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DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Gilbert Martin Fornaciari, B.A., M.A.

* * * * *

The Ohio State University

1978

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Dedicated to this author's parents, Martin and Josephine, whose love, caring and support contributed to the completion of this dissertation.
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INTRODUCTION

An investigation of the participation of individuals in leisure pursuits is important not only because leisure is becoming a "central life interest" among large segments of American society, but more importantly, because inclusive statements about social behavior cannot be made without considering man in nonwork as well as work roles. The social person does not consist of individual spheres of behavior that are isolated from one another, but rather an integration of work demands, family background, socio-economic status and perceptions of leisure opportunities. An integrative or holistic perspective that considers a person's social spheres of behavior as interrelated can provide a more comprehensive understanding of the antecedents of the demand for leisure activity. Consistent with this assertion, the first objective of this study is to examine the extent to which participation in outdoor recreation is a function of occupational demands, family background, socio-economic condition and factors related to recreation blockages. An additive model is presented which purports to explain the relationship of selected independent variables with level of family participation in outdoor recreation. The model is based on the assumption that social behavior is holistic and as such, the spheres of behavior that are exogenous to the leisure sphere must be understood in order to explain leisure activity.
The second objective of this study is an investigation of the relationship between preferences for outdoor recreation and participation in outdoor recreation. Cognitive-dissonance theory is used as a theoretical framework for understanding the magnitude of congruence between an individual's preference and participation in leisure activities. Cognitive-dissonance theory postulates that an individual will attempt to align his/her behavior to be consistent with his/her cognitions. It is, therefore, expected that an individual will desire his/her leisure behavior consistent with leisure preferences.

The third objective of this study is an examination of public response towards the development of new outdoor recreation facilities. A major purpose of this analysis is to discover whether family participation in outdoor recreation is related to the degree of favorability towards outdoor recreation facility development.

The significant contribution of this study is the discovery of the antecedents of the demand for outdoor recreation. The results of such inquiry should provide decision makers with valuable information that could lead to the provision of leisure facilities and programs that consider the needs and interests of the general population.
CHAPTER I
LITERATURE REVIEW

Introduction

In this chapter, sociological literature on leisure is reviewed. The intent of the literature review is to: (1) trace the development of scientific interest in the area of leisure as reflected in sociological theory, methods and research findings; and (2) present substantive literature underpinning upon which the present research is based.

The presentation of literature is organized in the following fashion. First, attention is given to definitions of leisure and outdoor recreation. A second section contains a review of methodologies utilized in studying outdoor recreation. A third section consists of a review of theoretical developments in the leisure field. A fourth section contains selected research findings in the leisure field. Finally, suggestions for contemporary research endeavors in the leisure area are presented.

Definitions of Leisure

Leisure is a difficult concept to define because its attribute space consists of a vast amount of human behavior. For example, leisure can refer to such diverse behavior as snow skiing, ballroom
dancing, sailing, hunting and gourmet cooking. Numerous definitions of leisure have been generated by social scientists to help clarify the concept or carry out empirical research in the area of leisure. A classification of these definitions is presented below.

Parker (1971) classifies the existing definitions of leisure into three types: "normative" or "prescriptive" definitions; "residual" definitions; and "residual" definitions which include a "positive" description of the content of leisure. The major emphasis of "normative" definitions is on the quality of leisure as contrasted from the attributes of work. Examples of "normative" definitions include those of Marx (1906) who defines leisure as the "kingdom of freedom," a world in which work and leisure would be interdependent and inseparable; deGrazia (1962) who refers to leisure as a "state of being" apart from everything that one does not choose in total freedom; Neulinger (1974) who conceptualizes leisure as a "state of mind" where one does what he/she wants to do; Pieper (1952) who describes leisure as both the condition of a person's soul and an attitude of a person's mind; and Marcuse (1964) who defines leisure as free time that is technically available to persons living in welfare states but is unfree in proportion to its administration by politics and business.

"Residual" definitions depict leisure as time remaining from total time after working time or other obligatory time is considered. Time calculated in this manner is often referred to as "free time." Examples of "residual" definitions include those of: Soule (1957) who sees work time as the minimum amount of time to be taken out of total time in
order that leisure remains; Lundberg et al. (1934), Clarke (1955) and Burdge (1961) who define leisure as that time in which we are free from formal and obvious duties of a paid occupation or other obligatory occupations; Giddens (1964) who defines leisure as that time which is left over from working, traveling to work and sleeping; and White (1955) who believes that working, sleeping and eating should be subtracted from total time in order to compute leisure time.

Some "residual" definitions contain a "prescriptive" element of what leisure ought to be. Examples of this type of definition include that of: Brightbell (1963) who defines leisure as "discretionary time," which is the time left over from existence and subsistence; Gist and Fava (1964) who describe leisure as that time apart from work and other obligations in which an individual can experience personal development, social achievement, relaxation or diversion; and Kaplan (1975) who develops an ideal type definitional approach in which leisure is seen as that time apart from work in which various positive feelings towards one's life can be manifested.

Meyershon (1969) notes that leisure is sometimes defined in terms of the "meanings" that it holds for persons. For example, in their use of the concept of "favorite leisure activity," Havighurst (1957) and Payne (1973) look at the quality of leisure activity in terms of what leisure activities mean to a person and the place they hold in his/her life.

Meyershon (1969) and Kraus (1971) note that leisure is often defined as nonwork "activities." An example of this type of definition
is the one developed by Dumazedier (1967) who says that leisure is activity—set apart from the obligations required by the job, family and society—in which a person chooses to relax, find diversion or broaden his/her social participation and knowledge.

A review of the definitions of leisure reveals that there is no commonly accepted definition of leisure. Leisure is a difficult concept to define in that it has reference to many types of human behavior. Many of the definitions of leisure reflect a subjective judgment of what leisure ought to be rather than an objective conceptualization of leisure behavior. "Prescriptive" definitions and "residual" definitions which include a "positive" description of the content of leisure contain subjective statements of what social scientists think leisure ought to be. Such abstract definitions lack observable referents and thus provide a negligible basis on which to carry out empirical research on leisure behavior. "Residual" definitions of leisure focus on the time during which leisure activities occur. Since behavioral action, not time, is a central focus of social research, the study of leisure time is secondary to the study of leisure action (Berger, 1963). Leisure defined in terms of "meanings" that it holds for persons has utilization in studies that are directly interested in the subjective interpretations of persons towards leisure. Leisure defined as nonwork "activities" can be thought of as characterizing behavioral action (Berger, 1963). The study of behavioral action is a central focus of social science and lends itself to observation and objective measurement (Kaplan, 1964). For whatever reason chosen by the individual,
nonwork "activities" represent an objective criteria by which one's participation in leisure can be measured.

As a component of leisure, recreation is a nonwork "activity" which can be treated as behavioral action that is subject to observation and measurement. A review of the definitions of recreation and outdoor recreation follows.

**Definitions of Recreation and Outdoor Recreation**

Sebastian de Grazia (1962) presents a "classical view" of recreation by stating that recreation both rests and restores people for work. Kraus (1971) notes that most of the contemporary definitions of recreation fit into one of three categories: recreation defined as an activity engaged in with particular motivations or under specific conditions; recreation conceptualized as a state of being or a process, that is something which happens to a person who engages in activities with a particular set of expectations; and recreation referred to as a profession, a body of knowledge or a social institution. Neumeyer and Neumeyer (1958) present a contemporary view of recreation and define it as an individual or group activity engaged in during leisure, which is pleasureful, implies a freedom of time and attitude, and has an immediate appeal of its own. It is also noted that recreation includes a wide range of activities (Kraus, 1971) which can include activity or relative inactivity, be of a formal or informal nature and can occur indoors or outdoors (Clawson and Knetsch, 1966).

Outdoor recreation is defined as recreational activities typically occurring in the out-of-doors (Copp, 1964; Clawson and Knetsch, 1966;
Jensen, 1970; Burdge and Field, 1972; Gold, 1973). Copp (1964) notes that outdoor recreation is a practical category rather than a theoretical concept and as such it cannot be completely captured abstractly. For example, many outdoor recreation activities are borderline cases, in that they can occur both indoors as well as outdoors. Copp also notes that as a behavioral component of leisure, propositions developed from investigations of outdoor recreation can be applicable to the substantive area of leisure. Copp goes on to suggest that as is the case in the general area of leisure, the study of outdoor recreation is interdisciplinary in nature. For example, outdoor recreation can be studied from sociological, demographic, motivational and economic perspectives.

Cheek and Burdge (1974) note that outdoor recreation is defined in a professional or administrative sense to specify the reasons that facilities are provided for clientele groups. They indicate that this usage of the term often takes precedence over usage of the term in the sense of interdisciplinary research. This being the case, the professional usage of outdoor recreation has often overlooked important variables relevant to the understanding of outdoor recreation behavior. This observation gains support from Price's (1972) finding that administrators are more concerned with recreational facilities than with relating these facilities to the social, psychological and physical needs of the public.

A review of the definitions of outdoor recreation reveals some consensus among leisure researchers as to its definition. Outdoor recreation is commonly defined as recreational activities typically
occurring in the out-of-doors. Although borderline cases of recreation activities occurring both indoors and outdoors do exist, outdoor recreation is a practical category which is difficult to capture abstractly. Thus, outdoor recreation can refer to recreational activities occurring in the outdoors versus the same activities occurring indoors. As with the broader concept of recreation, outdoor recreation can include a wide range of activities which can be formal or informal in nature and include activity or relative inactivity. Contemporary researchers of leisure view recreation as having an immediate appeal of its own. Recreation and the component of outdoor recreation can be viewed as leisure versus preparation for work or recuperation from work.

While consensus has not been totally achieved in terms of definition, the literature suggests that outdoor recreation is a legitimate research area within the sociology of leisure. As a practical category, outdoor recreation can be treated separately from activities occurring indoors. Propositions developed from investigations of outdoor recreation can be applicable to the general area of leisure.

The next section is designed to assess the state of the art in outdoor recreation research techniques in order to isolate potential research methodologies that may be useful for contemporary research endeavors.

Methodologies of Outdoor Recreation

Rabel Burdge and Donald Field (1972) identify six methodological perspectives for research on outdoor recreation. The perspective of social aggregate analysis focuses on the investigation of statistical
groups which share a common trait or set of traits. Although this perspective is and probably will continue to be the primary emphasis of researchers of outdoor recreation behavior, it must be more widely understood to be useful. As an example, Burdge and Field suggest that social aggregate studies of participation in outdoor recreation activities can include an investigation into group characteristics of participants. Such characteristics can include the size and social composition of groups. Another emphasis is social psychological analysis which is concerned with social values that act as guidelines for personal decision making among situations eliciting behavior choices. Burdge and Field suggest that the study of attitudes towards facility development is a potential topic of future research studies that can possibly help decision makers set capital priorities among wilderness and more developed outdoor recreation facilities. Still another approach is activity attribute analysis which investigates particular outdoor recreation activities to determine if they attract a particular "type" of individual (exs.: wilderness type, camper type) to the overall exclusion of other activities. The authors reveal that this perspective has not received much attention by researchers of leisure. Social organization analysis is used to study outdoor recreation activity and pertains to the investigation of interrelationships among social groups as they relate to community and regions. The perspective of community and regional analysis examines human behavior in outdoor settings as it is related to those spatial groups that organize social institutions. Investigation of the changes in recreation functions from primary family-community institutions to secondary
governmental-private enterprise institutions is an example of community and regional analysis. Finally, the focus of social ecological analysis is on the social-cultural environment of population groups as such an environment is linked to preferences for outdoor recreation and patterns of participation. Burdge and Field conclude their review of methodological perspectives by suggesting that leisure researchers need to consider the dimensions of human behavior that are implicit to outdoor recreation participation. Such an approach can lead to a more complete understanding of outdoor recreation behavior.

Other researchers review the methodologies employed in the study of outdoor recreation. Chicchetti (1972) reveals that empirical studies of outdoor recreation have revolved around three general models that relate to different publics which are called: site specific recreation area models; site specific user models; and population specific models. Methodological problems found in the use of these models center on the question of which variables should be included in studies and which publics should be sampled.

Site specific area models are concerned with sampling populations living within proximity to existing and newly constructed recreation facilities. Income and time are important variables in measuring the benefit/cost ratios that facilities have for their regional populations (Chicchetti, 1972). One criticism of using the variables of income and time is that they neglect important personal, group and community effects (exs.: security of life and health, population distribution) of a recreation project (Kalter, 1970). Recent site specific area studies concerned with water resource recreational projects consider social
impacts by investigating community attitudes toward the construction and operation of proposed facilities and inquiring as to the aesthetic impacts of proposed facilities on locality groups (Andrews et al., 1972; Yoesting and Burkhead, 1973).

Site specific user models gather information on outdoor recreation participation from users of specific recreational facilities. Such research is done in order that recreation planners can gauge the need for new or expanded facilities. Methodological problems of sampling occur using this model in that the nonuser or nonregistrant is excluded as a researchable public (Chicchetti, 1972). Empirical research on the decision-making input by participants and nonparticipants in outdoor recreation planning indicates that participants seem generally well served by recreation administrators while the needs and desires of nonparticipants are least known by the same administrators (Price, 1972). Studies concerned with the identities of nonregistrants in outdoor recreation exist (Young, 1971; Becker, 1972) and an exploratory methodology is present to determine the amount of bias present in utilizing registrants as a data source (Becker, 1972). Becker suggests that registrants at recreational facilities need to be treated with skepticism unless they are proven to be free of bias.

Researchers utilizing population specific models gather information from the public at large. Studies utilizing these models sample populations from an area, state or nation. These data are gathered in order to discover the frequency of recreation participation and the reason for nonparticipation (Chicchetti, 1972). Price (1972) finds
that the population specific model holds promise in learning of the needs of both recreators and nonrecreators.

Limitations exist in empirical studies of measuring participation in outdoor recreation. The 1962 Outdoor Recreation Resources Review Commission's multivariate analysis of the variables of education, occupation, income, age, sex and religion finds that the additive effects of all six variables explained approximately 30 percent of the variance in the measurement of participation (Mueller and Gurrin, 1962). Such findings prompt some investigators to call for an abandonment of the use of demographic factors to explain participation and a replacement of this approach with a psychological approach for explanation (Howard, 1976; Martin and Myrick, 1976).

Rather than taking a reductionist approach to finding more meaningful factors of explanation, Hendricks and Burdge (1972) mention that occupational demands can be treated as variables associated with outdoor recreation participation. Burdge and Field (1972) assert that outdoor recreation is more of a group phenomena than is thought and as such, the characteristics of groups that participate in outdoor recreation may be important explanatory factors. As an example, Burdge and Field advise that family size could be an important explanatory factor of leisure participation within an outdoor setting. Cheek et al. (1976) present an exploratory study using the social group as a unit of analysis in explaining participation. They simultaneously treat the effects of social aggregate variables and social group variables on participation. This study lends support to the notion that the inclusion of social group variables in an analysis of participation can
increase the amount of explained variance of participation. Maurer (1976) suggests that people's attitudes towards potential blockages in using outdoor recreation facilities could be tested as explanatory factors of participation in leisure activities within outdoor settings. Maurer uses factor analysis to reveal three principal factors that can be considered regarding recreation blockages which are: the personal situation of the individual; the characteristics of the outdoor recreation area; and aspects of the convenience of the outdoor recreation area.

Two methodological perspectives on outdoor recreation appear fruitful for contemporary research efforts. The social aggregate perspective is and probably will continue to be the main focus of research on participation. Commonly employed demographic variables (which include: age, sex, education, occupation, income and religion) alone are poor predictors of leisure behavior. Measurement of participation in outdoor recreation may be more effectively carried out if researchers consider the use of demographic variables along with such variables as: occupational demands; characteristics of social groups such as the family; and attitudes toward potential blockages in using outdoor recreation facilities. These nondemographic variables may provide the explanatory power now lacking in studies of participation.

Another methodological perspective that can be fruitfully applied in contemporary research studies is the social-psychological perspective. This perspective focuses on the decision making process by recreators and can provide policy makers with important inputs into decision making. For example, the study of attitudes towards facility
development might help decision makers set capital priorities among different types of outdoor recreation facilities.

Problems of sampling must be resolved if researchers are to make generalizations that reflect a realistic assessment of outdoor recreation behavior. The literature reveals that site specific user models fail to sample nonregistrants/reactors in the general population. Population specific models on the other hand hold promise in learning of the needs of recreators and nonrecreators alike in the general population.

Hendricks and Burdge (1972) believe that more sophisticated methodological and statistical techniques alone will not solve all of the problems of leisure research. These authors firmly believe that any generalization about leisure behavior must include empirical data based on verifiable theory. The next section traces the development of scientific interest in leisure theory and presents a background on which a theoretical model for the present research is constructed.

Leisure Theory

A review of the literature on leisure theory discloses four general theoretical orientations: classical or humanistic theory; hypotheses of leisure; hypotheses of outdoor recreation; and taxonomies of leisure.

