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MEASUREMENT OF ECONOMIC CHARACTERISTICS OF MICHIGAN PRIVATE CAMPGROUND INDUSTRY

By

Darsan Wang

A DISSERTATION

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ABSTRACT

MEASUREMENT OF ECONOMIC
CHARACTERISTICS OF MICHIGAN
PRIVATE CAMPGROUND INDUSTRY

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This study is an attempt to establish the economic magnitude of the private campground industry in Michigan. One hundred enterprises were randomly chosen from a population of 226 Michigan private campgrounds with 30 or more campsites. Economic data were collected in the field by means of interviewing the campground owner/managers in the summer of 1972. Two multiple regression models were applied to estimate the effects of several campground features and management skills on eight economic variables, such as the occupancy rates, development investment, annual operating expenditures, net income and interest payment, and average basic camping fees. The regression equation derived from one of the models was then used to estimate the economic variables for those campgrounds not in sample. The combination of the actual data from the sample campgrounds

and the estimated figures for the rest of the private campgrounds was computed by county. A three-dimensional computer mapping technique (SYMVU) was applied to make graphic presentations on selected variables of the Michigan private campground economy.

The industry represented a total of 25.4 million dollars of development investment, and its annual contribution in operating expenditures and camping fees was 10 million dollars in 1972. In conclusion, the private campground industry in Michigan is a people oriented recreation activity, as opposed to a natural resource activity. Its campground distribution compensates the voids left in development of the public campgrounds, which focus on the natural resource base. It is dependent upon the occupancy rates, camping fees, and supplemental goods and services, for profit making. It bears a relationship to the traffic pattern in the state. Its success is not entirely a function of the location and size of the individual campgrounds, since the skills of management play an important role in the success of the business.

ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the members of my guidance committee, Drs. Lewis Moncrief, Daniel Chappelle, Eugene Dice, and Dennis Gilliland for their interest, enthusiastic encouragement, and conscientious guidance which were largely responsible for the completion of this study. Dr. Dice directly supervised the research. Working closely with him during the past year was a great pleasure. Dr. Gilliland provided the most helpful consultation and review in statistics. Dr. Chappelle evaluated the manuscript carefully and rendered his criticism in great details. Special thanks also go to Dr. Robert Wittick for his assistance in computer mapping techniques, and Dr. Don Holecek for many constructive comments.

The research was made possible through a grant supported by Hatch Act Rural Development Funds, Michigan State University Agricultural Experiment Station. The first part of the Ph.D. program in the Department of Resource Development was also supported by the Agricultural Experiment Station.

I appreciatively acknowledge the valuable assistance rendered by the respondent campground owner/managers and their customers, as well as the Vesely Company of Lapeer, Michigan and Waterland Sales of Warren, Michigan who provided the camping vehicles for the field research.

Others whose encouragement and counsel aided the study include the Environmental Health Section of the Michigan Department of Public Health, the State Parks Division of Michigan Department of Natural Resources, and Mr. Leon Buist, Recreation Planning Section of the Department of Natural Resources.

Substantial help came from the staff and my fellow students in the Department of Park and Recreation Resources, Anne, Vicki, Joann S., Jo Ann R., Diane, Steve, Kevin, and Neil. Mr. Roy Saper helped me kick the computer.

Of course, the major support came from my family; my parents, my sister Sheila and brother-in-law Eddie.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Literature Review

During the past decade, various studies with emphasis on public campgrounds have been conducted by many agencies and universities. (See Bibliography) They have explored several camping aspects in the public sector, such as camper characteristics (Burch and Wiley; King; Wagar), camper psychology (Clark, Hendee, and Campbell), user preferences (Cordell and Sykes; Lime; Lucas), campground attractions (Hodgson; Wang), and camping equipment purchases (Marquardt, et al.). However, the time has come when the public facilities have gradually begun to lag behind the increasing pressure of the camping demand. The recent overcrowding problems in Michigan public campgrounds stimulate more and more interest in the private sector of the camping business. Private campgrounds are likely different from public campgrounds in many ways, such as use pattern as well as economic structure. Therefore, the findings in public camping sector may not be applicable to private camping business, and it deserves a separate effort.

Unlike the research in the public camping sector, a great deal of studies on private campgrounds put emphasis on defining the camping market, as well as profit maximization to the individual campgrounds. They are less interested in things like extra-market values and intangibles, as compared to some of the public campground research. Attention is rather paid to topics such as market potential, investment, annual profit for individual campgrounds, willingness to pay, etc. The following are a few examples:

Bevins indicates, "In the 1960's campgrounds were developed on excess land which had few other uses. In the 1970's, campgrounds are being developed on lands specifically chosen because they have some real market potential."[1]

LaPage made a study of the camping market in 1971, based on interviews with the heads of 2,003 representative American households. He points out that "the total camping market is estimated to include 12.6 million active camping families, 9 million inactive, and 10 million potential camping families."[2]

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[1]Malcolm Bevins. "Focusing on the Future." in The Private Campground Business: A Forward Focus. Proceedings of the Michigan Campground Business Seminar. East Lansing, Michigan: Michigan State University, March 24, 1972.

[2]W. F. LaPage. Growth Potential of the Family Camping Market. (USFS Research Paper NE-252) Upper Darby, Pa.: USFS Northeastern Forest Experiment Station, 1973.

Folsom and Koch made an investigation in New Jersey which defines, "The forty-one sampled campgrounds had an average investment of $141,681 in 1970. These campgrounds had an average of 134.4 campsites and average investment per site of $1,054."[3]

De Vriend et al. report, "Campgrounds reporting net profits for the year displayed three outstanding characteristics: 1) They were located on desirable bodies of water (gross income per site nearly double that of campgrounds without water). 2) They were located in areas familiar to the recreationist. 3) They were larger than average."[4]

In a New York study, Brown sees the "effect of sizes" upon campground profit making. He defines the concept of "net cash income less depreciation" as the annual profit of the private campground and has the following for 115 New York campgrounds in 1970:

	Site Grouping				
	11-49	50-99	100-199	200-299	300 & Over
Net Cash Income Less Depreciation	$-475	$ 659	$ 2,450	$ 3,530	$ 12,183

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[3]David Folsom and Robert Koch. Profitability Considerations for Private Campgrounds in New Jersey. (No. 337) New Brunswick, N.J.: Rutgers University, 1972.

[4]A. J. De Vriend, H. M. Smith, and S. W. Weiss. Keys to Successful Campground Operations. (Series No. 2) Madison, Wisconsin: University of Wisconsin, 1972.

Based on the empirical data in New York, he strongly suggests larger campgrounds with at least 100 sites.[5]

LaPage examines the campers' "willingness to pay" and derives a "hypothetical demand curve" and elasticity on camping fees.[6]

Elsewhere LaPage points out, "The location of a campground is important to success. In a regional comparison, the less successful ventures were mostly in a region remote from major metropolitan centers, where lakes were scarce, competition (both public and private) was keen and the camping season was shorter." Other important features include "campground size, campground age, investment, swimming and boating attractions, etc."[7]

The relationship between public and private camping has been studied by several researchers, among them LaPage made a comparative study on camper characteristics in

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[5]Tommy L. Brown. "How Big is Big Enough." in Campground Management Conference. Ithaca, N.Y.: Cornell University, 1972. pp. 25-31.

[6]Wilbur F. LaPage. The Role of Fees in Campers' Decisions. (USFS Research Paper NE-108.) Upper Darby, Pa.: Northeastern Forest Experiment Station, 1968. pp. 6-13.

[7]Wilbur F. LaPage. The Role of Customer Satisfaction in Managing Commercial Campgrounds. (USFS Research Paper NE-105) Upper Darby, Pa.: USFS Northeastern Forest Experiment Station, 1968. p. 7.

New England;[8] and Buist established the relationship between private and public campgrounds in Michigan.[9] The Buist study also conducted in 1972 was closely related to the present study. It covered the public as well as the private sectors in Michigan, whereas the present study concentrated on the private camping business. Buist concluded, among others:

> (1) 76 percent of the camping parties had camped in both private and public campgrounds. The camper experience varies from private campground to private campground, whereas it is expected to be similar in the public campgrounds.
>
> (2) The preference for private or public campgrounds is rather evenly distributed, one-third of the campers preferred private, one-third preferred public, and one-third had no preference.

His study indicates that the private campgrounds in Michigan were at least as important as the public campgrounds in terms of providing camping opportunities to the residents as well as the out-of-state visitors. Further, since the camper experience varied from private campground to private campground, the private campground owner/managers needed more intuitiveness.

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[8]Wilbur F. LaPage. Camper Characteristics Differ at Public and Commercial Campgrounds in New England. (USFS Research Note NE-59) Upper Darby, Pa.: USFS Northeastern Forest Experiment Station, 1967.

[9]Leon J. Buist. "The Relationship Between Private and Public Campgrounds in Michigan." Unpublished Ph.D. dissertation. University of Washington, 1973.

Problem Statement

Between 1954 and 1972, the number of campsites in Michigan private campgrounds increased from 342 to 18,921. In the past two years, 8,121 campsites were added to the list.[10] To describe such a rapidly growing industry, Dice et al. made an introductory study on "Privately Operated Campgrounds in Michigan" in 1971.[11] This initial study sketches out "the nature of the privately owned campground business in Michigan. Rather than performing an analysis of the business, its intent was to portray or inventory an existing situation. Additional research will look more factually upon the nature of investments, returns and other elements of business analysis."[12] The present study is directed to respond to this urge.

Statement of Objectives

This study represents one aspect of a three phase investigation into the economic scale and impact of the

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[10]Eugene F. Dice and Darsan Wang. A Study of Expenditures and Management in the Private Campground Industry. East Lansing, Michigan: Michigan State University, 1973.

[11]Eugene F. Dice; Tah Wah Chiang; and Timothy Smythe. Privately Operated Campgrounds in Michigan. East Lansing, Michigan: Michigan State University, 1971.

[12]Ibid. p. 2.

private recreation industry in Michigan. In addition to private campgrounds, initial study is in progress on commercial horse enterprises and private golf enterprises in the state.

The objectives of the total research project are two fold. The first objective is to establish the economic worth of this industry to the rural areas of the state. The second is to examine specified management skills as critical factors in success.

The cost of and income from the private camping industry are expected to represent a dramatic growth pattern, yet the significant aspect of the presence of this growing industry within the state was not considered in the past. The size of the industry together with its space consuming nature testifies to the fact that it is an economic use of vast acreages of otherwise non-producing privately owned lands which provides a market opportunity for both marginal lands and marginal family labor. It is the objective of this research to make an initial measurement of its economic stature. The purpose of the research is to evaluate the industry's contribution to the rural community. Two measurements of the dollar flow originating in this industry were chosen: (A) the investment in and annual expenditures of the campgrounds as dollar inputs into the economy, and (B) the expenditures

made by consumers in relation to the camping experience. Thus if measurement could be established for each of these on a sampling basis, then the two could be summed to provide a useful total measurement of the dollar flow accruing to the industry. No attempt to trace second and third turnovers of the expended dollars was anticipated.

Data Collection

Data were collected through field interviews with the campground owner/managers and the campground users. One hundred management interviews and one thousand user interviews were actually conducted by the staff members and four students[13] in the summer of 1972, starting June 13 and ending August 12.

There was a possibility of interviewer-to-interviewer effect confounded with region-to-region effect in Region 1, for the fact that only one student team (two students) had interviewed the five sample campgrounds in Upper Peninsula. Regions 2 and 3 in Lower

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[13]The entire research project was conducted by the Department of Park and Recreation Resources, Michigan State University, with Dr. Lewis W. Moncrief as the chief investigator. Dr. Eugene F. Dice, Extension Specialist and Associate Professor, was in charge of the campground research, with the help from Neil Greenfield, Steve Brown, and Kevin Green, masters candidates, and Darsan Wang, Ph.D. candidate in Resource Development.

Peninsula were visited by both teams; the interviewers went to campgrounds in various parts of the Lower Peninsula at random, therefore, little interviewer-to-interviewer effect was evident here. All of the four interviewers had received common instructions as to the appropriate manner in which to conduct the interviews, thus the personal bias was reduced to the minimum.

Although the interviews were conducted across a period of two months, the changes in time were not considered a possible source of bias, because the data were collected through conversation with the campground owner/managers, rather than actually record the information while the interviews were in process. For example, the occupancy rate apparently would have a seasonal effect if it was observed on the day the interviewers arrived at a particular campground, yet such bias was eliminated because the information was collected based on the best judgment of the owner/managers. All data were volunteered rather than lifted from actual accounts; on one hand, the accuracy of the data might be questionable; on the other hand, it might be more appropriate for our purpose in search of a macro-economic structure in the state, because by sacrificing details in individual campgrounds we gained the perspective of the whole situation.

The management questionnaire (See Appendix II)

was designed consisting of:

Item A A series of questions on the size, facilities, type, principal functions, and methods of advertisement of the campground.

Item B The structure of the management and the understanding of the camping business as well as the customers.

Item C The campground economic factors as regard to the income that the local community gains when private campgrounds are in operation. The information includes campground personnel, investments, annual costs, and returns.

This study will attempt to make analyses based on the management information. A report on the campground users was published in 1973 by Dice.[14]

Data Analyses

The research consisted of three phases of data analyses. First, initial analyses sketched out the Michigan private camping industry through average figures based on the information collected. Second, regression models were designed to estimate the population parameters of several important economic aspects of the industry.

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[14]Eugene F. Dice. A Study of Campers' Attitudes and Spending Patterns in the Private Campground Industry. East Lansing, Michigan: Michigan State University, 1973.

Thus, it was possible to project from the sample investigated to the entire private camping business in the state. Finally, computer mapping techniques were applied to graphically describe the private camping business in Michigan.

The Study Area

The study area is the entire state of Michigan. The 83 counties in the state were divided into three regions for analysis purpose, based on the distinct economic functions to the general understanding--The Upper Peninsula has more public lands and the local economy is heavily dependent on tourism; Northern Lower Peninsula has a similar situation, but the communities are more diverse; Southern Lower Peninsula, on the other hand, is agricultural and in some parts very much industrialized. (See Figure 1 in Chapter II) In 1972, there were approximately 350 private campgrounds; 226 campgrounds had 30 or more campsites. They had altogether around twenty thousand campsites, roughly equivalent to the number of public campsites.

Upper Peninsula (Region 1) The Upper Peninsula of Michigan is different from the rest of the state in many ways. The majority of the campers in the Lower Peninsula are Michigan residents, while in the Upper Peninsula they are mostly out-of-state visitors.

Regarding the length of stay, the further north one goes, the shorter he stays in one place. In those Upper Peninsula campgrounds, it is our observation that many leave in the morning, traveling or sightseeing, then in the afternoon they find another campground to stay. Although sometimes staying longer, they do not stick around the campground to be satisfied with just peace and quiet.

Northern Lower Peninsula (Region 2) State and federal lands offer many parks and forests, and private campgrounds appear at the fringe. They provide overnight accommodation for those who spend their vacation in the public recreation land and water, and in some cases, they have their own things to see and do. For example, many campers come back to one campground because the owner has five hundred acres of land for hiking and bird watching. The question here is whether the private campgrounds should be satisfied as the overflow areas for the public campgrounds, or should they strive for their share of customers.

Southern Lower Peninsula (Region 3) This part of Michigan is primarily agricultural land, and is close to the population centers, such as Detroit, Chicago, Grand Rapids, and Toledo. Although there are some recreational attractions, scenic-wise they are relatively few and less

alluring as compared to those located in the Northern part of Michigan. Therefore, the function of camping seems to "get away shortly" rather than get to some place. There are more semi-permanent types of camping here than elsewhere in the state. Camping is a sanctuary to those city residents, they come to recuperate and get ready for another Monday.

Limitations of the Study

This study was limited to the management and economy of the Michigan private campground industry prior to the investigation period of the summer of 1972. The campgrounds investigated were limited to the general commercial type private campgrounds each with 30 or more campsites. Public campgrounds or quasi-public establishments, such as church, group, or real estate campgrounds were excluded.

All data were voluntarily given by the campground owner/managers upon the request from a letter sent by the project supervisor prior to the visit by the interviewers. Besides a guarantee to keep individual figures confidential, no extra effort was extended to obtain proof of the information. In the study there was no opportunity to persue further the non-response items.

The utilization of the results was limited to providing information for recreation planning in the

state of Michigan at the present time. The economic structure of the camping industry may change over time and space. Although the results may be helpful in the planning process at another time or in another place, caution must be exerted against a direct application of the findings in this study. For example, the location variables in this study referred to three regions in the state of Michigan, the private camping industry in another state or in a foreign country may have a completely different situation, thus the identical location variables would not be appropriate.

Hypotheses

The two hypotheses tested in the regression analysis section of the study were:

The location and size of Michigan private campgrounds do not exert a significant influence upon selected campground economies.

The campground type, facilities, services, recreation activities, and management skills, together with the location and size do not exert a significant influence upon selected campground economies.

CHAPTER II

SAMPLING PROCEDURE

The Population

The population of Michigan private campgrounds was taken from the list of commercial campgrounds licensed in Michigan for the 1971-72 licensing period, provided by Michigan Department of Public Health. The campgrounds in this list were arranged alphabetically by counties and names of the campgrounds.

One of our major purposes was to define money exchanges in the private camping business sector at the present time. Therefore, only those campgrounds with licensed sites were taken into our population. The proposed campgrounds were excluded, because there were no management skills or users to be examined. Although our list did not include national and state campgrounds, some public campgrounds actually appeared on the list, such as township, city and village owned camping facilities; they were excluded as well. At last, it was arbitrarily decided that we would not include campgrounds with less than 30 licensed campsites, considering that

small campgrounds have negligible economic impact to the state-wide investigation.

After the above exclusions, 226 campgrounds remained in the population. Each campground was assigned a code number, from 001 to 226. For retrieval purpose, a "county-campground code" was also used, with first two digits indicating the county code and last two digits as the campground code, according to the alphabetical order of the origin list.

Sample Size

In many cases, it is either impossible or unnecessary to investigate the whole population. If a proper sample size is achieved and adequate sampling techniques are employed, the population under study can be well illustrated within an acceptable sampling error.

However, to those pioneer studies, there is a dilemma--one of the research objectives may be to pin down the population characteristics, yet in order to determine a proper sample size, knowing the population variance of the characteristics is a prerequisite. In the case of Michigan private campgrounds, our project is an early effort to gather raw data in the field, with the population variance unknown up to that date. Under this circumstance, the realistic approach was to arbitrarily set a sample size that was assured to be more than enough.

We felt roughly one half of 226 campgrounds should make a good representation; a sample size of 100 campgrounds was chosen, because it was easy to manipulate, and was an adequate load for two teams of student interviewers.

Sampling Techniques

Simple random sampling was applied. Based on the code numbers, 120 numbers were derived from a random number table.[1] Twenty extra numbers were added to the required amount for substitutes, in case that some campgrounds were unavailable for investigation.

Adaptation in the Field

In the field, the research teams had to change the designed samples once in a while. There were different reasons that a chosen campground was not usable. Some licensed campgrounds did not exist, either going out of business or having not started; some were not in the ordinary commercial campground nature, such as church campground, or real estate development campgrounds exclusively for the property owners; and in some cases, the campground owner/managers were not cooperative enough to provide meaningful management information.

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[1] F. James Rohlf and Robert R. Sokal. Statistical Tables. San Francisco: W. H. Freeman, 1969. pp. 152-56.

In each case, a close-by substitute was taken. There was no formal scheme to select the substitutes. In general they were neighboring campgrounds to the one which was unavailable for investigation; the locational bias was minimal.

At the end, 39 campgrounds in the 120 random samples were not taken, and 19 campgrounds outside the original sample list were substitutes for the management interviews. There was no attempt to force information from the 39 campgrounds; of course, we could not extend the findings in this study to the non-responsive campgrounds.

Review of Samples

Although many population characteristics were unknown prior to the data analysis, information about the location and sizes was available from the original campground list. It was desirable to compare these characteristics between the population, the designed random samples, and the actual samples.

