177 V178 V179 V180 V181 V182		1966 FINANCE, INSURANCE & REAL ESTATE: 1-1 employees 4-7 8-19 20-49 50-99 100-249 250-499 500 plus
1,2 3,4 5,6,7,8 9,10,11 12,13,14 15,16,17 18-19 20-21 22-23 24-25	ID Card	1966	SERVICES: 1-1 employees 4-7 employees 8-19 employees 20-49 50-99 100-249 250-499 500 plus
26,27,28 29-30 31-32 33-34 35-36 37-38 39-40 41-42	V191 V192 V193 V194 V195 V196 V197 V198		1966 (HEALTH SERVICES - subcategory of SERVICES) 1-1 employees 4-7 8-19 20-49 50-99 100-249 250-499 500 plus

7

Type of establishment by size of work force-1976.
1976 AGRICULTURE

43-44	V199	1-4 employees
45-46	V200	5-9 employees
47	V201	10-19 employees
48	V202	20-49 employees
49	V203	50-99 employees
50	V204	100-249 employees
51	V205	250-499 employees
52	V206	500-999 employees
53	V207	1000 plus

1976 MINING

54-55	V208	1-4 employees
56-57	V209	5-9 employees
58	V210	10-19
59	V211	20-49
60	V212	50-99
61	V213	100-249
62	V214	250-499
63	V215	500-999
64	V216	1000 plus

END OF CARD 08

BEGINNING OF CARD 09

1,2	ID
3,4	Card

Card No. 09

1976 CONTRACT CONSTRUCTION

5,6,7	V217	1-4 employees
8,9,10	V218	5-9 employees
11,12,13	V219	10-19 employees
14-15	V220	20-49
16-17	V221	50-99
18-19	V222	100-249
20-21	V223	250-499
22-23	V224	500-999
24-25	V225	1000 plus

1976 MANUFACTURING

26,27,28	V226	1-4 employees
29,30,31	V227	5-9 employees
32,33,34	V228	10-19 employees
35,36,37	V229	20-49 employees
38-39	V230	50-99
40-41	V231	100-249
42-43	V232	250-499
44-45	V233	500-999
46-47	V234	1000 plus

8

48,49,50	V235	1976 TRANSPORTATION AND OTHER PUBLIC UTILITIES
51-52	V236	1-4 employees
53-54	V237	5-9 employees
55-56	V238	10-19 employees
57-58	V239	20-49 employees
59-60	V240	50-99
61-62	V241	100-249
63-64	V242	250-499
65-66	V243	500-999
		1000 plus

END OF CARD 09

BEGINNING OF CARD 10

1,2 3,4	ID Card	Card No. 10
		1976 WHOLESALE TRADE
5,6,7	V244	1-4 employees
8,9,10	V245	5-9 employees
11,12,13	V246	10-19 employees
14,15,16	V247	20-49 employees
17-18	V248	50-99
19-20	V249	100-249
21-22	V250	250-499
23-24	V251	500-999
25-26	V252	1000 plus
		1976 RETAIL TRADE
27,28,29,30	V253	1-4 employees
31,32,33	V254	5-9 employees
34,35,36	V255	10-19 employees
37,38,39	V256	20-49 employees
40-41	V257	50-99
42-43	V258	100-249
44-45	V259	250-499
46-47	V260	500-999
48-49	V261	1000 plus
		1976 FINANCE, INSURANCE & REAL ESTATE
50,51,52	V262	1-4 employees
53,54,55	V263	5-9 employees
56,57,58	V264	10-19 employees
59-60	V265	20-49 employees
61-62	V266	50-99
63-64	V267	100-249
65-66	V268	250-499
67-68	V269	500-999
69-70	V270	1000 plus

