THE EFFECTS OF RESIDENTIAL OPPORTUNITY STRUCTURES ON PARTICIPATION PATTERNS IN VOLUNTARY ORGANIZATIONS

by

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ABSTRACT

The major focus of this investigation is to explore two alternative models of individual-environment articulation for explaining individual participation in voluntary organizations. The primary question posed is whether varying voluntary organizational opportunity densities of local residential areas operate to encourage organizational participation to the same degree for all residents; or whether the density of organizational opportunity elicits differential participation depending upon an individual's personal resources, or attachments to the local residential area.

The development and analysis of the problem is informed by the theory and methods of "contextual analysis." The hypotheses were tested with data from 822 respondents randomly selected from eight different "social areas" in Metropolitan Vancouver. The areas were purposively chosen from a stratified typology—similar in nature to Wendall Bell's Social Area Typology.

In general, the analysis suggests that the opportunity densities of a residential areas do not act independently of, but in combination with different individual characteristics to produce differences in organizational participation of urban residents. Increased organizational
opportunities present in the immediate residential environment only conditionally affect an increase in organizational memberships for the better educated or the more wealthy.
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CHAPTER 1
INTRODUCTION

The purpose of this dissertation is to explore how and to what degree the socio-ecological context of a residential area, conceptualized as an opportunity structure affects resident memberships in voluntary organizations. The problem is part of a general social scientific interest in the relationship between individuals and their environment. The analysis of the problem is informed by the theory and methods of "contextual analysis."¹

Survey studies of participation in voluntary organizations have, for the most part, been limited to the investigation of individual correlates to the point of diminishing returns.² Except to replicate previous findings, little new theory has been contributed. Moreover, these studies have tended to neglect the social contexts in which activities occur and provided inadequate explanations for

² Komarovsky,1946; Scaff,1952; Foskett,1955; Axelrod,1956; Scott,1957; Wright and Hyman,1958; Babchuk and Booth,1969; Hyman and Wright,1971; Reid and Frideres,1971; and Booth,1972.
that reason (Nohar, 1968). Coleman (1961:607) has commented on the individualistic bias that has characterized much survey research:

The typical survey analysis inferred causes and processes internal to the individual, simply because the variables being cross-tabulated were attributes of the same individual.

Galtung (1967:150) adds:

this individualism is further emphasized by building a probability model into the sampling procedure, so that the individual is torn out of his social context...

The sampling strategy of drawing a few respondents at each of a great number of very dispersed sampling points makes it impossible

...to account systematically for the effects of the social context in which a person finds himself. The effect of local community structure or locally based formal organizations cannot be deduced from data that ignores these variables (Segal and Meyer, 1969:219).

At the same time, a "fixation on aggregates" (Michelson, 1970) has prevented most of the human ecology studies from separating the effects of socio-spatial context from individual effects on behavior, because ecological data do not furnish information about individuals except in the aggregate (Blau, 1960; Greer, 1960; Robinson, 1950).

A good example is Factorial Ecology. Emerging from a synthesis of the Chicago School of Human Ecology and Social Area Analysis, it is one of the most popular forms of urban ecology carried out today. Collections of census data
aggregated to the level of metropolitan census tracts are factor-analyzed to empirically isolate the basic dimensions of urban social structure. Forgetting physical space for the moment, the city or metropolis is viewed as a distribution of "neighborhoods" (census tracts), each ranked along what usually turns out to be the dimensions of socio-economic, family, and ethnic statuses. This ranking of neighborhoods in a three dimensional attribute space creates a constellation of relatively homogeneous sub-area populations or social areas. The focus of analysis then shifts to mapping these neighborhoods spatially and testing the degree to which these three social dimensions respectively fit the classical urban spatial models of concentric zones (Burges, 1925), sectors (Hoyt, 1933, 1939), and multiple nuclei (Harris and Ullman, 1945). But here the investigation stops. The question of what consequences or effects this spatially patterned social structure has for the inhabitants of the city is very rarely raised.

Fortunately, another form of investigation emerging from social area analysis has posed just such a question. Social areas have been posited as "independent variables" affecting the area residents attitudes and behavior.

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In the process of empirically validating the constructs of social area analysis by demonstrating that there were differences in participation patterns between neighborhoods, Bell (1953), Bell and Force (1956) and Greer and Kube (1959) discovered what they considered to be independent area effects. In a series of investigations distinguishing neighborhoods on the basis of social rank and familism, and holding individual characteristics constant, these authors found what they considered to be significant neighborhood differences in participation with friends, neighbors, kin and voluntary organizations. They saw the social contexts of the neighborhoods or residential areas as affecting individual behavior in a manner independent from the effects of individual characteristics (Bell, 1969:132). At the same time, however, there was little explanation offered as to how the social context of residential areas produced differences in the behavior of residents.

Nevertheless, the methodological and theoretical procedures of investigating individual behavior within a socio-spatial context was underway. The methodological procedure was one of combining the use of aggregate census statistics and the sample survey in studying the behavior of urban residents. Aggregate census statistics were used to delineate and characterize the social context of residential areas, while the sample survey was used to gather information on individual characteristics and behavior patterns within these different contexts. The theoretical
task was one of trying to develop an adequate theory of how the social context produced behavioral variations from one local residential area to another.

Since these early studies of the fifties, work on both of these points has not stood still. Interest in the methodological front is evidenced by the Symposium on Quantitative Ecological Analysis at Evian, France in 1966. One of the major objectives of this symposium was:

...to review the possibilities of joint strategies of several levels of aggregation, particularly the possibilities of combining sample surveys of variations at the level of the individual with the ecological analyses of the proximal contexts of such variations (Dogan and Rokkan, 1969:12).

In a number of papers coming out of the symposium, this joint strategy received considerable elaboration when viewed from the point of "contextual analysis"--a form of analysis that explores the question of whether people's behavior is affected more by their own characteristics, more by the characteristics of a group or environment in which they are members, or more by some combination of both (Valkonen, 1969; Linz, 1969; Scheuch, 1969).

Interest in the theoretical task of accounting for how the social context of residential areas affected individual behavior was pursued by Greer and his collaborators (Greer, 1960; Greer, 1962b; Greer and Orleans, 1962). Although this theory was not elaborated or tested from within the perspective of "contextual analysis," a passing footnote in
Greer and Orleans (1962:637) points to its possibility:

The differentiation of sub-populations, aggregated and categorized according to sub-area characteristics, enables the description of empirical regularities which may be viewed as structural or compositional effects...

They go on to note that:

Whereas behavioral variations from one to another differentiated sub-population may be a function of the location of each in conceptually distant and distinctive social areas (or social contexts), an explanation of how and why these variations occur will depend upon an adequate theory of social organization.

Before formulating the problem at hand within the contextual paradigm, then, the theory of "spatially based social organization" of the local residential areas within a metropolis should be outlined.¹

THEORETICAL FRAMEWORK

Urban populations, socially and spatially differentiated into relatively homogenous clusters across the metropolitan landscape forming a mosaic of local residential areas, is a well documented phenomenon within urban ecology (Duncan and Duncan, 1955; Murdie, 1969; ¹ Greer's development of spatially based organization actually includes four levels: the household, neighborhood, local residential area, and the municipality. He saw these in ascending order as to size or spatial scale, and descending order as to the probability of face to face or primary relations. In this investigation however, we are only concerned with elaborating the relation between the individual and the local residential area.
Moreover, many of the social processes operating to create and maintain these different residential areas have received considerable attention, with the result that some are quite well understood (Gans, 1967; Michelson, 1973, Rossi, 1955; Simmons, 1968). But an outline of a general theory accounting for the relations between the gross variations of sub-area population types and the corresponding social organization found within these neighborhoods, and what consequences this socio-spatial organization has on the patterned behavior of residents, awaited the work of Greer.

One of Greer's expressed concerns when he began investigating urban structures in 1952, was that "between the masses described conveniently by census data, and the individual psyche postulated by social psychology there seemed a missing connection: that connection was the social aggregates in which men lived and did most of the work of the world" (Greer, 1972:6). He believed it was possible to obtain a greater sense of order and understanding of the urban texture of the metropolis and acquire a better understanding of the relation between individuals and their urban context, if theory formulation and empirical investigation were to focus on the social organizational level of analysis. He adopted this strategy in his investigations of urban residential communities. He approached the residential community with a conceptual scheme appropriate to its own characteristics as a field for
social action by concentrating upon the explanation of the immediate organizational structure, which is the spatially defined group as it exists in the metropolis (Greer, 1960).

The Local Residential Area

But what is the basis of this spatially based social organization? For certainly the geographical contiguity of metropolitan sub-populations has no necessary, self-evident basis for forming a community in "social fact." Quite the contrary, it is claimed that the residential area is becoming less important in urban society. Stein (1964) argues that there has been an "eclipse of community," while Webber (1963) argues that what community does exist is "without propinquity." The "place community" represents only a limited and special case of the larger genus of communities deriving its basis from the common interests that attach to propinquity alone. But these place-related interests are supposed to represent a decreasing proportion of the total bundle of interests that metropolitan inhabitants hold. It is reasoned that the "accessibility" rather than the "propinquity" aspect of place is the necessary condition for the basis of community; and as accessibility becomes further freed from propinquity, cohabitation of a territorial place will become less important as the basis of social communities (Webber, 1963).
It is further reasoned that individual affiliation with
multiple groups transcending locality, removes from the local community many of the activities and meaningful interaction it once had, resulting, for example, in bedroom suburbs (Coleman, 1966).

Nevertheless, most people do not inhabit the city or metropolis as a whole, but live in only a small part of it (Gans, 1968; Wayne, 1972). While most workers are not employed in their immediate residential area it is misleading to speak of many local residential areas as only dormitory communities:

They are the seat of most men's treasure—the site for the home to which he is committed and the setting for the everyday life of his wife and children. Their work, education, play and social circle all center on the suburban community. And the breadwinner himself, with diminishing work weeks in most occupations, spends more of his waking hours in the suburb than in the central city where he works (Greer, 1962a).

And even though the central city with its collection of cultural activities is available to the suburbanite, "...it is far away in time and space at the end of the working day. It is an expedition to attend a cultural event rather than a normally expected activity" (Greer, 1962a).

Granted, the local residential area is no longer the location of all social activities of its residents, but it still encompasses some very crucial activities, giving rise to what Janowitz (1955) calls the "community of limited liability." Warren (1963) refers to some of these basic social activities (in schools, community centers, district
shopping centers, parks, supervised play grounds, public libraries and the like) as "locality relevant functions" that compose the nuclei of local residential areas. In many instances the services of schools, community centers, and various governmental programs are available to individuals only by virtue of their residence in geographically delimited areas. This common dependence of a local residential population on vital resources forms a basis for their "functional interdependence."