Location

The campgrounds were plotted on three Michigan county maps. Figure 1 shows the population of Michigan private campgrounds with 30 or more sites. It illustrates the scattered patterns of the private campgrounds

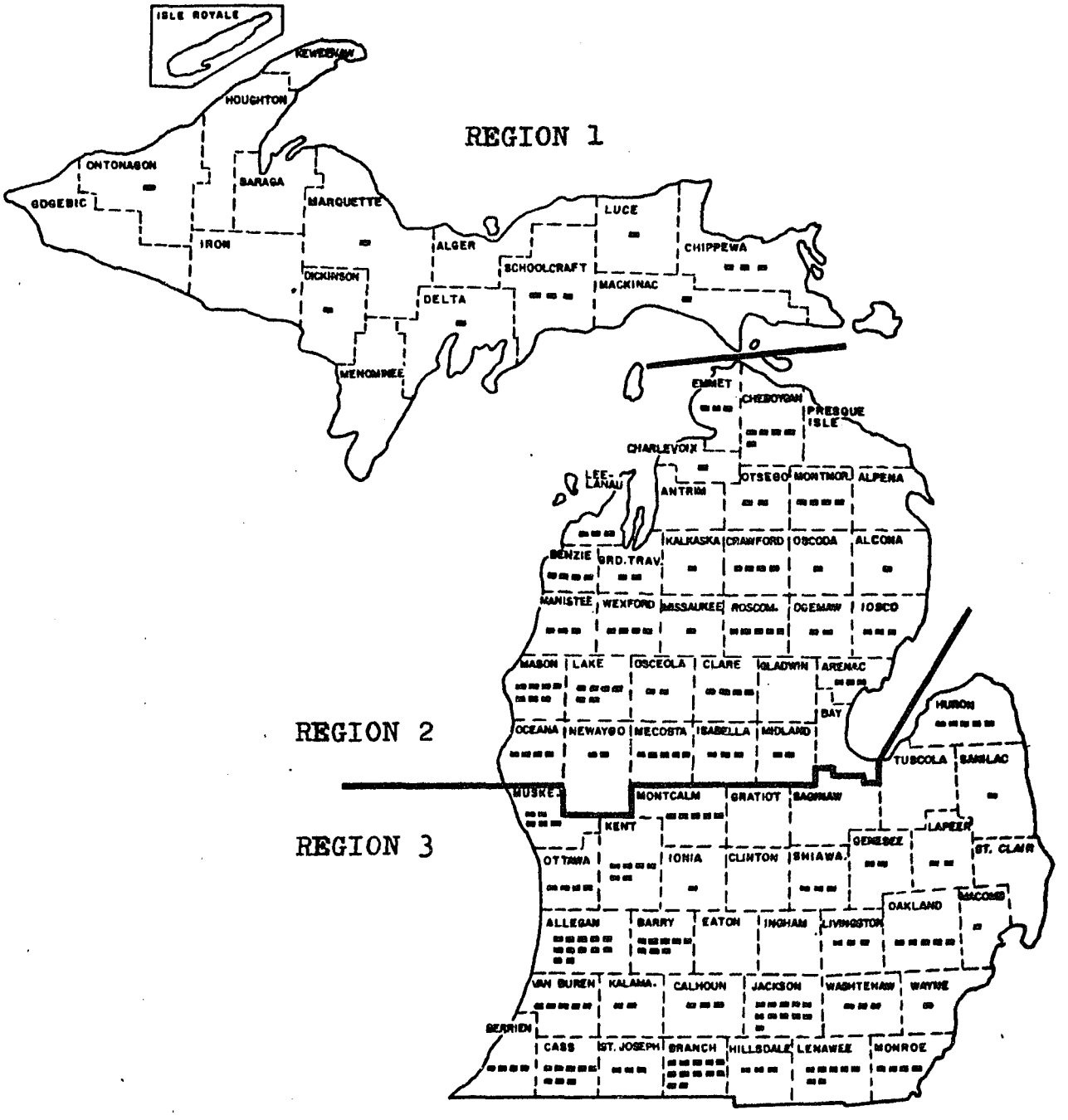

FIGURE 1.--The Population of Michigan Private Campgrounds (with 30 or more campsites) in 1972. Total: 226

in the state. Figure 2 is the distribution of 100 randomly chosen samples. The 100 campgrounds actually visited are shown in Figure 3. These maps revealed some similarities: (1) Private campgrounds are relatively few in the Upper Peninsula; (2) within the Lower Peninsula the southern half has more campgrounds than the northern half; (3) the western half is heavier than the eastern half.

Visually, the sample was representative in terms of location. Further, two simple computer programs were used to check this pattern.

A 7"x7" map of Michigan was gridded on X and Y axes with 8 grids to an inch. The approximate center of each county had a set of X and Y values indicating its geographic location. The 83 counties in the state were expressed as follows:

County	Location		Campgrounds	
	X	Y	Z_1	Z_2
Berrien	27	2	4	2
Cass	30	2	7	3
•				
•				
•				
•				

For each county, two Z values were assigned, Z_1 was the number of campgrounds in the population (from Figure 1), and Z_2 was the number of campgrounds

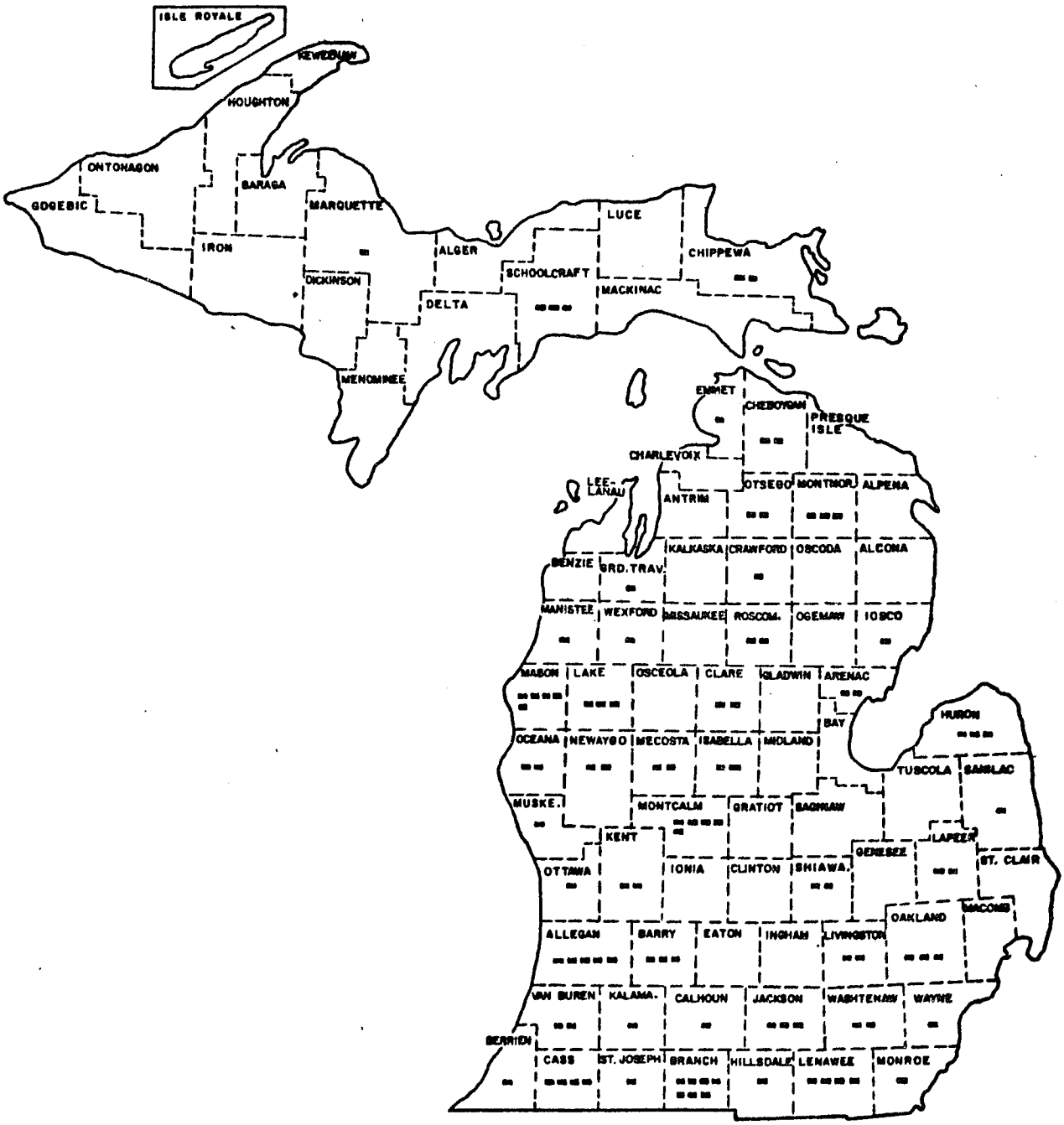

FIGURE 2.--100 Random Samples of Michigan Private Campgrounds.

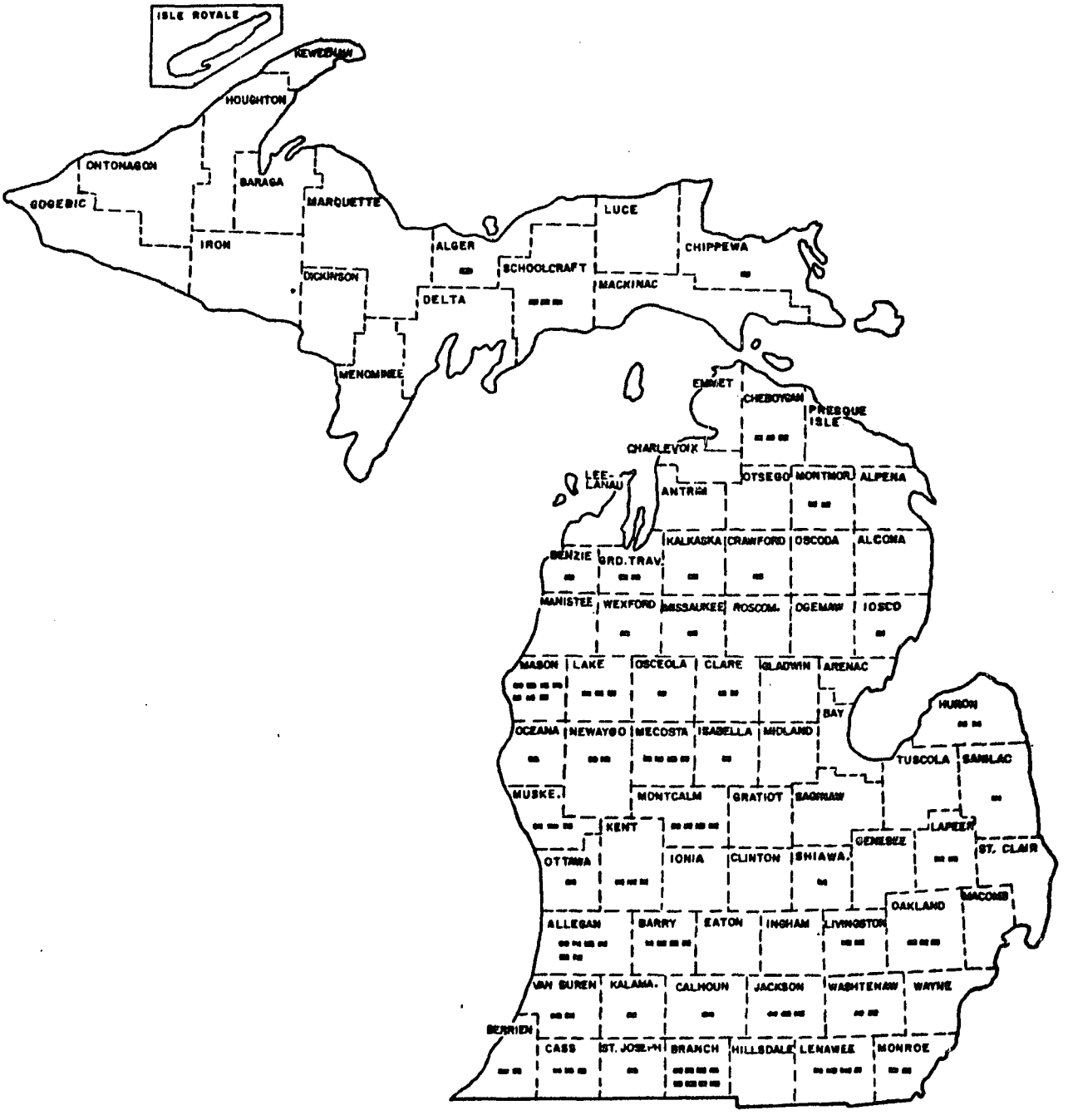

FIGURE 3.--100 Actual Samples of Michigan Private Campgrounds.

in the 100 actual samples (from Figure 3).

Therefore, for each county, we had two sets of data, (X, Y, Z_1) and (X, Y, Z_2), to compare information contained in Figures 1 and 3.

Centrographic Measures (CENTRO) computer program[2] "computes descriptive measures of spatial distributions from coordinated data. Weighed or non-weighed point sets are allowable. Output includes such centrographic measures as mean center, standard radius, coefficient of circularity, and angle of orientation of the distribution...."

All figures in Table 1 indicate that our samples closely follow the distribution pattern of the population. To be specific, both centers fell in Montcalm County, with the sample center slightly southwest of the population center (Figure 4). "The standard radius is a measure of dispersion of the distribution in all directions and is measured from the mean center." Therefore, the dispersion of the sample distribution was smaller than the population, yet still negligible. "A coefficient of circularity is provided to indicate the deviation of the pattern from a circular shape.

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[2]Robert I. Wittick. "Some Spatial Statistics Programs Used in Spatial Analysis." (Technical Report 71-2) East Lansing, Michigan: Michigan State University, 1971. pp. 3-5.

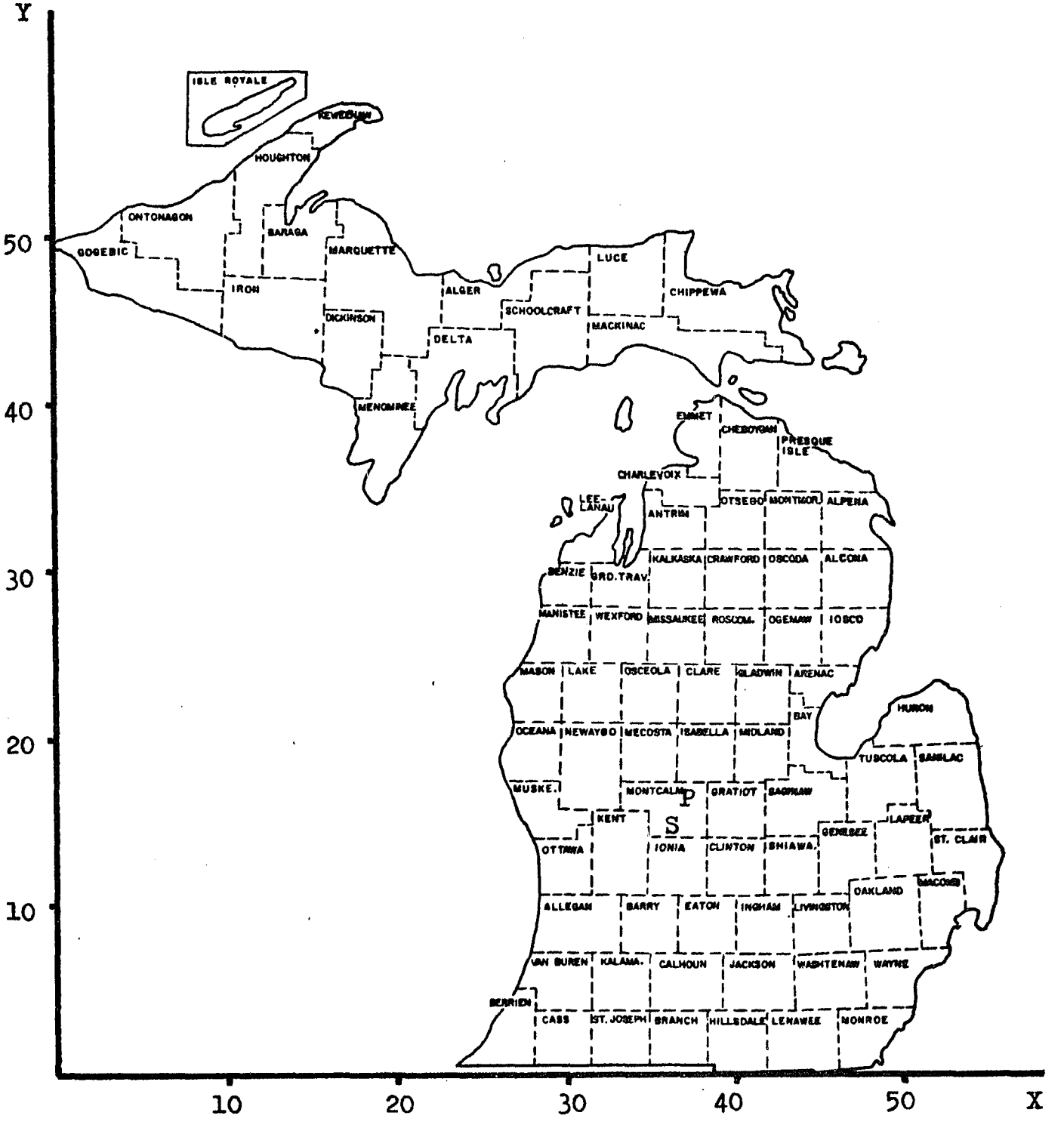

FIGURE 4.--Population Mean Center (P) and Sample Mean Center (S) of Michigan Private Campgrounds through CENTRO Computer Program.

This value ranges from 1.0 for a circular distribution to 0.0 for a linear one." Both were of very similar elliptical shapes. "The angle of orientation" indicates the orientation of the major axis of the elliptical distribution in relation to the abscissa of the reference axes. Again, the value for both were very close.

TABLE 1.--Measures of Spatial Distribution for the Population and Sample of Michigan Private Campgrounds.

	Population N=226	Samples n=100
Mean Center X Coordinate	36.965	36.510
Mean Center Y Coordinate	16.004	14.800
Standard Radius	14.143	13.566
Coefficient of Circularity	.574	.577
Angle of Rotation	1.682	1.706

It was concluded that the sample and population distribution patterns were very much alike and were acceptable.

Another computer program Ring and Sector Counting (LOCAT)[3] "establishes a system of rings and sectors about a base point and then proceeds to count the number and

[3]Ibid. Technical Report 71-3. pp. 6-7.

values of the observations falling into each cell."

The same data sets were used, and the base point was defined as (40,20) which is located at the northeast corner of Isabella County (Figure 5), close to the center of Michigan's Lower Peninsula. The number of rings was 6; distance increment was 4 grids; number of sectors was 8; and angular increment was 45 degrees.

Table 2 represents the distribution pattern of the population and that of the sample. Overall, they were in very similar patterns. The highest values in the rows and columns indicated that Ring 4 and Sector 5 accommodated the majority of the campgrounds. Four cells in Rings and Sectors 4 and 5 contain 34% of the campgrounds in the population, or 36% of the campgrounds in the sample. The same area is shown in Figure 5. This shaded area can be called the "private campground belt" in Michigan.

Table 3 depicts the regional distribution of 100 random samples designed and actually taken as compared to the population. Percentage-wise, the campgrounds in the designed random samples in each region closely followed those in the population, deviations ranging from 1.2% to 3.6%. Based on this result, we were fairly confident in our sampling. After the field adjustments, the 100 samples actually taken deviated from the

FIGURE 5.--The Private Campground Belt of Michigan.

TABLE 2.--Distribution Patterns of the Population and the Sample of Michigan Private Campgrounds.

	Ring	Sector 1	2	3	4	5	6	7	8
Population N=226	1	0	0	0	2	3	0	0	4
	2	1	3	0	0	5	7	8	6
	3	2	3	0	5	1	6	7	7
	4	4	5	3	19	23	13	11	6
	5	5	0	1	11	22	0	0	3
	6	0	0	0	4	14	0	2	10
Sample n=100	1	0	0	0	0	1	0	0	2
	2	0	0	0	0	4	6	4	1
	3	0	1	0	1	0	3	1	4
	4	2	2	3	8	11	5	8	1
	5	3	0	0	6	11	0	0	0
	6	0	0	0	2	6	0	0	5

TABLE 3.--Regional Distribution of 100 Random Samples and Actual Samples as Compared to the Population.

Region	Population	Random Sample	Actual Sample
1	11 (4.8%)	6	5
2	87 (38.6%)	35	34
3	128 (56.6%)	59	61
All	226	100	100

TABLE 4.--Size Distribution of 100 Random Samples and Actual Samples as Compared to the Population.

Size	Population	Random Sample	Actual Sample
30-39	56 (24.8%)	27	28
40-59	61 (27.0%)	32	23
60-79	38 (16.8%)	14	16
80-99	22 (9.7%)	8	13
100-119	24 (10.9%)	11	8
120+	25 (10.8%)	8	12
All	226	100	100

population only by 0.2% to 4.6%. None of the three regions in the state were over or under sampled.

Size

In the same manner, the size distribution is illustrated in Table 4. For six size groups, percentage differences between the population and the designed samples, or the actual samples, were both below 5%.

In Table 5, the population totaled 16,823 campsites in 226 campgrounds, with an average of 74.44 sites per campground. The random samples designed prior to the summer had an average of 69.37 sites. Nevertheless, the 100 campgrounds visited had an average of 74.34 licensed sites. This figure only deviated from the population mean by 0.1 site.

Size distribution in accumulative percentages (Table 6) is derived from Table 4. It indicates in Figure 6 that the actual samples closely follow the population pattern.

Conclusion

Except for location and size we did not know the characteristics of the campgrounds making up the Michigan private campground enterprise. Comparisons between the sample and the population on the two known characteristics indicate the sample to be representative in terms of these two characteristics.

TABLE 5.--Total and Average Number of Campsites of 100 Random Samples and Actual Samples as Compared to the Population.

	Population	Random Sample	Actual Sample
Total Number of Campsites	16,823	6,937	7,434
Actual Number of Campsites	74.44	69.37	74.34

TABLE 6.--Size Distribution of 100 Random Samples and Actual Samples as Compared to the Population in Accumulative Percentages.