END OF CARD 10

9

BEGINNING OF CARD 11

1,2 3,4	ID Card	Card Number 11
		1976 SERVICES
5,6,7,8	V271	1-4 employees
9,10,11	V272	5-9 employees
12,13,14	V273	10-19 employees
15,16,17	V274	20-49 employees
18-19	V275	50-99
20-21	V276	100-249
22-23	V277	250-499
24-25	V278	500-999
26-27	V279	1000 plus
		1976 (HEALTH SERVICES)-Subcategory of SERVICES
28,29,30	V280	1-4 employees
31,32,33	V281	5-9 employees
34-35	V282	10-19 employees
36-37	V283	20-49 employees
38-39	V284	50-99
40-41	V285	100-249
42-43	V286	250-499
44-45	V287	500-999
46-47	V288	1000 plus
		1976 (SOCIAL SERVICES -Subcategory of SERVICES)
48-49	V289	1-4 employees
50-51	V290	5-9 employees
52-53	V291	10-19 employees
54-55	V292	20-49 employees
56	V293	50-99 employees
57	V294	100-249
58	V295	250-499
59	V296	500-999
60	V297	1000 plus
61-62	V298	NUMBER OF LABOR ORGANIZATIONS--listed in City phone directory--each local counted separately (1978)

END OF CARD 11

10

BEGINNING OF CARD 12

1,2 3,4	ID Card	Card Number 12
POPULATIONS CHARACTERISTICS		
5,6,7,8,9,10	V299	Population for central county - 1970
11,12,13,14,15,16	V300	Population for Central County - 1975
17,18,19,20	V301	Population Density (per sq. mile) - 1970
21-22	V302	Population Change 1960-1970 in percent
23,24,25	V303	Net migration 1960-1970 (in percent, tenths)
26-31	V304	Actual IN MIGRATION 1965-1970
32-37	V305	Actual OUT MIGRATION 1965-1970
38,39,40	V306	Foreign Stock - 1970 (in percent, tenths)
41,42,43	V307	Foreign Stock - 1960 (in percent, tenths)
44-45	V308	Spanish Heritage 1970 (in percent, tenths)
46-50	V309	Black population - 1970
51,52,53	V310	Change in Black population 1960-1970 (percent in tenths)
54,55,56	V311	<u>Education: persons 25 years plus in 1970</u>
57-58	V312	Median years (in tenths)
59,60,61	V313	Less than 5 years (percent in tenths)
		High School graduate or more (percent in tenths)
62,63,64	V314	Four years college or more (percent in tenths)

END CARD 12

BEGINNING OF CARD 13

1,2 3,4	ID Card	Card Number 13
<u>Age of Population, 1970</u>		
5-9	V315	Under 5 years of age
10-15	V316	Under 18 years of age
16-21	V317	16 years and over
22-27	V318	21 years and over
28-32	V319	60 years thru 64 years
33-37	V320	65 years and older..

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Poverty Status of Population - 1969.

38-39	V321	Percent families with income less than poverty. (tenths)
40,41,42	V322	Percent persons with income less than poverty. (tenths)
43,44,45	V323	Percent families with income less than 125% poverty. (tenths)
46,47,48	V324	Percent persons with income less than 125% poverty. (tenths)
49,50,51	V325	Percent persons below low income level, 65 years and over. (tenths)
52,53,54,55	V326	Recipients of Old Age Assistance (1972).
56-60	V327	Recipients of A.D.C. (1972)
61-65	V328	WHITE Median Family Income - 1969.
66-69	V329	BLACK Median Family Income - 1969.

END OF CARD 13

BEGINNING OF CARD 14

1,2	III	
3,4	Card	Card Number 14

COMMUNITY CHARACTERISTICS

5,6	V330	Number of Suburban Governments.
7,8	V331	Suburbanization of high income population; (ratio in tenths). Figure less than 1.00 indicates that the high income population is concentrated in the city.
9,10,11	V332	Population Concentration.
12,13,14	V333	City/central county (in tenths) City/MSA (in tenths)
15-16	V334	COUNTY Age (based on first census year to reach population of 100,000 plus) as of 197
17-18	V335	CITY Age (based on first census year city reached population of 50,000 plus)-1975.
19,20,21,22	V336	CRIME RATE (per 100,000 population residing in COUNTY July 1, 1975).
23,24,25,26	V337	Assessed Value of REAL Property subject to local general property taxation for COUNTY - 1971. (In Millions of Dollars)
27,28,29,30	V338	Bank Deposits - Total, June 1970 (Millions)
31,32,33	V339	Bank Deposits - Time, June 1970 (Millions)

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34-35	V340	Intergovernmental for 1967 (% of General Revenue)
36-37	V341	Travel Buros - 1978.
38-39	V342	Number of Catholic Churches in County - 1971.
40,41,42	V343	Catholic percentage of population- 1971.(tent)
41,44,45,46,47,48	V344	Vote cast for president, 1968.
49,50,51	V345	Vote for Leading Party (percent in tenths)
52	V346	Number of Chambers of Commerce in 1978-county
53,54,55	V347	Number of Federal Grants - 1977.
56,57,58,59,60,61,62	V348	Local United Way money raised in 1975.