Of course, in relatively homogenous residential areas the prerequisites of life style can give rise to similar activities at similar social events where people can enjoy each other's company, and create bonds of mutual understanding (Coleman, 1966). But there is more to the development of a local residential community from a locality than just similarity of interests. There is the common dependence of activities on the same events--or the functional interdependenceis mentioned above.

The organization of activity involved in creating and maintaining such things as education and recreation facilities, and neighborhood improvement association are examples where similar individual interests can be transformed into common interests. Most of this activity is conducted through local voluntary organizations whose members and or beneficiaries are largely limited to those living in a particular local area (Wilkenson, 1970). As
3reer (1960) points out, the "inclusive spatial group" does still exist within the metropolitan area, deriving its basis from the common concerns, collective commitments and abilities of its residents to organize, attract, and support voluntary organizations within their respective local residential areas.

But it is known that the nature and degree of community organization vary from one local residential area to another. The question is what accounts for this variation in social organization across the metropolitan surface.

Population Type, Life Style, And the Organizational Structure Of Residential Areas

The basic relation between the socially and spatially differentiated sub-populations, and the nature of the spatially grounded social organization found in respective residential areas, rests on the following tenet:

The social organization of a local residential area may be derived from a conglomeration of significant social attributes of specific sub-area population aggregates, for contiguity indicates the likelihood of contact, homogeneity indicates the likelihood of similar interests, and population type indicates the specific context that may be inferred from those interests (Greer, 1960:516).

Greer points out that "the lifeways of urban populations have become differentiated along two quite separate and independent continua: one ranging from a familistic to an
extremely urban mode of life; and the other ranging from low to high social rank, with all its social cultural and economic ramifications. Along the first continuum,

At the high urbanism pole we find neighborhoods of apartment houses where single persons, childless couples, and one child families predominate. At the opposite end we find the single family dwelling units inhabited by families with several children, where the woman's role is that of wife and mother instead of participant in the labour force (Greer, 1962b, 109).

At the family-centered end of the continuum, extreme importance is placed on the dwelling unit, neighborhood, and the local residential community for providing the appropriate physical and social facilities for child rearing and homemaking. At the urban end of the continuum the unmarried and childless couples are more detached from the local residential area due to their life cycle stage. Freed from many of the family responsibilities entailing more relationships to the local area, they are less concerned about the availability and quality of local community services (Gans, 1968:102). Moreover, the unmarried and young childless couples are more transient. Their high mobility, combined with that of similar neighbors, leads to high population turnover, creating even further detachment from the local residential area.

This constant turnover of people in a residential area, most of whom have few reasons for being involved in the immediate community, makes it very difficult to maintain
viable voluntary organizations in an area. At the aggregate level then--

The more familistic a sub-area population is, the greater the number of voluntary organizations situated in the immediate residential environment.

Conversely,

The more urban the sub-area population, the fewer the number of voluntary organizations situated in the local residential area.

Crosscutting the spatial differentiation of urban and familistic life styles is the spatial differentiation stemming from social rank. The socio-economic rank of a sub-area population is expected to make an important difference in the degree to which the structure of local opportunity is developed, for it is indicative of the personal as well as collective resources, or "cultural equipment" available to the local residential area. Thus, at the aggregate level,

As the social rank of a residential population increases, the number of active voluntary organizations situated in the local residential area should increase.

The coincidence of these two sub-area population characteristics should go a long way in accounting for the variable nature of the spatially-based social organization found throughout the metropolitan area. For example, the number of voluntary organizations found in a residential area, whose residents are predominately childless couples with low to moderate levels of education and income, should
be considerably smaller when compared with the number of organizations situated in a residential area whose residents are predominately raising several children, have university education and sizeable incomes at their disposal.

Given this account of the spatial distribution of social organization of metropolitan residential areas, how is it that these structures, in turn, affect the patterned behavior of the people living in these varied neighborhoods?

The Local Residential Area As An Environmental Opportunity Structure

It is suggested that the local residential organization affects its residents by acting as an "opportunity structure." Variations in the social organizational topography of metropolitan residential areas present their residents with different opportunities. As Greer and Orleans (1962:636) state:

...the aggregated social characteristics of spatially distinct sub-area populations denote the prevailing conditions for social interaction (the structure of available social opportunities).

For example, the more women in a residential area that work away from home, the fewer the chances women who stay at home have to visit with neighbours. Thus the particular spatial distribution of particular population types and the resulting social organization sets "limits" on the kind of
interaction possible. Michelson also argues that environments set broad limits on the range and intensity of activities taking place within their influence.

Beyond this limit, an environment may make some phenomena...either easier or more difficult to maintain, so that, all else equal, these phenomena will tend to be found successfully maintaining themselves more in some types of setting than in others (Michelson, 1970:25).

Viewing the organization of the residential environment as a set of limiting conditions (Schnore, 1958; Beshers, 1962) avoids the strict determinism of classical environmentalists. But there is more to both Greer or Michelson's proposal than just focusing on the limiting conditions of an environment all else being equal, for other things are not equal. It is possible that the way people react to a particular environment varies with their individual characteristics (Gans, 1968:112). Greer and Orleans (1962:363) state that:

the social characteristics of individual residents are indicative of their potential for interaction (their access to the structure of social opportunities).

Given a collection of individuals in different stages of the family life cycle, or possessing different sets of social skills, they may well be expected to "articulate differentially" (Michelson, 1970) with, or have "differential access" (Greer and Orleans, 1962) to an environmental opportunity structure.
Conceptualizing the residential organizational opportunity structure as an environmental effect involves more than merely characterizing the nature of the environmental variable, or the individual variables for that matter. Deciding which variables to include in a model is only part of the task; combining them is another. It must be decided which functional form best describes the interrelation of individual characteristics and the residential opportunity structure take in producing effects in voluntary organization participation. Quite a systematic discussion of alternative forms of individual-environment relations—as well as the analytical procedures to test these forms—is at hand if the problem is further developed within the "contextual paradigm."

Local Residential Opportunity Structures and Contextual Analysis

Basic to the contextual paradigm is the notion of the "contextual conditional" (Harper, 1961); the possibility that individual behavior may result not just from "individual differences" or "environmental differences," but from a combination of the two. For instance, the residential opportunity structure may influence the probability of belonging to voluntary organizations, but differently depending upon an individual's sex. Gans
points out many community organizations are used as "sorting" groups through which people express their diversity. But while men are able to sort themselves in their work, women have to rely on community activities—and in Levittown the "total array of women's groups offered the opportunity for extremely fine sorting. This may be thought of as "differential susceptibility" since such a relationship suggests that the men or women differ in their reaction to variation in the composition of the residential environment.

Alternatively, a person's age may increase or decrease the probability of organizational participation, but differentially at different levels of "opportunity density". This can be thought of as a "conditional individual difference" since such a relationship suggests that the size of the individual level effect is contingent upon the nature of the environment (Davis, Spaeth, and Huson, 1961:218).

Both of these joint effects are logically equivalent, however. It simply depends on whether you are looking at the conditional relationship from the point of view of the individual, or from the point of view of the environment. In any case, the identical logic behind the effect of the contextual conditional and the "differential relation" of individuals with residential environments posited by Gans, Michelson, Greer, and Orleans should be immediately obvious.
The "contextual effect" stands in contrast to the effect of the contextual conditional. Here environmental differences are thought to produce differences in people's behavior independently of any of their own personal characteristics. Put another way, the environmental differences are thought to affect behavior in "addition to" rather than in "combination with" individual differences. This difference between the contextual effect and the effect of the contextual conditional is basic to the two different models of individual-environment articulation underlying the development of hypotheses to follow.

**PROBLEM FORMULATION AND HYPOTHESIS DEVELOPMENT**

In the process of adequately developing the two alternative explanatory modes of individual-environment linkage as they relate to the problem at hand, it is necessary to consider three different types of propositions: (a) propositions of the effect of environmental or residential opportunity structures on individual participation in voluntary organizations; (b) propositions of the effects of individual characteristics on individual participation in voluntary organizations; and (c) propositions specifying the joint effects individual and environmental characteristics have on individual participation in voluntary organizations.
Opportunity Density—A Contextual Effect

The more voluntary associations there are located in a residential area, the greater are the opportunities for individual residents to join. More organizations mean an increased chance that residents will run across, or be exposed to information about the existence and nature of particular organizations (Cox, 1969; Green, 1971). Chances are better to be introduced to them through neighbors or friends living in the area, or to be sought out by the organizations themselves. With larger numbers of organizations to choose from, it is also more likely that residents will find their particular interests represented in one or more of them (Lee, 1968).

The alternative argument, of course, is that membership in voluntary organizations is optimally obtainable by all who want them regardless of whether local organizations are available or not. Supposedly the high mobility of urban residents and the increased flow of information in large urban centers, make it possible for people to exercise a freedom of choice over a wider area. The entire city becomes an opportunity structure (Webber, 1963).

To understand the nature of the contextual effect, it is important to note that propositions relating organizational opportunity densities to individual organizational participation refer simply to the existence of opportunities, not the likelihood of particular types of
people making use of them—these are covered in the propositions relating individual characteristics to organizational participation. If the effect is contextual, then, increasing opportunities should influence all people the same way regardless of who they are.

Heretofore, investigators have merely assumed that different residential opportunity structures vary with different sub-area population types. The only empirical measures for testing the effect of opportunity structures on behavior, have been aggregate census indices of the social rank and familism of sub-areas (Greer and Orleans, 1962; Robson, 1969; Green, 1971). These, of course, indicate the residential distribution of certain population types, but not the degree of social organization or actual opportunities situated in particular areas. These must still be inferred. But by employing the "global" concept of "opportunity density" (Chapin, 1972) or "organizational density" (Coleman, 1957) a shorter chain of inference (Scheuch, 1969) can be made. The empirical referent of these concepts is the actual number of voluntary organizations located within each residential area. This is the strategy followed in the present investigation.

Individual Characteristics

The higher organizational participation rates of higher social strata have been documented in study after study.
The more wealthy, the better educated, and those with higher occupational status are the organizational joiners. Propositions relating individual characteristics to participation in voluntary organizations generally deal with an individual's motivation, skills, and resources. It is this type of proposition that abounds in the literature on participation in voluntary organizations. The individual correlates of sex (Babchuck and Booth, 1969; Booth, 1972), age or family life cycle (Wright and Hyman, 1958; Babchuck, 1969), education (Curtis, 1971; Hyman and Wright, 1971), and income (Hodge and Treiman, 1968; Hyman and Wright, 1971) are all well established in the literature as being directly related to voluntary organization participation.