Size	Population	Random Sample	Actual Sample
30-39	24.8	27	28
40-59	51.8	59	51
60-79	68.6	73	67
80-99	78.3	81	80
100-119	89.2	92	88
120+	100.0	100	100

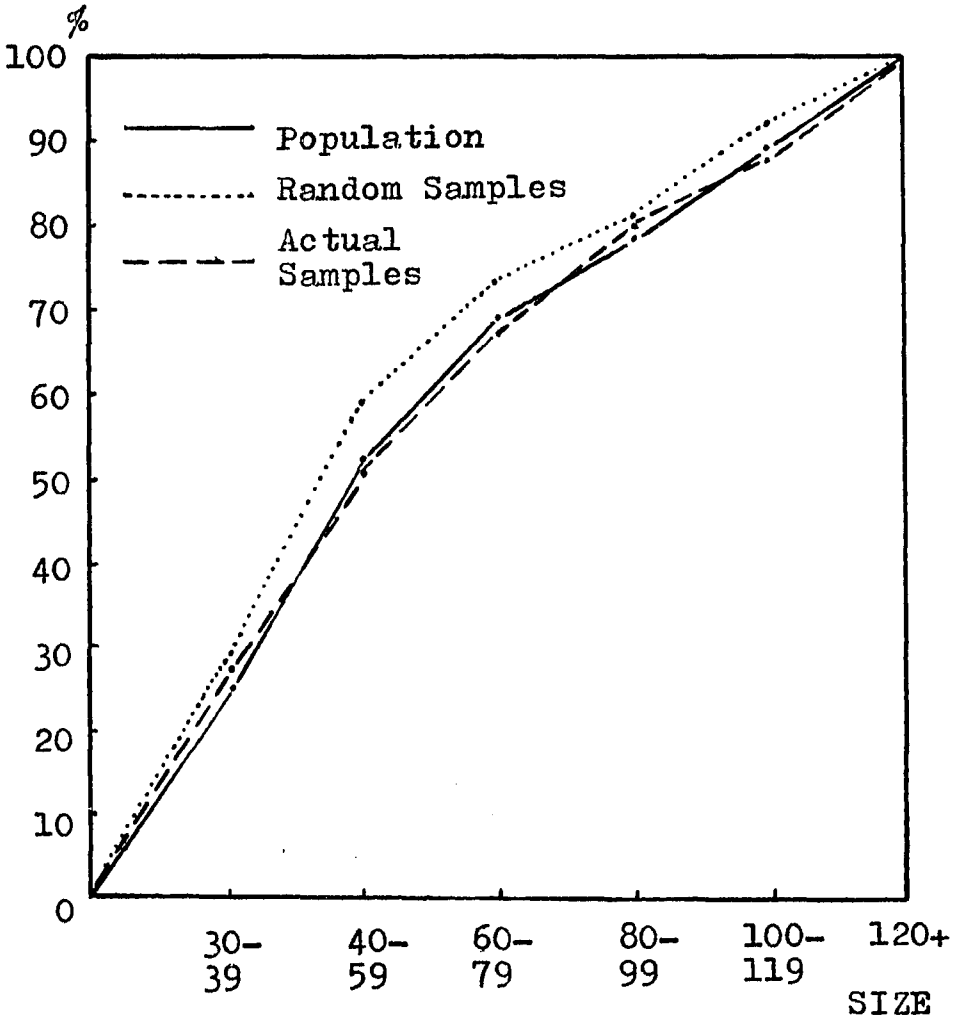

FIGURE 6.--Size Distribution in Accumulative Percentages of Michigan Private Campgrounds.

CHAPTER III

INITIAL ANALYSES

Initial analyses were conducted through a computer program (BASTAT)[1] for the average characteristics which describe the Michigan Private campground industry. All figures reported in this chapter are based on the data from the sample campgrounds.

Campground Economy

Table 7 shows the statewide occupancy rates were 93.10% on holidays, 63.26% on weekends, and 39.53% during the midweek periods. The occupancy rates of Region 1 were far below that of the other two regions on weekends and holidays, yet during midweek it was slightly superior. Upper Peninsula appeared to have a different camping pattern--with less campers as well as less noticeable peak periods. Yet caution must be made on the small sample, only five campgrounds were observed. Region 3

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[1]Michigan State University. BASTAT. (STAT Series No. 5) East Lansing, Michigan: Michigan State University, 1969.

TABLE 7.--Occupancy Rates by Regions and Types of Michigan Private Campgrounds.

Region or Type	Weekends	Holidays	Midweek
Region 1 n=5	36.60%	63.00%	44.00%
Region 2 n=34	58.56	90.50	36.29
Region 3 n=60	68.15	97.80	40.98
Overnight n=19	43.74	73.84	24.42
Destination n=60	68.47	99.05	41.87
Commuter n=20	66.20	93.55	46.85
All n=99	63.26	93.10	39.53

was slightly better than Region 2 in terms of occupancy rates. The Michigan population concentrates in the southern part of the state, camping in the private sector thus seemed to be a population oriented recreation activity, rather than resource base oriented.

The overnight type campgrounds had approximately 20 percent less occupancy rates in all cases. The destination type was slightly higher on weekends and holidays, but the commuter type had better occupancy during the midweek periods. The data suggested that the private campgrounds depend on return business and longer stay of the customers.

Table 8 shows there was a steady increase of occupancy rates on weekends as the campground became larger. The trend was less predictable on holidays, and was completely out of shape during the midweek periods. Only the weekend occupancy could be estimated by the size of the campground. On the average, the Michigan private campgrounds were pretty much filled up on holidays, and were roughly one-third to one-half full during the weekdays.

In Table 9, the statewide development investment per campground averaged $117,105; this included the land and other investments in the campground. Land value was extremely hard to measure; in many cases the land

TABLE 8.--Occupancy Rates by Sizes of Michigan Private Campgrounds.

Size	Weekends	Holidays	Midweek
30-39 n=27	55.47%	92.68%	35.00%
40-59 n=23	60.43	85.62	47.52
60-79 n=16	63.38	89.38	33.00
80-99 n=13	63.89	98.89	48.11
100-119 n=8	67.63	98.53	30.95
120+ n=12	71.07	97.73	46.73
All n=99	63.26	93.10	39.53

TABLE 9.--Investments by Regions and Types of Michigan Private Campgrounds.

Region or Type	Development	Labor	Material	Equipment
Region 1	$ 85,200 n=5	$ 3,925 n=4	$17,875 n=4	$4,300 n=4
Region 2	122,206 n=34	20,625 n=24	22,783 n=23	7,819 n=31
Region 3	116,857 n=56	19,323 n=42	15,350 n=42	5,657 n=56
Overnight	70,278 n=18	19,821 n=14	13,600 n=13	5,177 n=18
Destination	130,896 n=58	18,850 n=44	20,135 n=42	7,109 n=54
Commuter	119,368 n=19	17,950 n=12	15,435 n=14	5,226 n=19
All	117,105 n=95	18,890 n=70	17,950 n=69	6,334 n=91

for campground development might have been converted from farmland, or might have been purchased several decades ago. It was not justifiable to count only the land value where the campground was located; the rest of the property also contributed to the whole camping experience.

Another approach to this question was to ask the owner/manager how much he would sell the campground; therefore the development investment was a rough estimate. Among the initial expenditures when the campground was built, we asked the owner/manager how much it cost for labor, material and equipment. These figures totaled $43,175 per campground. The difference between this and the average development investment, $73,930, could be contributed to the land and other investment.

In all major items, Region 2 had the highest figures, followed closely by Region 3. Region 1 fell far behind except for the material costs. The extremely low labor costs in Region 1 strongly suggested the family type campground business. The average campground had 60.40 sites in Region 1, 82.66 sites in Region 3, and 100.35 sites in Region 2.

To break down in campground types, the destination campgrounds had the highest investment except for labor costs. The commuter type was next, then the

overnight type. Again, there was a correlation between the investment scale and the size, the overnight type had an average of 57.05 sites, the destination type had 101.61 sites, and the commuter type had 73.70 sites.

In Table 10, various types of investment increased in scale along with the campground size. However, the investment increased steadily in the first three categories, then dropped between campgrounds with 100 to 119 sites. (8 observations) The data suggested they were the most efficient scale of operation, with more income producing campsites at little extra costs.

The annual expenditures listed in Table 11 and 12 included advertisement, operating supplies, repair of equipment, formal payrolls, and resale supplies.

Advertisement and repair of equipment were small expenditures as compared to operating supplies. It must be noted that only 42 campgrounds had formal payrolls, however. In the breakdowns of types, the destination campgrounds were on top of the list, except for the resale supplies. The formal payroll in the commuter type was very low; the business was handled by the owner/managers or their family members.

Table 12 once more shows the "drop" with the campgrounds between 100 and 119 sites. For advertisement and operating supplies, the curve leveled off there,

TABLE 10.---Investments by Sizes of Michigan Private Campgrounds.

Size	Development	Labor	Material	Equipment
30-39 n=26	$ 41,278	$ 7,373	$ 7,628	$3,772
40-59 n=22	91,667	11,505	14,600	4,995
60-79 n=15	129,200	30,487	25,666	5,275
80-99 n=12	133,556	25,820	20,800	6,511
100-119 n=8	113,059	19,584	14,846	6,064
120+ n=12	226,333	32,375	32,327	13,353
All n=95	117,105	18,890	17,950	6,330

TABLE 11.--Annual Expenditures by Regions and Types of Michigan Private Campgrounds.

Region or Type	Advertisement	Operating Supplies	Repair of Equipment	Formal Payrolls	Resale Supplies
Region 1 n=5	$445	$2,250	$350	--	--
Region 2 n=34	952	3,683	584	$5,570	$2,469
Region 3 n=60	689	3,496	565	4,200	5,829
Overnight n=19	510	1,406	373	3,340	6,180
Destination n=60	931	4,409	643	6,148	3,483
Commuter n=20	480	2,825	443	587	6,860
All n=99	775	3,503	559	4,755	4,533

TABLE 12.--Annual Expenditures by Sizes of Michigan Private Campgrounds.

Size	Adver-tisement	Operating Supplies	Repair of Equipment	Formal Payrolls	Resale Supplies
30-39 n=27	$248	$ 933	$340	$ 275	$7,667
40-59 n=23	522	1,928	431	1,580	1,517
60-79 n=16	630	3,120	288	1,167	5,433
80-99 n=13	686	3,044	643	3,800	3,986
100-119 n=8	715	4,788	831	3,200	3,140
120+ n=12	1,655	8,538	683	13,300	6,122
All n=99	775	3,503	559	4,755	4,533

then turned upright to the last category. Zigzag shapes appeared in repair of equipment as well as formal payrolls.

The statewide average fee for modern camping was $3.25 per night; the primitive campsites charged an average of $2.67 with only 23 observations. The camping fees for the primitive sites were not significant, because of the low attendance. As a matter of fact, the so-called primitive sites were just those with a rustic setting; they had access to tab water and other facilities within a reasonable distance.

Camping fees for the modern sites were low in Region 3, while Region 1 and Region 2 were about equal. Destination type had the highest basic camping fees; overnight type the next; commuter type very low--an aspect of the seasonal charges. (See Table 13)

In Table 14, the effect of the campground size on camping fees was very interesting. All four categories in the middle, with sites ranging from 40 to 119, had approximately the average charge. The small campgrounds with 39 or less sites charged only $2.82 per night, whereas the large campgrounds with 120 or more sites charged $3.82. There was a one-dollar difference.

The net income of the campground enterprise averaged $3,818 annually. Contrary to the amounts of investments as annual costs, Region 3 was much higher

TABLE 13.--Basic Camping Fees by Regions and Types of Michigan Private Campgrounds.

Region or Type	Modern	Primitive
Region 1	$3.35 n=5	-- n=1
Region 2	3.36 n=34	$2.65 n=10
Region 3	3.18 n=60	2.63 n=12
Overnight	3.19 n=19	2.50 n=2
Destination	3.43 n=61	2.80 n=15
Commuter	2.77 n=19	2.42 n=6
All	3.25 n=99	2.42 n=23

TABLE 14.--Basic Camping Fees by Size of Michigan Private Campgrounds.

Size	Modern	Primitive
30-39	$2.82 n=27	$2.00 n=3
40-59	3.27 n=23	3.25 n=2
60-79	3.23 n=16	2.40 n=5
80-99	3.22 n=13	2.83 n=3
100-119	3.21 n=8	2.60 n=5
120+	3.82 n=12	3.10 n=5
All	3.25 n=99	2.67 n=23

than the other two regions--again, Region 1 had only two observations due to the non-responses in three others on this particular question. (Table 15) Both the destination type and the commuter type were between $4,000 and $4,100 per campground annually, but the overnight type had only an average of $2,416. Initial reaction on these figures suggested not to invest in overnight type campgrounds.

The net income curve on sizes was quite peculiar, with a peak in category 60 to 79 sites, and a second peak at the large campgrounds. The strange "valley" between 80 to 119 sites appeared one more time.[2] (Table 16) The dip can be explained as follows: A sampling error might lead to low values in a single characteristic. Since the characteristics may be highly positively correlated, this could explain low values in all the characteristics.

On interest payment, the state average was close to $3,000 per campground annually. There was not much difference between three regions, and the variation by types was not obvious as compared to other variables,

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[2]"The break even point for New York campgrounds in 1970 with regard to size was at 95 sites." Tommy L. Brown. "How Big is Big Enough." in Campground Management Conference. Ithaca, N.Y.: Cornell University, 1972. p. 26.

TABLE 15.--Net Income and Interest Payment by Regions and Types of Michigan Private Campgrounds.

Region or Type	Net Income	Interest Payment
Region 1	$1,000 n=2	$3,150 n=2
Region 2	2,821 n=28	2,942 n=19
Region 3	4,531 n=47	2,950 n=38
Overnight	2,416 n=12	2,177 n=9
Destination	4,100 n=50	3,142 n=38
Commuter	4,000 n=15	2,941 n=12
All	3,818 n=77	2,954 n=59

TABLE 16.--Net Income and Interest Payment by Sizes of Michigan Private Campgrounds.

Size	Net Income	Interest Payment
30-39	$2,500 n=23	$1,200 n=20
40-59	3,176 n=19	1,933 n=16
60-79	6,416 n=12	1,775 n=9
80-99	2,875 n=9	4,133 n=6
100-119	2,142 n=5	4,040 n=2
120+	5,714 n=9	4,691 n=6
All	3,818 n=77	2,954 n=59

with lower figures for the overnight type.

There was an upright trend of interest payment as the size of the campground increased. Campgrounds below 80 sites were expected to pay less than $2,000; campgrounds above 80 sites were expected to pay more than $4,000 for interest annually.

The initial analyses suggest that there were regional differences and type differences in almost every case. As regard to size, the general trend was upward, yet there was deviation from perfect linear relationships, especially the downward trends between the campgrounds with 80 to 119 sites. Such curves suggest the non-linear regression on size which is incorporated into the regression models developed in the next chapter.

Spending by Campground Users

The way in which camping families spend time and money differently in the campground environment is a topic of growing interest. Do spending habits follow a strict budget allowance or do they more closely resemble impulse buying? These would be two obvious extremes. It is probable that users of private campgrounds cannot be positively identified at either extreme but rather fall somewhere in-between. There is evidence, however, that campers tend toward impulse

buying. Once one decides to become a camper, certain kinds of purchases are made to stamp one as a "real" camper. The initial step, however, is taken only after deliberate consideration of whether to make the investment to become campers.

Users were asked how they plan their campground spending. Data in Table 17 show that most of the campers do not bind themselves to a general or set budget, but rather have an open budget. Most of those who had no planned budget insisted they were not spending thoughtlessly, but felt they owed themselves the opportunity to spend for enjoyment and satisfaction as long as such purchases were not extremely unwarranted. This suggests that they invoke a form of monetary stewardship that is within reason for their available disposable income and desires and expectations regarding the camping experience.

Respondents were asked to categorize the family income in order to relate this factor to the use of budgeting and spending patterns. Family income is made of two sources in this analysis: the income of the first breadwinner and the income of any second breadwinner in the same family. There were 212 full-time and 99 part-time second breadwinners. The range of family incomes based upon first and second breadwinners is

TABLE 17.--Spending Plans of Michigan Private Campground Users.

Rank	Method of Budgeting	No. of Responses	Percentage
1	No planned budget, spend within reason for what we want	712	70.92%
2	General plan on how much to spend	139	13.84
3	Plan ahead how much to spend	105	10.46
4	Daily spending limit for family members	28	2.79
5	Each family member has allowance	6	0.60
	No Response	14	1.39
	Total	1,004	100.00

TABLE 18.--Family Incomes of Michigan Private Campground Users.

Income Range	No. of Responses	Percentage
Less than $10,000	272	27.09%
$10,000 to $15,000	444	44.22
$15,000 to $20,000	196	19.52
$20,000 to $30,000	3	0.30
$40,000 or more	1	0.10
No Response	44	4.38
Total	1,004	99.99

shown in Table 18. Two thirds of the responses fall into the $10,000 to $20,000 income brackets, identifying them as middle income units.

Another indicator of spending habits among the family camping units is derived from the kind of attached equipment on the camping rig. In Table 19, it can be seen that most of the rigs are rather fully equipped with home conveniences. A total of 762 of these pieces of equipment were on the rigs when purchased; 55 rigs were partially equipped at purchase time and 81 had added the items reported after the initial purchase of the rig.

The investment made in the equipped rigs gives another measure of the spending patterns of campground users. Data in Table 20 show that the purchase cost of one-half of the rigs was in the price range of $2,000 or less, but almost one-third were in the $3,000 to $7,000 range. In addition to these estimated costs, campers revealed what they had spent for camping-related equipment which was not attached to the rig. Most camping families spend less than $400 for additional equipment, like sleeping bags, extra cooking utensils, etc. (Table 21) When asked to speculate about their next camping rig, 371 campers indicated they would purchase a new rig about the same as their present one while 405

TABLE 19.--Equipment Included in Camping Rigs of Michigan Private Campground Users.

Equipment	No. of Responses	Percentage
Gas or other cooking range	849	84.56%
Heater--built in	801	79.78
Refrigerator	793	78.98
Fresh water hookup	761	75.80
Toilet	605	60.26
Air conditioner	70	6.97

TABLE 20.--Cost Estimations for Camping Rigs by Michigan Private Campground Users.

Cost Estimation	No. of Responses	Percentage
Less than $1,000	245	24.40%
$1,000 to $1,500	128	12.75
$1,500 to $2,000	127	12.65
$2,000 to $2,500	72	7.17
$2,500 to $3,000	65	6.47
$3,000 to $4,000	128	12.75
$4,000 to $7,000	144	14.34
$7,000 to $10,000	8	0.80
More than $10,000	5	0.50
Unknown	82	8.17
Total	1,004	100.00

TABLE 21.--Estimated Investment in Non-rig Camping Equipment by Michigan Private Campground Users.

Amount Invested	No. of Responses	Percentage
$100	297	29.58%
$200	226	22.51
$300	139	13.84
$400	46	4.58
$500	77	7.67
$600	21	2.09
More than $600	106	10.56
Unknown	92	9.16
Total	1,004	99.99

TABLE 22.--Opinions of Relative Costs of Meals in Camp and at Home by Michigan Private Campground Users.

Relative Cost	No. of Responses	Percentage
Less in camp than at home	182	18.13%
More in camp than at home	247	24.60
Same in camp as at home	563	56.08
No Responses	12	1.20
Total	1,004	100.01

said they would have more modern conveniences on their next rig.

The amount spent on food and meals provides another measure of the spending habits of campers. An attempt was made to relate costs of meals while camping with costs of meals at home. More than half of those responding said there was not any particular difference. (Table 22) However, 579 family units reported that they sometimes eat in restaurants while at the campground. The frequency of these meals is given in Table 23.

Table 24 gives an indication of the amount of money usually spent on these out-of-camp meals. These are considered to be a part of the experience of camping or vacationing by the users of private campgrounds since there is a particular effort to make this a family type outing. Campground users in this sample also tend to take an appreciable food supply from home. Approximately one-half take about a three day food supply. Expenditures on non-food purchases while in camp range from nothing to $4 by half of those in the sample.

TABLE 23.--Frequency of Restaurant Meals by Michigan Private Campground Users as Part of the Camping Experience.

No. of Restaurant Meals Per Week	No. of Responses	Percentage
One	238	23.71%
Two	142	14.14
Three	82	8.17
Four	22	2.19
Five	17	1.69
Six	7	0.70
Seven	41	4.08
More than seven	8	0.80
None	404	40.24
Unknown	43	4.28
Total	1,004	100.00

TABLE 24.--Estimated Cost of out of Camp Meals by Michigan Private Campground Users.

Estimated Meal Cost	No. of Responses	Percentage
$3	57	5.68%
$4	69	6.87
$5	91	9.06
$6	80	7.97
$7	46	4.58
$8	59	5.88
$9	25	2.49
$10 or more	187	18.63
Not Applicable	390	38.84
Total	1,004	100.00

CHAPTER IV

REGRESSION ANALYSES

The models were basically multiple regression models. They were designed to test whether each of the campground economic factors was a function of several campground features, goods and services, and management skills.

Dependent Variables

The eight dependent variables represent those campground economic factors which are of primary interest in this project:

(1) Occupancy rate during weekends;

(2) Occupancy rate during holidays;

(3) Development investment;

(4) Construction expenditures;

(5) Equipment expenditures;

(6) Annual operating expenditures;

(7) Net income and interest payment;

(8) Average basic camping fees.

The campground owner/managers were asked to estimate their site occupancy rates over the season

for weekends, midweek and holidays. While a day-by-day record of occupancy rates was not in existence in the majority of the campgrounds, an estimate to the best knowledge of the owner/managers was the most realistic measurement. The weekends include Fridays, Saturdays, and Sundays. The holidays are referred to the Memorial Weekend and the Labor Day Weekend. The occupancy rate during midweek was eliminated from the final analysis due to insufficient variance.

The question of development investment was asked during the interview, "In round figures, about how much do you have invested in all your campground development?" This figure includes all the campground investment of land, buildings, campsite construction, as well as equipment.

The next dependent variable, construction expenditures, includes the paid local labor when the campground was built, such as plumber, electrician, carpenter, mason, engineer, or surveyor. They also include the building materials of lumber, plumbing, electrical equipment, blocks, cement, and gravel.

The equipment expenditures consist of the campground investment in operating equipment like pickups, tractors, mowers, graders, etc.

The annual operating expenditures are composed

of advertisement, operating supplies, resale supplies, repair of equipment, and formal payroll. The operating supplies necessary to run a campground are toilet paper, electricity, insurance, repairs, as well as other major items like oil, gas, feed, and fuel.

The campground owner/managers were asked how much net income they have left per year to reduce debt, buy Christmas gifts, for expansion or profit. And if there was borrowed capital to get started in this business, or to expand, they were asked to estimate how much they pay out in interest each year. The combination of net income and interest payment represents the overall income after annual expenditures which becomes the seventh dependent variable.