Classical Theory

Early attempts at constructing theories about leisure behavior contain general ideas which do not allow for empirical testing of the
theories in their original forms. Because the ideas about leisure behavior found in these theories are referred to over and over again by leisure researchers interested in constructing and testing theory, these early theories are classical works which belong to the humanistic school of social theory (Zetterberg, 1966). These classical works include: the Surplus Energy Theory (Schiller, 1875), which posits that the need for leisure and play results from an overabundance of energy in the person which is normally not needed for body maintenance; the Preparation for Life Theory (Gross, 1901), which suggests that a child practices his/her future adult roles through play and thus prepares himself/herself for adult life; the Recapituation Theory (Hall, 1904), which suggests that play is a restatement of the cultural epochs found in the development of the human species; the Relaxation Theory (Neulinger, 1974), which posits that the function of play is to relax, restore or recreate the individual for work; the Catharsis Theory (Neulinger, 1974), which posits that an individual affected by anxiety or tension producing situations will seek emotional release by participating in either relaxing or high energy consuming activities; and the Theory of the Leisure Class (Veblen, 1953), which states that leisure is enjoyed by a privileged leisure class whose members find their ultimate leisure enjoyment through conspicuous consumption.

Hypotheses of Leisure

Four theoretical perspectives are offered to explain leisure behavior. Because these perspectives contain hypotheses that are capable of being clarified for testing, they are referred to as hypotheses of
leisure. The New Experience Hypothesis (Wilensky, 1960) is an adaptation of the Surplus Energy Theory developed by Schiller (1875) and Gross (1901). This theoretical perspective states that individuals escape their daily experiences by seeking those leisure activities that allow for new or sharply contrasting experiences. Leisure activities function as compensatory mechanisms for the attainment of goals which are ordinarily blocked. The Spillover Hypothesis (Wilensky, 1960) covers those individuals who are alienated from work. The basic postulate of the hypothesis is that alienation from work will spillover into one's leisure routine so that alienation from work becomes alienation from life. The Task Generalization Hypothesis (Wilensky, 1960) posits that individuals will seek leisure experiences that are similar to their everyday lives. In reviewing the utility of these hypotheses for testing, Kando and Summers (1971) note that without some theoretical or methodological way of specifying the conditions under which new experiences, spillover or task generalization take place, the new experiences, spillover and task generalization hypotheses lack explanatory power.

Another perspective is offered by Wilensky (1963) and called the Theory of the New Leisure Class which posits that while the present affluent society may encourage a preference for leisure, an increasing minority of the population works long hours and a much larger proportion of the population are victims of too much leisure. The people who work long hours are found within professional and managerial occupations. While professionals and managers work long hours, data suggests that they also take long vacations and thus have "bunched" leisure. Clarke
(1961) notes that this class of people is engaged in satisfying work activities and that leisure may not be an important problem for them at present. Victims of too much leisure are found among the marginal groups of society who work at low income and low status jobs (Wilensky, 1963). Uneven distribution of nonwork time, involuntary unemployment and retirement are shown to exist among these groups. These are the groups that have gained the most leisure but need and want more work. With such a large number of leisure stricken persons who are also poverty stricken it is suggested that both groups of people are merging into one class.

Wilensky (1963) suggests that the leisure class described by Veblen (1953) still exists for those in the upper strata. This is the group today that still has the right to choose work or leisure. A fourth class existing today is referred to as the "middle mass" and is composed of a portion of the professional and managerial occupations and those from the upper working class. Clarke (1961) includes service workers and industrial wage earners within this class. The motives for choosing leisure within this class are said to be shaped by the social organization and technical aspects of work and by related leisure styles (Wilensky, 1963). These are the short hours people who also take short vacations. Clarke (1961) refers to the middle mass as the "new leisure class" in that they have much more leisure than the professional and managerial class.

The Theory of the New Leisure Class contains ideas on class and leisure which are capable of being formulated into testable hypotheses. No empirical studies aimed at testing the ideas contained in this
perspective now exist. Since the original ideas contained within this theoretical perspective are supported by macro-level data, it appears logical that longitudinal studies are needed which make use of macro-level data.

**Hypotheses of Outdoor Recreation**

Nine theoretical perspectives have been offered by researchers to explain behavior in outdoor recreation. The perspectives do not achieve theoretical closure and are titled theoretical hypotheses for explaining outdoor recreation activity.

The Social Contact Hypothesis argues that participation in outdoor recreation rests on a desire to temporarily reduce contact with others to levels less intense than normally experienced (Hendee, 1969). It is, therefore, logical that urbanites can find a reduction in social contact by participating in such activities as driving for pleasure, walking or car camping while rural residents can find less social contact by engaging in activities like wilderness camping (Hendee, 1969).

The Rural Past Hypothesis suggests that there is a national rural bias in America impelling urbanites to recapture an earlier philosophy which saw people acclimated to the natural setting rather than dominating it (Green, 1964). Green argues that urbanites have a greater need to recapture this philosophy than rural or small town people who live much closer to natural settings. Thus, urbanites will be over-represented in outdoor recreation activities as compared to rural and small town populations.
The Lifestyles Hypothesis suggests that the transmission of values and life styles during childhood may account for participation in certain types of recreation activities (Christensen and Yoesting, 1973). This theory postulates that rural and urban populations experience differential rates of socialization into recreational activities. For example, Sofranko and Nolan (1972) mention that during childhood rural residents learn activities such as hunting to a greater extent than urban residents. Similarly, a rural place of residence is said to affect present participation in certain activities. An ex-ruralite in an urban area may find a lack of supportive reference groups with which to continue previous activities; a new set of values brought about by inter-generational mobility may also retard participation in former activities (Sofranko and Nolan, 1972).

It has been suggested that urbanism leads to the creation of particular characteristics among urban people (Wirth, 1938), such as an incapacity to react to new situations with the necessary energy (Simmel, 1950). Ruralism on the other hand does not restrict the capacity to react to new situations (Simmel, 1900). Applying these ideas to recreation behavior and terming them the Urban Character Hypothesis, Hendee (1969) suggests that urbanites would select only certain types of outdoor activities or have some characteristic way of approaching these activities. For example, an urbanite may select camping over fishing or select an approach such as car camping over wilderness camping.

Hendee (1969) notes that the Social Contact, Rural Past, Life-styles, and Urban Character Hypotheses are presented in such general
and ambiguous terms that empirical testing of them is difficult. Also, serious methodological problems of defining rural-urban residence, sampling, and control of intervening variables have impaired testing of these theories (Hendee, 1969).

The Compensatory Hypothesis is an adaptation of the New Experience Hypothesis developed by Wilensky (1960). The Compensatory Hypothesis suggests that whenever possible, a person will seek activities directly opposite activities from his familiar work routines (Burch, 1969). The idea implies that a person needs to escape into different activities in order to avoid a breakdown caused by conditions of monotony and boredom in one's routine (Burch, 1969). Thus, Burch argues that urbanites would escape to recreational facilities in rural areas and ruralites would escape to urban settings in order to recreate.

The Familiarity Hypothesis is an adaptation of the Task Generalization Hypothesis developed by Wilensky (1960). This hypothesis proposes that when free to dispose of one's time, a person will choose those activities that provide for a continuation of familiar work routines (Burch, 1969). Burch assumes that persons have developed comfortable routines for survival, and they value the security of familiar activities more than the excitement of unfamiliar activities. The costs of security, which are boredom and monotony, are seen to be less than the costs of excitement, which are risk and uncertainty. These ideas have theoretical import from social-psychological theory which states that people have a tendency to avoid situations producing tension, and a tendency to be attracted towards situations producing consistency in behavior (Burch, 1969). Hence, urban persons would be underrepresented
in rural based outdoor recreation activities since they would have a tendency to recreate within the familiar urban setting. Rural residents on the other hand would be overrepresented in outdoor recreation activities since such activities provide for a continuation of familiar routines.

Burch (1969) notes that empirical data do not support either the Compensatory or Familiarity Hypotheses. Kando and Summers (1971) believe that without some theoretical or methodological way of specifying the conditions under which compensatory or familiar activities occur, the Compensatory and Familiarity hypotheses fail to explain participation.

The Personal-Community Hypothesis posits that those psychological drives and gross social issues implicit in the formulations of the Compensatory and Familiarity Hypotheses are both filtered and redirected by the pressures of such social groups as workmates, family and friends (Burch, 1969). For example, one can expect to find in the study of outdoor sports a husband introducing his wife and family to activities which have pleasant childhood memories for him. Limited support exists to substantiate the Personal Community Hypothesis (Burch, 1969) and additional research will be needed in order to consider it a theory of leisure behavior.

Opportunity Theory states that rates of participation in outdoor recreation vary directly with cost and availability of recreational facilities (Hauser, 1962; Mueller and Gurrin, 1962). Using this notion Lindsay and Ogle (1972) postulate that the greater the total cost and the longer the distance to outdoor recreation facilities, the less these
facilities will be available to low income persons. This hypothesis also suggests that groups denied opportunities in outdoor recreation because of residence, poverty, segregation, or ignorance might become participants if such barriers are removed (Hendee, 1969). Mead (1962) speculates that the notion of removing barriers to increase participation may ignore the idea that opportunities must be consistent with those desired by deprived groups. Although substantial support exists (Hauser, 1962; Lindsay and Ogle, 1972), this hypothesis needs more testing under a variety of conditions before it can be formulated as a theory of leisure behavior (Hendee, 1969).

In the Leisure Orientation Hypothesis Burdge (1961) utilizes a social psychological approach, maintaining that each person has a different conception of leisure and a different attitude toward leisure (leisure orientation). Some persons are relatively more and others relatively less leisure oriented. Although logically sound, this hypothesis has serious problems of measurement which bring into question all of the findings associated with testing the hypothesis (Yoesting and Burdge, 1976). Problems of measurement must first be solved before the hypothesis can be accepted.

**Taxonomies of Leisure**

An extensive classification system of work/leisure relations exists in the literature on leisure behavior (Parker, 1971). Propositions about leisure behavior can be developed by researchers interested in making use of the relationships identified in this taxonomical scheme.

Parker (1971: 101) constructs a typology of the relationships between work and leisure in the life of the individual as well as the
structure of the society in which the individual lives. The major thesis of this typology is that the problem of leisure is also the problem of work. Parker assumes that work is more structured as well as more basic to the individual's economic survival than leisure. However, leisure is considered as both integrated with work and influenced by work. Parker states that the work sphere is influenced by the leisure sphere and vice-versa. This orientation to leisure study is referred to as a "holistic" or "integrating" approach. The "holistic" approach stands in contrast to the "segmentalist" approach which treats leisure as an isolated sphere existing after the completion of obligations or as a recuperative activity or an end in itself.

Parker explains leisure relationships by beginning with an explanation of work relationships. In Parker's typology of work/leisure relationships (see Figure 1), there are three levels of analysis, general description, individual, and societal, each containing one positive, one negative, and one neutral concept.

<table>
<thead>
<tr>
<th>General Description</th>
<th>Individual Level</th>
<th>Societal Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity</td>
<td>Extension</td>
<td>Fusion</td>
</tr>
<tr>
<td>Separateness</td>
<td>Neutrality</td>
<td>Containment</td>
</tr>
<tr>
<td>Contrast</td>
<td>Opposition</td>
<td>Polarity</td>
</tr>
</tbody>
</table>

Figure 1. Parker's Classification of Types of Work-Leisure Relationships.

The positive ideas begin on the description level with "identity," which refers to the work/leisure relationship in which leisure and work have similar purposes, structures and behavior. On the individual
level, the "extension" pattern of the positive relationship is comprised of work and leisure activities which are often similar in their content. An individual assuming the extension pattern draws no clear distinction between what is considered work and what is considered leisure, and will tend to consider work as a "central life interest" and have a high degree of work encroachment on leisure. On the societal level, this individual will most likely live in a society or be part of a social circle in which there is a "fusion" of work and leisure.

Continuing this typology with the trio of neutral concepts, Parker begins on the description level with "separateness," which refers to a minimum of influence between the work and leisure spheres. On the individual level, the "neutrality" pattern takes place when the individual participates in leisure activities that are different than work (although not deliberately so), and when he/she appreciates differences between work and leisure without necessarily defining one as the omission of the other. On the societal level, "containment" refers to a societal pattern of keeping the spheres of work and leisure separate, for example, by keeping leisure out of the work situation.

Finally, at the negative polarity, Parker begins on the description level with the idea of "contrast." The work/leisure relationship of "contrast" consists of defining the content of one sphere as the opposite or absence of the other. Within the "opposition" pattern on the individual level, leisure and work activities are intentionally different. Individuals exhibiting such an "opposition" pattern will tend to consider neither work nor leisure as a "central life interest," and will tend to have a low degree of work encroachment on leisure. Such
an individual will most likely live in a society or be part of a social circle in which there is a "polarity" of work and leisure.

Parker concludes the work/leisure typology by drawing attention to the connection between individual and societal levels of work/leisure relationships and general philosophies of work and leisure held by the individual and contained within the ethos of his/her society or social circle (see Figure 2).

<table>
<thead>
<tr>
<th>Philosophy</th>
<th>Work-Leisure Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holism</td>
<td>Identity</td>
</tr>
<tr>
<td>Segmentalism</td>
<td>Contrast Separateness</td>
</tr>
</tbody>
</table>

Figure 2. Parker's Classification of Philosophies Toward Leisure and General Types of Work-Leisure Relationships.

An individual who perceives the leisure and work spheres of his/her life as integrated, with each part affecting and being affected by the others, holds a "holism" philosophy, will tend to have an "extension" pattern of work and leisure, and will tend to live in a society in which there is a fusion of work and leisure. On the other hand, an individual who perceives the leisure and work spheres of his/her life as separated or in contrast to one another holds a "segmentalism" philosophy and will tend to have an "opposition" or "neutrality" pattern of work and leisure. This type of individual will tend to live in a society in which there is a "polarity" or "containment" of work and leisure.
Selected Research Findings

Selected research findings in the leisure area of outdoor recreation participation and preferences are presented below. A discussion of these findings complements the previous review of definitions, methodologies and theory of leisure in providing substantive literature underpinning for the present research study.

The effect of occupational demands upon family participation in outdoor recreation is examined by Owens (1965). Although Owens does not relate his hypotheses to any theoretical framework on work/leisure relationships, he does provide researchers with empirical findings on leisure as it is related to work. Overall family participation in outdoor recreation is positively related to hours in work week by the head of household. This finding is not expected in that longer work weeks detract from available leisure time. Owens finds that overall family participation is not significantly related to number of days of annual paid vacation of the head of household. This finding is not expected in that longer vacations by head of household adds to available leisure time. There was, however, a positive relationship between camping and number of days of annual paid vacation. This latter finding suggests that participation in activities requiring large blocks of time may be dependent upon availability of large blocks of vacation time.

Owens (1965) also finds size of family to be inversely related to overall family participation in outdoor recreation with the exceptions of swimming, power boating, active and water based activities. Owens suggests that this finding may be partly determined by a larger amount of the smaller families budget being available for recreation.
Another finding by Owens is that there is a highly significant relationship between income and family participation.

Sofranko and Nolan (1970) find that the availability of nonwork time emerges as an important explanatory variable regarding participation in selected outdoor recreation activities. A direct relationship is found between number of hours worked daily and level of participation by hunters and fishermen in Pennsylvania. Also, level of participation among hunters is significantly related to number of days off per week. These findings suggest that the availability of nonwork time acts as a permissive factor in allowing for participation to occur among sportsmen.

In a second study based on the Pennsylvania data set, Sofranko and Nolan (1972) find that although both residence during youth and source of introduction to sport are related to participation during youth, they have little direct influence on current rates of participation. Circumstances occurring after an individual's youth are said to act as intervening variables in negating any influence that early life participation has on present participation. The necessity of coping with present circumstances may take precedence over past behavioral predispositions in allowing for participation in outdoor sports. Sofranko and Nolan further suggest that current circumstances such as work conditions, free time, income and access to facilities may be the conditions necessary for current participation.

It has been suggested (Harry, 1972) that income may serve as a permissive condition for outdoor recreation use. That is, income permits the economic costs of outdoor recreation to be incurred. Lindsay and
Ogle (1972) present a study of participation in outdoor recreation activities in which population groups have relatively equal transportation access to a local facility. The basic finding of the study is that there is no difference in income among users and nonusers of recreational facilities. The authors conclude that income is not a prohibitive factor to participation when equal access to facilities is available. Christensen and Yoesting (1973) also find that high users of outdoor recreation facilities have significantly higher income and are significantly younger than are low users of such facilities. A Canadian study (White, 1975) investigated the importance of income as a predictor of outdoor recreation participation. Multiple regression analysis revealed that income is a main predictor of frequency of participation in activities.