In the present investigation, however, these relations are not really being called into question. Instead the primary focus is on specifying and testing the alternative forms of the effect that the interrelation between individual characteristics and local residential opportunity structures may have on individual organizational participation. The primary question being posed is whether the opportunity density of a residential area generally operates in supporting organizational participation to the same degree for all residents; or whether the density of opportunity elicits different amounts of organizational participation, depending upon an individual's personal resources or "attachments" to the local residential area.
However, within both the models of the contextual effect and the effect of the contextual conditional, people's individual characteristics are viewed as determining their interest in, as well as capacity for exploiting an available opportunity structure.

The Effects of a Contextual Conditional

In the extreme case, individual motivations remain inactive if there are no opportunities, and opportunities remain unused if there is no motivation. It would follow that participation is likely to be comparatively greater only when both conditions are present: (a) many associations in the area, and (b) individuals are motivated by their social position to join and maintain membership.\(^1\)

For example, if an individual lacks the educational motivation and skills, or an adequate disposable income needed to participate in many voluntary organizations, an increased opportunity to participate may well have little or no consequence whatsoever in eliciting or supporting an individual's organizational participation. On the other

\(^1\) To say that A and B are both necessary for C implies that C will not occur if either A or B is absent. However, one need not state a proposition in absolute terms, implying necessary conditions or strict dependency; one can allow for the operation of other variables and measurement error by formulating the relations in statistical and probabilistic terms (Blalock, 1955:375).
hand, individuals possessing an educational predisposition, necessary social skills, or adequate financial resources when faced by an impoverished opportunity structure may participate to a considerably lesser extent when compared with individuals with similar characteristics but situated in a more opportune environment.

This last type of proposition deals with the effect of the contextual conditional. Such propositions specify the way organizational opportunity density is seen to act in combination with different individual correlates thereby producing joint effects on organizational participation. In contrast to the contextual relation that is additive in nature, the relations of the contextual conditional are nonadditive. The notion that two factors must be present before behavior is affected can be translated into multiplicative models employing interaction terms (Blalock 1965; Songquist, 1970).

The following hypotheses stated as alternative forms of the effect of the contextual conditional and the contextual effect are consistent with the previous discussion. The effects of an individual attribute and organizational density are either interactive or additive. The individual attributes considered are:

1. Sex
2. Stage in family life cycle
3. Education
4. Income
If the effects are interactive, it is expected that:

As organizational density increases, the rate of increase in organizational memberships will be greater for:

1. Women;
2. Parents raising children;
3. The more educated;
4. The wealthier.

If the effects are additive, it is expected that:

As organizational density increases, the rate of increase in organizational memberships will be the same for every group of people:

1. No matter what their sex;
2. Whether or not they are raising children;
3. Whether they have a college education or did not graduate from high school;
4. Whether they are quite wealthy or not very well to do.

Moreover, if the effects are additive, then:

These different individual attributes will increase organizational memberships, over and above the increases stemming from the effects of opportunity density.

After describing the research design, operationalizing the variables, and explaining the strategy of analysis in the next chapter, these hypotheses will be tested in Chapter 3.
CHAPTER 2
METHODOLOGY

RESEARCH DESIGN

In order to test the different models of individual-environment linkage put forward in Chapter 1, it is necessary that the research design make the following tests possible: (1) to establish contextual effects it must be demonstrated that people with different social characteristics behave similarly in the same context; (2) to establish individual effects it must be demonstrated that people sharing similar social characteristics behave similarly in different contexts; and (3) to establish the effect of a 'contextual conditional' it must be demonstrated that different types of individuals react differently to the same context.

The conditions of these tests made it clear that the research design had to provide a way of selecting a number of residential areas varying in the density of voluntary organizations. At the same time each of the residential areas had to contain individuals with different social characteristics.
The research design was based on the assumption that aggregate indices derived from census data may be used to describe conditions where different spatially defined, relatively homogeneous sub-populations are located within the metropolitan area. Further direction was taken from hypotheses advanced in Chapter I as to the way spatially based sub-area population types and spatially delimited voluntary organization densities would co-vary across the metropolitan surface. These two hypotheses are:

1) As the familism of a residential sub-area population increases, the number of local voluntary organizations increases.

2) As the social rank of a residential sub-area population increases, the number of local voluntary organizations increases.

The intent then, was to systematically select residential environments with different demographic compositions representing the different cells of a sampling typology similar to the familiar social space or factorial ecology typologies (Bell, 1969; Robson, 1969). And if the hypothesized relationships hold, the residential areas chosen will have associated with them varying voluntary organizational opportunity densities.
Sampling Frame

The sample frame employed a multi-stage, purposively stratified, unequal cluster, random sampling design. This procedure involved, first, the purposive selection of residential areas as Primary Sampling Units; second, a random selection of households within the PSU's; and third, a selection of respondents within eligible households. Further discussion of these three stages follows below.

Stage One: Selection Of Primary Sampling Units

A nine-celled sampling typology was constructed to systematically control two macrodimensions of the demographic composition of residential areas: stages-in-family-life-cycle and socio-economic status (See Figure 1). Using a factor ecology in conjunction with an isopleth mapping technique, two maps were produced, one displaying the spatial distribution of the metropolitan population by socio-economic status (See Meis and Scheu; 1972), and the other displaying the spatial distribution by stage in family-life-cycle. These maps were overlayed and the boundaries of eight Primary Sampling Areas chosen such that each area would represent a particular cell in the social area typology.
STAGE IN FAMILY LIFE CYCLE

<table>
<thead>
<tr>
<th>Age</th>
<th>Young</th>
<th>Middle</th>
<th>Mature</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>(9)</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

SOCIO-ECONOMIC STATUS (Blisshen Scale)

FIGURE 1. Sampling Typology Used To Control The Macro-demographic Characteristics Of The Residential Areas Chosen In Stage One.

Only eight, rather than nine areas were chosen, however, for there was no empirical instance of a residential area with a concentration of young married couples with high socio-economic status. Purposively choosing these eight areas in the above manner essentially stratified the sample along the two dimensions of stage in family-life-cycle and socio-economic status and concluded the first stage of sampling.

The number in each of the cells in Figure 1 uniquely identifies each of the eight selected areas, and in Figure 2 these same numbers identify the eight respective spatial locations of the areas within the Metropolitan Vancouver area.
FIG. 2: PRIMARY SAMPLING UNITS
Stage Two: Selection Of Households

In the second stage a sample of households was randomly selected from each of the stratified sample areas. Using the 1970 City Directories for the Metropolitan area as sources, every household within the boundaries of each of the eight Primary Sampling Units was enumerated. This process produced eight separate enumeration lists. From these lists an initial sample of households from each area was randomly drawn using a table of random numbers. After selecting an initial sample from each list, the last random sequence number was appropriately identified so that supplementary sampling could be resumed without destroying the equal probability of selecting each household.

Stage Three: Selection Of Respondents

In addition to the above sampling criteria, further criteria of sample eligibility were employed to facilitate two additional study objectives of the larger research project of which this thesis is only part: (1) the nature of people's work experience and their non-work activities, and (2) the nature of interdependence between husbands' and wives' daily activity schedules. In this selection process, a household was considered "eligible" if it consisted of at least one married couple, one member of which had current full-time employment. Upon establishing the eligibility of a household, the interviewers then selected the wife and husband as the only two eligible representatives to be
interviewed. Moreover, both had to consent to and complete an interview before the household interview could be considered "completed".

Disposition Of Sample

Prior to initial contact, each selected household received a letter explaining the purposes of the study and advising the residents that they would be contacted to set up an appointment for an interview when both the husband and wife could be present.

If initial contact was not established, the number of calls to a residence was limited to three. Each interviewer kept a record of the outcome of each call on the face sheet of each respondent's interview. The disposition of this sample, including the completion rate and a breakdown of those interviews attempted but not completed is presented in Table 1. The total refusal rate of 26.3% deserves comment. Further investigation of the reasons for refusal recorded by the interviewers indicated that in at least 59 households, 8.3% of the total sample drawn, or 31% of those households that refused, one of the two respondents was willing to complete the interview. It would appear, then, that the eligibility criteria of stage 3, requiring both respondents to submit to lengthy time budget interviews, is a principal reason for the relatively high refusal rate in the study.
TABLE 1
Disposition Of Sampling Response

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLETED</td>
<td>57.8</td>
</tr>
<tr>
<td>REFUSED</td>
<td></td>
</tr>
<tr>
<td>Not Interested</td>
<td>18.3</td>
</tr>
<tr>
<td>Too Busy</td>
<td>4.2</td>
</tr>
<tr>
<td>Hostile</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>26.3%</td>
</tr>
<tr>
<td>INACCESSIBLE</td>
<td></td>
</tr>
<tr>
<td>Didn't Speak English</td>
<td>1.0</td>
</tr>
<tr>
<td>Not At Home-3 Callbacks</td>
<td>2.2</td>
</tr>
<tr>
<td>Extended Vacation</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>6.0%</td>
</tr>
<tr>
<td>INELIGIBLE</td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>3.6</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1.2</td>
</tr>
<tr>
<td>Deceased</td>
<td>1.0</td>
</tr>
<tr>
<td>Divorced-separated</td>
<td>1.4</td>
</tr>
<tr>
<td>Illness-disability</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>9.9%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
<tr>
<td>N</td>
<td>(711)*</td>
</tr>
</tbody>
</table>

* This N refers to number of households, not respondents.

Other conditions prevailing in the Vancouver community must have had an effect, however. Interviewers for the present study were in the field at the same time as the 1971 Canadian Census. The interviewing period also coincided with the field work of two other major studies in the area, and letters to the editor of local newspapers, and "talk show" conversations pointed to the fact that many people felt their rights to privacy were being imposed upon.
The completed interview lasted an average of one hour and forty minutes. A total of 822 were completed during the interview period from July, 1971 to February, 1972.

Implications Of Sampling Design

Juan Linz (1969) has pointed to the difficulty in creating a sample design that is, on the one hand, adequate for analyzing the impact of a set of specifically defined ecological contexts on their inhabitants behavior, and is, on the other hand, still statistically representative of the larger community in which these ecological areas are located. These conflicting objectives produce the following dilemma. Since randomly selecting sampling points proportional to the population within the larger community generally fails to adequately represent ecological areas defined by different combinations of socio-economic characteristics, over and under sampling of the different areas is usually necessary. But when the sampling areas have been purposively selected on the basis of ecological rather than random criteria, as is the case in this study, inferences are restricted to the populations of the smaller ecological areas and cannot legitimately be extended to the larger community in general. Of course this dilemma may be resolved by simultaneously executing a representative sample survey of the larger community in conjunction with the context-oriented sample survey, but this generally requires
an extremely large sample and a similarly large budget.