Average basic camping fees represent the daily charge for each modern campsite, the primitive site charges were not accounted for. The weekly and seasonal rates were also excluded due to a great deal of variations. Some campgrounds have complicated fee schedules for additional persons as well as various camping rigs. These extras were not included here.

Independent Variables

Two sets of independent variables related to campground features, goods and services, and management skills were tested against the dependent variables in

each of the models.

There are two independent variables in Model I; the location and the size of the individual campgrounds. The location is measured in three regions: Region 1 is the Upper Peninsula; Region 2 is the Northern Lower Peninsula; and Region 3 is the Southern Lower Peninsula. (See Figure 1 in Chapter II) The size of the campground is measured by the number of campsites within each campground at the time of investigation.

Additional independent variables on campground features, goods and services, and management skills were introduced in Model II. First, the campground types:

(1) Overnight campgrounds: The traveling camping enthusiast stops at these facilities near expressway interchanges for a night's rest and perhaps limited sightseeing.

(2) Destination campgrounds: The away-from-home vacation headquarters, the camping vehicle or tent is located at a favorite campground for several days or weeks.

(3) Commuter campgrounds: A campground upon which the family can park the camping vehicle for long periods of time within easy driving distance of home and work.

Next, three independent variables were measured by the scores on facilities, services, and recreation activities provided by the individual campgrounds. Table 25 is a list of the total campgrounds that have

TABLE 25.--Facilities, Services and Recreation Activities of Michigan Private Campgrounds.

Goods and Services	Number of Campgrounds
Facilities:	
1. Electricity at most sites	98
2. Water to most sites	81
3. Sewer hookups at some sites	45
4. Laundry	41
5. Bath buildings	89
6. Grocery store	46
7. Dumping station	82
Services:	
1. Coin operated games	22
2. Bottled gas sales	40
3. Community activities	37
4. Art and craft room	9
5. Bike rentals	17
6. Music vending machines	20
Recreation Activities:	
1. Swimming	82
2. Boating (including canoes)	74
3. Movies	14
4. Outdoor sports and games	70
5. Fishing	81

such goods and services under each item. There are seven items in facilities, six in services, and five in recreation activities. Thus the maximum combination of scores will be 7-6-5. If a campground provides six types of facilities, two types of services, and three types of recreation activities, its scores will be 6-2-3.

From the information contained in Table 25, we found that almost all Michigan private campgrounds provided electricity; nearly 90 percent had the convenience of bath buildings; only less than 40 percent of these campgrounds provided various kinds of services; more than 70 percent had one kind or another outdoor recreation activity, available in or around the campgrounds. Among them, swimming and fishing were most popular, accessible by the campers in 80 percent of the campgrounds.

The last independent variable is composed of the total score of the individual campground owner/manager as evaluated by two student interviewers. Table 26 is a checklist of the eighteen evaluation criteria. For each of these criteria, a scale from 1 to 6 was established, ranging from "very poor" (1); "poor" (2); "below average" (3); "above average" (4); "good" (5); to "very good" (6). The evaluation was normally completed at the end of the stay at each campground. The scores only applied to the individual campground owner/manager,

TABLE 26.--Management Scores of Michigan Private Campground Owner/Managers.

Evaluation Criteria	Number of Owner/Managers						Total
	Poor			Good			
	1	2	3	4	5	6	
Contact with customers	1	6	3	32	38	18	98
Tidiness of grounds	0	1	5	20	60	12	98
Office efficiency	3	6	9	30	39	10	97
Evidence of quality	0	4	15	33	38	8	98
Variety of activities	5	6	19	26	29	11	96
Preparation of work crew	0	0	4	8	20	0	32
Clear division of jobs	1	0	4	7	12	4	28
Good traffic patterns	0	6	10	41	30	8	95
Water and plumbing working	1	0	8	21	52	14	96
Campers kept happy	0	1	2	24	54	16	97
Roadside and other directions easily followed	8	13	19	25	22	10	97
Type of records kept	1	10	15	20	36	12	94
Different prices realized	6	15	10	29	26	6	92
Campers' origins realized	0	1	8	31	47	6	93
Campers' activities realized	0	1	6	30	52	8	97
Occupancy rates known	1	0	5	25	53	13	97
Total investment known	6	3	5	24	43	12	93
Building costs known	15	15	17	12	20	10	89

not the campground itself. Based on personal contacts the two interviewers separately examined the owner/manager on the scale. The two evaluations were then brought together. If the scores on the same item were consistent to each other, they were adopted as the evaluation of that owner/manager for the particular item. If the two interviewers disagree with each other on any item, a brief discussion was conducted to minimize possible biases. For example, the first evaluation criterion was "contact with customers." The interviewers had the opportunity to observe during the one-day stay how the owner/manager handles his customers. If he knows the needs of the campers, being readily accessible most of the time, and trying hard to please the customers, he may have a score of 6 (very good), on the other extreme a score of 1 (very poor) may be applied. In Table 26, under the item of "contact with customers" we had 98 observations, among them there were one "very poor" owner/manager (with regard to this particular item only), 6 "poor" owner/managers, 3 "below average", 32 "above average", 38 "good", and 18 "very good". For each individual owner/manager, the scores on 18 items were then added up as his total evaluation. The maximum possible score was 108, and the best owner/manager was graded at 93. The inclusion of the management scores

was an attempt to detect if management skills and innovativeness were important requirements for success in the campground business.

Model I

The null hypothesis for Model I is:

The location and size of Michigan private campgrounds do not exert a significant influence upon selected campground economic factors.

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_3^2 + \varepsilon$$

Y_i = the dependent variables to be estimated

Y_1 = Occupancy rate during weekends

Y_2 = Occupancy rate during holidays

Y_3 = Development investment

Y_4 = Construction expenditures

Y_5 = Equipment expenditures

Y_6 = Annual operating expenditures

Y_7 = Net income and interest payment

Y_8 = Average basic camping fees

α = the Y intercept

β_i = the regression coefficients

ε = error

X_1 = 1 if the campground is located in Region 2,

= 0 if not;

X_2 = 1 if the campground is located in Region 1,

= 0 if not.

X_3 = Number of campsites in the individual campground

On the right hand side of the equation, there are two dummy locational variables representing the three study regions in the state. If both X_1 and X_2 have a value of zero, it indicates that the campground is located in Region 3. There are also two variables on the "number of campsites in the individual campground", X_3 and X_3^2. Because the initial plotting of data indicated a non-linear function of campground size, X_3^2 was introduced for quadratic function.

In this model, the same equation form was used for each dependent variable. The first dependent variable "occupancy rate during weekends" was tested against the locational variables of X_1 and X_2 in order to see whether there is a regional effect on campground business during weekends. The majority of Michigan population concentrates in Region 3. It is interesting to find out whether the camping industry has better business during the weekends in Southern Michigan close to the potential users, or in Northern Michigan where

the natural resources and recreation opportunities are more abundant. Next, it is desirable to examine whether the size of campground in terms of the number of campsites has any effect on the occupancy rate during weekends. Are the larger campgrounds doing better in business or the small ones? What is the optimal size of a commercial private campground?

The second dependent variable "occupancy rate during holidays" was tested in a similar manner. It was designed to see whether the pattern of camping is different if the campers have more leisure time. Would they be willing to travel a longer distance if they have three or four days instead of two? "Occupancy rate during midweek" did not show sufficient variance when initial plotting was done. Earlier computer runs also showed that the location and size of a campground did not have significant effects on this variable.

The dependent variable of "development investment", "construction expenditures" and "equipment expenditures" were tested against the locational variables to see where the investment was spent in the state. The land prices, for example, may vary from location to location. It is apparent that land would cost more in Region 3 than it would be in Regions 1 and 2. As regard to the construction expenditures,

the material cost may be higher in Northern Michigan, whereas the labor cost may be higher in Southern Michigan. Expenditures on equipment would probably cost more due to additional transportation costs in the North. All of these indicated a necessity to examine the regional differences on investment.

The variable on campground size was introduced to identify the optimum scale of campground operation. Initial analysis indicated that the investment increases as the scale of the campground increases, yet there is a drop in every case of the campgrounds with 100 to 119 sites. Would this be an acceptable indication that it is where the optimum scale is?

The dependent variable of "annual operating expenditures" was tested in the same way. On the regional differences, it was to see whether the Northern campgrounds could spend less due to lower pay scale and more depressed local economy. Regarding the relationship to the size of the campground in terms of per unit expenditure, it was suspected that the small campgrounds would have lower costs by using "family labor". As the campground gets larger, it would have the highest cost per unit when a formal payroll is introduced.

The next variables "net income and interest payment" and "average basic camping fees" were tested

on the same ground regarding differences in region and scale. The relationships were first detected in Chapter III, and here more specific tests were conducted.

Model II

The null hypothesis for Model II is:

The location, size, type, campground facilities, services, recreation activities, and management skills do not exert a significant influence upon selected campground economic factors.

Model II is basically the same as Model I except more independent variables were added:

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_3^2 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \varepsilon$$

The additional independent variables are defined as:

X_5 = 1 if the campground is destination type,
= 0 if not;

X_6 = 1 if the campground is overnight type,
= 0 if not.

X_7 = Campground facility score

X_8 = Campground service score

X_9 = Campground recreation activity score

X_{10} = Management score

This second model was intended to explore possible effects of more factors on the economic variables.

The dependent variables and the locational and size variables were explained in the previous section. X_5 and X_6 are dummy variables on campground types; if both have a value of zero, it indicated a commuter type campground. Variables X_7 through X_{10} were expressed in "scores" on campground facilities, services, recreation activities, and management skills. (See Tables 25 and 26). Without this aggregation of data there would have been 36 independent variables, and the degrees of freedom would have been substantially reduced.

Model Testing

An "ordinary least squares" computer program[1] was used for testing the regression models. It may be used to estimate relationships between a dependent variable and a set of independent variables, and is therefore suitable for our purpose.

The regression was tested at level $\alpha = 0.05$ for both models and for the eight dependent variables.

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[1]Michigan State University. LS: Calculation of Least Squares (Regression) Problems on the LS Routine. (STAT Series No. 7) East Lansing, Michigan: Michigan State University, 1969.

Interpretation of Results

After the exclusion of nine campgrounds in the sample due to large residuals in the preliminary runs, 91 campgrounds were left in the analyses. These exclusions were considered justifiable because some campground owner/managers appeared to be reluctant to answer questions, especially the financial information. The reliability of their figures were in doubt. In experimental research it is acceptable or sometimes even desirable to throw out the "outliers" in order to keep the analysis valid. The procedure adopted was to examine the original interview sheets of those campgrounds with extraordinary large residuals, some were retained in the analysis when considered valid, and some were thrown out if the answers were rather incomplete, apparently nonsense, or in some instances the interviewers made remarks that the figures could not be trusted.

Therefore, the critical F value for Model I (4 independent variables) was 2.49 ($_{.95}F_{4,86}$), and for Model II (10 independent variables) it was 1.95 ($_{.95}F_{10,80}$). The F values as well as the R^2 values for each equation keyed to each dependent variable are listed in Table 27.

In all but one case (the asterisk in Table 27) the F values exceeded the critical values. Based on

TABLE 27.--F and R^2 Values of Two Regression Models.

Dependent Variables	F		R^2	
	Model I	Model II	Model I	Model II
Occupancy Rate During Weekends	3.48	2.27	0.14	0.22
Occupancy Rate During Holidays	3.94	2.10	0.15	0.21
Development Investment	7.73	4.71	0.26	0.38
Construction Expenditures	2.00*	2.30	0.09	0.22
Equipment Expenditures	7.83	2.23	0.27	0.30
Annual Operating Expenditures	17.09	8.54	0.44	0.52
Net Income and Interest Payment	5.95	3.36	0.22	0.29
Average Basic Camping Fee	5.02	5.63	0.19	0.41

the results from the tests, the following comments can be made:

In Model I, the null hypothesis was rejected for seven dependent variables, i.e., the location and size of Michigan private campgrounds do exert a significant influence upon occupancy rates, development investment, equipment expenditures, annual operating expenditures, net income and interest payment, and average basic camping fees; but the location and size do not exert a significant influence on the construction expenditures in the sample. (Appendix III)

In Model II, the null hypothesis was rejected for all of the dependent variables. It shows that the location, size, type, campground facilities, services, recreation activities, and management skills do exert a significant influence upon the eight selected campground economic factors. After the expansion of independent variables, the test on the construction expenditures turned out to be significant. (Appendix IV)

The coefficients of determination (R^2) did not exceed 0.44 in Model I. The coefficient of determination measures the variation in the dependent variable explained by the independent variables in the model. For most dependent variables, the independent variables explained between 10 and 30 percent of the variation.

These rather low R^2 values could be contributed from the following factors: (1) The data were collected through personal interviews, the campground owner/managers were asked to recall the economic information of his campground, sometimes such information dated back several years (such as the total development investment since the campground first started). We did not attempt to check to records of the campgrounds due to the time restraints and the lack of authority. (2) The economic situation of each campground was sometimes quite unique from one to another. For example, the cost of land may not accurately reflect the actual market value simply because it has not been sold over several generations. The same situation applies to other economic measurements, "formal payroll" is an outstanding case due to the family labor utilized in the campground operation. (3) Although several discussion sessions were arranged prior to the investigation, the four student interviewers may still have some personal differences to reduce the reliability of the data collected.

In Model II all F-statistics were significant at level $\alpha = 0.05$ and the coefficients of determination were improved up to 0.52 and none below 0.2. This is an indication that the other independent variables in addition to location and size were important predictors

for the dependent variables related to the Michigan private campgrounds.

Expansion of Results

For the eight dependent variables, the regression analyses provided eight prediction equations. Among them the hypothesis for the dependent variable of "construction expenditures" was not rejected in the analysis. The location and the size of a campground alone would not be sufficient to predict its construction expenditures. ($F = 2.0030$, $SIG = 0.101$, see Appendix III-4) Only after the additional independent variables were introduced, was the new hypothesis of this dependent variable rejected. ($F = 2.2960$, $SIG = 0.0020$, see Appendix IV-4) In other words, the amount of "construction expenditures" must be explained by factors other than the region and size of the campground. The campground type, facilities, goods and services, recreation activities and management skills were also influential.

As regard to the individual tests on the independent variables, they were not all significant on different dependent variables. For example, in Appendix III-2, Region 1, size, and squared size were significant, but Region 2 was not significant upon the "occupancy rate during holidays"; in Appendix III-3,

on the other hand, the two locational variables were not significant upon the "development investment". The "development investment" can be predicted by the size of the campground, but not by its location. A similar way of interpretation can be applied to other dependent variables.

Although, all the prediction variables were used for the purpose of achieving a uniform specification. Recall the multiple regression equation for Model I was:

$$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_3^2 + \varepsilon$$

Substituting the constant and the regression coefficients, it becomes the prediction equations for the various dependent variables. For example, the prediction equation for "occupancy rate during weekends" is:

$$Y_1 = 56.57 - 11.29X_1 - 30.77X_2 + 0.20X_3 + 0.00032495X_3^2$$

As before, X_1 indicates if the campground is located in Region 2, and X_2 indicates if the campground is located in Region 1. At the same time, X_3 represents the number of campsites in the individual campground, whereas X_3^2 is its quadratic function.

Because our data were limited to those

campgrounds with 30 sites or more, no prediction could be made to smaller campgrounds. A campground in Region 3 with 30 campsites might have 56.57% hypothetical "basic" occupancy rate during weekends (the constant), plus 6% through the effect of the 30 sites and minus approximately 0.3% through the curvilinear effect of the 30 sites. It is the predicted occupancy rate of this campground during the weekends in the camping season. Another example, a campground in Region 2, with 100 campsites would expect:

$$\begin{aligned} Y_1 &= 56.57 - 11.29(1) + 0.20(100) \\ &\quad - 0.00032495(100^2) \\ &= 56.57 - 11.29 + 20.00 - 3.25 \\ &= 62.03 \end{aligned}$$

Such a campground was estimated to have an occupancy rate during weekends of 62.03%. This prediction is subject to the standard error of 26.36%. (Appendix III-1) Sixty-eight percent of the time, the weekend occupancy of this particular campground would likely range from 35.67% to 88.39%.

The rest of the equations for the dependent variables are referred to Appendix III. The same method applies to the rest of the dependent variables, and is used in Chapter V to estimate the campground economic factors. We can also arrive at county and state totals

by summing the individual campgrounds, for the fact that we had a sufficient sample size and had applied random sampling techniques. (Appendix I)

CHAPTER V

COMPUTER MAPPING

The first regression model obtained a series of constants and regression coefficients which can be used to estimate the dependent variables from the independent variables of location and size. Simple random sampling procedures were strictly followed prior to the field investigation. 100 sample campgrounds were chosen from the population of 226 private campgrounds with 30 or more campsites in existence during the summer of 1972. It is our belief that the sample size was more than enough to represent the population. Detailed discussions on the spatial and size distribution of the sample campgrounds in connection with the population were presented in Chapter II. There was strong proof that our sample was a good representation of the population at that time. Thus, estimates can be made for those campgrounds not used in the sample. In other words, for any private campground in Michigan, the occupancy rates, development investment, etc. (except the construction expenditures) can be predicted from

its location (by region) and size (by the number of campsites). From the list provided by the Michigan Department of Public Health, the location and size of each of the licensed private campgrounds are known. A simple computer program was able to estimate the economic factors of any Michigan private campground based on such information.

Each county in the state has a total value for each of the eight economic dependent variables. This was derived from the combination of the actual data of the campgrounds investigated and the estimated values from the regression model for those campgrounds not in the sample. There are 19 counties with no campgrounds exceeding 30 campsites. These are considered as legitimate voids on the computer maps. (Figure 7) There were also a few counties having only one campground each with 30 or more campsites. In such case, an estimated figure was used instead of the actual figure even if this campground was indeed investigated. The actual data may be an extreme case which could distort the picture. Revealing the data could identify the individual owner, which was undesirable for the fact that the research team had promised to keep individual financial information confidential. Therefore, in such cases, the regression coefficients from Model I

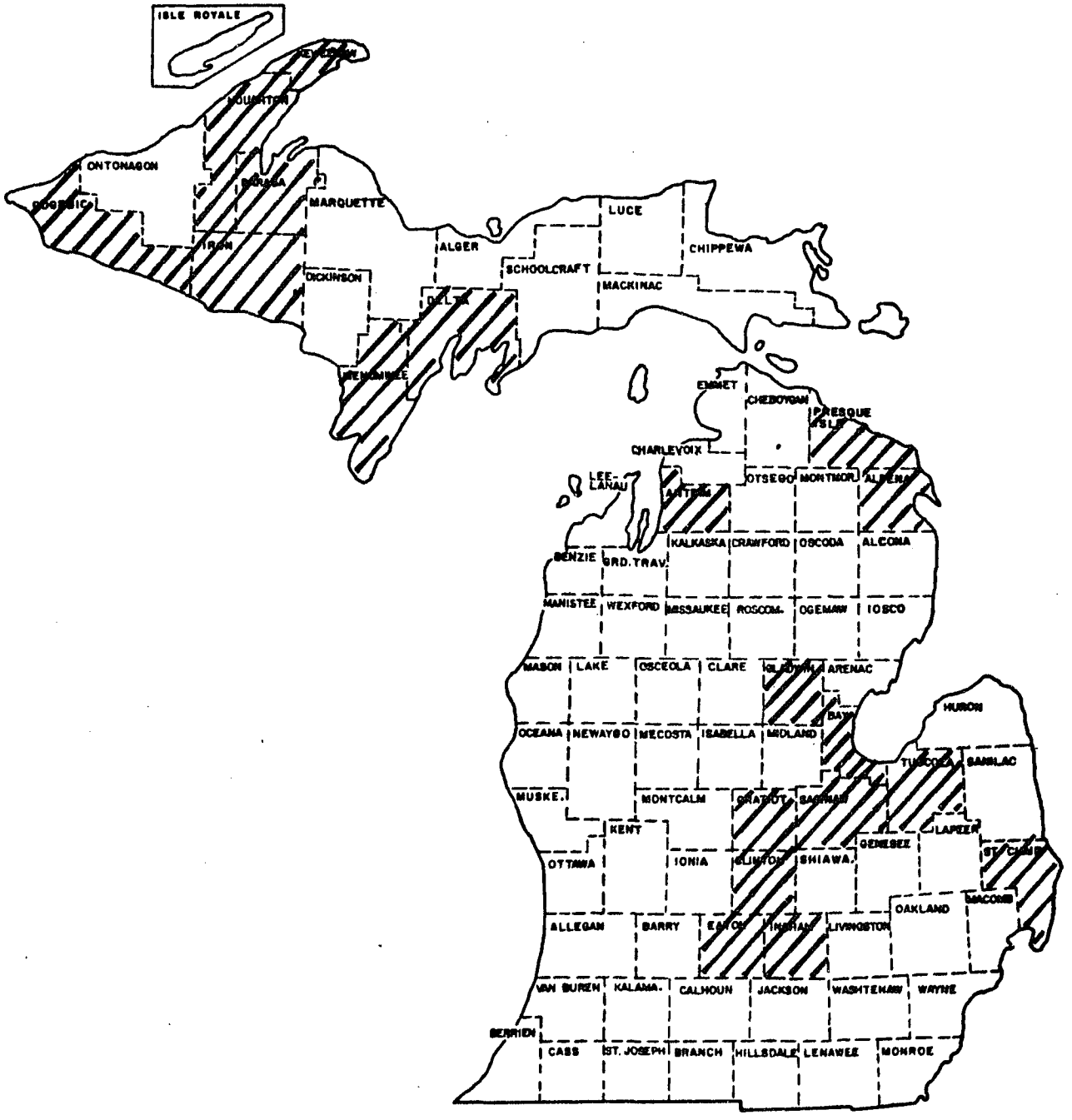

FIGURE 7.--Michigan Counties With No Private Campgrounds Exceeding 30 Campsites.

were applied to estimate the eight dependent variables from the independent variables of location and size of that particular campground. Average figures were used for the occupancy rates and the basic camping fees. Other information on investment and annual expenditures utilized the total values.