In summarizing the research findings reviewed here, it can first be said that there is conflicting evidence regarding the effects of occupational demands on participation in outdoor recreation. However, when particular activities are analyzed separately, the effects of occupational demands on participation is more clearly revealed. Although source of introduction to sport and early place of residence are related to participation during youth, they are found to have little direct influence on current participation. Research studies indicate that income is directly related to participation in outdoor recreation. It is suggested that income serves as a permissive condition for outdoor recreation use. Research also reveals that age is inversely related to participation in outdoor recreation. Family size is found to be directly related to participation.
Summary

The literature review discloses that there is no commonly accepted definition of leisure. Many of the definitions of leisure reflect subjective judgments on the part of researchers as to what leisure ought to be. Leisure defined as nonwork "activities" represents an objective criteria by which an individual's participation in leisure can be measured. Some consensus does exist among leisure researchers in defining outdoor recreation as activities typically occurring in the out-of-doors. The literature suggests that outdoor recreation is a legitimate research area within the sociology of leisure. Generalizations developed from investigations of outdoor recreation are applicable to the general area of leisure.

Social aggregate analysis is the central focus of research on participation in outdoor recreation. Although most past studies utilizing the social aggregate perspective have only considered demographic factors as explanatory variables of participation, a consideration of dimensions of human behavior that are implicit to outdoor recreational participation can possibly lead to a more complete understanding of outdoor recreation behavior (Burdge and Field, 1972). Measurement of participation in outdoor recreation can be effectively carried out if commonly employed demographic variables are considered along with such variables as: occupational demands; size and social composition of social groups such as the family; past and present situational determinants of behavior; and attitudes toward potential blockages in using
outdoor recreation facilities. Such an approach can lead to a fuller explanation of the antecedents of the demand for outdoor recreation.

Social-psychological analysis is a research perspective which can provide information to decision makers on the recreational needs of client groups. Information on participation preferences can aid planners in relating recreational facilities to the publics that they serve.

Population specific models hold much promise for effectively sampling both recreators and nonrecreators alike. These models hold more promise than do site specific user models which do not sufficiently sample nonrecreators.

Four general theoretical perspectives exist in the sociology of leisure which include: classical or humanistic theory; hypotheses of leisure; hypotheses of outdoor recreation and taxonomies of leisure. Although these perspectives contain concepts and ideas which can be utilized in constructing theories of leisure behavior, they do not represent other referents for theory. No interrelated set of propositions about leisure behavior exists in the literature. Researchers interested in the construction and verification of theory can use existing concepts and ideas about leisure behavior in formulating an interrelated set of testable hypotheses. There is some research support to suggest that participation in leisure activity in outdoor settings is a function of occupational demands, social group variables, and factors related to recreation blockages.
CHAPTER II
THEORY

Introduction

This chapter contains a discussion of the rationale and theoretical framework pertaining to this study. The chapter is divided into three sections: (1) a theoretical perspective of family participation in outdoor recreation is presented in the first section; (2) the relationship between family preferences for outdoor recreation and participation by families in outdoor recreation is discussed in the second section; and (3) the degree of favorability towards the development of new and expanded outdoor recreation facilities is discussed in the final section.

Family Participation in Outdoor Recreation

In the previous chapter, substantive literature was presented to provide the underpinnings for the development of a theoretical model to explain participation in leisure. The hypotheses which were derived from the theoretical perspective offered below were used to focus the research. It is argued that the development of the hypotheses can contribute to an understanding of the nature of leisure participation. The review of literature reveals that no interrelated set of propositions about leisure behavior exists in the field. However, concepts
and ideas about leisure were noted and will be utilized in formulating a theoretical model which will generate testable hypotheses.

An additive model is developed which provides a theoretical framework for conceptualizing the relationship between selected social factors and participation in leisure.\(^1\) This model is specifically concerned with antecedents of family participation in outdoor recreation.\(^2\)

The additive model is based on a holistic approach to the understanding of leisure behavior. Such an approach posits that social beings consist of an integration of the parts of life, in that each aspect of life affects and is affected by the others (Parker, 1971). Holists posit that the social person integrates all life spheres\(^3\) such as leisure behavior, work demands, family background and attitudes towards leisure (Hendricks and Burdge, 1972). According to the holistic perspective (Parker, 1971), all life spheres should be considered when

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\(^1\)Leisure in this context refers to activities—which are set apart from the obligations required by work, family and society—in which a person chooses to relax, find diversion or broaden his/her social participation and knowledge (Dymazedier, 1967).

\(^2\)Outdoor recreation in this context refers to individual or group activity engaged in during leisure, which is pleasureful, implies a freedom of time and attitude, has an immediate appeal of its own (Neumeyer and Neumeyer, 1958), and typically occurs in the out-of-doors (Copp, 1964; Clawson and Knetsch, 1966; Jensen, 1970; Burdge and Field, 1972). Outdoor recreation can include a wide range of activities (Kraus, 1971) which can be formal or informal in nature and include activity or relative inactivity (Clawson and Knetsch, 1966).

\(^3\)Life sphere in this context refers to a social segment of a person's life. Social segments include individual and group activities, group memberships, statuses, and attitudes.
analyzing any one of them. Thus, the nonleisure spheres of life should be considered when attempting to understand the leisure sphere. Utilization of a holistic perspective on leisure permits researchers to identify the relationship and relevance of leisure to other human behavior. Consideration of the integration of individual spheres of life can lead to the identification of the antecedents of leisure behavior.

Schematically, the holistic approach to leisure study can be represented as follows:

Total Life Space

![Diagram](image)

Figure 3. A Holistic Approach to Understanding Leisure Behavior.

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Total life space in this context refers to all of the life spheres that comprise the social person.
The holistic approach to the study of leisure behavior stands in contrast to the segmental approach. Parker (1971) notes that segmentalists view the social person as an aggregation of life spheres that are isolated from one another. Each life sphere should be studied separately from other life spheres. Parker goes on to say that segmentalists hold that leisure can best be understood without reference to the effects of other spheres of life. Thus, segmentalists treat leisure as a detached sphere of behavior existing after work and other obligatory duties have been completed.

The holistic approach to understanding leisure behavior is similar to structural function theory in sociology. This theoretical orientation is based on an "organic" form (Martindale, 1960). Society is seen as an organic system which consists of differentiated yet interrelated structural parts that are reacting to each other and constitute an integral whole on a psycho-sociological level of analysis (Buckley, 1957). Considering the diagram of the holistic approach to leisure study (see Figure 3) it can be posited that an individual's life space functions as an organic system in which each differentiated part of life sphere (i.e.: leisure behavior, work demands, social institutional membership, and one's attitudes towards leisure) is interdependent with other spheres. Each part or life sphere can be seen as being interrelated with the other parts (which is depicted by the double headed arrows) thus constituting a structural system or in this case an individual's life space. The life spheres can be seen as complementing one another and having a tendency to fulfill each others "needs" or "requisites" (Turner, 1974).
An individual experiencing such complementary action among his/her life spheres can be said to have his/her life spheres in a state of equilibrium (Turner, 1974). In order to function on a continuous basis as a total system, an individual experiencing dysequilibrium among his/her life spheres will have a tendency to eliminate dysequilibrium and restore equilibrium (Turner, 1974).

By utilizing the deductive process, structural functional theory can apply to macro-level group phenomena as well as micro-level individual phenomena (Martindale, 1960). Accordingly, the diagram of life space presented in Figure 3 can also refer to a family's life space or structural system. The leisure behavior of a family can be thought of as being interrelated with the other spheres of life (i.e.: leisure behavior, work demands, social institutional membership, and attitudes towards leisure). On the individual level, the life spheres of a family would have a tendency to complement one another and form a family life space that is striving to maintain a state of equilibrium.

Consistent with this holistic conception of family life space, this study will attempt to isolate factors that are predictive of outdoor recreation by families. A theoretical perspective will be developed below which will use a holistic perspective and draw upon several theoretical positions which are deemed appropriate for this study.

**Work Demands and Family Participation**

The major emphasis of the holistic approach as it is used in this study is the relationship of work to leisure. Leisure behavior is seen as being closely integrated with work and therefore, strongly influenced
by work (Parker, 1971; Hendricks and Burdge, 1972). Holists posit that the tendency for work to influence leisure is due to the importance of work to economic survival and the structured nature of work as compared to leisure (Parker, 1971).

Following the argument that work influences leisure, a logical line of investigation is an examination of the association of work and leisure. Research findings (Sofranko and Nolan, 1972) suggest that work conditions and nonwork time may be important explanatory factors of leisure participation.

It is argued here that an increase in occupational demands by head of household should be related to a decrease in leisure, because an increase in work demands would detract from a family's available time to participate in outdoor leisure activities. This argument is supported by research findings discussed by Sofranko and Nolan (1970) and the limited research findings to the contrary found by Owens (1965). Theoretical support for this argument lies in the ideas expounded upon by Wilensky (1963) and Clarke (1961) when they note that occupational demands affect leisure life-styles.

The converse of the above argument is that decreases in occupational demands of the household head should also be reflected in participation in outdoor recreation. An increase in nonwork time by the head of the household would appear to permit leisure to become a more fundamental dimension of family life. Family members would have greater opportunity to interact as the household head has more time to spend with his/her family unit. Such nonwork time has the potential to be used in the pursuit of outdoor recreation activity.
The hypothesis for testing can be stated as follows: work demands will be significantly related to family participation in outdoor recreation activity.

Group Variables and Family Participation

A consideration of social group memberships appears to be consistent with the holistic perspective relative to leisure behavior. Ritzer (1975) posits that individual social behavior and social activities can be considered as being largely determined by social structures and social institutions. Membership in social groups can, therefore, be viewed as a partial determinant of the social person. Leisure researchers (Burdge and Field, 1972; Cheek et al., 1976) suggest that individuals generally participate in leisure with other persons and therefore the inclusion of social group variables in an analysis of leisure participation can add to the explanation of leisure behavior.

It is posited here that family participation in leisure is a function of social groups in which the family members participate. As a social group, the family is frequently considered as the most significant primary group in society (Rogers and Burdge, 1972: 163). As the first primary group with whom children interact, the child is said (Colton and Morrione, 1973) to derive his/her initial definitions and meanings of the world through the process of socialization by family members. Family members also contribute to the child's development by teaching needed skills, techniques, attitudes, rationalizations and motives which influence participation in leisure (Colton and Morrione, 1973). It can be argued that the family functions in terms of a personal community (Burch, 1969) in filtering and redirecting needs of
family members to participate in leisure. As a personal community, the family is said to affect both the need to compensate for boring work routines by participating in unfamiliar leisure activities and/or the need to participate in leisure activities that are familiar to present work routines (Burch, 1969).

Consistent with the assertion that family participation in leisure activities is a function of social groups in which family members participate, family characteristics should contribute to the explanation of family participation in outdoor recreation activity. The hypothesized effects of family size, family age composition, and socio-economic status on family participation are discussed below.

Family Size

The varied patterns of social interaction associated with differences in group size should be a factor of leisure participation within an outdoor setting. It is argued that size of the family should be inversely related to family participation in leisure because large numbers of people should act as a general constraint to participation. Larger family units should require a greater degree of effort to mobilize their members to participate in leisure than would smaller family units. For example, larger families would need to expend greater amounts of time and energy in the preparation and transportation tasks preceding family participation in outdoor leisure activities than would smaller family units.

Another constraint to participation that would appear to exist for larger families is the greater responsibilities associated with
supervising larger numbers of persons engaged in outdoor leisure activities as compared with those associated with supervising smaller numbers of persons. Such a constraint could curtail the amount of outdoor leisure participation by larger families.

Still another constraint to participation for large families is the need to select activities that permit several options to the various family members (for example, family picnics, group camping, walking for pleasure). Such requirements restrict the selection of specific types of outdoor recreation activities that are quite specialized and do not afford options for all family members (for example, nature photography, bird watching, water skiing). The family members must participate in the specialized activity or nothing at all. It is logical that a wider range of interests would exist among larger numbers of people than smaller numbers. Larger family units would, therefore, exclude specialized activities that would require more consensus of interest among the family members. The tendency for larger families to exclude participation in specialized activities would, therefore, decrease overall participation in outdoor leisure activity.

Owens (1970) suggests that larger families may participate less frequently in outdoor recreation than smaller families because they would tend to have less of their budget available for outdoor recreation pursuits than would smaller families. A logical extension of this argument is that a head of household of a large family would have greater work demands to support his/her family members than a head of
household of a small family and thus the large family would have less available free time to participate together in outdoor recreation activity.

The hypothesis for testing can be stated as follows: family size will be significantly related to family participation in outdoor recreation activity. The average outdoor recreation participation rate should be greater in smaller families than in larger family units.

Age Composition

The age composition of families should also be an important explanatory factor of family participation in outdoor recreation. It is posited here that younger families would participate in outdoor leisure activities to a greater extent than older families. This is predicated upon the belief that younger families will contain more persons who are physically better able to participate in outdoor recreation activity than older families. Older age should function as an inhibiting factor to outdoor leisure participation. The classic Outdoor Recreation Resources Review Commission (1962) study reveals that younger persons tend to take advantage of a wider variety of active outdoor leisure activities (examples, camping, water skiing, hiking) while older persons tend to restrict their participation to more passive outdoor leisure activities (examples, fishing, sightseeing, walking). The tendency for older persons to restrict their participation to passive outdoors pursuits would tend to decrease their overall participation in outdoor recreation.

Another explanation for arguing that younger families should participate in outdoor recreation activities to a greater extent than
older families is that younger families tend to have a greater number of children at home with whom they could participate in leisure. As many have noted (Yoesting and Burkhead, 1971; Yoesting and Christensen, 1976; Kelly, 1974, 1977; Greendorfer, 1975), childhood socialization into outdoor leisure activities is an important aspect of the life long process of leisure socialization. Children have been observed to learn many of their adult sports and recreation activities during childhood (Kelly, 1974, 1977). This would suggest that parents will be interested in socializing their children into outdoor leisure pursuits and would tend to give higher priority to such activities in lieu of alternative uses of time.

Still another explanation for arguing that younger families should participate in outdoor recreation to a greater extent than older families is that older families would tend to have a head of household assuming more work responsibilities than would a head of household in younger families. Work demands should increase for the head of household as he/she approaches the "peak earning years" during middle to older family life. As work demands by the head of household increase for such families, available free time for the family unit to participate in outdoor leisure should decrease and their children should have established their own households.

Research findings (Christensen and Yoesting, 1973; White, 1975) relative to age of individuals and outdoor leisure participation lends support to the argument that an inverse relationship should exist between family age composition and family participation in outdoor recreation.
The hypothesis for testing can be stated as follows: age composition will be significantly related to family participation in outdoor recreation activity.

Socio-economic Status

Socio-economic status denotes the social and economic position of persons within the present societal stratification system (Kahl, 1957). A family's social and economic position will influence selection of activities, cliques, associations and institutions (Warner, 1960). Families will tend to select activities and social groups which reflect their social and economic position (Warner, 1960). Thus, a family's participation in outdoor leisure activities should be associated with its social and economic position.

Harry (1972) suggests that a family's economic position functions as a permissive factor in allowing for the economic accessibility of outdoor leisure activities. An increase in a family's economic position allows for associated costs of outdoor recreation activities to be incurred. Such costs are said to include opportunity costs (Kalter, 1970), transportation and equipment costs (Lindsay and Ogle, 1972), fees and charges (Reynolds and Hormachea, 1976: 256-261) and food and lodging costs (Gunn, 1972: 8-9). Research studies (Lindsay and Ogle, 1972; Christensen and Yoesting, 1973; White, 1965) support the above discussion in revealing that an individual's participation in outdoor recreation activities is related to higher income.

Due to greater ability to incur opportunity costs, transportation and equipment costs, fees and charges, and food and lodging costs, the
hypothesis for testing is as follows: socio-economic status factors will be significantly related to family participation in outdoor recreation activity.

Attitudes Toward Outdoor Recreation Blockages and Family Participation

Attitudes toward leisure have been asserted to constitute a life sphere within the holistic approach to leisure research (Hendrieks and Burdge, 1972). One's attitudes can be thought of in terms of one's perceptions of reality (Maurer, 1976) which in turn can be considered as the way in which a person responds to any impression or sensation that he/she discovers (Rogers, 1962). Thus, attitudes toward leisure blockages^4 should be considered as a person's perception of reality. The person should be expected to behave in terms of what is believed to be leisure blockages regardless of the existence of tangible blockages. As such, an individual's perceptions of leisure opportunities should be as meaningful to his/her behavior as the actual existence of leisure blockages.

Consistent with the above discussion, it appears reasonable to posit that the representative attitudes of a family unit towards outdoor recreation blockages should be related to the family's participation in outdoor recreation activities. For example, if people believe that no opportunities exist for them to recreate, they will tend to be less active in outdoor recreation.