END OF CARD 14

BEGINNING OF CARD 15

1,2	10	
3,4	Card	Card Number 15
5,6,7,8	V349	CITY employees - 1972.
9-11	V350	Local Government employment - 1972.
14-18	V351	Federal Government employment - 1970.
19,20,21	V352	General public expenditure - 1971/72 (in millions of dollars)
22-23	V353	Welfare expenditure 1971-72 (percent in tenths)
24,25,26	V354	Health Expenditure 1971-72 (percent in tenths)
27,28,29	V355	General expenditure CITY government 1969-70. (in Millions of dollars) (in tenths)

8/10/79

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Addendum to COMMUNITY STRUCTURE CODEBOOK.

<u>Column</u>	<u>Variable</u>	
30	V356	FORM OF CITY GOVERNMENT <u>Mayor and council government, 1972</u> 0=no 1=yes
31	V357	<u>Council-Manager, 1972</u> 0=no 1=yes
32	V358	<u>Reform Government, 1972, 1976.</u> Four point scale scoring one each for non-partisan elections (1976), city manager system (1972), and at-large election of councilmen (1972).
33-34	V359	National Headquarters - Voluntary Associations, 1972-73.
35-36	V360	National Headquarters - Voluntary Associations, 1978-79. (99=NOT AVAILABLE)
37, 38, 39	V361	Official Unemployment of Labor Force 16 years and older, 1970 (in percent, tenths)
40, 41, 42, 43, 44, 45	V362	<u>1960 Votes for President.</u> Republican
46, 47, 48, 49, 50, 51	V363	Democratic
52, 53, 54, 55, 56, 57	V364	<u>1968 Votes for President.</u> Republican
58, 59, 60, 61, 62, 63	V365	Democratic
64, 65, 66, 67, 68, 69	V366	<u>1976 Votes for President.</u> Republican
70, 71, 72, 73, 74, 75	V367	Democratic

APPENDIX C

Tables of Correlations for Cities

TABLE C-1
The Relationship of Size to Complexity in the Twelve Cities

City	N	zero-order correlation and significance (one-tailed)**	partial correlation* and significance (one-tailed)**
1	20	0.6863 p < 0.001	0.7016 p = 0.003
2	26	0.4938 p = 0.005	0.5236 p = 0.009
3	21	0.3960 p = 0.038	0.4226 p = 0.058
4	24	0.3684 p = 0.038	0.4272 p = 0.039
5	23	0.4249 p = 0.022	0.5153 p = 0.017
6	24	0.4307 p = 0.018	0.4731 p = 0.024
7	21	0.6374 p < 0.001	0.7745 p < 0.001
8	21	-0.0520 p = 0.589	-0.0008 p = 0.501
9	25	0.7190 p < 0.001	0.7672 p < 0.001
10	22	0.5145 p = 0.007	0.5061 p = 0.023
11	25	0.4347 p = 0.015	0.3493 p = 0.071
12	20	0.5608 p = 0.005	0.6009 p = 0.012

* controlling for IOR, centralization, formalization, internal communication, and efficiency

** based on prediction of positive correlation

TABLE C-2
The Relationship of Size to IOR Formation in the Twelve Cities

City	N	zero-order correlation and significance (one-tailed)**	partial correlation* and significance (one-tailed)**
1	20	0.4849 p = 0.015	0.5651 p = 0.018
2	26	0.6278 p < 0.001	0.7367 p < 0.001
3	21	0.1597 p = 0.245	-0.1319 p = 0.680
4	24	0.6137 p < 0.001	0.7961 p < 0.001
5	23	0.5332 p = 0.004	0.4887 p = 0.023
6	24	0.0430 p = 0.421	0.2046 p = 0.208
7	21	-0.0237 p = 0.541	0.0244 p = 0.466
8	21	0.3037 p = 0.090	0.1874 p = 0.252
9	25	0.5065 p = 0.005	0.1026 p = 0.338
10	22	0.5450 p = 0.004	0.4080 p = 0.058
11	25	0.1496 p = 0.238	0.0003 p = 0.499
12	20	0.2953 p = 0.149	0.2817 p = 0.165