SYMVU computer mapping technique has been developed by the Laboratory for Computer Graphics, Graduate School of Design, Harvard University.[1] Its product is a three-dimensional graphic which shows the heights of geographic points on a topography map. Outside the geography field, this method can be applied to illustrate the distribution of other values, such as dollars. For our purpose, the distribution of economic scales and dollar transactions in the Michigan private campground industry can be so mapped.

The 83 counties in the state of Michigan each has values for different economic variables, which, in the SYMVU maps, are shown as heights in inches through the use of a Calcomp plotter. For example, Figure 8 is a choropleth map on the number of campsites by county.

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[1]Harvard University. SYMVU Manual. Cambridge, Mass.: Harvard University, 1971; and Robert I. Wittick. SYMVU. (Technical Report 73-2) East Lansing, Mich.: Michigan State University, 1973.

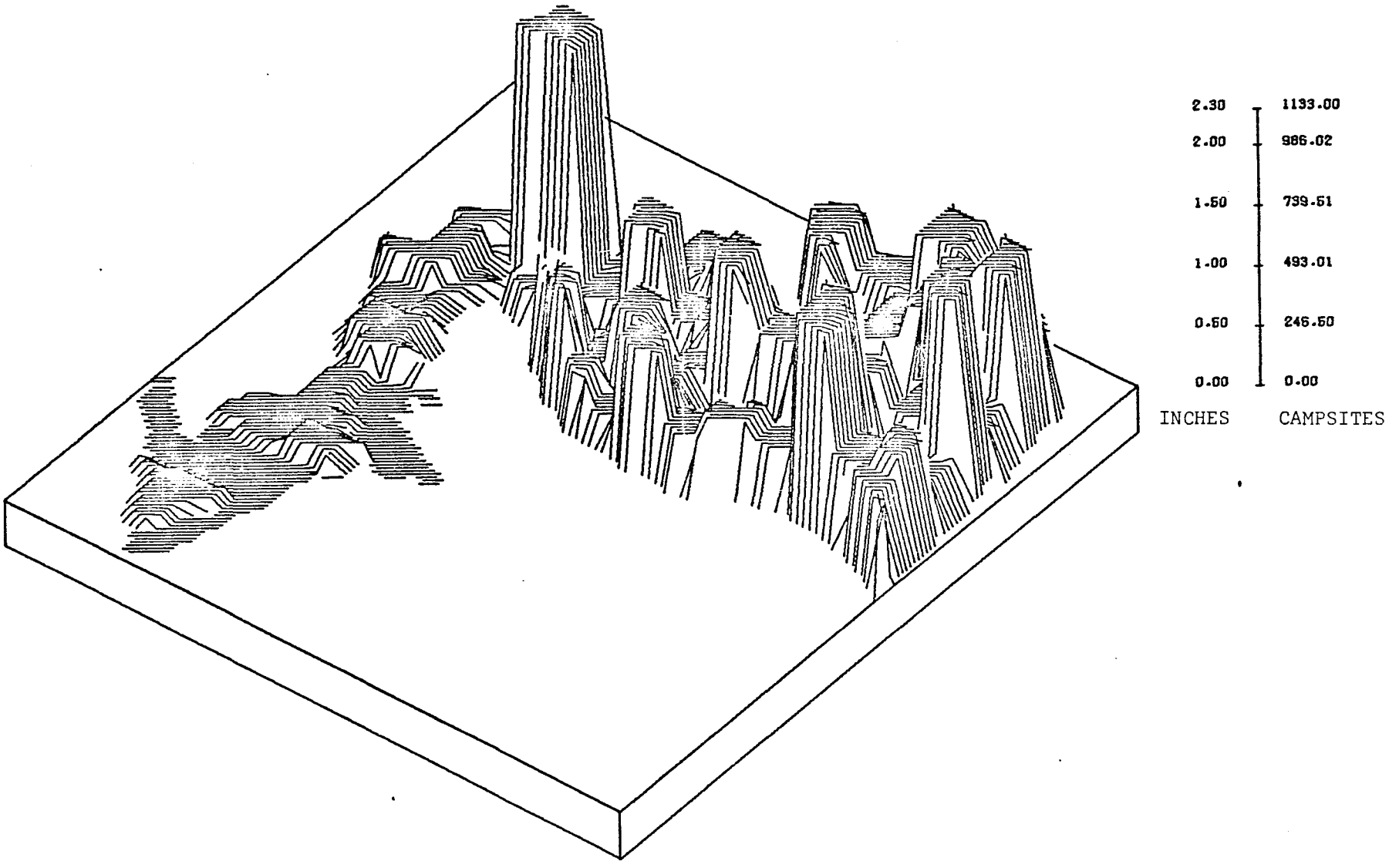

FIGURE 8.--Number of Campsites by County

The viewer is looking at the state of Michigan from a point Southwest of the state (roughly west of Chicago), and looking downward at an angle of 40 degrees. Therefore, on the left-hand side of the map, the low hills represent the limited number of campsites in the private campgrounds in Region 1 (Upper Peninsula), in the case of a "plain", it shows there are no campgrounds with 30 or more campsites for that county. The peak in the middle of the map is the highest number of campsites by county (Cheboygan county). The height on the map for Cheboygan is 2.3 inches, which indicates an equivalent of 1,133 campsites in that county. The number of campsites in other counties are measured by the same scale at the upper right corner of the map. On the right-hand side of Michigan's Lower Peninsula, there are more campsites in each county than in Upper Peninsula counties. Comparing the Southern half of the Lower Peninsula (Region 3), and the Northern half (Region 2), the former has more campsites. The top ten counties with regard to the number of campsites are as follows:

Cheboygan	1,133
Branch	868
Allegan	858
Lenawee	755
Mecosta	732
Jackson	701

Kent	581
Mason	531
Crawford	525
Leelanau	516

This SYMVU map makes it possible to grasp a visual impression of the whole state through a glance. Besides the top ten counties, the rest of the sum values or averages for each county were listed in Appendix I.

Development Investment

The estimated total development investment for Michigan private campground industry was $25,410,000. This figure is not a direct measure, but rather the value appraised by the campground owner/managers. Many factors would reduce the accuracy of this appraisal, among these are the fact that both land and buildings held in ownership by many current operators prior to going into the campground business have been converted to campground usage. While current value of land can be rather easily estimated by most, not many people can accurately estimate the residual value of buildings which were later converted to suit the needs of the campground.

The following is a list of top ten counties of development investment:

Branch	$1,537,000
Mecosta	1,333,000

Allegan	1,092,000
Jackson	1,028,000
Huron	913,000
Cheboygan	797,000
Lenawee	796,000
Oakland	725,000
Kent	723,000
Lake	697,000

Figure 9 is a SYMVU map for the 25.4 million dollars in development investment. The maximum investment takes place in Branch county with one and a half million dollars in private campground investment. Mecosta, Allegan, and Jackson all exceed one million. The majority of the counties have less than $500,000 each.

It is not surprising to find that the investment measures closely relate to the distribution of campsites. Seven out of ten reappear on both lists. There is an interesting line of highland area across the Lower Peninsula from Gary vicinity to the Mackinac Bridge, indicating the North-South traffic pattern. This is possibly the direction the camper traffic flow. Nevertheless, the low hills and plain in the Upper Peninsula points out a relationship to the public camping facilities.

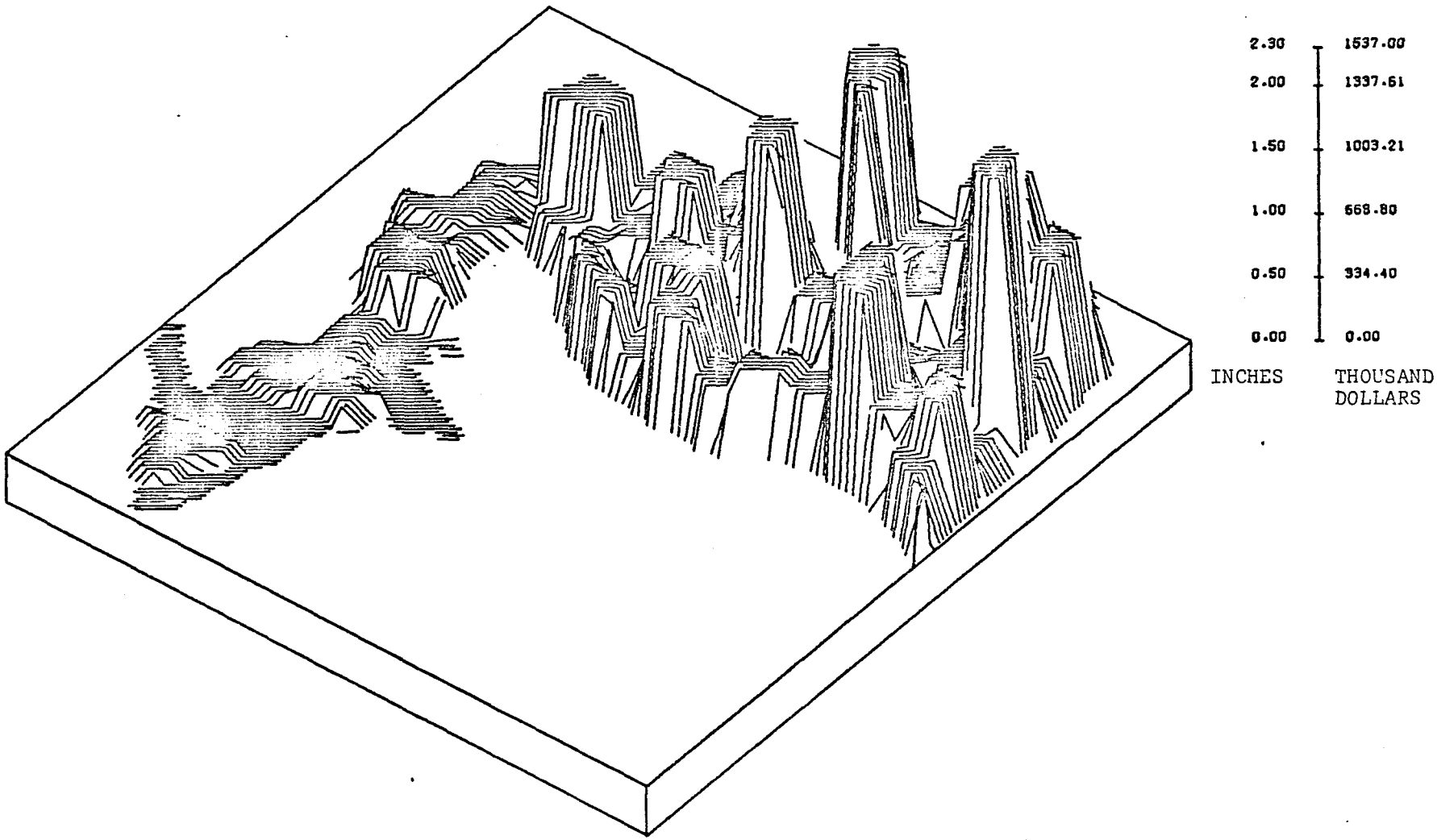

FIGURE 9.--Development Investment by County

Construction Expenditures

The total construction expenditures for Michigan Private campgrounds were estimated at $8,984,600. This figure includes the labor cost to the construction of the campgrounds, and the construction materials purchased from the local community. It represents the economic contribution to Michigan rural areas from the private campground industry. Compared to the total development investment, the construction expenditures are roughly one-third of the grand figure.

The following is a list of top ten counties of construction expenditures:

Jackson	$163,500
Mecosta	151,100
Clare	148,900
Allegan	142,700
Mason	124,100
Lenawee	118,900
Kent	118,300
Wexford	116,400
Oakland	107,000
Leelanau	104,900

Figure 10 is a SYMVU map for the 9 million dollars in construction expenditures. The maximum construction expenditures take place in Jackson county with up to 160 thousand dollars. The other nine counties all exceed 100 thousand dollars.

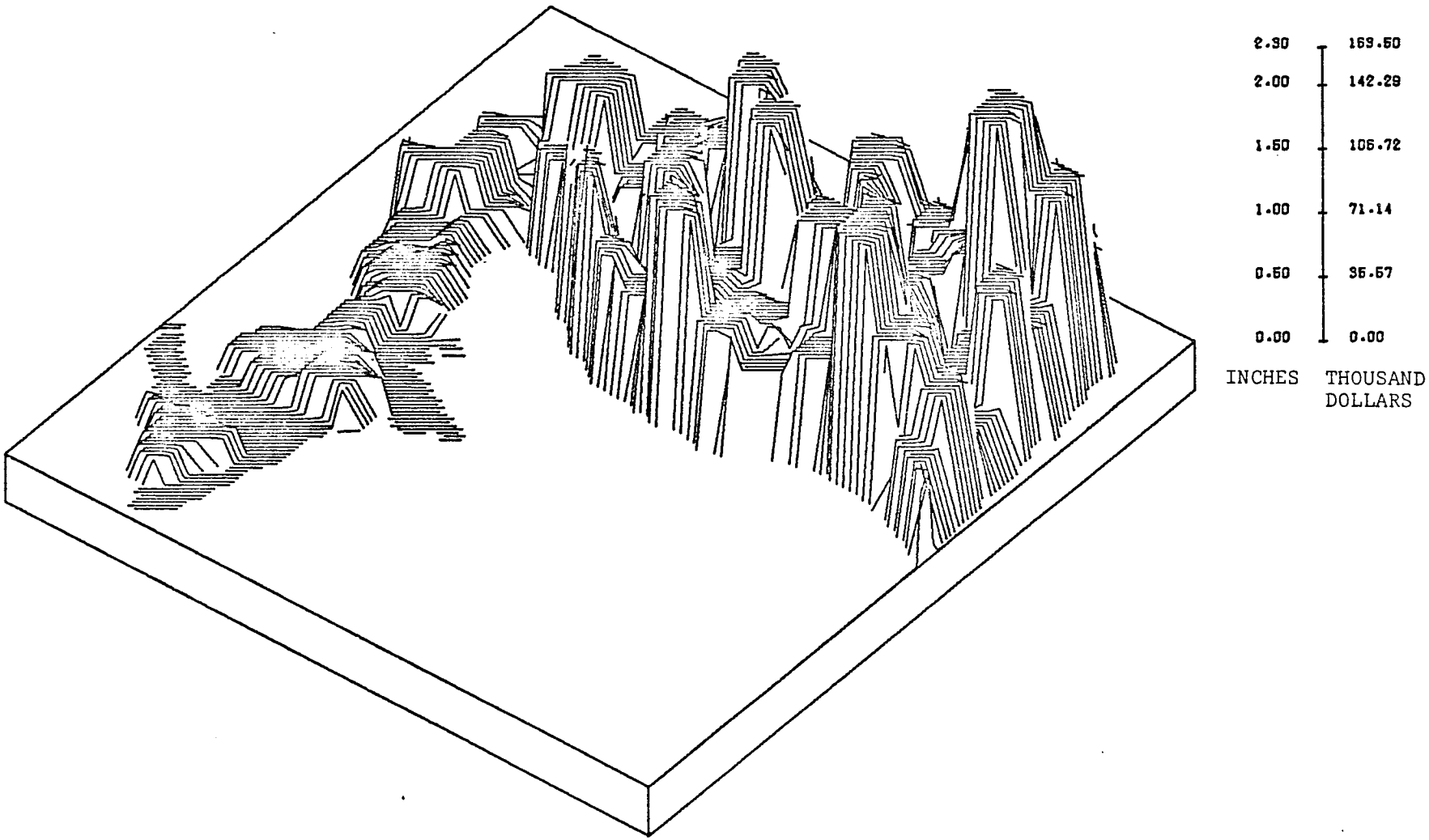

FIGURE 10.--Construction Expenditures by County

Branch and Huron dropped from the list of top ten, while Jackson, Mecosta and Allegan remained. Southern Michigan still has much higher values than Upper Peninsula as expected. Yet, we can see the variances in the construction expenditures are somewhat smaller than those in the development investment. The distribution pattern is nevertheless similar to that of the development investment.

Equipment Expenditures

The total equipment expenditures were estimated at $1,135,300. This figure includes campground machines, such as lawn mowers, tractors, trucks, cars, and other tools. This equipment must have been bought within Michigan for the most part, if not all; though it is not necessarily purchased within the local community. These expenditures no doubt also contribute to the Michigan economy. The equipment expenditures are roughly 4 to 5 percent of the development investment.

The following is a list of top ten counties of equipment expenditures:

Jackson	$57,500
Cheboygan	52,900
Branch	51,200
Lenawee	49,900
Mecosta	40,800
Allegan	35,000

Montmorency	33,600
Muskegon	30,500
Livingston	29,700
Montcalm	29,300

Figure 11 is a SYMVU map for the one-million-dollar equipment expenditures. Jackson county comes out on top one more time, with 57,500 dollars spent on equipment. Eight counties altogether have more than 30 thousand dollars each invested in this item.

Jackson and Mecosta persistently appear in the top five list. Branch county returns as Number Three in the state. The contrast between Upper and Lower Peninsulas appears as before. However, the Eastern half of the Lower Peninsula seems to be higher than the Western half. Numerous public campgrounds are scattered in the Western half of the Lower Peninsula; the private campgrounds may be complimentary to such trend.

Annual Operating Expenditures

The next measure of the dollar consequence of this industry in the rural community is derived from the annual expenditures for various goods and services to sustain the operation of the micro units. Items of cost for the industry are items of income to the supporting community, which include: resale supplies, operating supplies, payrolls, advertising, and equipment

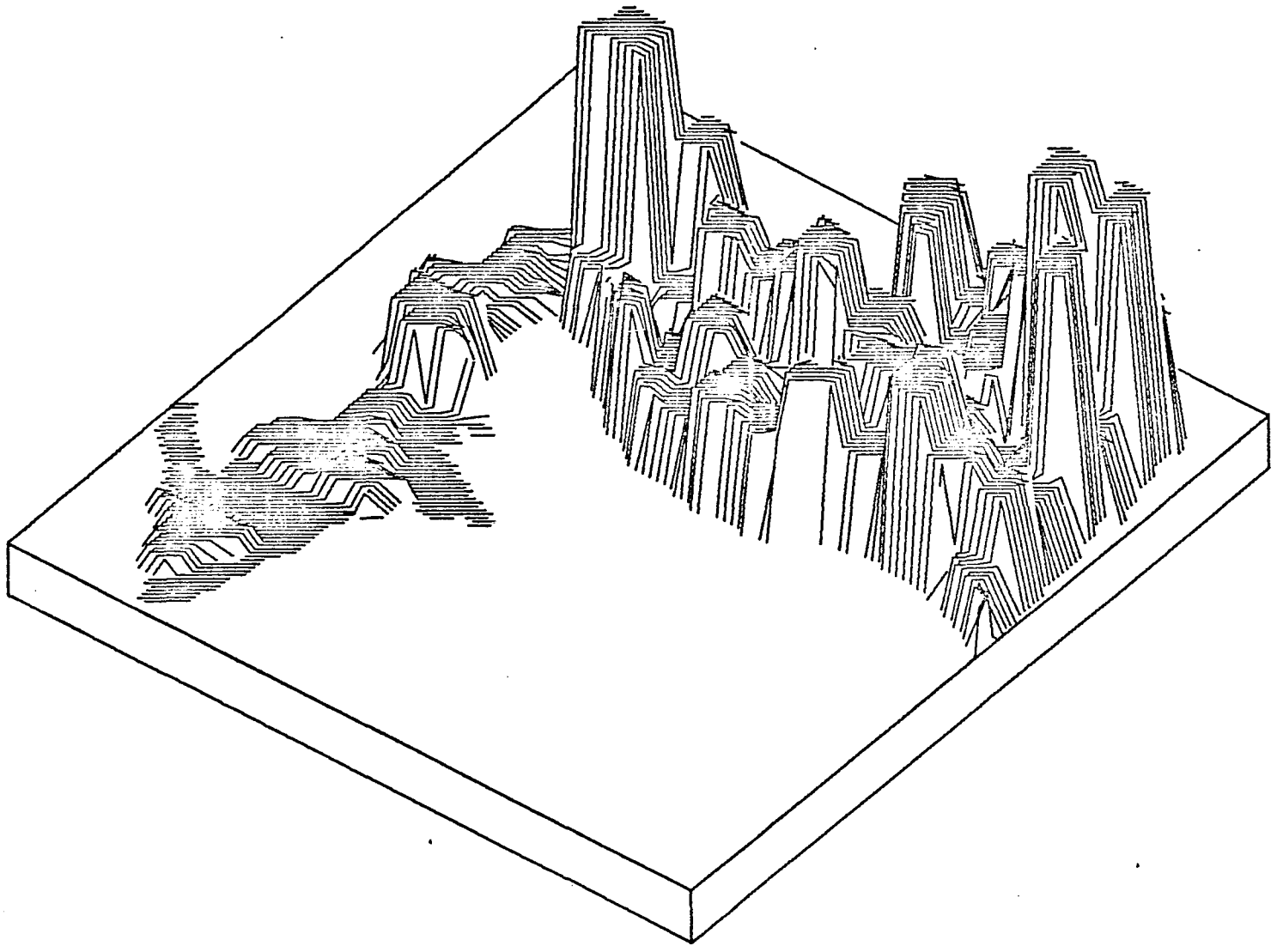

FIGURE 11:--Equipment Expenditures by County

repair. The purpose of these measurements was to generate an approximate contribution from the private campgrounds to the local economy, we did not attempt to exhaust all possible costs. Unlike many other industries, the campground business has a rather diversified pattern on annual operating expenditures. These data indicate that there is an annual payment by the industry to providers of goods and services in the state in the nature of $1,875,900.