^4Leisure blockages in this context refer to factors which tend to prevent the individual from participating in leisure.
Because attitudes towards outdoor recreation blockages should affect outdoor recreation participation, such attitudes will be considered as a factor contributing to the determination of family participation in outdoor recreation. The hypothesis for testing can be stated as follows:  **attitudes toward outdoor recreation blockages will be significantly related to participation in outdoor recreation activity.**

**Outdoor Recreation Preferences and Outdoor Recreation Participation**

Although there is an increasing desire by public decision makers to utilize leisure research for planning purposes, limited knowledge exists on the social-psychological dimensions of leisure behavior (Yoesting and Burkhead, 1971). One fruitful line of investigation that explores the social-psychological dimensions of leisure behavior would be a study of the relationship of outdoor recreation preferences and family participation in outdoor recreation. Such a study could provide decision makers with information on the extent to which families are fulfilling their desires for outdoor leisure activities. Collaboration among social researchers and public outdoor recreation facility planners in the context of the needs and desires of client groups can provide planners with valuable decision making input in the development, provision and maintenance of public outdoor recreation facilities (Burch, 1970; Gold, 1972; Price, 1972).

Cognitive-dissonance theory has been employed in social-psychological studies of outdoor recreation development (Yoesting and Burkhead, 1971; Pierce, 1976) and should prove useful in investigating the
relationship between preferences for outdoor recreation and family participation in outdoor recreation. As a "middle range" or "partial" theory, cognitive-dissonance theory can be effectively subjected to empirical verification (Zetterberg, 1966: 14-19).

According to Festinger (1957), cognitive elements consist of beliefs, opinions and knowledge about one's self or about the environment. Elements of cognition are said to be generally in agreement with an individual's behavior. A compatible relationship between cognitive and behavioral elements is referred to as consonance. An incompatible relationship between cognitions and behavioral elements is referred to as dissonance. Being psychologically uncomfortable, the existence of dissonance is said to prompt an individual to reduce dissonance in order to achieve consonance.

Based on the relationships suggested by cognitive-dissonance theory, preferences for outdoor recreation should be consonant with family participation in outdoor recreation. Cognitive elements are nominally defined as family preferences for outdoor recreation. Behavioral elements are nominally defined as family participation in outdoor recreation. Because individuals will strive to be psychologically comfortable with their lives, they will try to have their cognitions consistent with their behavior. It is logical that people will strive to have their participation in outdoor recreation consistent with their desires for participation. For example, individuals holding a preference for fishing could be expected to participate in fishing.
The hypothesis for testing can be stated as follows: preferences for outdoor recreation will be consonant with family participation in outdoor recreation activity.

Favorability Towards the Development of Outdoor Recreation Facilities

Adequate planning for new publicly owned outdoor recreation facilities depends upon public participation in the decision making process (Stankey et al., 1975). It appears logical that in a society predominated by nuclear families, the needs and interests of family units should be considered in the planning of recreational facilities. Therefore, an investigation of the degree of favorability towards the development of new outdoor recreation facilities would appear to aid planners in their estimations of the need for new or expanded outdoor recreation facilities. Some understanding of why people should hold favorable attitudes toward recreational facility development can be obtained from social exchange theory.

Ekeh (1974) posits that when confronted with a wide range of choices from which to choose an individual will be more likely to select the course of action which he/she believes will bring him/her success (rewards). It would be expected, therefore, that families will participate in outdoor recreation because they derive benefits from that participation. Conversely, families that do not derive benefits from participation in outdoor recreation would not be expected to be participants in outdoor recreation.

Ekeh also posits that when an individual is confronted with a choice between continuing a present action with certain benefits and
beginning a new action with uncertain benefits, he/she will choose to maintain the present one if the present action provides valued benefits in excess of the costs. It would be expected, therefore, that a high degree of favorability towards the development of outdoor recreation facilities would be associated with families that participate in outdoor recreation because such families perceive a continuation or enhancement of benefits that they are presently receiving. On the other hand, it would be expected that a low degree of favorability towards the development of outdoor recreation facilities would be associated with families who are not participating in outdoor recreation since they perceive fewer benefits accruing to them as a result of the development action. The degree of favorability towards outdoor recreation facility development should therefore be a function of the extent to which families participate in outdoor recreation.

The hypothesis for testing can be stated as follows: favorability towards outdoor recreation facility development will be significantly related to family participation in outdoor recreation activity.

A summary of the theoretical hypotheses derived from a synthesis theory of family participation in outdoor recreation includes:

1. Work demands will be significantly related to family participation in outdoor recreation activity.
2. Family size will be significantly related to family participation in outdoor recreation activity.
3. Age composition will be significantly related to family participation in outdoor recreation activity.
4. Socio-economic status factors will be significantly related to family participation in outdoor recreation activity.

5. Attitudes toward outdoor recreation blockages will be significantly related to participation in outdoor recreation activity.

The theoretical hypothesis related to outdoor recreation preferences and outdoor recreation participation is:

6. Preferences for outdoor recreation will be consonant with family participation in outdoor recreation activity.

The theoretical hypothesis related to favorability towards outdoor recreation facility development is:

7. Favorability towards outdoor recreation facility development will be significantly related to family participation in outdoor recreation activity.
Convergence of theory formation and research methodology is a prerequisite for testing hypotheses in a sociological investigation. Theoretical ideas provide comprehension of empirically derived facts while research procedures and techniques subject verifiable propositions to testing (McKinney, 1957). Contained within this chapter is a discussion of the data collection procedures, operationalization of variables, validity of the research instrument, and techniques of data analysis.

Data Collection Procedures

Data utilized in this study were obtained from the Recreation and Planning Section, the Ohio Department of Natural Resources (ODNR). The research instrument was constructed and administered by the Department of Geography, Miami University of Ohio under contract with ODNR. ODNR analyzed certain segments of the data for the formation of the 1975-80 Ohio State Comprehensive Outdoor Recreation Plan (SCORP). Maurer (1976) used selected components of the data to analyze the relationship of socio-economic status, personal community and environmental factors with attitudes toward potential blockages to the use of outdoor recreation.
facilities and for conditions that facilitate enjoyment of outdoor recreation. Most of the data used in the present study has not been analyzed before.

According to ODNR (1975) the universe that was sampled consisted of all households within the state of Ohio. The sample was drawn by systematically selecting names from registration lists of the Ohio Bureau of Motor Vehicles. The sample consisted of 32,922 household units, or 1 percent of the households in the state. It should be noted here that some biasing towards owners of automobiles can be said to exist in regards to the initial criteria for a household's inclusion in the sample.

Data collection was carried out through the use of a mail questionnaire. ODNR believed that a more complete, random, and unbiased sample of statewide household units would be obtained by using a mail questionnaire than by either telephone or personal interview. Construction of the research instrument began with the inclusion of items from Bureau of Outdoor Recreation (BOR) national surveys. The original instrument was subjected to pre-testing with three subject groups (Ohio Department of Natural Resources, 1975). Pre-testing of the instrument took place during the winter and spring of 1973 in Hamilton and Springfield, Ohio and again in sections of Butler, Preble and Warren counties of Ohio. The instrument was revised after each pre-testing with the outcome of the final revision being the mail questionnaire sent to the sample of the state household units. A compilation of the questions from the ODNR questionnaire utilized in the present study appears in Appendix A.

5This information was obtained through a telephone conversation with Dr. Richard Smith, Department of Geography, Miami University of Ohio, June 21, 1977.
The questionnaire was mailed to each of the sampled household units, accompanied by a letter of transmittal, a map of the location of Ohio state parks, and a prepaid return envelope. Mailing commenced in mid-September 1973 with the bulk of the responses returned within a three-week period. A total 5,542 usable questionnaires were received representing a 16.8 percent return rate. This rate of return is not a particularly good one, and must be considered in relation to the generalizations of the findings. For purposes of this research, the questionnaires completed by head of households or spouse were used which resulted in a reduction of the sample to 5,166.

A comparison of the state population distribution by households within the eleven socio-economic planning regions of Ohio and the total return rate of the questionnaire by sampled households is presented in Appendix B. The sample distribution of households that returned the questionnaire compares favorably with the population distribution of households in all eight socio-economic regions and subregions. Considering the favorable comparisons of the sample distribution of households that returned the questionnaires with the state population distribution in the state planning regions, the return appears to be evenly distributed from a geographical perspective.

A favorable comparison exists between the social characteristics of the household units included in the survey data and the social characteristics of the state population. Table 1 indicates an identical association for family size and a close association for both location of household residence and female members of household units employed outside the home. Significant variations exist when the survey data
TABLE 1
COMPARISON OF SURVEY DATA WITH 1970 CENSUS DATA

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Survey Data 1973 (in percentage)</th>
<th>State Data 1970 (in percentage)</th>
<th>N of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family size (mean number in household)</td>
<td>3.6</td>
<td>3.6</td>
<td>5118</td>
</tr>
<tr>
<td>Age of Head of Household (mean age)</td>
<td>43.9</td>
<td>N.A. b</td>
<td>5118</td>
</tr>
<tr>
<td>Sex of Head of Household c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>93.0</td>
<td>80.0</td>
<td>5430</td>
</tr>
<tr>
<td>Female</td>
<td>7.0</td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td>Race of Head of Household c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>93.2 d</td>
<td>91.1</td>
<td></td>
</tr>
<tr>
<td>Nonwhite</td>
<td>1.8</td>
<td>8.9</td>
<td></td>
</tr>
<tr>
<td>Females in Labor Force</td>
<td>43.0</td>
<td>38.2</td>
<td>5092</td>
</tr>
<tr>
<td>Income (household) c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–2,999</td>
<td>1.5</td>
<td>6.5</td>
<td>5118</td>
</tr>
<tr>
<td>3,000–5,999</td>
<td>4.7</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>6,000–8,999</td>
<td>10.6</td>
<td>16.2</td>
<td></td>
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<tr>
<td>9,000–11,999</td>
<td>20.7</td>
<td>18.4</td>
<td></td>
</tr>
<tr>
<td>12,000–14,999</td>
<td>22.6</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>15,000 and over</td>
<td>40.0</td>
<td>17.7</td>
<td></td>
</tr>
<tr>
<td>Location of Household Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central city</td>
<td>23.0</td>
<td>31.7</td>
<td>5281</td>
</tr>
<tr>
<td>Other urban</td>
<td>30.0</td>
<td>30.6</td>
<td></td>
</tr>
<tr>
<td>Detached city (10,000)</td>
<td>8.0</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>Rural farm</td>
<td>30.0</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>Rural farm</td>
<td>9.0</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>21.0</td>
<td>12.1</td>
<td>5092</td>
</tr>
<tr>
<td>White collar</td>
<td>22.0</td>
<td>21.7</td>
<td></td>
</tr>
<tr>
<td>Blue collar</td>
<td>42.0</td>
<td>49.5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2.0</td>
<td>12.9</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>12.0</td>
<td>3.6</td>
<td></td>
</tr>
</tbody>
</table>

a Data from the 1970 U.S. Census of Population.
b Not available.

Notes: (a) Data from the 1970 U.S. Census of Population. (b) Not available.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Survey Data 1973 (in percentage)</th>
<th>State Data 1970 (in percentage)</th>
<th>N of Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobiles (household)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1.4</td>
<td>13.9</td>
<td>5430</td>
</tr>
<tr>
<td>One</td>
<td>21.7</td>
<td>46.8</td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>56.8</td>
<td>33.1</td>
<td></td>
</tr>
<tr>
<td>Three or more</td>
<td>20.1</td>
<td>6.2</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)Source: Napier and Maurer, 1977:19.

\(^b\)Not available.

\(^c\)Source: Ohio Department of Natural Resources, 1975:53.

\(^d\)The total of the white and nonwhite categories does not equal 100 percent because of missing data.
are compared with the census data for the categories of sex, race and head of household. Both female and nonwhite heads of households are underrepresented in the surveyed households. There was also a tendency for better educated, higher income, multiple car owners, and professional household units to complete and return the questionnaire. This is a general weakness of many national and state population-specific surveys of outdoor recreation participation reflect an underrepresentation of female and nonwhite heads of households and an overrepresentation of better educated, higher income and professional groups (Gold, 1973: 256).

The survey data contained significant variance in terms of family participation rates in outdoor recreation activity. The survey data contained many nonparticipating families (approximately 21 percent) as well as participating families (approximately 75 percent). The variance in rate of participation was also large. The mean number of outdoor recreation activities per person, per household was 25.5 with a standard deviation of 43.2.

On the basis of the large size of the sample, the geographic distribution of the sample throughout the state, the favorable comparison that exists between the characteristics of the sample and those of the state's population, and the large variance in rates of outdoor recreation participation contained in the sample data, it would appear reasonably safe to argue that the data set is adequate to allow for a preliminary test of the theoretical model developed within the present study. However, because of the relatively small rate of return of the mail questionnaires, any generalizations of the findings of this study
can only be made to that social segment of the population that returned the questionnaire.

**Operationalization of Variables**

The variables used in this study were operationalized in the following manner:

Family participation in outdoor recreation activity was measured by presenting the respondent with a list of 22 outdoor leisure activities and asking him/her to indicate the number of times from Labor Day, 1972 to Labor Day, 1973 that members of his/her household participated in each activity within Ohio.

These activities included:

- bicycling
- boating
- camping
- canoeing
- fishing
- golf
- hiking (including nature walks)
- horseback riding
- hunting
- ice skating
- picnicking
- playground activities
- outdoor games
- and sports
- sailing
- sledding and tobogganing
- snowmobiling
- snowskiing
- swimming
- tennis
- trail bikes
- water skiing
- other

Both total and average rates of household participation were calculated for household units. Total rates included participation by all family members in the 22 outdoor activities. Average rates were computed by dividing a household's total rate of participation by the number of family members living in the household.

Average participation rates were used in analyzing the data pertaining to the first research objective for the following reason. In some households, family participation may be influenced by household size in an exaggerated manner because family participation will tend to
increase as a function of increasing household size. This (exaggerated) effect may tend to obscure the effect of the independent variables on family participation. By emphasizing per-person amounts rather than per-household amounts of activity participation, the variable average family participation presents a more accurate measure of family participation.

Total rates of participation were used with the data pertaining to the second research objective of the study.

Average rates of participation were used with the data pertaining to the third analytical objective of the study.

The independent variables which are used in the test of the additive model of family participation in outdoor recreation activity are: (1) work demands; (2) family size; (3) family age composition; (4) socio-economic status; and (5) attitudes towards outdoor recreation blockages. These variables were operationalized in the following manner:

The theoretical construct of work demands was operationalized to include two variables which are: (1) employment time by head of household and (2) vacation time by head of household. Employment time by head of household was measured by asking the respondent to record the average number of hours per week employed by head of household. Vacation time by head of household was measured by asking the respondent to record the average length (in days) of annual paid vacation (excluding paid holidays) by head of household.

Family size was operationalized as the number of family members living in the household at the time of the study.
Family age composition was measured in each household as: respondent (20-39 years of age), married with no child living at home; respondent (20-39 years of age), married with youngest child at home, 14 and under; respondent (20-39 years of age), married with youngest child at home, 15-19; respondent (40-64 years of age), married with no child living at home; respondent married (40-64 years of age), married with youngest child at home, 14 and under; respondent (40-64 years of age), married with youngest child at home, 15-19; respondent (65 years and over), married or living alone, respondent (20-64 years of age), living alone. The age categories of children living at home at the time of the study were designed to distinguish between family group and peer group influences on the recreation preferences of the children in order to measure their effect on family recreation participation in outdoor leisure activities. The influence of the family is assumed to be predominant through age 14, after which peer group interests are assumed to become more important in determining recreation choice. The absence of children is assumed to precipitate the need for less outdoor leisure participation by those who are married with no children at home, widowed, or single (Yoesting and Burkhead, 1971:60-61).

Socio-economic status was operationalized as total household income (1972). Income was measured in terms of six categories: $0-2,999; $3,000-5,999; $6,000-8,999; $9,000-11,999; $12,000-14,999; and $15,000 and over. These categories were weighted one through six in the data, with one being the category of $0-2,999, and six representing the category $15,000 and over.
Attitudes toward outdoor recreation blockages was operationalized by a series of items oriented towards variables which tend to prevent the respondent from visiting outdoor recreation areas. These items included: "lack of time," "too far away," "too crowded," "lack of money," "areas not properly administered," "lack of information," and "lack of transportation." The respondent was asked to rate the importance of each variable on a scale of 1 to 5 as follows: 1 - important; 2 - slightly important; 3 - no opinion; 4 - slightly unimportant; and 5 - unimportant.

The analytical technique of factor analysis was used to investigate the patterns of relationships among the responses to the attitudes toward recreation blockages. Factor analysis was selected because the results will more concisely represent the underlying theoretical constructs which are measured by the attitude items. It was anticipated that this analysis would reveal clusters of elements which would tend to prevent the respondent from visiting outdoor recreation areas.