* controlling for complexity, centralization, formalization, internal communication, and efficiency

** based on prediction of positive correlation

TABLE C-3
The Relationship of Complexity to IOR Formation in the Twelve Cities

City	N	zero-order correlation and significance (one-tailed)**	partial correlation* and significance (one-tailed)**
1	20	0.1363 p = 0.283	-0.1956 p = 0.749
2	26	0.0222 p = 0.457	-0.4055 p = 0.962
3	21	0.3226 p = 0.077	0.0659 p = 0.408
4	24	0.3187 p = 0.065	-0.1727 p = 0.753
5	23	-0.0661 p = 0.618	-0.3670 p = 0.926
6	24	-0.1536 p = 0.763	-0.1559 p = 0.732
7	21	-0.0331 p = 0.557	-0.0358 p = 0.550
8	21	-0.0111 p = 0.519	-0.1704 p = 0.728
9	25	0.4967 p = 0.006	0.2038 p = 0.201
10	22	0.2521 p = 0.129	-0.1361 p = 0.792
11	25	0.2370 p = 0.127	0.2240 p = 0.178
12	20	0.1570 p = 0.254	-0.0663 p = 0.589

* controlling for size, centralization, formalization, internal communication, and efficiency

** based on prediction of positive correlation

TABLE C4-1
The Relationship of Innovation to Size in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.0877 p = 0.714	-0.2521 p = 0.312
2	26	0.0822 p = 0.690	0.1340 p = 0.532
3	21	0.1109 p = 0.632	0.1910 p = 0.434
4	24	-0.1389 p = 0.518	-0.5046 p = 0.016
5	23	0.5876 p = 0.004	0.3502 p = 0.120
6	24	-0.0730 p = 0.734	0.0748 p = 0.740
7	21	-0.1679 p = 0.466	-0.3413 p = 0.152
8	21	-0.0071 p = 0.976	-0.1061 p = 0.666
9	25	-0.3337 p = 0.104	-0.5981 p < 0.001
10	22	0.3945 p = 0.070	0.3947 p = 0.084
11	25	0.5728 p < 0.001	0.5927 p < 0.001
12	20	0.5956 p = 0.006	0.5558 p = 0.016

* controlling for complexity and IOR

TABLE C4-2
The Relationship of Innovation to Complexity in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.1496 p = 0.528	0.2577 p = 0.302
2	26	0.0223 p = 0.914	-0.0652 p = 0.762
3	21	-0.1634 p = 0.480	-0.2947 p = 0.220
4	24	0.5215 p = 0.008	0.6189 p < 0.001
5	23	0.3070 p = 0.154	0.1503 p = 0.516
6	24	-0.2657 p = 0.210	-0.2981 p = 0.178
7	21	0.1298 p = 0.574	0.3315 p = 0.166
8	21	0.2141 p = 0.352	0.2256 p = 0.354
9	25	0.1237 p = 0.556	0.5481 p = 0.006
10	22	0.0854 p = 0.706	-0.1525 p = 0.520
11	25	0.0981 p = 0.640	-0.2392 p = 0.272
12	20	0.2549 p = 0.278	-0.1195 p = 0.636

* controlling for size and IOR

TABLE C4-3
The Relationship of Innovation to IOR Formation the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.3433 p = 0.138	0.4061 p = 0.094
2	26	-0.0172 p = 0.934	-0.1080 p = 0.616
3	21	0.1916 p = 0.406	0.2596 p = 0.284
4	24	0.1657 p = 0.438	0.3122 p = 0.158
5	23	0.4190 p = 0.046	0.2000 p = 0.384
6	24	-0.1542 p = 0.472	-0.2123 p = 0.342
7	21	0.2791 p = 0.220	0.3016 p = 0.210
8	21	0.3183 p = 0.160	0.3433 p = 0.150
9	25	-0.0827 p = 0.694	-0.0205 p = 0.926
10	22	0.1607 p = 0.476	-0.0774 p = 0.746
11	25	0.2028 p = 0.332	0.1915 p = 0.382
12	20	0.1610 p = 0.498	0.0222 p = 0.930