Among all the expenditures examined, by far the most difficult to document is that of the payroll. Not only does a great majority of this industry operate basically with unpaid family labor, numerous other labor providing devices are utilized. Among these is the gift of space rentals for one or more individuals who may then perform some task in the operation of the campground as well as friends of the children contributing to temporary work tasks as a favor or to obtain some privilege. The end result is that the actual value of the total labor input is discussed with a very low level of confidence.

The following is a list of top ten counties of annual operating expenditures:

Branch	$139,900
Crawford	97,800
Mecosta	83,000

Allegan	81,900
Kent	79,200
Cheboygan	76,900
Livingston	72,200
Jackson	70,500
Huron	63,800
Oakland	62,600

Figure 12 is a SYMVU map for the 2.4 million dollars in annual operating expenditures. The pattern looks very similar to that of the development investment. Branch county with an annual operating expenditure of $139,000 is first. Most of the counties expend less than 30 thousand dollars a year. Ten counties exceed 60 thousand dollars annually; among them eight are located in Region 3, only Cheboygan and Crawford in Region 2 (along the major highway), none in Region 1.

Net Income and Interest Payment

Now we come to the last measure of the dollar flow of the industry--the annual returns, which is combined by the annual net income and interest payment. We arrive at an annual figure of $1,108,100. This figure divided by the total development investment of $25,410,000 results in an annual interest rate of 4.36%. This interest rate indicates the kind of return one can expect when he ponder over the idea of going into the private campground business in the state of Michigan.

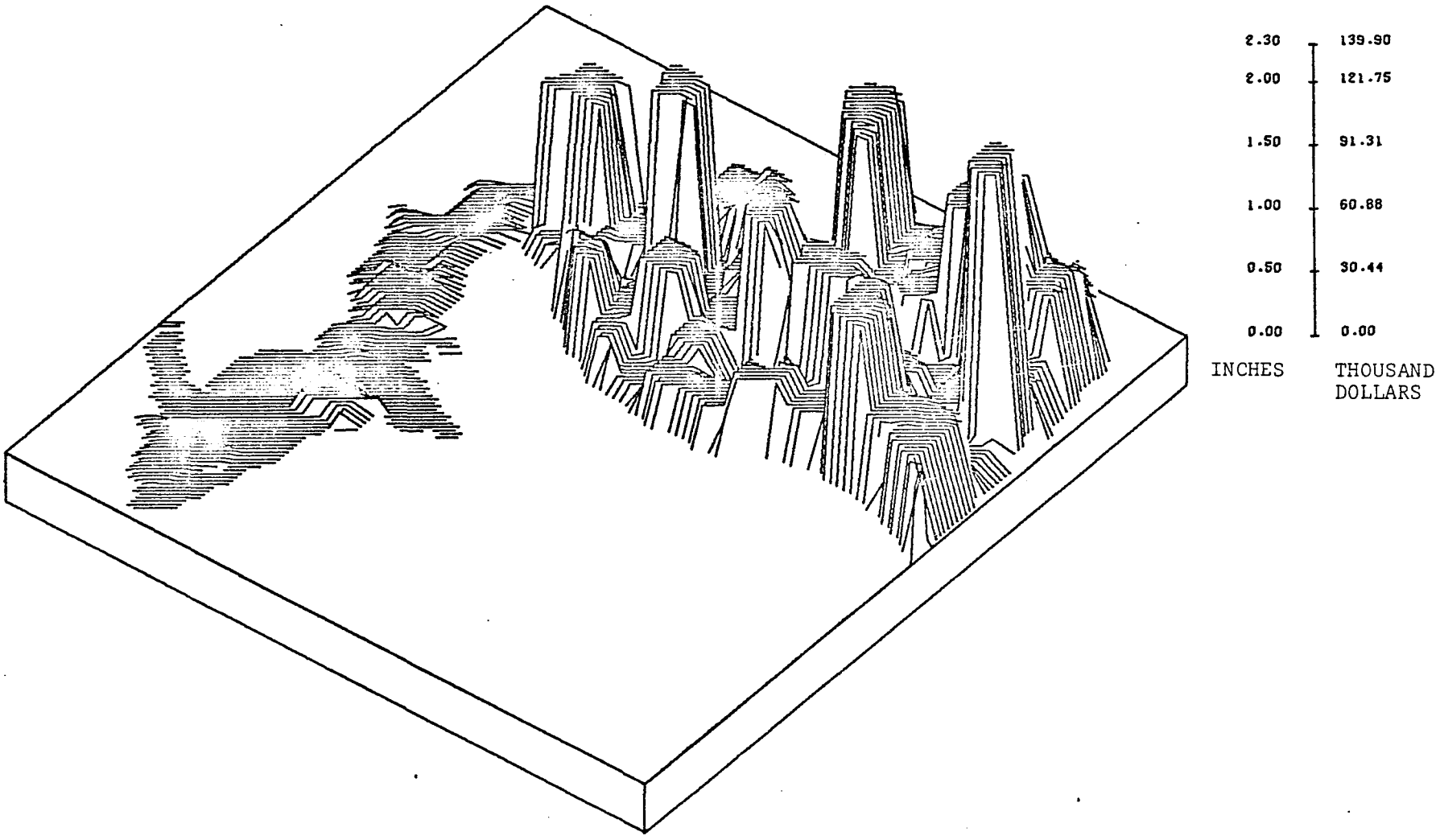

FIGURE 12.--Annual Operating Expenditures by County

The rate of return of this industry, according to the present analysis, is lower than the going interest rate in a bank deposit. Consider the unpaid labor the owner/manager and his family put in, one must enjoy operating a private campground for satisfaction other than monetary returns, or he should invest in another type of business.

The following is a list of the top ten counties of the sums of net income and interest payment:

Branch	$64,600
Allegan	61,700
Jackson	55,500
Livingston	53,300
Lenawee	47,800
Barry	39,000
Cheboygan	38,600
Kent	38,100
Mecosta	37,300
Clare	35,600

Figure 13 is a SYMVU map for the sums of the net income and interest payment of $1,108,100. Branch county has the highest returns, which reflects the amount of its campsites and total development investment. Allegan, Jackson, and Livingston have more than 50 thousand dollars a year.

The map indicates that the counties with higher returns concentrate in Region 3, which is where the Michigan population concentrates. With only one

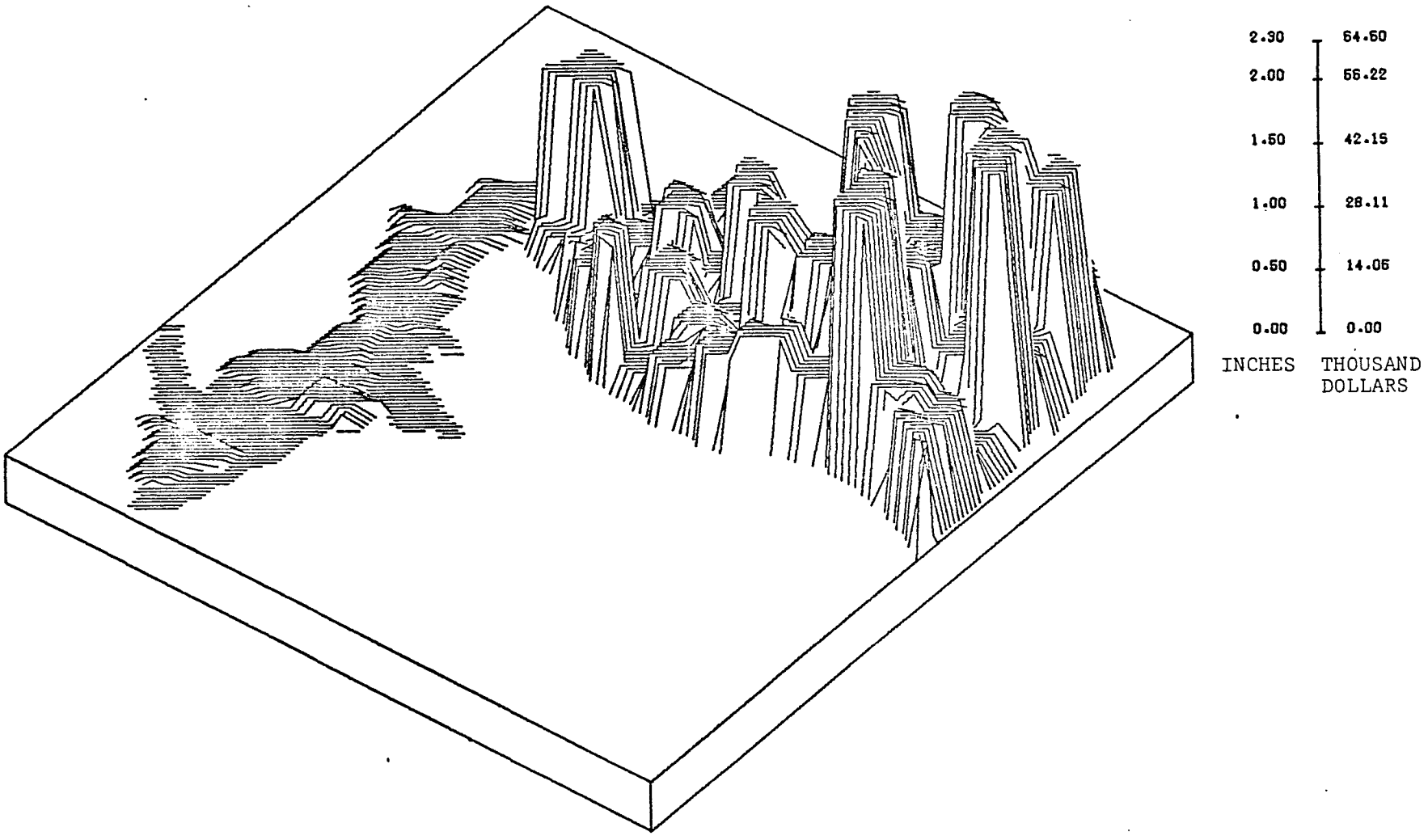

FIGURE 13.--Net Income and Interest Payment by County

exception, Region 2 has lower returns, although its investments are comparable to that of Region 3.

Occupancy Rates

The occupancy rates on weekends and holidays show smaller variances. (Figures 14 and 15)

The following is a list of the top ten counties of occupancy rates on weekends:

Washtenaw	87.43%
Livingston	83.54
Oakland	81.22
Muskegon	79.22
Montcalm	79.16
Macomb	75.10
Genesee	75.05
Kalamazoo	74.82
Wayne	73.39
Ionia	72.71

And for the holidays:

Muskegon	115.60%
Macomb	102.73
Genesee	102.66
Oakland	101.76
Wayne	101.38
Livingston	101.04
Montcalm	100.98
Ionia	100.82
Alcona	100.25
Lenawee	100.11

During the weekends, 30 percent less occupancy rates are expected in Upper Peninsula. Within

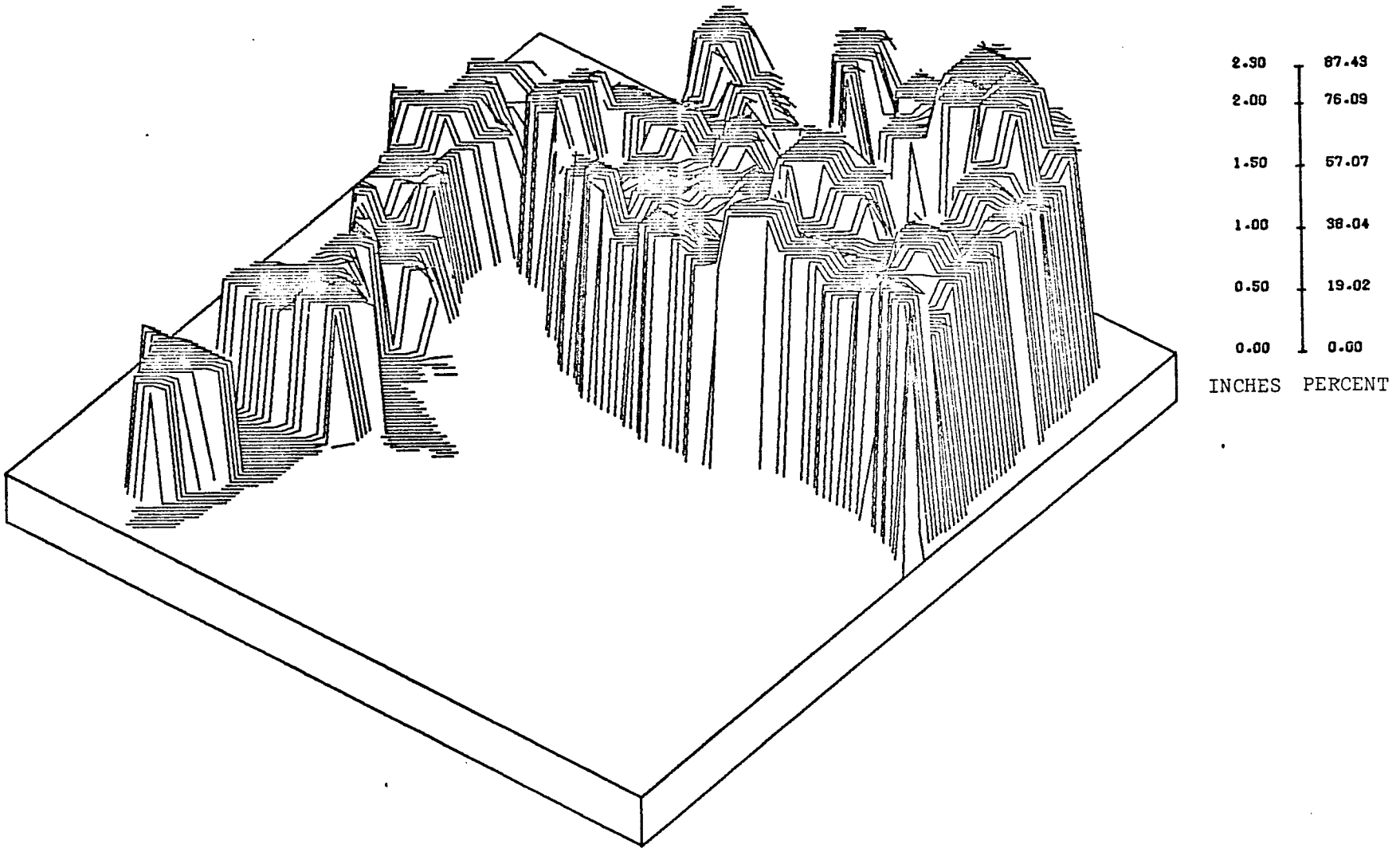

FIGURE 14.--Occupancy Rate on Weekends by County

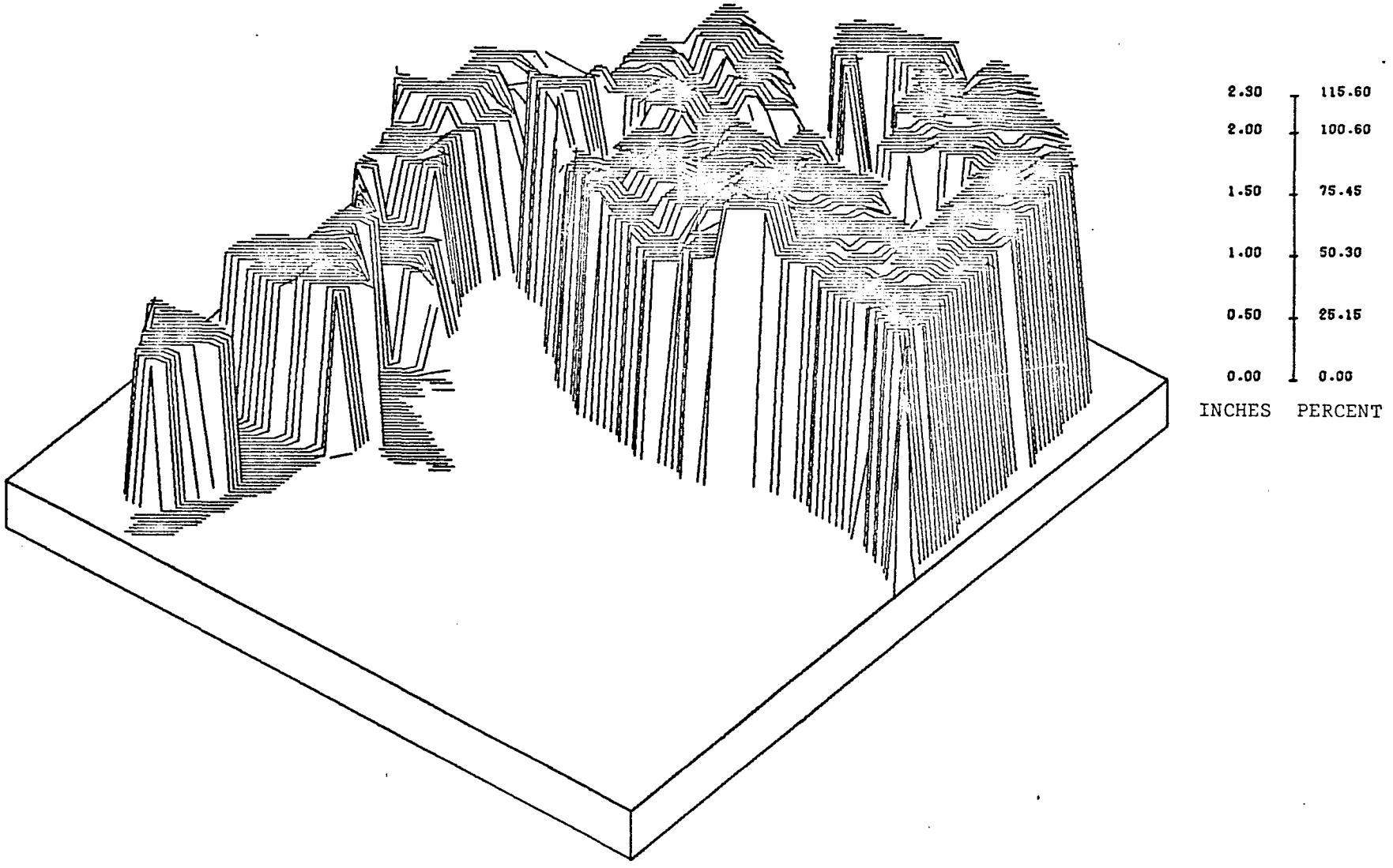

FIGURE 15.--Occupancy Rate on Holidays by County

the Lower Peninsula, Region 3 is higher than Region 2. However, during the holidays, it almost looks like a plateau.

Average Basic Camping Fees

With a statewide average of $3.25 per night, those campgrounds charging above $3.50 per night appear in the list of the top ten counties:

Alger	$4.25
Alcona	3.92
Allegon	3.91
Charlevoix	3.88
Crawford	3.66
Livingston	3.64
Ogemaw	3.62
Dickinson	3.57
Leelanau	3.54
Kent	3.52

Four counties in the list, Allegon, Kent, Crawford, and Leelanau, duplicate those with top numbers of campsites. Overall, five counties are located in Region 2; three in Region 3; and two in Region 1.

Figure 16 is a SYMVU map for the average basic camping fees, showing a range between $2.00 and $3.92. The extreme value in Alger is not shown, in order to exagerate the variation. The fee charge varies from county to county, no apparent pattern can be traced.