As Phillips (1966:171-174) has indicated, factor analysis facilitates the reconceptualization of variables by empirically examining the intercorrelations among a set of variables, which when manipulated, produce a number of common factors that are usually fewer in number than the original number of variables. Principal components analysis with varimax rotation of factors was used to examine the attitude items related to outdoor recreation blockages (Nie, et al., 1975). Phillips

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6 The factor analysis reported here is a replication of the factor analysis conducted by Maurer (1976) from a slightly larger number of questionnaires contained in the ODNR data set.
points out that factor loadings of 0.5 and above on a given factor are usually considered as acceptable loadings for variables to be included in a factor. Eigenvalues of 1.0 and above are also considered to be significant.

As shown in Table 4, the factor analysis produced three factors with eigenvalues greater than 1; the factors accounted for 53.7 percent of the total variance. Table 3 indicates that the first factor contained three factor loadings greater than 0.5 which were: (1) "lack of money," (2) "not interested," and (3) "lack of transportation." This factor was termed the personal factor since each of the three items making up the factor were associated with some individual characteristic that could block the person from engaging in outdoor leisure pursuits. The items composing the personal factor are not associated with a characteristic of the outdoor recreation facility or activity, but rather are personal elements that an individual considers in selecting a given outdoor recreational facility or pursuit.

Table 3 also reveals that a second factor contained two loadings greater than 0.5 which relate to the items of: (1) "too crowded," and (2) "areas not properly administered." This factor was referred to as

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7 In Maurer's analysis, the first factor contained three factor loadings of similar magnitude which related to the same three scale items. Maurer termed this factor the personal factor.

8 The second factor reported in Maurer's study contained two factor loadings of approximate magnitude which related to the identical two scale items. Maurer labeled this factor the area characteristics factor.
TABLE 2
CORRELATION MATRIX FOR FACTOR ANALYSIS OF OUTDOOR RECREATION BLOCKAGE ITEMS

<table>
<thead>
<tr>
<th></th>
<th>Lack of Time</th>
<th>Too Far Away</th>
<th>Too Crowded</th>
<th>Lack of Money</th>
<th>Areas not Properly Administered</th>
<th>Not Interested</th>
<th>Lack of Information</th>
<th>Lack of Transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Time</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too Far Away</td>
<td>0.1431</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too Crowded</td>
<td>0.0163</td>
<td>0.2200</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Money</td>
<td>0.1229</td>
<td>0.1740</td>
<td>0.0272</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas not Properly Administered</td>
<td>0.0023</td>
<td>0.1788</td>
<td>0.3031</td>
<td>0.1797</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Interested</td>
<td>0.0267</td>
<td>0.0304</td>
<td>-0.0077</td>
<td>0.0849</td>
<td>0.1060</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Information</td>
<td>0.0246</td>
<td>0.1767</td>
<td>0.1482</td>
<td>0.1566</td>
<td>0.2416</td>
<td>0.1649</td>
<td>1.0000</td>
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</tr>
<tr>
<td>Lack of Transportation</td>
<td>0.0623</td>
<td>0.1710</td>
<td>-0.0203</td>
<td>0.3533</td>
<td>0.1496</td>
<td>0.2041</td>
<td>0.1699</td>
<td>1.0000</td>
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</table>

Total N = 5166.
<table>
<thead>
<tr>
<th>Area Characteristic</th>
<th>Personal Factor</th>
<th>Area Characteristic Factor</th>
<th>Convenience Factor</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Time</td>
<td>-0.00013</td>
<td>-0.09601</td>
<td>(0.77400)</td>
<td>0.60830</td>
</tr>
<tr>
<td>Too Far Away</td>
<td>0.07855</td>
<td>0.45338</td>
<td>(0.53399)</td>
<td>0.49686</td>
</tr>
<tr>
<td>Too Crowded</td>
<td>-0.22280</td>
<td>(0.77657)</td>
<td>0.07996</td>
<td>0.65909</td>
</tr>
<tr>
<td>Lack of Money</td>
<td>(0.56626)</td>
<td>0.07616</td>
<td>0.42825</td>
<td>0.50985</td>
</tr>
<tr>
<td>Areas not Properly Administered</td>
<td>0.21425</td>
<td>(0.70404)</td>
<td>-0.02385</td>
<td>0.54214</td>
</tr>
<tr>
<td>Not Interested</td>
<td>(0.63467)</td>
<td>0.05515</td>
<td>-0.26551</td>
<td>0.47634</td>
</tr>
<tr>
<td>Lack of Information</td>
<td>0.49039</td>
<td>0.40687</td>
<td>-0.06565</td>
<td>0.41034</td>
</tr>
<tr>
<td>Lack of Transportation</td>
<td>(0.73476)</td>
<td>0.02052</td>
<td>0.22616</td>
<td>0.59144</td>
</tr>
</tbody>
</table>

Total N = 5166.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>Percent of Total Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Factor</td>
<td>1.97573</td>
<td>24.7</td>
</tr>
<tr>
<td>Area Characteristics Factor</td>
<td>1.24442</td>
<td>15.6</td>
</tr>
<tr>
<td>Convenience Factor</td>
<td>1.07423</td>
<td>13.4</td>
</tr>
<tr>
<td>Total Variance Explained</td>
<td></td>
<td>53.7</td>
</tr>
</tbody>
</table>

Total N = 5166.
the area characteristics factor since the items relate to situations or characteristics associated with the outdoor recreation area. Overly crowded and/or poorly administered recreation areas could prevent individuals from engaging in outdoor recreation activities.

A third factor was identified from the factor analysis presented in Table 3. This factor was referred to as the convenience factor and included two loadings greater than 0.5 which were: (1) "lack of time," and (2) "too far away." These items refer to how convenient it is for a person to frequent a recreation facility, and could both function as blockages to involvement in outdoor leisure pursuits.

The item "lack of information" did not load at the 0.5 magnitude on any factor and was eliminated from further analysis.

Based on the identification of three significant factors produced by the factor analysis, approximate factor scores were computed by summing respondent scores on the 3 items defining the personal factor; these approximate factor scores were termed personal composite (scores) to distinguish them from exact factor scores. In a similar fashion, the respondent scores on the 2 items contained within each of the area characteristics factor and convenience factor were summed to form approximate factor scores and labeled area characteristic composite and convenience composite respectively. Approximate factor scores are

---

9 The identical two scale items were contained in the third factor found by Maurer. Maurer termed this factor the convenience factor.

10 The possible range of scores was 0 to 15.

11 The possible range of scores for each composite was 0 to 10.
commonly used for research purposes and represent stable weightings of variables (Gorsuch, 1974:236-245). The personal composite, area characteristic composite, and convenience composite will be used as variables in the data analysis.

Concerning the second analytical objective of the study, the variable-preferences for outdoor recreation was ascertained by asking the respondent the following question: If new outdoor recreation facilities are developed in Ohio, or if the present facilities are expanded, indicate your household's preference for each activity. The respondent was directed to a list of twenty-two outdoor recreation activities which included:

- bicycling
- boating
- camping
- canoeing
- fishing
- golf
- hiking (including nature walks)
- horseback riding
- hunting
- ice skating
- picnicking
- playground activities
- outdoor games
- and sports
- sailing
- sledding and
tobogganing
- snowmobiling
- snowskiing
- swimming
- tennis
- trail bikes
- water skiing
- other

The variable preferences for outdoor recreation activities was measured through the use of a five point scale. Response choices ranged from 5 to 1, with 5 = desirable; 2 = slightly desirable; 3 = no opinion; 4 = slightly undesirable; 5 = undesirable.

In regards to the third research objective, a wide variety of outdoor leisure facilities (exs: municipal parks, state parks, nonprofit outdoor education centers) can be the focus of research on favorability towards outdoor recreation facility development. The focus of the present study is on recreation areas in state parks. The variable favorability towards outdoor recreation facility development was
operationalized via the question: Which facilities would you like to see more of in our state outdoor recreation areas? The respondent was directed to a list of eight outdoor recreation areas which included:

- developed campgrounds
- primitive campgrounds
- wilderness areas
- boat docks and marinas
- boat launching camps
- cabins
- lodges
- other (explain)

A five point scale was used to measure favorability towards outdoor recreation facility development. Response choices ranged from 5 to 1 with 5 = desirable; 2 = slightly desirable; 3 = no opinion; 4 = slightly undesirable; 5 = undesirable.

_validity of the Research Instrument_

Construct validation was the technique utilized to determine the validity of the likert-type scale measuring attitudes toward outdoor recreation blockages. Anastasi (1976:153-54) and Kerlinger (1966:453-54) indicate that the analytical technique of factor analysis can be used in establishing content validity of scale items. Specifically, Anastasi reveals that after a set of factors have been identified, they can be used in describing the factorial validity of the scale or test. Each scale can be characterized by the major factors determining its scores, together with the loading(s) of each factor and the correlation of the scale with each factor. Anastasi refers to such a correlation as factorial validity of a scale. Thus, the factorial validity of the scale relative to attitudes toward outdoor recreation blockages as a measure of personal characteristics blocking the individual from participating in outdoor recreation is .56, .63, and .73. Likewise, the factorial validity of the scale as a measure of the characteristics of
the area perceived by the person as blocking him/her from visiting outdoor recreation areas is .77 and .70. And, the factorial validity of the scale as a measure of the convenience of the outdoor area for leisure involvement is .77 and .53.

Extensive research has shown that the activity areas and activity categories contained in the scales measuring degree of favorability towards outdoor recreation facility development, and preferences for outdoor recreation activities respectively, are valid indicators of the phenomena under study.\(^\text{12}\)

### Techniques of Data Analysis

Multiple regression and analysis of variance were used to analyze the relationships within the data set pertaining to the first analytical objective of the study. Regression analysis was used to analyze the relationships between the independent variables of average hours per week employed by head of household, annual paid vacation by head of household, family size, total household income, personal composite, area characteristics composite and convenience composite with the dependent variable of average family participation in outdoor activity.\(^\text{13}\) Linear

---


\(^\text{13}\)All missing data were assigned the variable mean and included in the data analysis.
relationships were assumed and the data were assumed to be interval level. Analysis of variance was used to study the relationship of age composition, an independent variable, to the dependent variable of average family participation in outdoor recreation activity. Analysis of variance was used since the variable of age composition did not meet the assumption of interval level data.

Regarding the second research objective, Pearson (zero-order) correlation was used to compare preferences for individual outdoor recreation activities with actual family participation in identical outdoor recreation activities. Interval level data were used for the analysis. An F-test was utilized to test for significance of the correlation coefficients.

Pearson (zero-order) correlation was used to compare the degree of favorability toward outdoor recreation facility development and extent of actual family participation in outdoor recreation activity. The data were of interval level. An F-test was used to test for significance of the correlation coefficients.

SPSS programs (Nie, et al., 1975) were used in analyzing the data for all three research objectives. Reference can be made to this program for specific computational procedures used in the analyses of the data.

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14 Eleven percent of the observations contained missing data. These cases were not included in the data analysis.

15 Missing data were assigned the variable mean and included in the data analysis.

16 Missing data were assigned the variable mean and included in the data analysis.
CHAPTER IV
FINDINGS

Introduction

The study findings are presented in the following manner: (1) the results of the multivariate analysis designed to test the additive model of family participation in outdoor recreation activities; (2) assessment of outdoor recreation preferences relative to actual family participation in outdoor recreation activities; (3) assessment of preferences for outdoor recreation facility development.

Family Participation in Outdoor Recreation

Regression Analysis

Step-wise multiple regression analysis was used to analyze the relationships between the independent variables of (1) average number of hours per week employed by head of household, (2) average length of annual paid vacation by head of household; (3) family size; (4) total household income; (5) personal blockage composite; (6) area characteristics composite; and (7) the convenience composite with the dependent variable which was designated as average family participation in outdoor recreation activities. Linear relationships between the independent
variables and the dependent variable were assumed and the data were as-
sumed to produce interval level data.\textsuperscript{17}

Regression analysis was chosen because the statistic will show the
relative strength of the independent variables in the explanation of
the variance in average family participation in outdoor recreation ac-
tivities. Step-wise regression analysis will also disclose the relative
importance of the independent variables in explaining the variance in
the dependent variable.

An F-test\textsuperscript{18} was used to test the significance of each zero-order
correlation coefficient found in Table 6. The following null hypotheses
were tested using the F-test: (1) There is not a significant relation-
ship between work demands and average family participation in outdoor
recreation activities; (2) There is not a significant relationship be-
tween family size and average family participation in outdoor recreation
activities; (3) There is not a significant relationship between socio-
economic status, as measured by total household income, and average
family participation in outdoor recreation activities; and (4) There are
not significant relationships between attitudes towards outdoor recrea-
tion blockages and family participation in outdoor recreation activities.

\textsuperscript{17}The frequencies, means, and standard deviations of the seven in-
dependent variables used in the analysis are presented in Table 5.

\textsuperscript{18}An F-test was used to test the significance of the zero-order r
using the following formula:

\[ F_1, N-s = \frac{r^2}{1-r^2} \times (N-2) \]

(Source: Kerlinger and Pedhazur, 1973:37.)

The value of r was .02733 for rejection of the null hypothesis at the
.05 level, which was based on an n = 5166.
### TABLE 5

MEANS AND STANDARD DEVIATIONS OF INDEPENDENT VARIABLES USED IN THE REGRESSION ANALYSIS

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Hours Worked per Week by Head of Household</td>
<td>38.4</td>
<td>17.0</td>
<td>5166</td>
</tr>
<tr>
<td>Average Length (in days) of Annual Paid Vacation by Head of Household</td>
<td>12.4</td>
<td>11.6</td>
<td>5166</td>
</tr>
<tr>
<td>Family Size</td>
<td>3.6</td>
<td>1.6</td>
<td>5166</td>
</tr>
<tr>
<td>Total Household Income</td>
<td>4.7(^a)</td>
<td>1.7</td>
<td>5166</td>
</tr>
<tr>
<td>Personal Composite</td>
<td>10.8</td>
<td>3.8</td>
<td>5166</td>
</tr>
<tr>
<td>Area Characteristics Composite</td>
<td>4.9</td>
<td>2.5</td>
<td>5166</td>
</tr>
<tr>
<td>Convenience Composite</td>
<td>5.0</td>
<td>2.6</td>
<td>5166</td>
</tr>
</tbody>
</table>

\(^a\)Reference to the weighting of income categories is given in Chapter III (Methodology), page 58.
TABLE 6
CORRELATION MATRIX FOR SELECTED INDEPENDENT VARIABLES AND AVERAGE FAMILY
PARTICIPATION IN OUTDOOR RECREATION ACTIVITY (N = 5166)

<table>
<thead>
<tr>
<th></th>
<th>Average Family Participation in Outdoor Recreation</th>
<th>Hours per Week Employed (Head of Household)</th>
<th>Annual Paid Vacation (Head of Household)</th>
<th>Family Size</th>
<th>Total Household Income</th>
<th>Personal Blockage Composite</th>
<th>Area Characteristics Composite</th>
<th>Convenience Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Family Participation in Outdoor Recreation</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours per Week Employed (Head of Household)</td>
<td>0.0477*</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Paid Vacation</td>
<td>0.0222</td>
<td>0.2853</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Size</td>
<td>0.0232</td>
<td>0.1899</td>
<td>0.0420</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Household Income</td>
<td>0.0432*</td>
<td>0.2659</td>
<td>0.2384</td>
<td>0.1568</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Blockage Composite</td>
<td>0.0321*</td>
<td>0.2079</td>
<td>0.1062</td>
<td>0.0114</td>
<td>0.2295</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area Characteristics Composite</td>
<td>-0.0293*</td>
<td>0.1020</td>
<td>-0.0160</td>
<td>-0.0087</td>
<td>0.0528</td>
<td>0.4905</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Convenience Composite</td>
<td>-0.0069</td>
<td>-0.0021</td>
<td>0.0392</td>
<td>-0.0387</td>
<td>0.0810</td>
<td>0.5131</td>
<td>0.4316</td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Correlations of .027 are significant at the .05 level.
The findings show that work demands which were measured in terms of hours worked per week by head of household were significantly related (at the .01 level) with average family participation in outdoor recreation activities. The socio-economic status indicator of income was also significantly related (at the .01 level) with average family participation in outdoor recreation activities. Two of the recreation blockage factors were significantly correlated with average family participation in outdoor recreation activities. The personal composite variable and the area characteristics composite were significantly related to the dependent variable at the .05 level.

Although three hypotheses were shown to be statistically significant, the magnitude of the correlations were very small. The step-wise regression analyses revealed very low coefficients of determination ($R^2$). The regression findings are presented in Table 7.