Given the research budget, only the eight chosen ecological areas could be sampled. Thus, because the Primary Sampling Units were purposively chosen, the findings of the investigations are not totally generalizable to the entire Vancouver Metropolitan population. The generalizability of results is further restricted by the purposive sampling criteria employed in stage 3 which essentially excluded children, as well as unmarried, divorced or separated, unemployed, or retired adults from the sample.

MEANS OF DATA COLLECTION

Two different kinds of data were collected to test the hypotheses put forward in this thesis. Data on the specific individual attributes of respondents were gathered using a structured interview. Data regarding the type, number, and geographic location of voluntary organizations within the Vancouver Metropolitan area had to be gathered from numerous sources. These different data collection procedures are described in turn.

The Interview

A structured interview was used in gathering information on the voluntary organizational participation as
well as socio-economic and demographic characteristics of the sampled respondents. Interviews were conducted by interviewing teams composed of one member of each sex. Each member of the team interviewed separately, but simultaneously, the member of the sampled couple of their own sex.

Throughout the study, all of the interviewers were familiarized with the study objectives and the instrument in several orientation and training sessions during which each was given an interviewers manual. This manual outlined the functions and expected interpretations of each question, as well as the kinds of probes to be used and the information to be probed for in each instance.

A completed interview consisted of a series of topics that included:

A. A description of the household which resulted in their inclusion or rejection from the sample;

B. A description of individual and household characteristics;

C. Two activity log reconstructions of the last workday or weekday and the last dayoff or weekend day;

D. A description of the individual's involvement in voluntary organizations;

E. A description of the individual's involvement in the most recent local, provincial and federal elections;

F. A description of the individual's work experience;

G. Specification of the individuals' social network and social activity in the last week;
H. Specification of the individual's residential history;

I. A description of the individual's residence.

The section of the interview used in gathering information on participation in voluntary organizations employed the following series of questions to facilitate respondent recall:

A. Are you a member of any professional societies, trade associations, or unions?

   Probe: Are you a member of any other organizations that are primarily for people in your line of work?

B. Do you attend or are you a member of a church or other religious groups?

C. Are you a member of any other organizations or groups such as:

   1) sports, recreation or hobby clubs
   2) fraternal, civic or charitable organizations
   3) social or cultural societies
   4) PTA or other children activity organizations
   5) organizations of rate payers, or tenants

If they answered yes to any of these questions the respondent was asked to name the organization, its meeting location and other detailed information about their participation including attendance, offices held, length of membership, and how they came to join the organization. As Babchuk and Booth (1969) point out, this use of aided recall undoubtedly helps a respondent provide a more complete and accurate profile of memberships than would otherwise be the case: for example, asking the question "Do you happen to belong to any groups or organizations in the community here?" second to the last in an interview containing 136
questions (Wright and Hyman, 1958).

Creating An Opportunity Surface Of Voluntary Organizations

The information needed in constructing an "opportunity surface" consisting of the actual number, type and geographic location of voluntary organizations in the metropolitan area was instrumental in operationalizing the concept of "opportunity density" further elaborated in the section on operationalizing concepts below.

An investigation of private, public and local governmental sources quickly indicated that constructing any sort of comprehensive list of voluntary organizations active in the Vancouver Metropolitan areas was not going to be easy. Several organizational directories and lists did exist, but because they were compiled to meet specific and limited needs the number and types of organizations enumerated were likewise limited. So limited in fact, that they only began identifying the voluntary organizations in existence.

To compile a more comprehensive list the following sources were used:

a) The directory of services compiled by the United Community Services of Greater Vancouver;
b) The Vancouver and other Metropolitan City Directories;
c) The Lyn Morrow Club Directory;
d) Metropolitan telephone directories;
e) Libraries in the different municipalities;
f) Local newspapers in the different municipalities;
g) Community centers in the different municipalities;
h) Planning boards in the different municipalities;
i) The 822 survey interviews.

When consulting each of these sources the organizational name and address of its most frequent meeting place were recorded. Each organization was then classified into one of the types enumerated in Figure 4, and the address assigned a two dimension X and Y geographic coordinates that fixed its spatial location within the Metropolitan area to the nearest tenth mile. This information was punched on data cards and transferred to computer disk files. From here the multiple source file of organizations was sorted by computer according to organization name, type and location. Lists were printed and all duplications and anomalies noted, and updated: this file of 3,415 unique voluntary organizations, then, became the data base for constructing a Greater Vancouver metropolitan opportunity surface of voluntary organizations. This opportunity surface can be mapped by computer (See Figure 3) as a two or three dimensional surface that pictorially displays what Greer refers to as "a snapshot of the organizational topography of a modern city" (Greer, 1958).

---

1 This same grid system was also used to fix all sampled respondents' home locations.
FIG. 3: VOLUNTARY ORGANIZATIONAL TOPOGRAPHY
<table>
<thead>
<tr>
<th>CODE</th>
<th>ORGANIZATIONAL TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fraternal and Veterans</td>
</tr>
<tr>
<td>2.</td>
<td>Civic and Service</td>
</tr>
<tr>
<td>3.</td>
<td>Health and Charity</td>
</tr>
<tr>
<td>4.</td>
<td>Church and Religious</td>
</tr>
<tr>
<td>5.</td>
<td>Cultural and Educational</td>
</tr>
<tr>
<td>6.</td>
<td>Business and Professional</td>
</tr>
<tr>
<td>7.</td>
<td>Sports and Recreation</td>
</tr>
<tr>
<td>8.</td>
<td>Child Oriented</td>
</tr>
<tr>
<td>9.</td>
<td>Political</td>
</tr>
<tr>
<td>10.</td>
<td>Unions</td>
</tr>
<tr>
<td>11.</td>
<td>Ethnic</td>
</tr>
<tr>
<td>12.</td>
<td>Social</td>
</tr>
</tbody>
</table>

**FIGURE 4. Enumeration Of Voluntary Organization Classification**
OPERATIONALIZATIONS OF THE CONCEPTS

Opportunity Density

A major problem arises, in measuring the density of voluntary organization in different residential areas throughout a metropolitan area, for how are the areas to be spatially bounded? What procedure is appropriate for identifying interaction aggregated at the community level without first arbitrarily specifying a geographical area and precluding empirical investigation of the boundary problem (Seiber and Summers, 1974)? From an ecological research point of view, Valkonen (1969: 61) notes that the:

...difference between areal units and other types of collectives used in contextual analysis seems to be that areal units are as a rule, "modifiable units": a set of areas is not the only possible one, but the aggregates can be constructed in other ways. In typical contextual analysis, the units can be defined more clearly.

Of course, part of the problem of modifiable and arbitrary boundaries of ecological studies stems from data availability being restricted within the administrative boundaries of respective collecting agencies. However, when dealing with global effects, the "best" or most relevant area units are those to which the global phenomenon applies (Valkonen, 1969). Along this line Greer points out that the social organizational structure of local residential areas in a metropolis "...frequently resemble St. Augustine's
definition of God, an infinite circle whose center is
everywhere and whose periphery is nowhere (Greer, 1960)".
Wilkinson concurs, claiming this as evidence that the
organizations of these areas be approached as social fields.
Although no strict boundary demarcation of a social field is
possible the question of establishing boundaries

...may generally be answered through
imposition of artificial boundaries by the
observer at a point beyond which the mutual
action contingencies (interactions) of the
elements are regarded as relatively weak and
insignificant in contribution to the
dominant observed character of the field.
The connections which structure an
interactional nexus obviously vary in
"strength" and in relevance to the total;
and the absence of natural absolute
boundaries in no way precludes identity.
This means that, in operation, study of a
field must proceed from the core outward, as
it were, rather than from the borders which
do not exist inward (Wilkinson, 1970; p313).

In the problem at hand the "elements" consist of the
set of individuals in each of the eight sampled residential
areas and the associated set of spatially positioned
voluntary organizations to which the group of individuals in
each of the areas belong. The "interaction" of the elements
is conceived to be the "spatial activity link" (Hemmens,
1966) traversed by individuals traveling from home to
voluntary organizational meeting places. Thus the spatial
dimension of the social fields surrounding each of the
residential areas is considered to be that common
geographical areas traversed by the residents in attending
the meetings of the voluntary organizations in which they
hold memberships.

To determine the spatial boundaries at the general point beyond which the social fields are to be regarded as weak, the mean and standard deviations were calculated on the distances the entire sample travels to participate in voluntary organizations. The mean distance plus two standard deviations or 3.2 miles (encompassing 95% of the spatial activity linkages) were entered into a computer program as the radius parameter of a circle. Building on Wilkinson's notion that the perimeter of a field must be established from the core outward the program algorithm (using the radius parameter) computed the circumference of a circle around the geographic centroid of each residential area, and then calculated the total number of voluntary organizations falling within each of the eight perimeters. Data input to the program was the entire metropolitan opportunity surface of voluntary organizations described above.

In summary, the density of voluntary organizations was operationalized in a variable with eight values that indicate the number of organizations within a radius of 3.2 miles from the centre of each area.

This is the first time that the residential opportunity structure has been characterized and independently operationalized as a "primary global variable." That is, the opportunity structure in each of the eight residential
areas has been characterized and measured using the attributes of the areas as a whole (i.e. the actual number of organizations situated in each area); rather than being analytically derived as some sort of statistically aggregated summary measure of the individual characteristics of area residents. This makes it possible for the present analysis to side-step the major problem of having to identify the substantive interpretation of a "contextual effect" with an unmeasured or residually defined variable (Hauser, 1971; 1974).

Participation In Voluntary Organizations

There are a number of ways of measuring organizational participation. This investigation is limited to the number of memberships in voluntary organizations. To have also looked at actual attendance as a measure of participation would logically entail calculating the "temporal opportunity" in each of the eight residential environments and this was not possible.

When totalling individual memberships, all job related organizations such as professional, business and union organizations have been excluded while church memberships have been included. The focus of this study is limited to looking at only local residential opportunity structures. Churches are primarily located in local residential areas
and are thus included. The meeting sites of many job-related organizations are closely related to the work location and given the spatial bifurcation of work and residence locations, these organizations have been excluded from consideration.

Also, to the extent that job-related organizational meeting sites were located within the residential community, they have been ignored for they were similarly excluded from the entire metropolitan opportunity surface before the opportunity density measures for each of the eight residential areas were calculated.