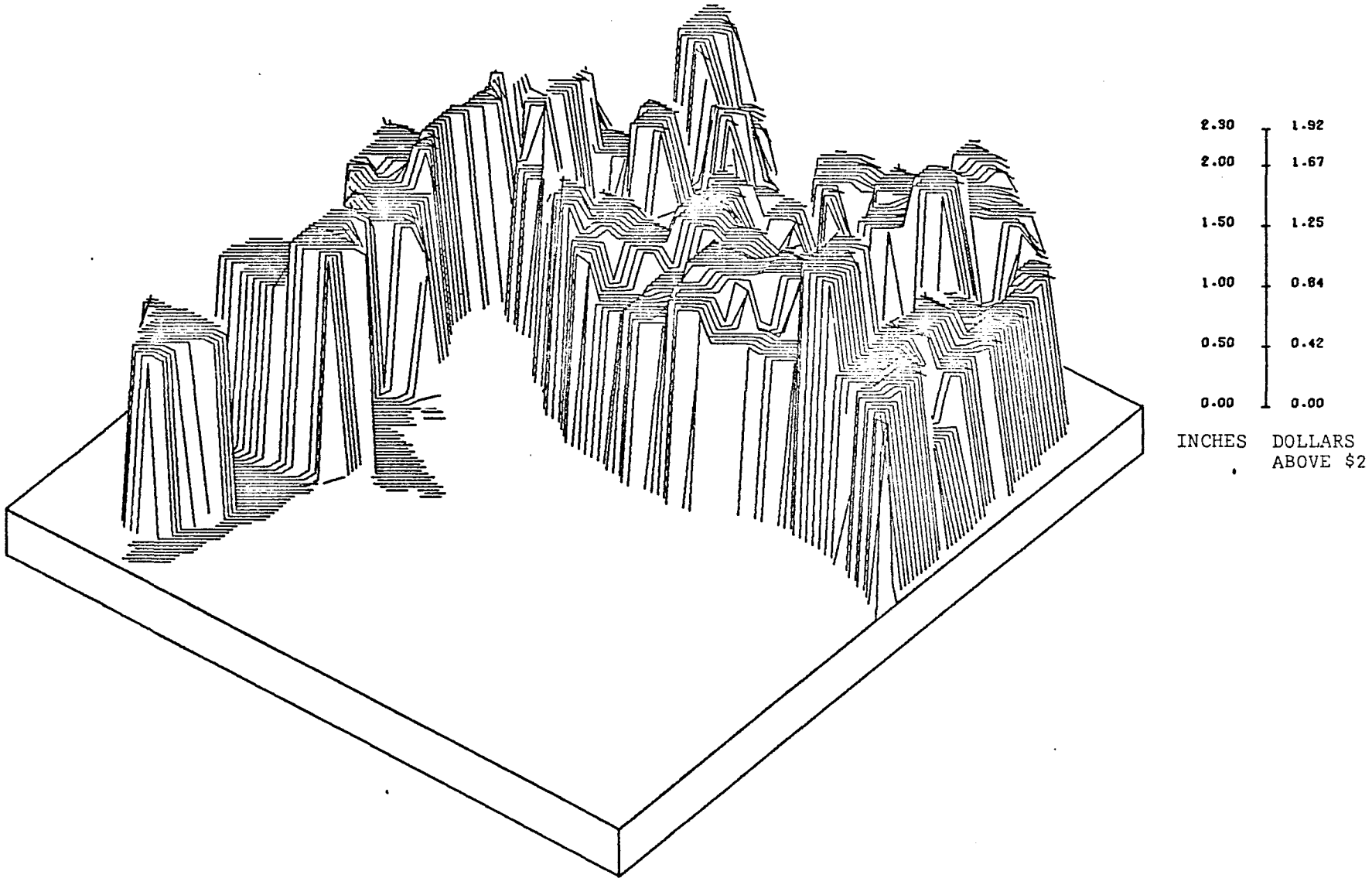

FIGURE 16.--Average Basic Camping Fee by County

CHAPTER VI

CONCLUSIONS

This study has attempted to describe the economic worth of Michigan private campground industry to the rural areas of the state. Through different approaches, such as the campground distribution study in Chapter II, the averages of economic factors in Chapter III, and the three-dimensional computer maps in Chapter V, the nature of this 25-million-dollar industry has been sketched out. Although the question of "why" was slightly touched in Chapter IV on regression analyses, our research objective was not intended to be explanatory. The following is a description of the Michigan private campground industry:

1. Michigan private campground industry is a people oriented recreation activity, rather than a resource base oriented recreation activity. The distribution of the private campgrounds closely relates to the population distribution of the state, and appropriately compensates the voids left in development by the public agencies. As regard to occupancy rates,

the picture is quite clear; they are a function of the distance to the population centers. The development investment and annual operating expenditures are also highly related to such pattern. It is recommended that for better profit making, Michigan private campgrounds need be located close to the population.

2. Besides the locational effect, the campground type is another important factor. The initial analyses show that the overnight type campgrounds have persistently 20 percent less occupancy rates than those of the destination and commuter types. (Table 7) Accordingly, the net income of the overnight type is only a little more than half of the other two types. (Table 15) It seems that Michigan private campgrounds should not solely depend on overnight customers. In other words, the length of stay is crucial for profit making. The regression analyses in Model II (Appendix IV) confirm this argument concerning the occupancy rates. Appendix IV-1 shows that the destination type campgrounds have 2.40% higher occupancy rate on weekends than that of the commuter type, whereas the overnight type campgrounds are 8.12% below the commuter type. Appendix IV-2 shows similar results for the occupancy rate on holidays. However, in Appendix IV-7 the regression analysis appears to be contradictory to the initial analysis. It shows

that the overnight type campgrounds have $521 annual net income and interest payment more than that of the commuter type, whereas the destination type has $424 above that of the commuter type. A possible explanation is that there is an interaction effect between the region and the type of the campgrounds.

3. Michigan private campground industry is quite uniform in average basic camping fees. Due to the competition from the public sector as well as other private campgrounds, the majority charges between $3.00 and $3.60 per night. Yet, the occupancy rates on weekends and holidays made the difference, whereas the midweek period had no effect on profit making. How to fill the campgrounds with customers during the midweek period is a challenge to the campground owner/managers.

4. The investment maps show a consistent pattern of close relationship between the high values of various economic factors and the major traffic routes in the state. In most of the maps, there is almost a continuous line of counties with high values connecting the Gary area to the Mackinac Strait. The same is true, but less obvious, with the East-West traffic routes in Southern Michigan. This confirms a general belief that an easy access to a recreation area is of great importance.

5. The returns on total development investment

for Michigan private campground industry reach an annual interest rate of merely 4.36%. The rate of return for this industry, according to the present analysis, is lower than the going interest rate in a bank deposit. Consider the unpaid labor that the owner/manager and his family put in, one must enjoy operating a private campground for satisfaction other than monetary returns, or he should invest in another type of business.

The implications for further studies in a similar nature are as follows:

1. Recreation research has reached a point that theoretical discussions no longer satisfy the needs in sound planning. This study joins other research efforts in the field in accumulating empirical information in private campgrounds. It is one of few attempts in large-scale data collection and macro analysis.

2. The current trends in camping research seem to be more oriented towards studies in the public sectors. Prior to this study, information concerning private campground industry in Michigan, as well as elsewhere, had been merely piecemeal. The initial data analysis supported by a careful sample design to cover the whole state was most helpful in understanding the industry for the first time. It serves the function of descriptive statistics which provide solid figures for

some very important topics such as the occupancy rates, investment, expenditures, and other economic structures.

3. Multiple regression analysis has been more and more accepted in the field as a powerful tool in explanatory statistics. This study has achieved an initial success in campground anatomy. Although the models and the regression coefficients could not be claimed perfect (R^2 in Model II ranged between 0.21 and 0.52), this was probably the best we could get, given the complicated situation in sampling, data collection, and the nature of this young and fast growing industry. For the time being, the prediction equations can be useful to guide new and old investers in the private campground industry as to what kind of investment and profit they would likely to expect.

4. The application of the new three-dimensional computer mapping techniques to illustrate the macro economy on a statewide scale is a pioneer in recreation research. The previous version of this SYMVU program was called SYMAP, which had several applications a few years ago, and still is prevailing in the field. SYMVU seems to be more vivid and striking to the reader. Its function is to perceive a large-scale and complicated economic structure in a glance, and may be proven useful to present great volumes of data in a short form for

the executives and to the laymen.

5. It is my personal feeling that recreation research is like a gigantic puzzle. Every piece of new study is a contribution, yet the whole picture has never been revealed, and will not be in the foreseeable future. Unlike many other fields, in recreation research "monumental" discoveries seldom took place, and "giants" were few. Our study object is an ever-changing monster which ruthlessly denies any claim to be everlasting. Therefore, we are not marble sculptors, but auto manufacturers. On one hand, our efforts may end up in a junkyard fairly quickly, yet on the other hand, the products may be more practical for the welfare of the people.

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BIBLIOGRAPHY

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APPENDICES

APPENDIX I

MICHIGAN PRIVATE CAMPGROUND INDUSTRY

STATISTICS BY COUNTY

APPENDIX I

MICHIGAN PRIVATE CAMPGROUND INDUSTRY STATISTICS BY COUNTY[1]

COUNTY	NO. OF SITES	AVE. OCCUPANCY (%)		AVE. CAMPING FEE ($)	DEVEL-OPMENT	CONSTRUC-TION	EQUIP-MENT	ANNUAL OPERATING	INCOME & INTEREST
		WEEKENDS	HOLIDAYS						
Alcona	159	68.98	100.25	3.92	222	39.4	7.6	22.0	8.3
Alger	50	33.00	100.00	4.25	85	51.1	1.0	5.1	5.6
Allegon	858	63.83	94.73	3.91	1,092	142.7	35.0	81.9	61.7
Alpena	0	-	-	-	-	-	-	-	-
Antrim	0	-	-	-	-	-	-	-	-
Arenac	147	54.31	88.56	3.11	250	61.5	13.5	10.8	7.2
Baraga	0	-	-	-	-	-	-	-	-
Barry	479	60.66	98.34	2.84	437	88.1	20.6	34.2	39.0
Bay	0	-	-	-	-	-	-	-	-
Benzie	261	68.33	93.69	3.35	494	73.9	15.2	23.0	33.1

[1]Investment and income figures are in thousand dollars.

APPENDIX I (con'd)

COUNTY	NO. OF SITES	AVE. OCCUPANCY (%)		AVE. CAMPING FEE ($)	DEVEL-OPMENT	CONSTRUC-TION	EQUIP-MENT	ANNUAL OPERATING	INCOME & INTEREST
		WEEKENDS	HOLIDAYS						
Berrien	366	77.17	98.99	3.29	370	46.7	9.9	41.3	23.4
Branch	868	67.33	94.75	3.06	1,537	95.6	51.2	139.9	64.6
Calhoun	319	63.36	98.96	3.25	448	46.9	11.0	22.3	20.5
Cass	447	60.78	95.71	3.35	658	73.0	21.8	41.5	21.8
Charlevoix	152	68.28	99.80	3.88	215	38.4	7.4	21.0	8.0
Cheboygan	1,133	54.41	70.67	3.46	797	95.0	52.9	76.9	38.6
Chippewa	167	46.44	72.73	3.07	141	41.7	5.6	2.9	2.2
Clare	308	68.28	95.20	3.49	584	148.9	28.4	34.7	35.6
Clinton	0	-	-	-	-	-	-	-	-
Crawford	525	59.38	94.42	3.66	636	90.7	26.3	97.8	19.9
Delta	0	-	-	-	-	-	-	-	-
Dickinson	85	40.52	66.40	3.57	121	22.1	4.1	7.5	3.1
Eaton	0	-	-	-	-	-	-	-	-
Emmet	142	54.05	88.33	3.09	243	60.5	13.4	9.9	6.9
Genesee	226	75.05	102.66	3.40	316	56.1	12.1	30.6	15.9

APPENDIX I (con'd)

COUNTY	NO. OF SITES	AVE. OCCUPANCY (%)		AVE. CAMPING FEE ($)	DEVEL-OPMENT	CONSTRUC-TION	EQUIP-MENT	ANNUAL OPERATING	INCOME & INTEREST
		WEEKENDS	HOLIDAYS						
Gladwin	0	-	-	-	-	-	-	-	-
Gogebic	0	-	-	-	-	-	-	-	-
Grand Traverse	220	48.51	89.47	3.41	262	36.6	14.0	24.0	7.4
Gratiot	0	-	-	-	-	-	-	-	-
Hillsdale	229	69.59	98.06	3.09	324	63.9	15.2	26.1	17.5
Houghton	0	-	-	-	-	-	-	-	-
Huron	300	64.24	96.84	2.96	913	47.3	20.6	63.8	27.4
Ingham	0	-	-	-	-	-	-	-	-
Ionia	95	72.71	100.82	3.26	136	25.0	5.5	12.3	7.0
Iosco	211	56.07	93.72	3.40	408	46.5	14.9	27.8	6.5
Iron	0	-	-	-	-	-	-	-	-
Isabella	141	48.33	91.25	3.00	333	50.1	15.4	7.4	9.6
Jackson	701	71.77	98.08	3.03	1,028	163.5	57.5	70.5	55.5
Kalamazoo	136	74.82	99.13	3.30	228	21.2	12.0	9.1	7.3
Kalkaska	33	15.00	90.00	2.25	20	-	6.5	1.3	-

APPENDIX I (con'd)

COUNTY	NO. OF SITES	AVE. OCCUPANCY (%)		AVE. CAMPING FEE ($)	DEVEL-OPMENT	CONSTRUC-TION	EQUIP-MENT	ANNUAL OPERATING	INCOME & INTEREST
		WEEKENDS	HOLIDAYS						
Kent	581	62.32	98.29	3.52	723	118.3	28.7	79.2	38.1
Keweenaw	0	-	-	-	-	-	-	-	-
Lake	294	58.48	95.64	3.20	697	69.6	19.6	28.8	17.0
Lapeer	124	62.07	96.92	2.82	157	13.8	18.2	19.9	6.2
Leelanau	516	61.69	90.47	3.54	521	104.9	25.7	49.3	20.4
Lenawee	755	65.17	100.11	3.06	796	118.9	49.9	54.8	47.8
Livingston	409	83.54	101.04	3.64	623	58.7	29.7	72.2	53.3
Luce	50	35.03	61.67	3.26	71	15.5	3.2	.9	1.1
Mackinac	68	37.95	64.23	3.43	97	19.0	3.6	4.4	2.1
Macomb	113	75.10	102.73	3.40	158	28.1	6.1	15.3	7.9
Manistee	135	53.61	87.93	3.07	232	59.1	13.2	8.6	6.5
Marquette	45	34.18	60.91	3.22	63	14.5	3.0	-	.7
Mason	531	64.96	83.29	3.17	611	124.1	21.2	21.5	13.7
Mecosta	732	65.94	98.03	3.44	1,333	151.1	40.8	83.0	37.3
Menominee	0	-	-	-	-	-	-	-	-

APPENDIX I (con'd)

COUNTY	NO. OF SITES	AVE. OCCUPANCY (%)		AVE. CAMPING FEE ($)	DEVEL-OPMENT	CONSTRUC-TION	EQUIP-MENT	ANNUAL OPERATING	INCOME & INTEREST
		WEEKENDS	HOLIDAYS						
Midland	139	57.36	91.13	3.27	223	48.5	10.1	14.6	7.2
Missaukee	30	15.00	66.00	3.00	75	22.3	1.2	1.6	.7
Monroe	368	72.07	99.36	3.13	368	70.7	25.9	37.2	20.4
Montcalm	342	79.16	100.98	3.28	338	84.6	29.3	27.7	28.8
Montmorency	175	44.79	94.40	2.94	347	61.9	33.6	12.7	6.0
Muskegon	345	79.22	115.60	3.21	482	50.4	30.5	37.4	26.7
Newaygo	114	35.00	100.00	3.50	92	63.0	6.2	5.0	4.8
Oakland	568	81.22	101.76	3.32	725	107.0	22.7	62.6	28.3
Oceana	254	62.05	92.52	3.40	359	68.5	19.5	21.5	21.2
Ogemaw	260	63.54	95.22	3.62	348	66.5	13.8	31.6	12.7
Ontanagon	50	35.03	61.67	3.26	71	15.5	3.2	.9	1.1
Osceola	210	61.79	94.53	3.52	308	60.3	12.2	25.9	10.8
Oscoda	40	52.79	87.21	3.02	70	18.7	4.3	1.8	1.8
Otsego	161	58.92	92.42	3.36	252	52.5	10.7	18.4	8.4
Ottawa	266	69.07	98.01	3.16	411	62.9	18.8	26.8	19.6

APPENDIX I (con'd)

COUNTY	NO. OF SITES	AVE. OCCUPANCY (%)		AVE. CAMPING FEE ($)	DEVEL-OPMENT	CONSTRUC-TION	EQUIP-MENT	ANNUAL OPERATING	INCOME & INTEREST
		WEEKENDS	HOLIDAYS						
Presque Isle	0	-	-	-	-	-	-	-	-
Roscommon	203	52.85	87.25	3.03	352	94.0	21.4	9.8	9.4
Saginaw	0	-	-	-	-	-	-	-	-
Salinac	140	47.04	96.69	2.89	57	14.6	4.1	2.1	3.7
Schoolcraft	152	25.00	38.33	3.17	291	18.8	14.7	6.0	.7
Shiawassee	279	71.99	99.06	3.35	334	46.9	12.1	28.4	19.3
St. Clair	0	-	-	-	-	-	-	-	-
St. Joseph	209	68.25	96.04	2.72	204	35.1	13.9	11.2	8.1
Tuscola	0	-	-	-	-	-	-	-	-
Van Buren	368	68.90	95.59	3.29	525	94.7	25.6	42.2	25.8
Washtenaw	107	87.43	97.25	2.73	52	13.0	9.8	1.5	7.1
Wayne	100	73.39	101.38	3.30	142	25.9	5.7	13.2	7.3
Wexford	463	60.10	96.21	3.34	604	116.4	24.3	52.3	22.5
TOTAL	18,453				25,410	8,984.6	1,135.3	1,875.9	1,108.1

APPENDIX II

MANAGEMENT INTERVIEW QUESTIONNAIRE

Code No. _____ Date _____ Area A B C Interviewer _____

Respondent: Male _____ Female _____ Couple _____ Committee _____

Recreation Research Project 1105
Department of Park and Recreation Resources
Michigan State University
East Lansing, Michigan 48823

ITEM A

1. HOW MANY SITES ARE IN THIS CAMP UNDER THE FOLLOWING?
   1-modern ___ 2-primitive ___ 3-total ___

2. IS THIS MORE THAN LAST YEAR? 1-Yes ___ 2-No___

3. ARE ANY NEW SITES BEING ADDED THIS YEAR? 1-Yes ___ 2-No ___
   If yes, how many modern _____ primitive _____

4. IF ANY NON-SITE CONSTRUCTION IS GOING ON, EXPLAIN TYPE AND SIZE OF ADDITION(S) _____

5. WHICH OF THE CAMPGROUND TYPES IS THIS? 1-Overnight ____
   2-Destination ____ 3-Commutor ____

6. WHICH OF THE FOLLOWING ARE OFFERED IN THIS CAMPGROUND?

1__Electricity at most sites	10__Community activity and bath
2__Water to most sites	11__Building
3__Sewer hookups at some sites	12__Grocery store
4__Laundry	13__Outdoor sports and games
5__Coin operated games	14__Fishing
6__Swimming	15__Art and craft room
7__Boating (Incl. canoes)	16__Bike rentals
8__Bottled gas sales	17__Dumping station
9__Movies	18__Music vending machines

7. IN WHICH OF THE FOLLOWING WAYS DO YOU ADVERTISE YOUR CAMPGROUND?
   1__Brochure 2__Outdoor magazines 3__Radio 4__Newspapers
   5__T.V. 6__Sports shows 7__Directories

8. INTERVIEWER: After all other discussion has been completed, the following scoring should be recorded: Use following grading; 6,5,4,3,2,1

1.Contacts with customers ____	6. Preparation of work crew ____
2.Tidiness of grounds ____	7. Clear division of jobs ____
3.Office efficiency ____	8. Good traffic patterns ____
4.Evidence of quality ____	9. Water and plumbing working ____
5.Variety of activities	10. Campers kept happy ____
11. Roadside and other directions easily followed ____	

ITEM B

1. WHO IS THE MANAGER OF YOUR CAMPGROUND?

   Self ___ Spouse ___ Paid Employee ___

2. WHO KEEPS THE BOOKS ON EXPENSES AND INCOME?

   Self ___ Spouse ___ Paid Employee ___

3. WHO DECIDES ON WHAT IS TO BE SPENT FOR LARGE PURCHASES? _____

4. WHAT TYPE OF RECORDS DO YOU KEEP?

   Daily ___ Weekly ___ Monthly ___ Seasonally ___ Score: 6 5 4 3 2 1

5. DO YOU KEEP INDIVIDUAL RECORDS ON ALL YOUR DIFFERENT KINDS OF INCOME ACTIVITIES? STORE, SITES, BIKES, BOATS, ETC.? Yes ___ No ___

6. WHAT IS THE MOST IMPORTANT ITEM THAT WOULD CAUSE YOU TO CHANGE YOUR SITE FEE? IN OTHER WORDS, FOR WHAT MAIN REASON WOULD YOU CHANGE?

   _____

7. DO YOU HAVE DIFFERENT PRICES FOR DIFFFRENT SITES? Yes ___ No ___

8. WHY IS THIS? _____

   Different Hookups ___ Difference in Location ___ Other _____

   Score card on whether he recognizes value of different sites 6 5 4 3 2 1

8. WHERE DO MOST OF YOUR CAMPERS COME FROM? _____

   Score: Does answer indicate he has evaluated the source or is he uncertain? 6 5 4 3 2 1

9. DO YOUR CUSTOMERS VISIT MANY LOCAL ACTIVITIES WHILE THEY ARE CAMPING HERE OR DO THEY STAY RIGHT IN CAMP MOST OF THE TIME?

   _____

   Score: Does answer suggest he knows? 6 5 4 3 2 1

10. WHO PLANNED THE LAYOUT OF THE CAMPGROUND? _____

11. WHO DESIGNED YOUR BUILDINGS? _____

12. WHAT PERCENT OF YOUR SITES ARE RENTED ON WEEKENDS _____ HOLIDAYS _____ TUESDAY, WEDNESDAY, THURSDAY _____?

    Score: 6 5 4 3 2 1

13. WHO TELLS HIM WHAT THEIR JOB IS? _____

14. HOW DO YOU "TRAIN IN" A NEW EMPLOYEE? _____

    _____

15. WHO HANDLES REGISTRATIONS? _____

16. WHO HANDLES RESERVATIONS? _____

ITEM C

These next questions are about economics. We are interested in how much income the local community gains when private campgrounds are in operation. As you already know, we will not disclose your personal figures.

1. HOW MANY ADULTS (16 AND UP) WORK IN YOUR CAMPGROUND?

   Full time during season ____ For pay ____
   Part time during season ____ For pay ____

2. HOW MANY UNDER 18 WORK IN YOUR CAMPGROUND?

   All season ____ For pay ____
   Part time ____ For pay ____

3. WHAT KIND OF PAY SCALE DO YOU HAVE? _____

4. APPROXIMATELY WHAT IS YOUR TOTAL PAYROLL? _____per year

5. IN ROUND FIGURES, ABOUT HOW MUCH DO YOU HAVE INVESTED IN ALL YOUR CAMPGROUND DEVELOPMENT? _____ Score: 6 5 4 3 2 1

6. ABOUT HOW MUCH DOES IT COST YOU A YEAR TO ADVERTISE? _____

7. DID YOU AND YOUR FAMILY DO A LOT OF THE WORK IN BUILDING THE CAMPGROUND?

   Yes ____ No ____

8. ABOUT HOW MUCH DID YOU PAY LOCAL HELP WHEN YOU BUILT THIS CAMPGROUND?

   _____

   Plumber _____ Electrician _____ Carpenter _____ Mason _____

   Engineer or surveyor _____ Road builders _____ Other _____

9. IN ROUNDED FIGURES, ABOUT HOW MUCH HAVE YOU PAID TO LOCAL SUPPLIERS FOR

   Lumber _____ Plumbing _____ Electrical _____ Blocks _____

   Cement _____ Gravel _____ Or all of these _____

   Interviewer: If he doesn't seem to know, don't press the issue.
   Score: Does answer show he knows? 6 5 4 3 2 1

10. ROUGHLY, HOW MUCH DO YOU SPEND A YEAR FOR SUPPLIES LIKE?

    Toilet paper _____ Electricity _____ Insurance _____
    Repairs _____ List any other major items like oil, gas, feed, fuel.