The regression equation for all of the entering variables is presented below in standardized regression coefficient form.

$$Y = 17.492 + 0.034X_1 + 0.055X_2 + 0.052X_3 + 0.024X_4 + 0.011X_5 - 0.011X_6 + e$$

where

$Y$ = Average family participation in outdoor recreation activity

$a$ = Constant

$X_1$ = Average number of hours per week employed by head of household

$X_2$ = Area characteristics composite

$X_6$ = Annual paid vacation by head of household did not enter the regression equation.
### TABLE 7

**STEPWISE REGRESSION FINDINGS FOR SELECTED INDEPENDENT VARIABLES AND AVERAGE FAMILY PARTICIPATION IN OUTDOOR RECREATION ACTIVITY PRESENTED IN STANDARDIZED (BETA) AND UNSTANDARDIZED COEFFICIENT FORM**

(STANDARD ERROR OF THE ESTIMATE IN PARENTHESES) \((N = 5166)\)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
<th>Step 5</th>
<th>Step 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours per Week</td>
<td>0.048(^a)</td>
<td>0.051</td>
<td>0.043</td>
<td>0.037</td>
<td>0.035</td>
<td>0.034</td>
</tr>
<tr>
<td>Employed by Head of Household</td>
<td>0.121(^b)</td>
<td>0.130</td>
<td>0.109</td>
<td>0.094</td>
<td>0.089</td>
<td>0.086</td>
</tr>
<tr>
<td>Area Characteristic</td>
<td>-</td>
<td>-0.035</td>
<td>-0.059</td>
<td>-0.057</td>
<td>-0.057</td>
<td>-0.055</td>
</tr>
<tr>
<td>Composite</td>
<td>-0.604</td>
<td>-1.037</td>
<td>-1.002</td>
<td>-1.000</td>
<td>-0.953</td>
<td></td>
</tr>
<tr>
<td>Personal Blockage</td>
<td>-</td>
<td></td>
<td>0.052</td>
<td>0.047</td>
<td>0.047</td>
<td>0.052</td>
</tr>
<tr>
<td>Composite</td>
<td>-</td>
<td></td>
<td>0.594</td>
<td>0.530</td>
<td>0.536</td>
<td>0.591</td>
</tr>
<tr>
<td>Total Household Income</td>
<td>-</td>
<td></td>
<td></td>
<td>0.025</td>
<td>0.024</td>
<td>0.024</td>
</tr>
<tr>
<td>Family Size</td>
<td></td>
<td></td>
<td></td>
<td>0.650</td>
<td>0.163</td>
<td>0.615</td>
</tr>
<tr>
<td>Convenience Composite</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.307</td>
<td>0.300</td>
</tr>
<tr>
<td>(Constant)</td>
<td>20.84</td>
<td>23.47</td>
<td>19.99</td>
<td>18.01</td>
<td>17.20</td>
<td>17.49</td>
</tr>
</tbody>
</table>

**Adjusted Coefficient of Determination \(R^2\)**

\[
\begin{array}{ccccccc}
\text{Step 1} & \text{Step 2} & \text{Step 3} & \text{Step 4} & \text{Step 5} & \text{Step 6} \\
0.0020 & 0.0030 & 0.0049 & 0.0053 & 0.0052 & 0.0051 \\
\end{array}
\]

\(^a\)Beta. \(^b\)Unstandardized regression coefficients. \(^c\)Standard error of b.
$X_3 = \text{Personal blockage composite}$

$X_4 = \text{Socio-economic status indicator (income)}$

$X_5 = \text{Family size}$

$X_6 = \text{Convenience composite}$

$e = \text{error}$

A discussion of the results and interpretations of the regression analysis findings as they pertain to the additive model of family participation in outdoor recreation activity is contained in the next and last chapter of the study.

**Analysis of Variance**

One way analysis of variance statistics were used to analyze the relationship between the independent variable of age composition and average family participation in outdoor recreation activities since the categorical variable of age composition did not meet the assumption of interval level data.\(^\text{20}\)

The null hypothesis subjected to empirical test was: Age composition will not be significantly related to family participation in outdoor recreation activities. The findings presented in Table 9 demonstrate that differences were identifiable among the categories. Age composition categories were significantly different (at the .001 level) from each other relative to the dependent variable. However, the ETA squared value was minuscule which means that age composition is a very

\(^{20}\) The frequencies of the age composition categories are given in Table 8.
<table>
<thead>
<tr>
<th>Age Composition Categorya</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent (20–39 years of age), Married with No Child Living at Home</td>
<td>1215</td>
</tr>
<tr>
<td>Respondent (20–39 year of age), Married with Youngest Child Living at Home 14 and Under</td>
<td>359</td>
</tr>
<tr>
<td>Respondent (20–39 years of age), Married with Youngest Child at Home 15–19</td>
<td>186</td>
</tr>
<tr>
<td>Respondent (40–64 years of age), Married with no Children living at Home</td>
<td>355</td>
</tr>
<tr>
<td>Respondent (40–64 years of age), Married with Youngest Child at Home 14 and Under</td>
<td>1085</td>
</tr>
<tr>
<td>Respondent (40–64 years of age), Married with Youngest Child at Home 15–19</td>
<td></td>
</tr>
<tr>
<td>Respondent (65 years and over), Married or Living Alone</td>
<td>240</td>
</tr>
<tr>
<td>Respondent (20–64 years of age), Living Alone</td>
<td>261</td>
</tr>
</tbody>
</table>

aThe rationale for determining the age composition categories is given in Chapter III (Methodology), page 58.
TABLE 9

SUMMARY STATISTICS FOR ANALYSIS OF VARIANCE OF AGE COMPOSITION AND AVERAGE FAMILY PARTICIPATION IN OUTDOOR RECREATION ACTIVITY

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance Level</th>
<th>ETA²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Composition</td>
<td>Explained</td>
<td>232683.0</td>
<td>7</td>
<td>33240.4</td>
<td>17.650</td>
<td>.001</td>
<td>0.026</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>8642556.0</td>
<td>4589</td>
<td>1883.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>8875239.0</td>
<td>4596</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total N = 5166.
poor predictor of average family participation in outdoor recreation activities. The amount of explained variance (2.5 percent) is of little substantive meaning.

A discussion of the results and interpretations of the analysis of variance findings as they relate to the theoretical position offered earlier to explain family participation in outdoor leisure activities is presented in the next and final chapter of the study.

Further Analysis

The dependent variable, average family participation in outdoor recreation activities, consisted of the aggregation of family participation for 22 separate outdoor recreation activities. In order to check the validity of building a composite measure of outdoor recreation participation, each of the components of the aggregated index were separated by individual activity (a total of 22 activities) and subjected to individual assessment using the same independent variables regressed against the composite index. Average family participation in each particular activity (ex: bicycling, boating, camping, etc.) was then used as the dependent variable in one of 22 separate step-wise multiple regression analyses.

The results of this type of analysis are presented in Appendix C. None of the 22 regression analyses produced a coefficient of determination ($R^2$) greater than the comparable statistic for the original analysis using the aggregate dependent variable. The result of these analyses add support to the argument that average family participation in outdoor recreation activities as it was conceived in the study has merit and should be used instead of each component activity.
Outdoor Recreation Preferences and Outdoor Recreation Participation

The extent of preference for each of 22 outdoor recreation activities was ascertained in order to investigate the relationship between preference for a particular activity (ex: camping), and actual family participation in that activity. The respondents were asked to rate each of the 22 outdoor recreation activities listed in Table 10 in terms of the development emphasis each should have in future development of facilities. The respondents actual total family rates in each of the activities were correlated with their corresponding preference for the development of the activity. The correlations are presented in Table 10.

A Pearson (zero-order) correlation coefficient was computed to discover if there was a significant relationship between the preference for future development of a particular activity and actual family participation in that activity.

The significant values of the computed correlation coefficients served as the basis for acceptance or rejection of the following null hypothesis: There is not a significant relationship between preferences for outdoor recreation development and actual total family participation in corresponding outdoor recreation activities. As indicated in Table 10, all 22 of the correlation coefficients were statistically significant at the .001 level. Therefore, the null hypothesis is rejected. However, the magnitude of all of the correlation coefficients indicate

\[ \text{Note: The significance test used with the Pearson correlation coefficients was based on the standard error of the } r \text{ for large samples (Nie, et al., 1975).} \]
TABLE 10
PEARSON CORRELATION COEFFICIENTS FOR PREFERENCES FOR INDIVIDUAL OUTDOOR RECREATION ACTIVITIES AND TOTAL FAMILY PARTICIPATION IN INDIVIDUAL OUTDOOR RECREATION ACTIVITIES

<table>
<thead>
<tr>
<th>Degree of Preference for Outdoor Recreation Activity (N = 5166)</th>
<th>Correlation Coefficient</th>
<th>Extent of Total Family Participation in Outdoor Recreation Activities (N = 5166)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicycling</td>
<td>0.113</td>
<td>Bicycling</td>
</tr>
<tr>
<td>Boating</td>
<td>0.169</td>
<td>Boating</td>
</tr>
<tr>
<td>Camping</td>
<td>0.159</td>
<td>Camping</td>
</tr>
<tr>
<td>Canoeing</td>
<td>0.080</td>
<td>Canoeing</td>
</tr>
<tr>
<td>Fishing</td>
<td>0.173</td>
<td>Fishing</td>
</tr>
<tr>
<td>Golf</td>
<td>0.291</td>
<td>Golf</td>
</tr>
<tr>
<td>Hiking (including nature walks)</td>
<td>0.075</td>
<td>Hiking (including nature walks)</td>
</tr>
<tr>
<td>Horseback riding</td>
<td>0.058</td>
<td>Horseback riding</td>
</tr>
<tr>
<td>Hunting</td>
<td>0.187</td>
<td>Hunting</td>
</tr>
<tr>
<td>Ice skating</td>
<td>0.106</td>
<td>Ice skating</td>
</tr>
<tr>
<td>Picnicking</td>
<td>0.068</td>
<td>Picnicking</td>
</tr>
<tr>
<td>Playground activities</td>
<td>0.077</td>
<td>Playground activities</td>
</tr>
<tr>
<td>Outdoor games, sports</td>
<td>0.068</td>
<td>Outdoor games, sports</td>
</tr>
<tr>
<td>Sailing</td>
<td>0.090</td>
<td>Sailing</td>
</tr>
<tr>
<td>Sledding and tobogganing</td>
<td>0.084</td>
<td>Sledding and tobogganing</td>
</tr>
<tr>
<td>Snowmobiling</td>
<td>0.087</td>
<td>Snowmobiling</td>
</tr>
<tr>
<td>Snowskiing</td>
<td>0.094</td>
<td>Snowskiing</td>
</tr>
<tr>
<td>Swimming</td>
<td>0.086</td>
<td>Swimming</td>
</tr>
<tr>
<td>Tennis</td>
<td>0.127</td>
<td>Tennis</td>
</tr>
<tr>
<td>Trail bikes</td>
<td>0.084</td>
<td>Trail bikes</td>
</tr>
<tr>
<td>Water skiing</td>
<td>0.066</td>
<td>Water skiing</td>
</tr>
<tr>
<td>Other</td>
<td>-0.099</td>
<td></td>
</tr>
</tbody>
</table>

*All correlation coefficients are significant at the .001 level.*
that the statistical significance observed is a function of the large sample size. The substantive nature of the findings are of little consequence.

With the exception of the "other" category, the correlations between outdoor recreation preferences and family participation in outdoor recreation activities were in the theoretically predicted direction. As the degree of preference for a specific outdoor recreation activity increased, the extent of total family participation in that particular outdoor recreation activity increased. Preferences for outdoor recreation activities were consonant with family participation in outdoor recreation activity. However, the very low correlation coefficients indicate that the amount of concomitant variation between an activity preference and corresponding activity of participation is practically nonexistent.\(^\text{22}\)

It can therefore, be concluded that the theoretical hypothesis which indicated that preferences for outdoor recreation would be consonant with family participation in outdoor recreation activity has limited practical significance.

Further discussion of these findings can be found in the next and final chapter of this study.

**Favorability Towards the Development of Outdoor Recreation Facilities**

Degree of favorability towards the development of each of 7 types of outdoor recreation facilities was ascertained so that favorability

\(^{22}\)Only in the case of golf, which had a correlation coefficient of 0.291, was there a moderate amount of concomitant variation between activity preference and corresponding activity of participation.
towards the development of a specific facility area (ex: wilderness areas) could be compared with average family participation in outdoor recreation activity. As shown in Table 11, a Pearson (zero-order) correlation coefficient was calculated to determine the relationship between degree of favorability towards the development of a particular facility area and average family participation in outdoor recreation activities.

The significant values of the computed correlation coefficients functioned as the basis upon which the following null hypothesis was accepted or rejected: There is not a significant relationship between favorability towards outdoor recreation facility development and family participation in outdoor recreation activities. Two correlation coefficients were statistically significant at the .001 level. Consequently, the null hypothesis is rejected for each of the two significant relationships which were: as the degree of favorability towards the development of primitive campgrounds and wilderness areas increased respectively, average family participation in outdoor recreation activity increased. However, the significant relationships are based on coefficients of 0.072 and 0.081 respectively which indicates a minute amount of concomitant variation between the two variables in each relationship. The small magnitudes of the correlation coefficients indicate that the statistical significance present is a function of the large sample size. Therefore, the theoretical hypothesis, which indicated that degree of favorability

23 The significance test used with the Pearson correlation coefficients was based on the standard error of the r for large samples (Nie, et al., 1975).
TABLE 11
PEARSON CORRELATION COEFFICIENTS FOR DEGREE OF FAVORABILITY TOWARDS FACILITY DEVELOPMENT AND AVERAGE FAMILY PARTICIPATION IN OUTDOOR RECREATION ACTIVITY

<table>
<thead>
<tr>
<th>Degree of Favorability Towards Facility Development (N = 5166)</th>
<th>Extent of Average Family Participation in Outdoor Recreation (N = 5166)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed Campgrounds</td>
<td>-0.022</td>
</tr>
<tr>
<td>Primitive Campgrounds</td>
<td>0.072*</td>
</tr>
<tr>
<td>Wilderness Areas</td>
<td>0.081*</td>
</tr>
<tr>
<td>Boat Docks and Marinas</td>
<td>-0.022</td>
</tr>
<tr>
<td>Boat Launching Ramps</td>
<td>-0.009</td>
</tr>
<tr>
<td>Cabins</td>
<td>-0.025</td>
</tr>
<tr>
<td>Lodges</td>
<td>-0.033</td>
</tr>
</tbody>
</table>

*Correlation coefficients significant at the .001 level.
towards facility development will be significantly related to family participation in outdoor recreation activity, has limited practical significance relative to the two statistically significant relationships.

The next chapter contains a discussion of the research and practical implications of these findings.
CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The major purpose of this study was to gain insight into leisure behavior in outdoor recreation.

The data set for this study was secured from the Recreation Planning Section of the Ohio Department of Natural Resources (ODNR). These data were collected by a mail questionnaire which was constructed and administered by the Department of Geography at Miami University (Ohio), under contract with ODNR. Results from the questionnaire were used in preparing the 1975-1980 Ohio State Comprehensive Outdoor Recreation Plan (SCORP). Maurer (1976) analyzed selected components of these data in investigating the relationships of various socio-economic and personal traits with attitudes toward enjoyable recreation conditions and recreation participation. The focus of Maurer's research was the isolation of correlates of participation rates in outdoor recreation. Most of the data utilized in the present study have not been previously analyzed.

The first objective of this study was to examine the extent to which family participation in outdoor recreation is a function of work demands, family background, socio-economic status factors, and factors relative to outdoor recreation blockages. An additive model
was developed in which five theoretical hypotheses were stated relative to outdoor leisure behavior by family units.

The independent variables used for the data analysis included: hours per week employed by head of household; average length of annual paid vacation by head of household; family size; age composition; total household income; and attitudes toward outdoor recreation block-ages. A factor analysis was computed for the attitudinal items and three distinct factors were discovered. Factor scores were computed for each factor and labeled personal composite, area characteristics composite, and convenience composite. Each of the three composites was used as a separate independent variable in the data analysis. Average (i.e.: per-person rates) family participation in outdoor recreation activity was used as the dependent variable in the analysis.

A step-wise multiple regression analysis was used to test the relationships involving continuous independent variables and the dependent variable. Analysis of variance was employed to test the relationship between the categorical variable of age composition and the dependent variable.

As shown in Chapter IV, four of the five theoretical hypotheses were found to be significant at either the 5 percent of 1 percent level. However, the independent variables used in the analysis explained only a minute amount of the variance of the dependent variable. Consequently, the significant hypotheses are of little value in support of the theoretical model.

The second objective of the study was to examine the relationship between preferences for outdoor recreation and participation in
outdoor recreation. It was hypothesized that preferences for outdoor recreation development would be consonant with family participation in the corresponding outdoor recreation activity. A Pearson (zero-order) correlation coefficient was computed in order to assess the relationship between the extent of preference for the development of a particular outdoor recreation activity (ex: camping) and actual total family participation in a corresponding outdoor recreation activity. Twenty-two relationships were examined.