* controlling for size and complexity

TABLE C4-4
The Relationship of Innovation to Centralization in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.0605 p = 0.800	0.1123 p = 0.668
2	26	-0.2028 p = 0.320	-0.2246 p = 0.302
3	21	-0.0650 p = 0.780	-0.2191 p = 0.382
4	24	-0.2258 p = 0.288	0.0193 p = 0.934
5	23	0.0343 p = 0.876	-0.1446 p = 0.544
6	24	-0.0087 p = 0.968	-0.0904 p = 0.696
7	21	0.0907 p = 0.696	0.0264 p = 0.918
8	21	-0.2269 p = 0.322	-0.0959 p = 0.706
9	25	-0.2519 p = 0.224	-0.0868 p = 0.700
10	22	0.0567 p = 0.802	0.2736 p = 0.256
11	25	0.1195 p = 0.570	0.1284 p = 0.568
12	20	-0.0803 p = 0.736	-0.0244 p = 0.926

* controlling for size, complexity, IOR, formalization,
internal communication, and efficiency

TABLE C4-5
The Relationship of Innovation to Internal Communication
in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.3190 p = 0.170	0.3031 p = 0.236
2	26	0.0825 p = 0.688	0.0655 p = 0.766
3	21	0.0932 p = 0.688	-0.0235 p = 0.926
4	24	-0.1808 p = 0.398	-0.1090 p = 0.638
5	23	0.2934 p = 0.174	0.1344 p = 0.572
6	24	0.2706 p = 0.200	0.1171 p = 0.614
7	21	0.0840 p = 0.718	0.1299 p = 0.608
8	21	0.0671 p = 0.772	0.0666 p = 0.792
9	25	0.2568 p = 0.216	0.3737 p = 0.086
10	22	-0.2205 p = 0.324	-0.2977 p = 0.216256
11	25	0.4500 p = 0.024	0.3129 p = 0.156
12	20	0.1096 p = 0.646	0.0918 p = 0.726

* controlling for size, complexity, IOR, centralization, formalization, and efficiency

TABLE C4-6
The Relationship of Innovation to Formalization in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	-0.0845 p = 0.722	0.0479 p = 0.856
2	26	-0.0074 p = 0.972	-0.0005 p = 0.998
3	21	-0.0120 p = 0.660	-0.1191 p = 0.638
4	24	-0.0498 p = 0.818	-0.1980 p = 0.390
5	23	-0.3058 p = 0.156	-0.4894 p = 0.028
6	24	0.1127 p = 0.600	0.0893 p = 0.700
7	21	0.2857 p = 0.210	0.5098 p = 0.030
8	21	0.0322 p = 0.890	-0.0711 p = 0.780
9	25	0.0801 p = 0.704	0.0354 p = 0.876
10	22	0.0057 p = 0.980	0.1826 p = 0.454
11	25	0.1282 p = 0.524	0.0980 p = 0.664
12	20	0.0670 p = 0.778	0.1764 p = 0.498

* controlling for size, complexity, IOR, centralization,
internal communication, and efficiency

TABLE C4-7
The Relationship of Innovation to Efficiency in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	-0.3845 p = 0.094	-0.4474 p = 0.072
2	26	-0.0780 p = 0.706	-0.0516 p = 0.814
3	21	0.2627 p = 0.250	0.2137 p = 0.394
4	24	0.2272 p = 0.286	-0.1238 p = 0.592
5	23	-0.2501 p = 0.250	-0.0507 p = 0.832
6	24	-0.2151 p = 0.312	-0.2384 p = 0.298
7	21	-0.0018 p = 0.994	-0.0945 p = 0.710
8	21	0.2013 p = 0.382	0.2089 p = 0.406
9	25	0.1614 p = 0.440	-0.1086 p = 0.630
10	22	-0.2185 p = 0.328	-0.2184 p = 0.370
11	25	0.0664 p = 0.752	0.3252 p = 0.140
12	20	-0.1795 p = 0.448	0.2524 p = 0.328