Stage In Family Life Cycle

Stage in family life cycle has been operationalized in a number of different ways depending on the criterion variable with which it is being related and the nature of the explanations being employed (Duvall, 1957; Feldman, 1961; Rodgers, 1962). In this case, the age of the oldest child is taken to indicate the life cycle stage of the family. As the oldest child enters school age and begins engaging in institutionalized activities outside the home, parents become increasingly involved in youth serving groups. After the child has passed through the teen years and finally leaves home, there are decreasing demands for the parents to be active in the residential community.
The stage in family life cycle variable is used in two types of analysis in Chapter 3. In both cases, however, it is a conditional variable formed from the present age of the oldest child living at home, combined with the age of the wife. In the regression analysis, the variable is treated as a discrete continuous variable bounded at the low end by the case where an individual is a member of a family with no children, and a wife equal to or under the age of forty; the upper bond is created by an individual who is a member of a family with no children living at home, and a wife over the age of forty. All intervening values of the variable take the age of the oldest child.

As the relationship of family life cycle with participation in voluntary organizations is expected to be curvilinear (Babchuk, 1969; Curtis, 1971), another variable was formed by squaring the values of the variable "family life cycle." This second-order variable is then used in the polynomial regression equations of Chapter 3.

When stage of family life cycle is used as a "factor" in the covariance analysis, the following cutting points are used:
- Wife 40 years or less, oldest child 0 to 3 years old
- Wife 40 years or less, oldest child 4 to 12 years old
- Wife 40 years or less, oldest child 13 to 15 years old
- Wife 40 years or less, oldest child 16 + years old
- Wife older than forty years, no child living at home

---

1 For further discussions of using quadratic equations in handling curvilinear relations, see Blalock (1972:408).
Social Rank Of Residential Area

The social rank of the residential areas is an analytically derived variable (Lazarsfeld and Rosenberg, 1955; Dogan and Rokkan, 1969). The eight states or values of the variable are statistical means derived by aggregating (i.e., summing and dividing), separately for each of the different residential areas, the Blishen (1968) socio-economic scores of those individuals sampled and interviewed within each of the areas. Thus the social rank of the residential area is characterized by a summary measure of the individual characteristics of people residing in their respective residential area.

This variable, along with the next two to be discussed are combined with the "global variable", residential organizational opportunity density, in an ecological regression analysis carried out in Chapter 3 as a partial test of Greer's assumption that the aggregate residential opportunity structure and specific aggregate population characteristics of respective residential areas covary across the metropolitan surface.
Family Life Cycle Of Residential Area

The operationalization of this variable follows the same statistical procedures just outlined. The individual family life cycle variable (discussed above), was aggregated to form an eight state variable, where each value characterizes the average family life cycle stage of the residents in each of the eight areas.

Age Of Residential Area

Here again the same statistical procedures was followed. Only this time the actual length of time the residents had lived in the area were aggregated to create the average length of time the population had been residents in each of the areas.

STATISTICAL METHODS OF DATA ANALYSIS

Covariance analysis is the primary statistical procedure adopted in the data analysis and hypothesis testing carried out in Chapter 3. This technique is employed because of its superiority in handling several important problems encountered in analyzing any contextual argument: these problems are (1) a failure to statistically control the properties of individuals strictly enough with a possible result that part or all of the contextual effect observed is not genuine (Tannenbaum and Bachman;1964:585-
(2) a failure to adequately specify and statistically control other individual factors simultaneously raising the possibility that the observed structural effect is in fact nothing but residual individual differences and thus spurious (Hauser, 1970:658-662; and (3) a failure to test the functional form of the model relating the effects of individual and environmental factors on individual behavior resulting in a mis-specified model that produces downward bias in the estimates of the effects of the variables involved as well as raising the possibility of being mislead about the substantive meaning of the analysis (Sonquist, 1970:29-46).

The analytical techniques of determining "structural" or "compositional" effects (Blau, 1957, 1960; Davis, Spaeth and Huson, 1961) developed specifically for assessing the influence group composition or group structures have on individual behavior have been shown statistically wanting in their ability to rigorously control the variables involving individual properties. Tannenbaum and Bachman (1964) demonstrate that for any variables other than those that are naturally dichotomous (such as sex) the technique of dichotomously controlling individual differences fails to adequately eliminate the contamination of individual effects in inter-group comparisons. Where the data meet the necessary statistical requirements, it is suggested that correlation analysis, multiple or partial regression or covariance analysis are all techniques capable of producing
greater statistical controls in both the individual and structural variables involved in an analysis. This greater control reduces the chances of either wrongly assessing individual differences as legitimate contextual effects, or inflating the contextual effects with only partially controlled individual differences (Schuessler, 1969; Hauser, 1970; Valkonen, 1969).

To separate a genuine contextual effect from a spurious one and avoid what Hauser identifies as the "contextual fallacy" generally requires the simultaneous statistical control of other individual factors. This should be the case because, regardless of the number of categories or states of the contextual variable, group composition on an individual predictor may be correlated with residual differences among the groups on the dependent variable (Hauser, 1973; 663). Before assessing residual group differences as a legitimate contextual effect, then, one should be prepared to argue that his theory of relations among individual characteristics is correct and adequately accounted for by proper statistical controls. Compared to cross tabulation, the techniques of multiple regression or covariance analysis have advantages in being able to control statistically without having to make use of an extremely large number of cases: this more efficient use of data makes it possible to take more independent variables into account at the same time (Valkonen, 1969; 64; Blalock, 1972; 474).

Specifying and statistically testing the functional
form of any contextual argument is particularly important because the presence of statistical interaction terms has become one of the central ideas in studying the differential effects of various social environments on behavior (Sonquist, 1970). Faced with the necessity of testing for statistical interaction, covariance analysis becomes most appropriate given its capacity for producing more information than is possible with either partial correlation or regression (Blalock, 1972; 474). Its ability to test for the presence and significance of statistical interaction as well as graphically display separate correlations and slope estimates within each category of a control variable makes covariance analysis particularly appropriate for testing the functional form of contextual arguments (Blalock, 1972). The covariance analysis strategy employed in Chapter 3 is detailed in the next section.

COVARIANCE ANALYSIS STRATEGY EMPLOYED

The basic objective of the initial covariance analysis is to statistically determine which of the alternative forms of individual-environment linkage hypothesised in Chapter 1 hold: the additive individual-contextual relation or the contextual conditional relation. The first step entails testing for the presence of interaction effects. Essentially this test determines whether the set of covariate regression slopes computed for each level of the individual attribute variables differ significantly from a
common slope (Walker and Lev, 1953; 390-392). If the decision is to reject the hypothesis of equal regression slopes (or one common slope) because of interaction effects, separate analyses should be carried out within each category of the control variable (Blalock, 1972; 474). In part, this entails testing to see which of the regressions slopes differ significantly from zero.

The presence of statistical interaction is evidence that the correct form of the relations is a contextual conditional and not additive: the organizational opportunity density does not elicit or support all individuals equally, but differentially in their organizational participation.

If the hypothesis of equal regressions slopes is accepted, a common slope may be assumed, and the analysis takes a different direction. It must be established that the common slope differs significantly from zero (Walker and Lev, 1953; 393). Establishing a common slope differing significantly from zero does not mean that a single regression line has been established, however, for the regression lines within each level of the control variable need not be identical or coincident. They may be parallel to one another differing significantly in their "a"-intercepts.

The presence of parallel regression lines all with the same slope, but different intercepts is evidence that the correct form of the relation is additive: the organizational
opportunity density elicits or supports all individuals equally and in addition to individual effects.¹

The variables operationalized in this chapter, combined with the method of covariance analysis just outlined are used in investigating the hypotheses in the next chapter.

¹ A single regression line may be assumed, then, only after establishing a common slope as well as a common intercept (Walker & Lev, 1953; 393-394).
CHAPTER 3

THE ANALYSIS

In this chapter the method and operationalized variables developed in Chapter 2 are used to test the hypotheses advanced in Chapter 1. Reviewing briefly, the major focus of this investigation is to explore two alternative models of individual-environment articulation as they relate to explaining individual participation in voluntary organizations. More specifically, the primary question being posed is whether varying voluntary organizational opportunity densities in local residential areas operate in supporting or eliciting organizational participation to the same degree for all individuals; or whether the density of organizational opportunity supports or elicits organizational participation differentially depending upon an individual's personal resources or attachments to the local residential area.

These alternative forms of articulation have been more specifically identified within the contextual paradigm as a contextual effect, and the effect of a contextual conditional. Moreover, using analysis of covariance, their respective statistical forms have been specified as
rendering either a relation of additivity, or a relation involving statistical interaction. The additive relation of the contextual effect indicates that opportunity density acts independently and in addition to individual characteristics in accounting for the degree of individual organizational participation. The statistical interaction of the contextual conditional indicates that opportunity density acts differentially or in combination with individual characteristics in accounting for the degree of individual participation in voluntary organizations.

**ECOLOGICAL TEST OF THE MACRO-PROCESSES**

Before proceeding with the contextual analysis, however, it is imperative that the basic proposition that the residential voluntary opportunity structure and specific aggregate population characteristics of residential areas covary across the metropolitan surface be put to the test. It will be recalled from the discussion in Chapter 1 that this critical relation has never been empirically determined: it is merely assumed. The basic propositions to be tested are the following:

1) As the familism of a residential sub-area population increases, the number of local voluntary organizations located in the area increases.

2) As the social rank of a residential sub-area population increases, the number of local voluntary organizations located in the area increases.
One further relation will be taken into consideration in this "ecological" regression analysis:

3) As the average length of residence in a local area increases, the number of local voluntary organizations in the area increases.

Local organizations are in part a "residuum of past action" (Coleman, 1966). Many organizations, once in existence, tend to perpetuate themselves. Even organizations that have accomplished the single goal for which they were created often manage a continued existence. The bonds of sentiment formed between the members help maintain such groups while new causes are identified. However, as pointed out in Chapter 1, rapid turnover rates of certain sub-area populations must certainly have an effect on the viability of local organizations.