Although all 22 correlation coefficients were statistically significant, the magnitudes of all the correlation coefficients were so small that they were of little substantive meaning.

The third research objective of the study was to examine public response towards the development of outdoor recreation facilities. It was hypothesized that favorability toward outdoor recreation facility development would be significantly related to family participation in outdoor recreation activity. A Pearson (zero-order) correlation coefficient was computed to examine the relationship between the degree of favorability toward the development of a particular outdoor recreation facility (ex: boat docks and marinas) and average family participation in outdoor recreation activities. Seven relationships were analyzed.

Two theoretical hypotheses were accepted. As the degree of favorability towards the development of primitive campgrounds increased, average family participation in outdoor recreation activity also increased. Secondly, as the degree of favorability towards the development of wilderness areas increased, average family participation in outdoor recreation also increased. However, the small magnitudes of
the correlation coefficients indicated that the relationship had little meaning. Therefore, the theoretical hypothesis was of limited practical significance relative to the two significant relationships.

Conclusions

Several factors should be considered in drawing conclusions relative to the first research objective of the study.

As previously noted, the explained variance of family participation in outdoor recreation activity was virtually nonexistent. However, the theoretical model appeared logically sound especially in light of the extensive literature on leisure and outdoor recreation reviewed in Chapter II. Also, substantial variance was shown to exist in the independent and dependent variables used in the analysis. And, the analytical techniques used with the data provided a strong test for revealing both the existence and strength of significant relationships. Therefore, it can be basically concluded that the variables of work demands, age composition, family size, and attitudes toward outdoor recreation blockages do not adequately explain family participation in outdoor recreation activity (for the household units sampled). It can be further concluded that variables other than those used in the analysis need to be included in a model intended to explain family participation in outdoor recreation activity.

Another possible explanation for the collapse of the theoretical model involves the dependent variable (ie: average rate of household participation in twenty-two outdoor recreation activities). By subsuming sub-categories of outdoor recreation activities (e.g.: power
boating, row boating, canoeing, sailing, kayaking) under more general types of activities (ex: boating), aggregation of variance may occur which further reduces the probability of explaining participation in outdoor recreation. Consequently, selected sub-categories of activities may need to be treated as dependent variables in order to understand the nature of family participation in outdoor recreation.

The general conclusion that can be made relative to the second research objective is that family participation in outdoor recreation activities is not consonant with preferences for those activities (for those household units sampled). The relationship between activities participated in and activities preferred was insignificant. Therefore, it can be further concluded that families are not engaging in preferred outdoor recreation activities.

The last conclusion based on the third study objective is that the degree of favorability towards the development of outdoor recreation facilities is not closely associated with participation patterns of Ohio families sampled in this study. That is, degree of favorability towards facility development cannot be predicted on the basis of participation in outdoor recreation.

Those decision makers concerned with the provision of outdoor leisure facilities and programs to the general public can obtain some direction from the above conclusions. First, when attempting to determine the nature of family participation in outdoor recreation

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24 Participant discussion, Outdoor Recreation Research Symposium, The Ohio State University, Fawcett Center for Tomorrow, Columbus, Ohio, November 16-17, 1977.
activity, leaders of state outdoor recreation research projects may need to turn their attention to variables other than those used in the present study (for example, social group of "action variables" which determine whether persons recreate alone, with families, friends or family and friends). Once identified, these new explanatory variables may either be used alone or in combination with any of the variables included in this study in attempting to more fully understand outdoor recreation participation by family units.25

Second, rather than planning for the provision of outdoor recreation activities based on current participation patterns alone, decision makers might do well to compare current participation patterns with preferences for activities. If, as found in this study, current participation patterns differ considerably from activity preferences, planners may want to create outdoor leisure opportunities which approximate activity preferences. When feasible, the provision of relevant leisure opportunities should allow for the fulfillment of outdoor leisure goals on the part of the general public.

Third, state natural resource personnel commissioned with planning for the development of outdoor recreation facilities utilize current use patterns in decision making related to facility development (Yoesting, 1974). Consequently, such an approach may need to be

25 For a somewhat similar conclusion see: Joseph T. O'Leary and Daniel Van Vooren. "Outdoor Recreation Impact Analysis: An Examination of Recreation Consumers and Their Frequency of Involvement." Paper presented at the Outdoor Recreation Research Symposium, The Ohio State University, Fawcett Center for Tomorrow, Columbus, Ohio, November 16-17, 1977.
reanalyzed in light of the study conclusion that the degree of favorability towards facility development cannot be predicted on the basis of participation in outdoor recreation.

**Limitations**

Two limitations are apparent in the present study. First, the data set secured from ODNR contained a sampling bias towards owners of automobiles. This bias occurred in the selection of the sample of household units from automobile registration lists of the Ohio Bureau of Motor Vehicles. Household units not owning automobiles were thus eliminated from the sample. Consequently, the sample drawn does not completely represent the sampling universe designated by ODNR which was the state of Ohio.

A second limitation of the present study involved the low rate of return (16.8 percent) of the mail questionnaire. Such a response rate with a mail questionnaire is said to be problematic when the differences existing between respondents and nonrespondents are not entirely known (Dottavio, et al., 1977). Absence of an adequate follow-up study to determine the extent of these differences is a limitation inherent in the ODNR data set.
Recommendations for Future Research

A significant contribution of this study involves the recommendations that can be made for future research. These recommendations include:

1. An investigation of alternative sources of names representing populations chosen for study in statewide outdoor recreation research projects should be undertaken. It conducting a state of Indiana SCORP study, Dottavio et al. (1977) chose a list of names (of heads of households in the state) provided by a commercial marketing firm. Use of such a list helps control for sample bias resulting from omission of portions of the population from the sample.

2. Consideration should be given to selecting smaller (but representative) samples for state outdoor recreation research projects. Utilizing a smaller sample size for such projects should be useful when considerable budgetary constraints are operative. Dottavio et al. (1977) drew a small yet representative and inexpensive sample of the state of Indiana population. These researchers assumed homogeneity of populations within state socio-economic planning regions and heterogeneity of populations among regions. Although the planning regions

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varied in population size, an equal number of respondents were selected from each region. Each regional sample was assigned a weight proportional to the size of the regional population from which it was drawn. In this way, the statewide sample was made sensitive to socio-economic heterogeneity of the state.

3. Distribution of a mail questionnaire, with multi-stage follow-up procedures, to the samples selected in state outdoor recreation research projects should be considered. Extensive research has shown that utilization of these techniques provide high response rates in large samples of the general public (Dillman, 1972; Dillman and Frey, 1974; Dillman et al., 1974; and Dillman, 1977). High response rates obtained through the use of multi-stage follow-up procedures reduces the extent of unknown differences between respondents and nonrespondents (Dottavio et al., (1977). As a result, research findings can be generalized to the populations from which the samples are drawn.

4. SCORF researchers should undertake an exploration of the usefulness of sub-sampling population groups included in statewide outdoor recreation projects.

Innovative approaches are needed to assess the outdoor recreation participation and preference patterns of selected socio-economic groups (i.e.: less educated, lower income, nonprofessional families) and subcultural groups (i.e.: nonwhite families) generally underrepresented

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in state surveys (Gold, 1973). Low response rates among these groups may be associated with difficulties in articulating outdoor recreation needs through a mail questionnaire. If such is the case, higher response rates may be brought about by conducting low cost interviews on selected sub-samples of these population groups. The interpersonal communication between subject and interviewer will increase the response rate and improve internal validity and reliability.

A panel study of selected sub-samples of the population could reveal participation patterns over a series of points in time. For example, respondents could be contacted on several occasions and questioned as to their outdoor recreation participation over a recent time period. Such a study would minimize memory bias that may be operative in one-shot designs using mail questionnaires.

5. A continuation of efforts to identify a parsimonious set of sociological variables which are predictive of family participation in outdoor leisure activity is highly desirable. Such efforts can be facilitated by the systematic procedures developed by Nielson and Catton (1971) for conceptualizing explanatory variables of outdoor recreation participation.

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28 Personal communication with Dr. Ted L. Napier, Department of Agricultural Economics and Rural Sociology, The Ohio State University, October 21, 1977. Specific procedures for carrying out low cost ($5.00 each) personal interviews in the study of outdoor recreation can be found in Napier et al. (1977:4-5), "A Descriptive Analysis of a Five-County Attitude Study: Outdoor Recreation and Industrialization." Research circular 230, Ohio Agricultural Research and Development Center, Wooster, Ohio, May, 1977.

29 Personal communication with Dr. Ted L. Napier, October 19 and 21, 1977.
Recent research studies reveal that the sociological explanation of outdoor leisure participation can be increased when social group variables (i.e.: whether persons recreate alone, with family, friends or family and friends) are used in conjunction with such variables as family age composition and socio-economic status (O'Leary et al., 1974; Cheek et al., 1976).

6. SCORP project leaders should consider the utility of collecting more specific information on participation rates in outdoor recreation activities. By focusing on selected sub-categories of activities, disaggregation of variance in participation may occur which could enhance the probability of understanding the nature of outdoor leisure behavior.

7. Continued investigation into public preferences for outdoor recreation activities and facilities in state outdoor recreation research projects is essential to planning for relevant recreation experiences. Such a research focus is both a necessary prerequisite for securing matching funds for the development of state outdoor recreational facilities (O'Leary and Dottavio, 1977:1) as well as a valuable decision making input in planning for the delivery of outdoor recreation programs and services (Gold, 1973:199-203, 223-224).

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31 Participant discussion, Outdoor Recreation Research Symposium, The Ohio State University, Fawcett Center for Tomorrow, Columbus, Ohio, November 16-17, 1977.
APPENDIX A

QUESTIONS FROM ODNR QUESTIONNAIRE USED IN THIS STUDY
QUESTIONS

PART I.

Please check one box or provide the information in each of the following questions.

1. Person completing this questionnaire (check one).

  ___ 1. head of household
  ___ 2. spouse
  ___ 3. child (indicate age)
  ___ 4. other relative
  ___ 5. unrelated member of household

2. What is the total number of people living in your household? ____

3. Indicate the age and sex of household head. ____  ____

4. For members other than the household head indicate the number of males and females in each of the following age groups.

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. 0-4 years</td>
<td>j. 0-4 years</td>
</tr>
<tr>
<td>b. 5-9</td>
<td>k. 5-9</td>
</tr>
<tr>
<td>c. 10-14</td>
<td>l. 10-14</td>
</tr>
<tr>
<td>d. 15-19</td>
<td>m. 15-19</td>
</tr>
<tr>
<td>e. 20-29</td>
<td>n. 20-29</td>
</tr>
<tr>
<td>f. 30-39</td>
<td>o. 30-39</td>
</tr>
<tr>
<td>g. 40-49</td>
<td>p. 40-49</td>
</tr>
<tr>
<td>h. 50-64</td>
<td>q. 50-64</td>
</tr>
<tr>
<td>i. 65 and older</td>
<td>r. 65 and older</td>
</tr>
</tbody>
</table>
5. Fill in the following information concerning the occupation of all employed males and females age 16 and over in your household. Use the first line for information concerning the household head, and the following lines for all other employed household members.

<table>
<thead>
<tr>
<th>Average Number of Hours per Week Employed</th>
<th>Average Length of Annual Paid Vacation (days) (excluding paid holidays; e.g. Labor Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td></td>
</tr>
</tbody>
</table>

6. Indicate the best estimate of the total household income for the year 1972.

   1. $ 0-2,999
   2. 3,000-5,999
   3. 6,000-8,999
   4. 9,000-11,999
   5. 12,000-14,999
   6. 15,000-24,999
   7. 25,000 and over
PART II.

Your preferences are of importance to state planners as they develop plans for future recreational facilities in Ohio. Please rate each item in the following question according to the given scale.

1. Which of the following reasons now prevent you from visiting outdoor recreation areas? Please respond to each item with a number from 1 to 5 where

   1 2 3 4 5
   important slightly no slightly unimportant

   a. Lack of time
   b. Too far away
   c. Too crowded
   d. Lack of money
   e. Areas are not properly administered
   f. Not interested in attending more often
   g. Lack of information
   h. Lack of transportation
   i. Other (explain) _______________________________________________

The following questions are to be rated using the scale below.

   1 2 3 4 5
desirable slightly no slightly undesirable

desirable opinion undesirable

2. Which facilities would you like to see more of in our State outdoor recreation areas? Please respond to each item with a number from 1 to 5 using the scale above.

   a. Developed campgrounds
   b. Primitive campgrounds
   c. Wilderness areas
   d. Boat docks and marinas
   e. Boat launching ramps
   f. Cabins
   g. Lodges
   h. Other (explain)
3. If new outdoor recreation facilities are developed in Ohio, or if the present facilities are expanded, indicate your household's preference for each activity by indicating a number from 1 to 5 using the scale above.

<table>
<thead>
<tr>
<th></th>
<th>Activity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Bicycling</td>
<td>1</td>
<td>l</td>
</tr>
<tr>
<td>b</td>
<td>Boating</td>
<td></td>
<td>m</td>
</tr>
<tr>
<td>c</td>
<td>Camping</td>
<td></td>
<td>n</td>
</tr>
<tr>
<td>d</td>
<td>Canoeing</td>
<td></td>
<td>o</td>
</tr>
<tr>
<td>e</td>
<td>Fishing</td>
<td></td>
<td>p</td>
</tr>
<tr>
<td>f</td>
<td>Golf</td>
<td></td>
<td>q</td>
</tr>
<tr>
<td>g</td>
<td>Hiking (including nature walks)</td>
<td></td>
<td>r</td>
</tr>
<tr>
<td>h</td>
<td>Horseback riding</td>
<td></td>
<td>s</td>
</tr>
<tr>
<td>i</td>
<td>Hunting</td>
<td></td>
<td>t</td>
</tr>
<tr>
<td>j</td>
<td>Ice skating</td>
<td></td>
<td>u</td>
</tr>
<tr>
<td>k</td>
<td>Picnicking</td>
<td></td>
<td>v</td>
</tr>
</tbody>
</table>

PART III. Instructions

In the next section we are interested in your household's total participation in outdoor recreation activities in Ohio for the period from the Fourth of July, 1976 to the Fourth of July, 1977.

On the following page you will find a list of 21 outdoor recreation activities, and two charts. From the list select those activities that members of your household participated in during the last year, and fill these in on the charts according to whether participation occurred on WEEKENDS AND HOLIDAYS, or on WEEKDAYS (if participation took place on both, fill in the activity on both charts). Because of Ohio driver's license regulations, individuals age 16 and over are considered adults and those younger than 16 as children.

**Number of times participated:** Indicate the total number of times during the year the adults of your household engaged in each activity. Include all participation no matter where it took place in Ohio.

**Example:** FOR WEEKEND AND HOLIDAY participation.

The adults of a family went bicycling a total of 25 times during the past year on weekends or holidays. The children went 40 times.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>Number of Times Participated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adults</td>
</tr>
<tr>
<td>Bicycling</td>
<td>25</td>
</tr>
<tr>
<td>Fishing</td>
<td>22</td>
</tr>
</tbody>
</table>
PART III. Ohio Activities

From the list of 21 outdoor recreation activities below, select those that members of your household participated in during the last year, and write them in under the column entitled "activity." Then fill in the pertinent information for each activity.

1. Bicycling
2. Boating
3. Camping
4. Canoeing
5. Fishing
6. Golf
7. Hiking
8. Horseback riding
9. Hunting
10. Ice skating
11. Picnicking
12. Playground activities
13. Outdoor games, sports
14. Sailing
15. Sledding and tobagganing
16. Snowmobiling
17. Snowskiing
18. Swimming
19. Tennis
20. Trail bikes
21. Water skiing
22. Other (explain)

### WEEKENDS AND HOLIDAYS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>Number of Times Participated</th>
<th>Adults</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### WEEKDAYS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>Number of Times Participated</th>
<th>Adults</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
</tbody>
</table>
APPENDIX B

ADDITIONAL INFORMATION ON THE DISTRIBUTION OF OHIO HOUSEHOLDS (1970 CENSUS AND 1973 ODNR SURVEY RETURNS) BY SOCIO-ECONOMIC PLANNING REGIONS


(FIGURE 4. Reference Map of the Eleven Socio-Economic Planning Regions of Ohio)
TABLE 12

DISTRIBUTION OF OHIO HOUSEHOLDS BY SOCIO-ECONOMIC PLANNING REGIONS: 1970 CENSUS AND 1973 ODNR SURVEY RETURNS

(Percentage Distribution)

<table>
<thead>
<tr>
<th>Planning Region</th>
<th>Survey</th>
<th>1970 Census</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.0</td>
<td>12.8</td>
</tr>
<tr>
<td>2a</td>
<td>9.6</td>
<td>8.5</td>
</tr>
<tr>
<td>2b</td>
<td>2.8</td>
<td>2.4</td>
</tr>
<tr>
<td>3</td>
<td>3.6</td>
<td>3.1</td>
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<tr>
<td>4a</td>
<td>1.8</td>
<td>1.4</td>
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<tr>
<td>4b</td>
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<td>2.3</td>
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<tr>
<td>5b</td>
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<td>6</td>
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<td>10b</td>
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<tr>
<td>11</td>
<td>7.3</td>
<td>6.9</td>
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</tbody>
</table>

Source: Ohio Department of Natural Resources, 1975: 52.
Figure 4. Reference Map of the Eleven Socio-economic Planning Regions of Ohio.