* controlling for size, complexity, IOR, centralization,
internal communication, and formalization

TABLE C5-1
The Relationship of IOR Formation to Centralization
in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.1780 p = 0.452	0.0589 p = 0.816
2	26	0.1620 p = 0.430	0.0417 p = 0.846
3	21	-0.0685 p = 0.768	0.0274 p = 0.912
4	24	-0.0109 p = 0.960	0.0262 p = 0.908
5	23	-0.0455 p = 0.836	-0.3614 p = 0.108
6	24	0.0088 p = 0.968	-0.0388 p = 0.864
7	21	0.1813 p = 0.216	0.1794 p = 0.462
8	21	-0.3186 p = 0.160	-0.2757 p = 0.254
9	25	-0.1955 p = 0.350	-0.2031 p = 0.342
10	22	-0.1443 p = 0.522	0.1336 p = 0.574
11	25	0.3058 p = 0.138	0.3390 p = 0.114
12	20	-0.1522 p = 0.522	-0.1419 p = 0.574

* controlling for size and complexity

TABLE C5-2
The Relationship of IOR Formation to Internal Communication
in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	0.0866 p = 0.716	0.0254 p = 0.920
2	26	-0.1914 p = 0.350	-0.3043 p = 0.148
3	21	0.2615 p = 0.252	0.2317 p = 0.340
4	24	-0.0726 p = 0.736	-0.0375 p = 0.868
5	23	0.4629 p = 0.026	0.2715 p = 0.234
6	24	0.1245 p = 0.562	-0.0087 p = 0.970
7	21	-0.2328 p = 0.310	-0.2321 p = 0.338
8	21	-0.1172 p = 0.612	-0.0537 p = 0.828
9	25	-0.0189 p = 0.928	-0.1547 p = 0.480
10	22	0.1689 p = 0.452	0.0919 p = 0.700
11	25	0.1568 p = 0.454	0.1173 p = 0.594
12	20	-0.3193 p = 0.170	-0.3479 p = 0.158

* controlling for size and complexity

TABLE C5-3
The Relationship of IOR Formation to Formalization
in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	-0.2214 p = 0.348	-0.3735 p = 0.126
2	26	0.0179 p = 0.930	0.0274 p = 0.898
3	21	0.4935 p = 0.024	0.4094 p = 0.082
4	24	0.0156 p = 0.942	0.3022 p = 0.172
5	23	0.1802 p = 0.410	0.0614 p = 0.792
6	24	-0.0525 p = 0.808	-0.0659 p = 0.770
7	21	0.0228 p = 0.922	0.0245 p = 0.920
8	21	0.0145 p = 0.950	0.0637 p = 0.796
9	25	-0.1012 p = 0.630	-0.1751 p = 0.424
10	22	-0.2084 p = 0.352	-0.1187 p = 0.618
11	25	0.1499 p = 0.474	0.0815 p = 0.712
12	20	-0.0172 p = 0.942	-0.0222 p = 0.930

* controlling for size and complexity

TABLE C5-4
The Relationship of IOR Formation to Efficiency
in the Twelve Cities

City	N	zero-order correlation and significance (two-tailed)	partial correlation* and significance (two-tailed)
1	20	-0.1862 p = 0.432	0.0269 p = 0.916
2	26	0.0787 p = 0.702	0.2048 p = 0.338
3	21	-0.1390 p = 0.548	-0.0211 p = 0.932
4	24	0.0388 p = 0.858	0.5800 p = 0.004
5	23	-0.1479 p = 0.500	0.1241 p = 0.592
6	24	0.3334 p = 0.102	0.3466 p = 0.114
7	21	-0.0929 p = 0.688	-0.1450 p = 0.554
8	21	-0.1738 p = 0.452	-0.0488 p = 0.842
9	25	-0.4967 p = 0.012	-0.3734 p = 0.080
10	22	-0.3061 p = 0.166	-0.2159 p = 0.360
11	25	-0.0487 p = 0.818	-0.0019 p = 0.994
12	20	0.0022 p = 0.992	0.1821 p = 0.470

* controlling for size and complexity