Table 2 presents a 3-stage step-wise regression analysis of the three hypotheses postulated above. The results clearly bear out the basic propositions that organizational densities do covary in the expected way with residential social rank and family status. Although length of residence and socio-economic status are more important in accounting for the density of opportunity in an area, the average family-life-cycle-stage of the residents in an area also contributes an independent effect.
**TABLE 2**


<table>
<thead>
<tr>
<th>Independent Variables: Mean Characteristics of Residential Areas</th>
<th>Effect On Density Of Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Step) R Square Beta*</td>
</tr>
<tr>
<td>Socio-economic Status</td>
<td>1 0.57  --  .70</td>
</tr>
<tr>
<td>Stability</td>
<td>2 0.81  0.24  .74</td>
</tr>
<tr>
<td>Family Life Cycle</td>
<td>3 0.91  0.10  -.42</td>
</tr>
</tbody>
</table>

*The standardized partial regression coefficients are taken from the last stage in the step-wise regression.*

The negative sign associated with the mean residential family life cycle should be expected, of course, due to the way the variable is operationalized. This particular relationship actually indicates that as more families in a residential area approach the "mature" or "empty nest" stage of the family life cycle the number of voluntary organizations situated in the local residential area decreases.
Limitations Of The Ecological Covariation Test

This particular test cannot be considered the strongest test of these relations given the limited number of observations of eight.¹ Nor can it be considered a definitive attempt at explaining all aspects of the locational profile of a metropolitan opportunity surface of voluntary organizations. Other dimensions could be taken into consideration.² Nevertheless, it partially tests what merely has been assumed in previous instances, and the positive outcome is sufficient to let us proceed with the contextual analysis.

¹ A more appropriate test would entail aggregate social rank and familism measures derived from the 1971 census for all census tracts that could then be related to the spatial distribution of voluntary organizations.
² The scope of the argument put forward here gives major emphasis to "local" oriented voluntary organizations (Greer and Orleans, 1962) and does not proort to explain the location of more specialized organizations that must centralize location to maximize accessibility for a select membership.
MODEL SPECIFICATION OF THE MICRO-PROCESSES

In order to test the alternative hypothesized forms of individual-environment linkage, they must be statistically specified. This may be done in terms of the following covariance equation:

\[ Y_{gi} = a_g + B_gX_{gi} + e_{gi} \]

where:

- "Y_{gi}" is a measure of organizational memberships for individual I in group g
- "a_g" is the intercept of group g on the ordinate;
- "B_g" is the standardized regression slope for each group g
- "X_{gi}" is a measure of the density of voluntary organizations of the residential area in which the i'th individual in group g resides
- "e_{gi}" is an error term

and

- "g" will represent in turn the social groupings of sex, stage in family life cycle, education, and income.

Before entering directly into the analysis it might be instructive to combine this basic covariance equation with the covariance analysis strategy discussed in Chapter 2, and to graph some prototypes of the alternative hypotheses, using two hypothetical groups of people with different
individual attributes: G1 and G2 (see Figure 5).

Figure 5a depicts the outcome where only the main effect stems from opportunity density. As opportunity density increases, an individual's total number of organizational memberships increases. This may be observed from the fact that there is only one common regression equation because both lines have the same slopes ($b_1 = b_2$) and the same intercepts ($a_1 = a_2$). There are no effects due to individual characteristics, nor are there any interaction effects resulting from the differential effects of opportunity density and individual characteristics.

The exact opposite effect is depicted in Figure 5b. Here the effect of individual differences is identified by the separation of the two regression lines. Organizational density has no effect because both lines are horizontal, and there are no interaction effects as the slopes of the two lines are the same.

The case where both the individual effect and opportunity density act in an additive fashion to produce an increase in organizational memberships is shown in Figure 5c. The individual effect is again indicated by the difference in intercepts, while the same effect of density on both groups of individuals is shown by the same slopes of the two lines.
A. Single Effect of Opportunity Density Only

\[ a_1 = a_2; \quad b_1 = b_2 > 0 \]

B. Effect of Individual Characteristic Only

\[ a_1 < a_2; \quad b_1 = b_2 = 0 \]

C. Additive Effects of Opportunity Density and Individual Characteristic

\[ a_1 < a_2; \quad b_1 = b_2 > 0 \]

D. Interactive Effects of Opportunity Density and Individual Characteristic

\[ a_1 = a_2; \quad b_1 < b_2 \]

FIGURE 5. Graphical Presentation of Ideal-Typical Covariance Relations Depicting Various Outcomes of Contextual Analysis
The last case in Figure 5d depicts the effect of the contextual conditional. Greater organizational density tends to increase organizational participation for individuals in Group 2, but fails to make a difference for individuals in Group 1. Thus the two regression lines no longer have the same slope.

MODEL EVALUATION.

Analysis will proceed through each of the four sets of hypotheses in order to determine the initial form of the individual-environment relations. With the appropriate forms specified, the investigation will shift to regression analysis. Here the alternative models are reviewed, and the relative effects of the remaining components of the final model are established. A summary interpretation of the results will be found in the first section of Chapter 4.
Covariance Analysis

Sex and Opportunity Density

Table 3 presents the covariance tests for the number of voluntary organization memberships regressed on residential opportunity density for females and males. The test of differences among the regression slopes due to statistical interaction is not significant, indicating no differential use of the residential environment for men or women when participating in local voluntary organizations.

TABLE 3

Covariance Analysis Of Sex, With The Number Of Voluntary Organization Memberships Regressed On Opportunity Density

<table>
<thead>
<tr>
<th>Sex (Factor)</th>
<th>Test For Differences Among Slopes B's (Interaction)</th>
<th>Test For Differences Among Intercept, A's (Covariate)</th>
<th>Common Slope B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>F(1,818)=0.5</td>
<td>F(1,819)=0.2</td>
<td>.32*</td>
</tr>
<tr>
<td>Male</td>
<td>N.S.</td>
<td>N.S.</td>
<td></td>
</tr>
</tbody>
</table>

*Significant p<.001

The test for differences among the "a"-intercepts of the two regression slopes also fails significance and may therefore be considered the same, indicating that there are
FIGURE 6. Regression Lines Of Organizational Memberships By Opportunity Density For Males And Females
The results of these two tests indicate, then, that there is a common regression slope for sex (see Figure 6), which shows that for both men and women, equally, as the residential opportunity density increases, organizational memberships increase.

**Stage in Family Life Cycle and Opportunity Density**

Table 4 presents the covariance tests on the number of voluntary organization memberships regressed on opportunity density for different stages in the family life cycle. The test for the difference among regression slopes due to statistical interaction is not significant indicating no differential use of the residential environment by people in different stages of family life cycle when it comes to belonging to voluntary organizations.

The test for differences among the "a"-intercepts of the five regression slopes is significant, however, indicating the presence of additive effects between stage in family life cycle and opportunity density.

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1 The bivariate relationship between sex and the number of organizational memberships held by an individual disappears in this data set when all business, professional and union organizations are excluded. When these are included back into the dependent variable men, again, have more organizational memberships than women as generally established in the literature. However, it is very interesting to note that when Curtis (1971) excluded all union memberships from his national Canadian sample, sex differences in organizational memberships also completely disappeared.
TABLE 4

Covariance Analysis Of Stage Of Family Life Cycle, With The Number Of Voluntary Organization Memberships Regressed On Opportunity Density

<table>
<thead>
<tr>
<th>Family Life Cycle (Factor)</th>
<th>Test For Differences Among Slopes B's (Interaction)</th>
<th>Test For Differences Among Intercept, A (Covariate)</th>
<th>Common Slope B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wife&lt;40 &amp; Child:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>F(4,812)=0.2</td>
<td>F(4,816) 11.13</td>
<td>.22*</td>
</tr>
<tr>
<td>4-12</td>
<td>N.S.</td>
<td>P&lt;.001</td>
<td></td>
</tr>
<tr>
<td>13-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Child &amp; wife&gt;40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant p<.001

The results of these two tests indicate that though each family stage may be considered to have the same regression slope, there is no common regression equation for the intercepts are not coincident. This result lends evidence to the hypothesis that stage in family life cycle and opportunity density act in an additive fashion to effect individual's organizational memberships. Closer observation of the "a"-intercepts (see Figure 7) for each family stage discloses the expected curvilinear relation between family life cycle and organizational memberships. People in the early and late stages of the family life cycle have fewer memberships than those individuals involved in
FIGURE 7. Regression Lines Of Organizational Memberships By Opportunity Density For The Five Stage In Family Cycle Groups
the middle stages; but no matter which stage individuals are in, the number of organizational memberships increases at the same rate, as the residential opportunity density increases.

**Education and Opportunity Density**

Table 5 presents the covariance tests on the number of voluntary organization memberships regressed on opportunity density for different individual educational levels. The test for the difference among regression slopes due to statistical interaction between education and opportunity density is very significant, indicating considerable differential use of the residential environment in belonging to voluntary organizations, depending on an individual's educational level.

**TABLE 5**

Covariance Analysis Of Education, With The Number Of Voluntary Organization Memberships Regressed On The Covariate, Opportunity Density

<table>
<thead>
<tr>
<th>Education (Factor)</th>
<th>Test For Differences</th>
<th>Within Group Slopes B's</th>
<th>Test For Significance for Within Group Slopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11 Yrs</td>
<td>.00</td>
<td>F(1,1283) = 0.01 N.S.</td>
<td></td>
</tr>
<tr>
<td>12 Yrs</td>
<td>.09</td>
<td>F(1,1237) = 1.88 N.S.</td>
<td></td>
</tr>
<tr>
<td>13-15 Yrs</td>
<td>F(3,800)=8.26</td>
<td>.30</td>
<td>F(1,1156) = 15.86 P&lt;.001</td>
</tr>
<tr>
<td>16 Yrs +</td>
<td>p&lt;.001</td>
<td>.36</td>
<td>F(1,124) = 18.35 P&lt;.001</td>
</tr>
</tbody>
</table>
FIGURE 8. Regression Lines of Organizational Memberships by Opportunity Density for the Four Educational Groups
For individuals with 0-11 years of education (see Table 5, last two columns and Figure 8) there is no relation between opportunity density and organizational participation. Much the same is true for individuals who have just completed a high school education. Although there appears to be a slight tendency toward increased participation as opportunity densities increase, it is not statistically significant. On the other hand, for those people with 13 to 15 years of education, the opportunities present in the immediate residential environment have a pronounced effect on increasing organizational memberships. The rate of organizational participation is even more pronounced for individuals with 16 or more years of education. It appears, then, that the organizational opportunities present in the immediate residential environment have no effect on increasing one's organizational memberships when education is relatively low, but makes a considerable difference for individuals with high education. The effect of organization density increases with each step up the ladder of education.

**Income and Opportunity Density**

Table 6 presents the covariance tests on the number of voluntary organization memberships regressed on the covariate, residential opportunity density for individuals with different levels of income. The test for the difference among regression slopes due to statistical
interaction between individual income and opportunity density is also significant, indicating that the residential opportunity structure elicits differential organizational participation depending on an individual's economic resources. Moreover, it is not until an individual's income reaches the threshold level of $13,000 or more, that there is a significant rate of increase in organizational participation as opportunity densities increase.