Source: Ohio Department of Natural Resources, 1975: 3.
APPENDIX C

ADDITIONAL ANALYSIS PERTAINING TO THE HYPOTHESES RELATED TO THE HOLISTIC MODEL OF FAMILY PARTICIPATION IN OUTDOOR RECREATION ACTIVITY

(TABLE 13. Correlation Matrix for Selected Independent Variables and Average Family Participation in Individual Outdoor Recreation Activities (N = 5166))

(Regression Equations for Selected Independent Variables and Family Participation in Individual Outdoor Recreation Activities)
TABLE 13
CORRELATION MATRIX FOR SELECTED INDEPENDENT VARIABLES AND AVERAGE FAMILY PARTICIPATION IN INDIVIDUAL OUTDOOR RECREATION ACTIVITIES (N=5166)

<table>
<thead>
<tr>
<th>Area Characteristics</th>
<th>Convenience Composite</th>
<th>Convenience Composite</th>
<th>Bicycling</th>
<th>Boating</th>
<th>Canoeing</th>
<th>Fishing</th>
<th>Golf</th>
<th>Hiking</th>
<th>Horseback Riding</th>
<th>Ice</th>
<th>Ice Skating</th>
<th>Picnicking</th>
<th>Playground</th>
<th>Outdoor Games, Sports, Sailing</th>
<th>Toboggan-ing</th>
<th>Snowmobiling</th>
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</tbody>
</table>
The general linear equation used for each analysis was:

\[ y = a + bX_1 + bX_2 + bX_3 + bX_4 + bX_5 + bX_6 + e \]

where:
- \( Y \) = score of dependent variable
- \( a \) = \( Y \) intercept (constant)
- \( b \) = regression coefficient
- \( X \) = score of independent variable
- \( e \) = residual error

\( R^2 = \text{adjusted coefficient of determination} \)

Regression 1:

\[ Y = 1.198 + 0.860 X_1 + 0.041 X_2 - 0.205 X_3 + 0.170 X_4 - 0.185 X_5 + 0.120 X_6 + e \]

(Adjusted \( R^2 = 0.013 \))
Regression 2:

\[ Y = 1.453 - 0.204 X_1 + 0.125 X_2 - 0.090 X_3 + 0.008 X_4 - 0.002 X_5 + e. \]

where: \( Y \) = average family participation in boating
\( X_1 \) = family size
\( X_2 \) = total household income
\( X_3 \) = area characteristics composite
\( X_4 \) = average number of hours per week employed by head of household
\( X_5 \) = average length of annual paid vacation by head of household

(Adjusted \( R^2 = 0.008 \))

Regression 3:

\[ Y = 1.610 - 0.123 X_1 + 0.018 X_2 - 0.129 X_3 + 0.055 X_4 + 0.015 X_5 + 0.002 X_6 + 0.020 X_7 + e \]

where: \( Y \) = average family participation in camping
\( X_1 \) = personal composite
\( X_2 \) = average length of annual paid vacation by head of household
\( X_3 \) = total household income
\( X_4 \) = convenience composite
\( X_5 \) = personal composite
\( X_6 \) = average number of hours per week employed by head of household
\( X_7 \) = family size

(Adjusted \( R^2 = 0.005 \))
Regression 4:

\[ Y = 0.132 + 0.023 X_1 - 0.025 X_2 + 0.003 X_3 - 0.023 X_4 - 0.013 X_5 - 0.002 X_6 + 0.002 X_7 + e \]

\[ \text{Adjusted } R^2 = 0.000 \]

where:  
- \( Y \) = average family participation in canoeing  
- \( X_1 \) = convenience composite  
- \( X_2 \) = area characteristics composite  
- \( X_3 \) = average hours per week worked by head of household  
- \( X_4 \) = total household income  
- \( X_5 \) = personal composite  
- \( X_6 \) = average length of annual paid vacation by head of household  
- \( X_7 \) = family size

Regression 5:

\[ Y = 2.380 - 0.105 X_1 + 0.102 X_2 - 0.106 X_3 + 0.008 X_4 - 0.081 X_5 + 0.013 X_6 + 0.003 X_7 + e \]

\[ \text{Adjusted } R^2 = 0.002 \]

where:  
- \( Y \) = average family participation in fishing  
- \( X_1 \) = family size  
- \( X_2 \) = convenience composite  
- \( X_3 \) = area characteristics composite  
- \( X_4 \) = average number of hours per week employed by head of household  
- \( X_5 \) = total household income  
- \( X_6 \) = personal composite  
- \( X_7 \) = average length of annual paid vacation by head of household
Regression 6:

\[ Y = 1.190 + 0.432 X_1 - 0.399 X_2 - 0.091 X_3 + 0.062 X_4 + \\
0.005 X_5 - 0.003 X_6 - 0.012 X_7 + e \]

where:

- \( Y \) = average family participation in golf
- \( X_1 \) = total household income
- \( X_2 \) = family size
- \( X_3 \) = area characteristics composite
- \( X_4 \) = personal composite
- \( X_5 \) = average length of annual paid vacation by head of household
- \( X_6 \) = average number of hours per week employed by head of household
- \( X_7 \) = convenience composite

(Adjusted \( R^2 = 0.016 \))

Regression 7:

\[ Y = 1.442 - 0.230 X_1 + 0.014 X_2 + 0.068 X_3 - 0.078 X_4 - \\
0.011 X_5 - 0.013 X_6 - 0.011 X_7 + e \]

where:

- \( Y \) = average family participation in hiking
- \( X_1 \) = family size
- \( X_2 \) = average hours worked per week employed by head of household
- \( X_3 \) = personal composite
- \( X_4 \) = area characteristics composite
- \( X_5 \) = average length of annual paid vacation by head of household
- \( X_6 \) = convenience composite
- \( X_7 \) = total household income

(Adjusted \( R^2 = 0.001 \))
Regression 8:

\[ Y = -0.013 + 0.008 X_1 + 0.056 X_2 - 0.033 X_3 + 0.049 X_4 - 0.005 X_5 + 0.021 X_6 + 0.014 X_7 + e \]

where:

- \( Y \) = average family participation in horseback riding
- \( X_1 \) = average number of hours per week employed by head of household
- \( X_2 \) = Area characteristics composite
- \( X_3 \) = personal composite
- \( X_4 \) = family size
- \( X_5 \) = average length of annual paid vacation by head of household
- \( X_6 \) = total household income
- \( X_7 \) = convenience composite

(Assumed \( R^2 = 0.000 \))

Regression 9:

\[ Y = 1.073 + 0.014 X_1 - 0.087 X_2 - 0.086 X_3 - 0.074 X_4 + 0.026 X_5 - 0.007 X_6 + 0.006 X_7 + e \]

where:

- \( Y \) = average family participation in hunting
- \( X_1 \) = average number of hours employed per week employed by head of household
- \( X_2 \) = total household income
- \( X_3 \) = area characteristics composite
- \( X_4 \) = family size
- \( X_5 \) = personal composite
- \( X_6 \) = average length of annual paid vacation by head of household
- \( X_7 \) = convenience composite

(Assumed \( R^2 = 0.004 \))
Regression 10:

\[
Y = 0.051 + 0.022 X_1 + 0.002 X_2 - 0.019 X_3 + 0.016 X_4 - \\
(0.011) \quad (0.002) \quad (0.016) \quad (0.020) \\
0.002 X_5 + 0.005 X_6 + 0.003 X_7 + e \\
(0.003) \quad (0.020) \quad (0.015)
\]

where:  
Y = average family participation in ice skating  
X_1 = personal composite  
X_2 = average number of hours per week employed by head of household  
X_3 = area characteristics composite  
X_4 = family size  
X_5 = average length of annual paid vacation by head of household  
X_6 = total household income  
X_7 = convenience composite

(Adjusted \( R^2 = 0.000 \))

Regression 11:

\[
Y = 2.320 - 0.136 X_1 + 0.045 X_2 - 0.004 X_3 - 0.021 X_4 - \\
(0.051) \quad (0.028) \quad (0.003) \quad (0.039) \\
0.012 X_5 + 0.001 X_6 + e \\
(0.039) \quad (0.008)
\]

where:  
Y = average family participation in picnicking  
X_1 = total household income  
X_2 = personal composite  
X_3 = average number of hours per week employed by head of household  
X_4 = convenience composite  
X_5 = area characteristics composite  
X_6 = average length of annual paid vacation by head of household

(Adjusted \( R^2 = 0.001 \))
Regression 12:

\[ Y = 0.488 + 0.167 X_1 + 0.066 X_2 - 0.070 X_3 - 0.003 X_4 + \\
\]  
\[ 0.008 X_5 - 0.001 X_6 + e \]

\[ \text{(0.053)} \quad \text{(0.040)} \quad \text{(0.054)} \quad \text{(0.008)} \]

where:  
- \( Y \) = average family participation in playground activities
- \( X_1 \) = family size
- \( X_2 \) = area characteristics composite
- \( X_3 \) = total household income
- \( X_4 \) = average length of annual paid vacation by head of household
- \( X_5 \) = personal composite
- \( X_6 \) = average number of hours per week employed by head of household

\( \text{(Adjusted } R^2 = 0.002) \)

Regression 13:

\[ Y = 0.317 + 0.125 X_1 - 0.105 X_2 - 0.060 X_3 + 0.048 X_4 + \\
\]  
\[ 0.063 X_5 - 0.005 X_6 + 0.003 X_7 + e \]

\[ \text{(0.033)} \quad \text{(0.045)} \quad \text{(0.060)} \quad \text{(0.045)} \]

where:  
- \( Y \) = average family participation in outdoor games, sports
- \( X_1 \) = personal composite
- \( X_2 \) = convenience composite
- \( X_3 \) = total household income
- \( X_4 \) = area characteristics composite
- \( X_5 \) = family size
- \( X_6 \) = average number of hours per week employed by head of household
- \( X_7 \) = average length of annual paid vacation of head of household

\( \text{(Adjusted } R^2 = 0.003) \)
Regression 14:

\[ Y = 0.202 - 0.013 X_1 + 0.010 X_2 - 0.009 X_3 + 0.001 X_4 + \]
\[ (0.019) (0.015) (0.015) (0.003) \]
\[ 0.004 X_5 - 0.000 X_6 + 0.001 X_7 + e \]
\[ (0.020) (0.002) (0.011) \]

where:  
\( Y = \) average family participation in sailing  
\( X_1 = \) family size  
\( X_2 = \) convenience composite  
\( X_3 = \) area characteristics composite  
\( X_4 = \) average length of annual paid vacation by head of household  
\( X_5 = \) total household income  
\( X_6 = \) average number of hours per week employed by head of household  
\( X_7 = \) personal composite  

(Adjusted \( R^2 = -0.001 \))

Regression 15:

\[ Y = 0.127 + 0.033 X_1 - 0.009 X_2 - 0.001 X_3 - 0.006 X_4 - \]
\[ (0.008) (0.006) (0.001) (0.008) \]
\[ 0.004 X_5 + 0.002 X_6 - 0.000 X_7 + e \]
\[ (0.006) (0.005) (0.001) \]

where:  
\( Y = \) average family participation in sledding and tobogganining  
\( X_1 = \) family size  
\( X_2 = \) area characteristics composite  
\( X_3 = \) average length of annual paid vacation by head of household  
\( X_4 = \) total household income  
\( X_5 = \) convenience composite  
\( X_6 = \) personal composite  
\( X_7 = \) average number of hours per week employed by head of household  

(Adjusted \( R^2 = 0.003 \))
Regression 16:

\[ Y = 0.027 + 0.003 X_1 - 0.024 X_2 + 0.011 X_3 - 0.009 X_4 - 0.002 X_5 - 0.006 X_6 - 0.002 X_7 + e \]

(Adjusted \( R^2 = 0.000 \))

where:
- \( Y \) = average family participation in snowmobiling
- \( X_1 \) = average number of hours per week employed by head of household
- \( X_2 \) = family size
- \( X_3 \) = personal composite
- \( X_4 \) = area characteristics composite
- \( X_5 \) = average length of annual paid vacation by head of household
- \( X_6 \) = total household income
- \( X_7 \) = convenience composite

Regression 17:

\[ Y = -0.022 + 0.016 X_1 + 0.006 X_2 - 0.006 X_3 + 0.001 X_4 + 0.000 X_5 - 0.001 X_6 + e \]

(Adjusted \( R^2 = 0.001 \))

where:
- \( Y \) = average family participation in snowskiing
- \( X_1 \) = total household income
- \( X_2 \) = convenience composite
- \( X_3 \) = area characteristics composite
- \( X_4 \) = average length of annual paid vacation by head of household
- \( X_5 \) = average number of hours per week employed by head of household
- \( X_6 \) = family size
Regression 18:

\[ Y = 2.029 + 0.412 X_1 - 0.150 X_2 + 0.017 X_3 + 0.170 X_4 - \\
(0.093) \quad (0.072) \quad (0.010) \quad (0.095) \]
\[ 0.015 X_5 + 0.003 X_6 - 0.009 X_7 + e \]
\( (0.071) \quad (0.014) \quad (0.052) \)

where: 
\( Y \) = average family participation in swimming  
\( X_1 \) = family size  
\( X_2 \) = area characteristics composite  
\( X_3 \) = average number of hours per week employed by head of household  
\( X_4 \) = total household income  
\( X_5 \) = convenience composite  
\( X_6 \) = average length of annual paid vacation by head of household  
\( X_7 \) = personal composite  

(Adjusted \( R^2 = 0.007 \))

Regression 19:

\[ Y = 0.674 - 0.219 X_1 + 0.131 X_2 + 0.010 X_3 + 0.060 X_4 - \\
(0.051) \quad (0.052) \quad (0.005) \quad (0.028) \]
\[ 0.090 X_5 - 0.007 X_6 + 0.010 X_7 + e \]
\( (0.039) \quad (0.008) \quad (0.039) \)

where: 
\( Y \) = average family participation in tennis  
\( X_1 \) = family size  
\( X_2 \) = total household income  
\( X_3 \) = average number of hours employed per week by head of household  
\( X_4 \) = personal composite  
\( X_5 \) = area characteristics composite  
\( X_6 \) = average length of annual paid vacation by head of household  
\( X_7 \) = convenience composite  

(Adjusted \( R^2 = 0.006 \))
Regression 20:

\[ Y = 0.272 - 0.068 X_1 + 0.032 X_2 - 0.009 X_3 + 0.005 X_4 - \\
\quad (0.035) (0.026) (0.007) (0.005) \\
\quad 0.045 X_5 + 0.038 X_6 + 0.016 X_7 + e \\
\quad (0.046) (0.047) (0.036) \]

where:

- \( Y \) = average family participation in trail biking
- \( X_1 \) = convenience composite
- \( X_2 \) = personal composite
- \( X_3 \) = average length of annual paid vacation by head of household
- \( X_4 \) = average number of hours per week employed by head of household
- \( X_5 \) = family size
- \( X_6 \) = total household income
- \( X_7 \) = area characteristics composite

(Adjusted \( R^2 \) = 0.000)

Regression 21:

\[ Y = 0.236 + 0.064 X_1 - 0.020 X_2 - 0.035 X_3 + 0.003 X_4 - \\
\quad (0.024) (0.018) (0.024) (0.002) \\
\quad 0.008 X_5 - 0.002 X_6 - 0.004 X_7 + e \\
\quad (0.013) (0.004) (0.018) \]

where:

- \( Y \) = average family participation in water skiing
- \( X_1 \) = total household income
- \( X_2 \) = convenience composite
- \( X_3 \) = family size
- \( X_4 \) = average number of hours per week employed by head of household
- \( X_5 \) = personal composite
- \( X_6 \) = average length of annual paid vacation by head of household
- \( X_7 \) = area characteristics composite

(Adjusted \( R^2 \) = 0.001)
Regression 22:

\[ Y = 0.236 + 0.064 X_1 - 0.020 X_2 - 0.035 X_3 + 0.003 X_4 - 0.008 X_5 - 0.002 X_6 - 0.004 X_7 + e \]

where: 
- \( Y \) = average family participation in "other" activities
- \( X_1 \) = total household income
- \( X_2 \) = convenience composite
- \( X_3 \) = family size
- \( X_4 \) = average number of hours per week worked by head of household
- \( X_5 \) = personal composite
- \( X_6 \) = average length of annual paid vacation by head of household
- \( X_7 \) = area characteristics composite

(Adjusted \( R^2 = 0.001 \))


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