**TABLE 6**

Covariance Analysis Of Income, With The Number Of Voluntary Organization Memberships Regressed On The Covariate, Opportunity Density

<table>
<thead>
<tr>
<th>Income (Factor)</th>
<th>Test For Differences</th>
<th>Within Group Slopes B's</th>
<th>Test For Significance For Within Group Slopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0-4,999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$5-8,999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$9-12,999</td>
<td>F(3, 776) = 3.07</td>
<td>.09</td>
<td>F(1,258) = 1.71 N.S.</td>
</tr>
<tr>
<td>$13,000 +</td>
<td>F(1,46) = 0.15 N.S.</td>
<td>.06</td>
<td>F(1,234) = 17.88 P&lt;.001</td>
</tr>
</tbody>
</table>

**Summary Of Covariance Analysis**

In summary, the analysis of covariance has aided in determining the form of articulation between a set of individual characteristics and the residential environment of organizational density. It has been established that an
FIGURE 9. Regression Lines Of Organizational Memberships By Opportunity Density For The Four Income Groups
individual's income and education articulate differentially with opportunity density. An individual's stage in family life cycle appears to articulate in an additive fashion with opportunity density. And lastly, that sex and opportunity density do not really articulate at all for there is no relationship between sex and organizational participation.¹

With the forms of these particular relations established, it is now appropriate to raise the questions of relative effects, and the variance explained by the above components when considered within a multidimensional model. For this we turn to multiple regression analysis.

Regression Analysis

As was pointed out in Chapter 2, very little is accomplished in attempting to estimate the relative effects of a number of component variables in a multidimensional regression model if it has been incorrectly specified. The findings of the previous section can aid us considerably in deciding the nature of the variables to be entered in to the following equations.

¹ Strictly speaking, this is an additive relationship, except that the effect of sex is zero.
It is known that the relation between education, opportunity density, and organizational memberships is a contextual conditional involving statistical interaction, and the same holds for income. One of the most common ways of handling statistical interaction in a regression model is to create a new variable that is the product of the two variables involved in the conditional relationship (Blalock, 1972; Sonquist, 1970). Employing this procedure with income, education and opportunity density creates the following variables for inclusion in the regression model:

- Education * Opportunity Density = EOD
- Income * Opportunity Density = IOD

Next, it is known that an individual's stage in family life cycle and residential opportunity density appear to be related in an additive fashion—so two further candidates may be included:

- Stage in Family Life Cycle = FLC
- Residential Opportunity Density = OD

However, FLC needs further consideration before including it as a variable, for it will be recalled from the covariance analysis that it has a curvilinear relation to organizational participation. This curvilinear relation can be taken into account by introducing FLC into the regression

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1 The symbol '*' will be used to denote the mathematical operation of multiplication.
equation along with its second order or quadratic complement (Blalock, 1972:408). This is accomplished by introducing:

\[ FLC \times FLC = FLC^2 \]

One further variable to be considered is the length of time an individual has lived in a particular residential area. "Length of residence" is a variable that has received considerable attention in the literature (Babchuk, 1969; Wright and Hyman, 1958; Curtis, 1971; Gans, 1967), and is important enough to be considered in the present model because of its possible relation with the environmental variable opportunity density.

The notion was originally entertained that an individual's length of residence in a particular area might articulate in a conditional way with a local opportunity structure. For example, people new to an area, presented with numerous organizational opportunities, might very well make considerably more use of them as a way of settling into the new area, than people who had already been residents in the area for some time and presumably developed a local friendship network (Litwak, 1961). Though not discussed in the section on covariance analysis, this conditional

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1 When both FLC and FLC^2 are introduced into the same regression equation, ordinary regression procedures of parameter estimation become unstable because of the high multicollinearity between the two variables. Such a problem is overcome by using a computer algorithm that handles orthogonal polynomial regression. Such a program was used in this analysis. See Trip Triangular Regression Package, University of British Columbia.
relation was tested and found unsupportable: the relationship between length of residence, opportunity density and voluntary organizational memberships was found to be additive. Thus the last candidate for the regression model is:

\[ \text{Length of Residence} = LR \]

Reviewing quickly, the components for the multidimensional model are as follows:

- Education * Opportunity Density = EOD
- Income * Opportunity Density = IOD
- Stage In Family Life Cycle = PLC
- Family Cycle * Family Cycle = PLC^2
- Residential Opportunity Density = OD
- Length Of Residence = LR
- Total # Of Organizational Memberships = Y

Creating the following regression equation:

\[ Y = a + b_1EOD + b_2IOD + b_3PLC + b_4PLC^2 + b_5OD + b_6LR + e \quad (1.1) \]

Table 7 summarizes the results of a step-wise multiple regression for the equation just specified. The first thing to note is the strong relative importance of the two multiplicative components EOD and IOD, followed in order by the lesser effects of length of residence and stage in family life cycle. Note also that opportunity density was unable to make any further significant contribution of its own to the overall variance explained by the other variables in the equation. It may therefore be dropped from equation 1.1, leaving us with the conclusion that the voluntary organizational opportunity densities of residential areas do
not act independently of, and in addition to individual characteristics in increasing the chances that residents hold memberships in voluntary organizations. It appears that on the one hand, given the multiple attributes used to characterize individuals in this study, the effects of opportunity density are conditioned by the education or income levels of individuals. On the other hand, regardless of residential opportunity densities, the longer individuals reside in an area, or if they are in the middle years of the family life cycle, they are more likely to belong to voluntary organizations.

**TABLE 7**

Summary Of Step-Wise Regression Analysis Of Total Organizational Memberships Regressed On EOD, IOD, FLC, FLC², LR AND OD

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLES</th>
<th>(Step)</th>
<th>R</th>
<th>Square Changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>EOD</td>
<td>1</td>
<td>13.7</td>
<td>--</td>
</tr>
<tr>
<td>EOD+IOD</td>
<td>2</td>
<td>22.1</td>
<td>8.4</td>
</tr>
<tr>
<td>EOD+IOD+LR</td>
<td>3</td>
<td>24.8</td>
<td>2.7</td>
</tr>
<tr>
<td>EOD+IOD+LR+ (FLC+FLC²)</td>
<td>4</td>
<td>26.6</td>
<td>1.8</td>
</tr>
<tr>
<td>EOD+IOD+LR+(FLC+FLC²)+OD</td>
<td>5</td>
<td>26.6</td>
<td>0.003*</td>
</tr>
</tbody>
</table>

*OD could make no real contribution to R² at this stage.
Before concluding with this interpretation, however, it is instructive to compare the overall performance of equation 1.1 with an alternatively specified equation that simply includes all individual characteristics as well as opportunity density in a straightforward additive model of the form:

\[ Y = a + B_1 E + B_2 I + B_3 FLC + B_4 FLC^2 + B_5 LR + B_6 OD + e \]  

(1.2)

However, given the strong statistical interaction effect found in the covariance analysis tests, it should be expected that equation 1.2 will not fit the data near as well as equation 1.1. The relative fit of the two equations to the data may be evaluated by comparing the multiple correlations (R's) or the coefficients of determination (R²) for each equation. The R's for equation 1.1 and 1.2 are respectively .42 and .52, while the overall variance explained by the two models are 17.7% and 26.6%. This comparatively poor fit of the additive model lends further support to model 1.1 and its consequent interpretation.

This concludes the hypothesis testing and model evaluation. A summary interpretation and practical application of the present findings follow in Chapter 4.
CHAPTER 4

SUMMARY AND CONCLUSION

STUDY SUMMARY

This study set out to explore how and to what degree, the socio-ecological context of a residential area, conceptualized as an opportunity structure affects resident memberships in voluntary organization. We have seen that to a certain extent, the urban spatial structure and the spatial behavior of urban residential populations form a circle of causality. The socio-spatial location of urban residents, in part, determine the locational arrangement of organizational opportunities. At the same time, organizational participation is constrained or facilitated by the location of existing organizational opportunities; although the effects are not the same for everyone as we have just found out.

The organizational opportunity densities of different residential areas throughout the metropolitan area have been shown to be a function of the collective concerns, commitments and abilities of its residents to organize, attract and support voluntary organizations within their
respective local residential areas. Moreover these social processes partly depend upon the aggregate characteristics of the residential population—the length of time they have resided in an area, their collective levels of educational and economic resources, plus their raising of children, all contribute to a more viable voluntary organizational opportunity structure.

However, the way this environmental opportunity structure, in turn, affects resident memberships in voluntary organizations is in no way simple and straightforward. In general, it appears that the organizational opportunity densities of residential areas do not act in addition to, but in combination with different individual characteristics to produce changes in urban residents' organizational participation.

Organizational opportunities present in the immediate residential environment have little or no effect on increasing the organizational memberships of individuals, unless they have had some college education. These opportunities fail to elicit organizational participation from those that are not educationally predisposed or lack the social skills generally considered useful in organizational involvement. At the same time, people with higher levels of education living in less opportune environments, do appear to be environmentally constrained to the degree that they have fewer organizational memberships,
when compared to people with similar educational levels but living in more opportune surroundings.

The same conditional environmental relationship is present when an individual's economic resources are considered, although its relative importance is less than the interaction of education and opportunity. Increases in residential opportunity densities, produce little or no significant increase in organizational participation until an individual's income reaches the threshold level of $13,000 or more.

It is especially interesting to note that contrary to some expectations (Webber, 1964), individuals do not generally take advantage of their high mobility, or exercise freedom of choice over a wide metropolitan area, at least when it comes to participating in voluntary organizations. Even those individuals most expected to have spatially extensive activity systems—those with high levels of educational and economic resources—do not have and for two reasons. On the one hand, individuals with high levels of education or income, living in residential areas with low opportunity densities, rather than seeking out organizations within the larger metropolitan area, just do not participate much, if at all in voluntary organizations. On the other hand, individuals with similar characteristics, but living in areas with very high opportunity have a considerable variety of organizations right at their door-step and do not
have to travel far. Thus it appears that the tendency to join organizations is actually influenced by the increasing number of amenities provided in the immediate locality; but again, it is only those with a high level of education, or high income that are really influenced.

When it comes to considering an individual's stage in family life cycle, it seems that opportunity density has little or no effect in increasing people's organizational memberships. It was originally hypothesized that individuals in the middle stages of the cycle, given their interest and concern about the residential environment as a place to raise children, would belong to an increasingly greater number of local voluntary organizations if given the increased opportunity. Especially, when compared to individuals in the early and late stages of the cycle who, not having children in the home, have fewer reasons for being attached to the local residential community. But this does not appear to be the case. Individuals in the middle stages do have more memberships than those in other stages, but not in increasingly larger numbers. A closer look at the types of organizations parents have a greater chance of joining, shows them to be youth-serving organizations (brownies, scouts, PTA, little league sports, etc.) in which they are committed for only a limited time. However, this effect of stage in family life cycle appears to act independently of any residential opportunity structure, while its relative effect is even less than that of length.
The length of time people reside in a residential community also appears to operate independently of the local opportunity structure. Newcomers to an area, even in areas of high opportunity, generally do not seem to use voluntary organizations as a way of getting established in an area. On the contrary, the longer individuals live in an area, the more likely they are to become members of a voluntary organization.

An individual's sex, it was found, had neither an independent nor a conditional effect with opportunity density in producing a difference in individuals' organizational memberships. The notion was originally entertained that women and men would relate differently to the local residential opportunity structure, because women, more than men, relied on local community activities as a way of expressing individual differences. Men are able to use their work and closely associated activities for expressing their diversity. Greer (1956) even found that husband's organizations more often met outside the local area. Nevertheless, when focusing merely on the influence of the local opportunity structure, and excluding participation in all work related organizations, men as well as women have equal numbers of memberships regardless of sex or density of opportunity. This is not to say, however, that men and women do not differentially relate to the local opportunity
structure. They might well belong to different types of voluntary organizations, or have a disproportionate number of memberships in different types of organizations.

Interestingly enough, this last point raises the limitations of the present analysis and at the same time points out the direction of further research. In the present investigation we have not asked the more refined question of who participates in how many of what type of organizations, and where; nor have the residential organizational opportunity structures yet been refined to the place where they deal with the incidence of organizational opportunities for certain types of organizations. When this kind of investigation is carried out, it is certain to shed further light on, as well as qualify the present findings.

At this stage, however, it may be concluded that from a theoretical point of view, focusing on the individual correlates of voluntary organizational participation, while ignoring the socio-spatial context in which this type of activity takes place, does indeed make for inadequate explanation. Moreover, to focus on describing, analyzing, and mapping the urban morphology or spatially patterned structures of urban residential areas, without in turn, asking what varied consequences they have for different social groups inhabiting the city is to ignore a critical area in need of further understanding. The present findings
point to the fact that more adequate explanations and increased understanding may result from focusing on the linkages between individuals and their environment.

PRACTICAL IMPLICATIONS--AN EXAMPLE

From an applied point of view what has been learned about the basis for, and the consequences of residential organizational opportunity structures may have practical implications that are quite immediate. City and regional planners are constantly trying to determine how people use urban areas and how their spatial behavior might respond to both changes in the urban structure, as well as changes in people's own characteristics. Chapin (1970) suggests that urban planners can begin better understanding and getting a handle on this problem by focusing on urban activity systems. But if this is so, certain aspects of urban activity systems have to be capable of manipulation: there must be "levers" of some sort that allow planners to affect the urban environment. Brown, Homes and Jakubs (1971) suggest, however, that with only a couple of exceptions, there seem to be few activity system levers planners can use. One exception is the possibility of manipulating the "opportunity structure" or "opportunity sets" associated with specific activities.
One does not have to look very far to find planners faced with the problem of trying to manipulate a Regional opportunity structure. For example, the Greater Vancouver Regional District and associated municipalities are faced with a problem, as they define it, of "decentralizing culture" throughout the Region, or of providing cultural opportunities near where people live.

At the present time the City of Vancouver continues to be the center of cultural activity\(^1\) while the major population growth is now occurring in the suburbs. As the latest draft report on cultural decentralization (Fawcett, 1974) points out:

> As more and more families move to suburbs they must travel increasingly greater distances to reach a diversity of leisure activities. The cost of cultural commuting includes time, parking, eating out, babysitting, mileage, and wear and tear on the nervous system. These things are part of commuting to work but there they are rationalized by the necessities of earning a wage. When it comes to cultural and recreational pursuits, these extra costs and risks combine to defeat one of the primary purposes: relaxation and enjoyment.

The problem is exacerbated by the fact that municipal per capita expenditures on cultural activities are lowest in the areas of the Region experiencing the most rapid residential growth.

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\(^1\) This is easily confirmed by glancing at the uneven organizational topography in the Metropolitan area shown in Figure 3.
The GVRD proposal suggests that this unfortunate trend can be reversed with "a vigorous program of cultural expansion," and that the "Regional Town Center program for decentralizing growth within the region offers an effective vehicle to decentralize sub-regional cultural opportunities. Parenthetically, the Regional Town Center program is an extensive planning proposal being forged and forwarded by the GVRD to control growth and maintain or increase the "livability" of the region to 1986: the plan entails municipal "growth sharing" of the population, focusing the growth around a dispersed set of Regional Town Centers, finance sharing of these growth poles, compact residential communities, open space and recreation conservation, and an integrated regional transportation plan (GVRD, 1974).

It is rather difficult at this stage, though, for the reader to share the rather optimistic tone of this initial cultural decentralization report, for although it has generally defined some of the things a decentralization policy should, and should not entail, the "levers" to be used in implementing such a policy have yet to be identified or dealt with in any depth. In fact the overall direction of the proposed policy does away with some of the more traditional "levers" municipal planners understand best—building buildings or facilities. The report says for example:

Making sub-regional cultural focuses of the Regional Town Centers does not mean creating a block of buildings specifically designed
to house activities. What is more important is integrating the facilities and activities in such a way that the opportunities are particular to the area and available... Buildings do not participate in or create programs, people do...too much is spent on buildings and not enough on activities.

The report goes on to suggest that a process of "cultural zoning" should be developed to coincide with other zoning concepts--such as traffic and sewage. There is also the suggestion that municipalities hire cultural co-ordinators to work on equal terms with the co-ordinators of recreation. These are interesting suggestions, but suggestions is all they are at this stage for they receive little development within the report.

The integration and co-ordination of cultural and recreational activities at the municipal and regional level would certainly seem in order as part of any cultural decentralization strategy. But a "vigorous program" must entail more than integration and co-ordination, for the report itself points out, a major aspect of the problem in many parts of the Region is a scarcity of activities to co-ordinate in the first place.

In this direction, we have seen that the vitality of a residential opportunity structure depends in part upon the collective resources of its residents to organize and support local activities, but not all areas have the same resources at their disposal. The report also recognizes this fact:
the idea that suburban communities are composed wholly of a socially and economically mobile middle class which has chosen its situation is less and less true each year. Pockets of relative poverty (economic, social and cultural) have emerged in various suburban communities in GVRD, some of it indigenous and some of it created by the squeeze on cheap family accommodations in Vancouver.

It would seem, then, that part of any cultural zoning policy should attempt to deal with equalizing "resource" deficiencies within different parts of the region. Successful implementation of such a policy, however, would certainly not be without its enormous problems for both regional and municipal planners and politicians.

Sharing the dollar burden of growth between municipalities as a means of financially supporting rapid growth areas has, as yet, not been specifically raised in regard to cultural decentralization; even though it is recognized that municipal per capita expenditures on cultural activities are lowest in the areas of the region experiencing the fastest growth. From the point of view of many newly forming voluntary organizations, there is a chronic lack of economic resources available to accomplish their objectives (Frizzell, 1973). From the point of view of the Regional and Municipal governments, though, there is a chronically small base from which they can legally generate resources. Thus any decentralization program would definitely need help from other levels of government, but given the complex division of responsibilities between the
different levels of government, orchestrating any finance program would be very difficult and involved—especially when there doesn't seem to be a clear and publically articulated policy of financial aid to voluntary associations even at the Federal level (Frizzel, 1973).

Economic resources are not the only kinds of resources lacking in many residential populations, new or old. There are also the collective social and organizational skills needed in creating a viable opportunity structure. Although "cultural co-ordinators" have been suggested at the municipal level, social and cultural "animateurs" would seem to be more what is needed in many parts of the region. But here again, implementation of such programs by the GVRD or the Municipalities, are faced with very complicating problems as is evidenced by the recent past.

Take, for example, the GVRD's recent experience with part of their Livable Regions Program. A "program co-ordinator" was hired to run the Public Participation Program that was to involve and receive information from the public about the different problems they faced living in their part of the region. It is very clear, however, that the co-ordinator saw his role as more than simply that. In his contacts with numerous voluntary organizations he did more than solicit their views, and many of the organizations received more than a hearing. Many found him to be a social "animateur" par excellence, and as a result became much more
effective in organizing to achieve their ends. Effective enough anyway that the GVRD discontinued the program. As the "co-ordinator" explained in an interview to the Vancouver Sun, problems began to arise because the citizens actually began producing the input they had been asked to supply. "The GVRD structure was just not geared to a true governmental-citizen relationship" (Oberfeld, 1974).

It would seem, then, that the "levers" for manipulating the regional opportunity structure toward a decentralization of culture and the equalizing of opportunity, are certainly not the traditional levers regional and municipal planners are accustomed to handling. As the report admits:

The problem to put it bluntly, has been the lack of or belated recognition that cultural planning is a specialized area which legitimately required research and expertise as much as any other area of municipal or regional concern.

When it comes to discussing the possible consequence of a sub-regional cultural decentralization policy the report suggests that:

The proximity of a healthy sub-regional level of cultural activity will lend itself to a dispersal of the cultural opportunities at a neighborhood level.

But it is not immediately obvious that increasing any sub-regional organizational opportunity structure will necessarily increase the "livability" of the surrounding area, to the same degree for all people anyway. In fact, if the present findings can be generalized at all, it should be
clear that cultural decentralization as it relates to voluntary organizations is much more likely to equalize opportunities for local elites, than equalize opportunities for all.

CONCLUSION

In conclusion, both planners and urban sociologists must begin to consider a more complete set of alternative individual-environment linkages in order to better understand how socio-ecological environments affect the patterned behavior of urban residents in their use of the city. Only recently, Ian Cullen (1973) echoed what has been found here, namely that there is no simple relationship between the environmental context and the behavior it contains, and that planners must stop looking for simple solutions. As for sociologists, it is still too frequent an occurrence to run across orientations such as the one advanced by Robert Hauser (1974:369) in a debate with Farkas over the central issue of contextual analysis. Hauser thinks the:

...question is not whether group composition affects anything. Of course it does...the issue is whether there are net or direct effects of group composition which persist above and beyond those of individual variates...

But to centrally focus on the direct effects of contextual variables is to necessarily restrict the possible forms of individual-environment relations. It is quite
possible, in fact quite probable that many individual-environment relations are conditional in nature. The way in which a particular environmental factor influences a specific behavior pattern may well depend on other environmental factors, or on the characteristics of the individual, or on both. Blalock (1965) has noted that while additive models seem to approximate reality well in many cases, common sense considerations often suggest specific types of non-additive models as alternatives. These alternative formulations of individual-environment relations stand in need of more investigation.
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