    _____ _____ _____ _____

11. HOW MUCH DO YOU SPEND EACH SEASON FOR SUPPLIES WHICH YOU RESELL?

    Groceries _____ Gifts _____ Soap _____
    Bottled gas _____ (List Others) _____

12. HOW MUCH DO YOU CHARGE FOR SITES (BASIC FEES)?

    Modern per day _____ per week _____ per season _____
    Primitive day _____ week _____ season _____

13. ABOUT HOW MUCH DO YOU HAVE INVESTED IN OPERATING EQUIPMENT LIKE PICKUPS, TRACTORS, MOWERS, GRADER OR OTHERS LIKE THIS?

Between _____ and _____

14. ESTIMATE WHAT YOU PAY THE PEOPLE IN THE COMMUNITY ON ANY REPAIRS, PARTS, OR MECHANICS PER YEAR ON OPERATING EQUIPMENT.

Between _____ and _____

15. AFTER YOU HAVE PAID ALL THESE, WHICH OF THE FOLLOWING COMES CLOSEST TO WHAT YOU HAVE LEFT PER YEAR TO REDUCE DEBT, BUY CHRISTMAS GIFTS, FOR EXPANSION OR WHATEVER YOU USE THE PROFIT FOR?

a ___ $1000
b ___ $2000
c ___ $3000
d ___ $4000
e ___ $5000
f ___ $6000
g ___ $7000
h ___ $8000
i ___ $9000
j ___ $10,000
k ___ $11,000
l ___ $12,000
m ___ $13,000
n ___ $14,000
o ___ $15,000
p ___ More than this, give estimate _____

16. IF THERE WAS BORROWED CAPITAL TO GET STARTED IN THIS BUSINESS, OR TO EXPAND, WHAT WOULD BE YOUR ESTIMATE OF HOW MUCH YOU PAY OUT IN INTEREST EACH YEAR?

Between _____ and _____

APPENDIX III

STATISTICS OF MODEL I

APPENDIX III-1

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1050 = 01 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 6.01 SECONDS

X(4),X(5),X(8),X(22),X(15),X(23),X(24),X(14)=P(X(19),X(20),X(3),X(21)) (STAT CONTROL CARD)

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(4) OCCUPANCY RATE DURING WEEKENDS

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	9671.69534183	4	2417.92383546	3.4810	0.011
ERROR	59735.97498703	86	694.68436031		
TOTAL (ABOUT MEAN)	69407.67032914	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.1393	0.3733	0.0993	0.3151	26.35539785

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TB	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	54.57149715	7.14935862			7.9128	62.6125	<0.0005		
REGION2	19	-11.29315316	6.05941398	-0.19214	0.10312	-1.8632	3.4716	0.066	-0.19698	0.18668
REGION1	20	-30.76424247	12.33494111	-0.25387	0.10178	-2.4944	6.2220	0.015	-0.25979	0.07736
SIZE	3	0.20.73944	0.09737915	0.50597	0.25049	2.0199	4.0800	0.047	0.21282	0.09852
SIZE2	21	-0.00032495	0.00016203	-0.44956	0.25183	-1.7851	3.1867	0.074	-0.18903	0.18745

APPENDIX III-2

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1050 = 02 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.27 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--A(5) OCCUPANCY RATE DURING HOLIDAYS

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	9580.03124265	4	2395.00781071	3.9374	0.006
ERROR	52310.86985588	86	608.26592855		
TOTAL (ABOUT MEAN)	61890.90109825	90			

OBSERVATIONS	MULTIPLE CORR COEFFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.1548	0.3934	0.1159	0.3398	24.66304784

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TB	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	1	64.43701571	5.69322942			12.9198	166.9224	<0.0005		
REGION2	17	-4.14731592	5.66939721	-0.11117	0.10219	-1.0879	1.1834	0.280	-0.11650	0.14316
REGION4	20	-35.24361283	11.54290372	-0.29048	0.10096	-2.8800	8.2945	0.005	-0.29059	0.07327
SIZE	3	0.18956679	0.09299792	0.50600	0.24824	2.0384	4.1551	0.045	0.21468	0.11395
SIZE2	21	-0.00145211	0.00017034	-0.58913	0.24956	-2.3606	5.5727	0.021	-0.24069	0.10002

APPENDIX III-3

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1550 = 82 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.21 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE=-X(8) DEVELOPMENT INVESTMENT

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	261781.47331238	4	65445.36832809	7.7262	<0.0005
ERROR	728471.71348572	86	8470.00131955		
TOTAL (ABOUT MEAN)	990253.18679810	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.2644	0.5142	0.2301	0.4797	92.03580974

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FR	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	-8.2944[illegible]524	24.96637275			-0.3322	0.1103	0.741		
REGION2	19	12.34[illegible]7595	21.15567012	0.05564	0.09534	0.5835	0.3405	0.561	0.06280	0.26145
REGION1	20	-1.96[illegible]1455	45.07501612	-0.00430	0.09409	-0.0457	0.0021	0.964	-0.00495	0.26434
SIZE	3	1.73[illegible]4793	0.34724327	1.15936	0.23159	5.0061	25.0614	<0.0005	0.47503	0.04996
SIZE2	21	-0.00[illegible]1863	0.00063566	-0.84925	0.23283	-3.6476	13.3048	<0.0005	-0.36603	0.15055

APPENDIX III-4

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1050 * 82 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.20 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(22) CONSTRUCTION EXTENDITURES

ADV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	616867.17613220	4	154216.79403305	2.0030	0.101
ERROR	6621518.58203125	86	76994.40211678		
TOTAL (ABOUT MEAN)	7238385.75817871	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.0852	0.2919	0.0427	0.2066	277.47665164

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	T*	F0	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	66.66815645	75.27103797			0.8852	0.6500	0.422		
REGION2	19	41.534.9344	63.785:7760	0.06923	0.13632	0.5512	0.4240	0.517	0.07304	0.08871
REGION1	20	-13.51339348	129.86672940	-0.00850	0.10493	-0.0810	0.0066	0.936	-0.00673	0.08515
SIZE	3	2.2107.632	1.04629965	0.54787	0.25825	2.1215	4.5007	0.037	0.22300	0.03735
SIZE2	21	-0.00240737	0.00191646	-0.32614	0.25963	-1.2552	1.5779	0.212	-0.13423	0.06844

APPENDIX III-5

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1350 - 02 DATE 03/21/75
ELAPSED SINCE LAST CURRENT TIME 0.20 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(15) EQUIPMENT EXPENDITURES

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	55153.63718605	4	13788.40929651	7.8285	<0.0005
ERROR	151472.51665878	86	1761.30833322		
TOTAL (ABOUT MEAN)	206626.15384293	90			

OBSERVATIONS: 91

MULTIPLE CORR COEFS

R2	R	R BAR 2	R BAR
0.2669	0.5166	0.2328	0.4825

S
STANDARD ERROR OF ESTIMATE: 41.96294411

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	30.81327151	11.38455438			2.7065	7.3251	0.008		
REGION2	19	1.45729335	9.44734675	0.01832	0.09517	0.1925	0.0371	0.848	0.02072	0.26661
REGION1	20	-11.75446325	19.64201429	-0.05623	0.09393	-0.5986	0.3584	0.551	-0.06442	0.26387
SIZE	3	0.24100516	0.15825018	0.35062	0.23118	1.5166	2.3001	0.133	0.16140	0.24732
SIZE2	21	0.00120800	0.00028986	0.16678	0.23242	0.7176	0.5149	0.475	0.07719	0.26254

APPENDIX III-6

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1050 = 02 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.21 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(23) ANNUAL OPERATING EXPENDITURES

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	496332.27722166	4	124083.06930542	17.0937	<0.0005
ERROR	624274.67674255	86	7259.08786912		
TOTAL (ABOUT MEAN)	1120606.95394897	90			

OBSERVATIONS	MULTIPLE CORR COEFFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.4429	0.6655	0.4178	0.6458	85.19981144

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TRI	FB	SIG	PARTIAL CORR COEFS	B2 DELETES
CONSTANT	0	-64.74229018	23.11196989			-2.8015	7.8487	0.006		
REGION2	19	-2.29441476	19.58023682	-0.00972	0.08297	-0.1172	0.0137	0.907	-0.01263	0.44282
REGION1	20	-31.37704843	39.87557526	-0.06443	0.08188	-0.7869	0.6192	0.434	-0.08455	0.43890
SIZE	3	2.24514341	0.32126628	1.40713	0.20153	6.9822	48.7513	<0.0005	0.60149	0.12712
SIZE2	21	-0.00276787	0.00058845	-0.95301	0.20261	-4.7037	22.1248	<0.0005	-0.45239	0.29968

APPENDIX III-7

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1050 = 03 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.20 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(24) NET INCOME AND INTEREST PAYMENT

AOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	66170.38760757	4	16542.59690189	5.9489	20.0005
ERROR	239148.29370980	86	2780.79411286		
TOTAL (ABOUT MEAN)	305318.68131256	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.2167	0.4655	0.1803	0.4246	52.73323537

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TB	FB	SIG	PARTIAL CORR COEFS	B2 DELETES
CONSTANT	0	10.6311[illegible]	14.32463152			0.7574	0.5736	0.451		
REGION2	19	-18.72[illegible]	12.12203926	-0.15362	0.09838	-1.5615	2.4384	0.122	-0.16605	0.19852
REGION1	20	-35.3[illegible]	24.68043134	-0.13615	0.09709	-1.3405	1.7969	0.184	-0.14306	0.20036
SIZE	3	0.6[illegible]	0.19584328	0.83645	0.23897	3.5013	12.2516	0.001	0.35313	0.18514
SIZE2	21	-0.00[illegible]	0.00035421	-0.51483	0.24025	-2.1429	4.5922	0.035	-0.22519	0.17698

APPENDIX III-8

STATISTICS OF MODEL I

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1050 - 83 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.20 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(14) AVERAGE BASIC CAMPING FEES

ADV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	9.48316450	4	2.37079100	5.0210	0.001
ERROR	40.60728875	86	0.47217778		
TOTAL (ABOUT MEAN)	50.09045275	90			

OBSERVATIONS: 91

MULTIPLE CORR COEFS

R2	R	R PAR 2	R BAR
0.1893	0.4351	0.1516	0.3894

S
STANDARD ERROR OF ESTIMATE: 0.68715193

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	2.37923417	0.18440223			12.7424	162.3677	<0.0005		
REGION2	19	0.23157615	0.15795849	0.14800	0.10009	1.4797	2.1896	0.143	0.15740	0.16871
REGION1	20	0.36132410	0.32160375	0.11712	0.09678	1.1857	1.4059	0.239	0.12682	0.17607
SIZE	3	0.01099628	0.00259187	1.03175	0.24311	4.2439	18.0136	<0.0005	0.41613	0.01954
SIZE2	21	-0.00301758	0.00060475	-0.89114	0.24441	-3.6458	13.2936	<0.0005	-0.36598	0.86401

APPENDIX IV

STATISTICS OF MODEL II

APPENDIX IV-1

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 23 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 33.09 SECONDS

X(23),X(24),X(27),X(52),X(34),X(53),X(64),X(33)=P(X(56),X(57),X(3), (STAT CONTROL CARD)
X(58),X(59),X(65),X(66),X(67),X(68),X(69))RES,NR2 (CONTINUATION TO ABOVE CARD)

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(23) OCCUPANCY RATE DURING WEEKENDS

AOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	15334.20138693	10	1533.42013869	2.2686	0.022
ERROR	54073.46894264	80	675.91836178		
TOTAL (ABOUT MEAN)	69407.67032814	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.2209	0.4700	0.1235	0.3515	25.99842999

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFFS	R2 DELETES
CONSTANT	0	43.26187510	16.02714665			2.6993	7.2862	0.008		
REGION2	56	-1[illegible].45564740	6.40853400	-0.18478	0.10938	-1.6940	2.8695	0.094	-0.18608	0.19298
REGION1	57	-32.47814281	12.71659557	-0.26798	0.10493	-2.5540	6.5229	0.013	-0.27457	0.15741
SIZE	3	0.06187219	0.12064353	0.15595	0.30409	0.5129	0.2630	0.609	0.05724	0.21837
SIZE2	58	-0.00114023	0.00026457	-0.19401	0.28303	-0.6855	0.4699	0.495	-0.07642	0.21635
DESTINATION	59	2.40767049	7.94278831	0.04337	0.14337	0.3025	0.0915	0.763	0.03380	0.22084
OVERNIGHT	65	-8.12164926	8.97580963	-0.13127	0.14507	-0.9048	0.8187	0.368	-0.10065	0.21296
FACILITY	66	-2.43591055	3.17118637	-0.08586	0.11160	-0.7694	0.5920	0.444	-0.08570	0.21516
SERVICES	67	1.35731281	2.00427699	0.08423	0.12475	0.6752	0.4559	0.501	0.07528	0.21649
ACTIVITY	68	2.65847734	2.40729033	0.12494	0.11313	1.1043	1.2195	0.273	0.12254	0.20905
STORES	69	0.30012647	0.19942336	0.17168	0.11408	1.5050	2.2649	0.136	0.16593	0.19887

135

APPENDIX IV-2

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 24 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.59 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(24) OCCUPANCY RATE DURING HOLIDAYS

AOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	12848.90422678	10	1284.89042267	2.0960	0.034
ERROR	49041.99687099	80	613.02496089		
TOTAL (ABOUT MEAN)	61890.90109825	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	STANDARD ERROR OF ESTIMATE
91	0.2076	0.4556	0.1086	0.3295	24.75934068

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TB	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	84.69557494	15.26329042			5.5492	30.7940	<0.0005		
REGION2	56	-[illegible].00500938	6.10310230	-0.11986	0.11001	-1.0822	1.1713	0.282	-0.12012	0.19603
REGION1	57	-36.93335562	12.11[illegible]52070	-0.32271	0.10582	-3.0497	9.3006	0.003	-0.32272	0.11548
SIZE	3	[illegible].09631522	0.11489364	0.25717	0.30668	0.8396	0.7032	0.404	0.09334	0.20084
SIZE2	58	-[illegible].0027693	0.00519482	-0.40865	0.28544	-1.4317	2.0497	0.156	-0.15805	0.19730
DESTINATION	59	6.9444[illegible]999	7.56423382	0.12126	0.14460	0.8387	0.7035	0.404	0.09336	0.20064
OVERNIGHT	63	-3.441[illegible]7104	8.54802119	-0.05890	0.14631	-0.4026	0.1621	0.658	-0.04496	0.20600
FACILITY	66	-2.96557846	3.02304715	-0.11033	0.11255	-0.9803	0.9610	0.330	-0.10895	0.19809
SERVICES	67	1.42167842	1.90875285	0.09371	0.12582	0.7448	0.5548	0.459	0.08299	0.20211
ACTIVITY	68	-[illegible].33607012	2.29255851	-0.01673	0.11410	-0.1466	0.0215	0.884	-0.01639	0.20739
SCORES	69	[illegible].23185115	0.18991882	0.14042	0.11505	1.2205	1.4897	0.226	0.13521	0.19285

APPENDIX IV-3

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 24 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.31 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(27) DEVELOPMENT INVESTMENT

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	366905.01865787	10	36690.50186539	4.7088	<0.0005
ERROR	623348.16813660	80	7791.85210180		
TOTAL (ABOUT MEAN)	990253.18679810	90			

OBSERVATIONS	MULTIPLE CORR COEFFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.3705	0.6087	0.2918	0.5402	88.271406822

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	-147.[illegible]97433	54.41435368			*2.7177	7.3858	0.008		
REGION2	56	4.[illegible]3685	21.75764873	0.03164	0.09805	0.2207	0.0487	0.826	0.05467	0.37013
REGION1	57	-10.[illegible]631	43.17616736	-0.02394	0.09432	-0.2538	0.0644	0.800	-0.02837	0.37001
SIZE	5	1.[illegible]92	0.40961634	0.72500	0.27534	2.6450	6.9961	0.010	0.28358	0.34547
SIZE2	58	-0.[illegible]967	0.00069459	-0.59731	0.25441	-2.0727	4.2961	0.041	-0.22575	0.37071
DEVELOPMENT	59	-0.[illegible]943	26.96784329	-0.00394	0.12668	-0.0306	0.0009	0.976	-0.00342	0.37051
CVB [illegible]	60	-11.[illegible]449	30.47622082	-0.04749	0.13041	-0.3642	0.1326	0.717	-0.04069	0.36947
FACILITY	66	8.[illegible]979	10.76700697	0.05608	0.10031	0.5591	0.3125	0.578	0.06238	0.36800
SERVICES	67	4.75281924	6.80504449	0.07532	0.11214	0.6984	0.4878	0.487	0.07785	0.36648
ACTIVITY	68	11.[illegible]276	8.17736017	0.13760	0.10169	1.3530	1.8307	0.180	0.14957	0.35611
SCORES	69	1.67382024	0.67709447	0.25349	0.10254	2.4721	6.1111	0.016	0.26040	0.32243

APPENDIX IV-4

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 24 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0,32 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(62) CONSTRUCTION EXPENDITURES

AOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	1614157,39379883	10	161415,73937988	2.2960	0,020
ERROR	5624228,36437286	80	70302,85455513		
TOTAL (ABOUT MEAN)	7238385,75817871	90			

OBSERVATIONS	R2	R	R BAR 2	R BAR	STANDARD ERROR OF ESTIMATE
91	0,2230	0,4722	0,1259	0,3548	265,14685469

(MULTIPLE CORR COEFS: R2, R, R BAR 2, R BAR)

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FR	SIG	PARTIAL CORR COEFFS	R2 DELETES
CONSTANT	0	-434,39224565	163,45400577			-2,4869	6,1846	0,015		
REGION2	56	-14,74934746	65,35789412	-0,02459	0,10894	-0,2257	0,0509	0,822	-0,02522	0,22250
REGION1	57	-68,60224615	129,69111285	-0,05511	0,10479	-0,5259	0,2766	0,600	-0,05869	0,22031
SIZE	3	0,70499870	1,23039173	0,17401	0,30369	0,5730	0,3283	0,569	0,06393	0,21981
SIZE2	58	-0,00040029	0,00208637	-0,05423	0,28265	-0,1919	0,0368	0,848	-0,02145	0,22264
DESTINATION	59	59,65781475	81,00509680	0,10550	0,14318	0,7368	0,5429	0,463	0,08210	0,21773
OVERNIGHT	43	83,46723159	91,54543893	0,13210	0,14498	0,9118	0,8314	0,365	0,10142	0,21492
FACILITY	66	59,36434791	32,34157186	0,20492	0,11145	1,8396	3,3606	0,070	0,20136	0,19017
SERVICES	67	11,63167017	20,44376278	0,07090	0,12459	0,5690	0,3238	0,571	0,06349	0,21985
ACTIVITY	68	-14,58404545	24,55092329	-0,06712	0,11298	-0,5940	0,3529	0,554	-0,06627	0,21957
SCORES	69	4,74499328	2,03383348	0,26579	0,11392	2,3330	5,4430	0,022	0,25240	0,17013

APPENDIX IV-5

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 25 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.32 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(34) EQUIPMENT EXPENDITURES

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	61663.94633198	10	6166.39463317	3.4030	0.001
ERROR	144962.20751190	80	1812.02759391		
TOTAL (ABOUT MEAN)	206626.15384293	90			

OBSERVATIONS: 91

MULTIPLE CORR COEFS

R2	R	R BAR 2	R BAR
0.2984	0.5463	0.2107	0.4591

S
STANDARD ERROR OF ESTIMATE: 42.567917[illegible]43

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	44.49379764	24.24167135			1.6955	2.8749	0.094		
REGION2	56	-0.18404504	10.19286232	-0.00196	0.10352	-0.0179	0.0003	0.986	-0.00200	0.29843
REGION1	57	-14.39537181	20.82121845	-0.08797	0.09957	-0.8835	0.7805	0.380	-0.09830	0.29159
SIZE	5	0.38081149	0.19753285	0.53719	0.28857	1.1685	1.3653	0.246	0.12994	0.29646
SIZE2	58	0.00223424	0.00133496	0.18301	0.26858	0.6814	0.4643	0.498	0.07596	0.29436
DENSITY	59	-1.02415879	13.00493749	-0.01071	0.13606	-0.0788	0.0062	0.937	-0.00880	0.29838
CVALUE2	60	0.02951195	14.49433044	0.00862	0.13767	0.0626	0.0039	0.950	0.00700	0.29840
FACILITY	66	-6.05703635	5.19226736	-0.12555	0.10570	-1.1667	1.3611	0.247	-0.12934	0.29650
SERVICES	67	1.24902839	3.78165576	0.04596	0.11638	0.3806	0.1449	0.705	0.04251	0.29710
ACTIVITY	68	-3.41196612	3.94152017	-0.09293	0.10736	-0.8656	0.7493	0.389	-0.09833	0.29180
SCORES	69	0.32863555	0.32652115	0.10795	0.10825	0.9973	0.9946	0.322	0.11081	0.29971

APPENDIX IV-6

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 25 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.31 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(63) ANNUAL OPERATING EXPENDITURES

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	26500066,68750000	10	2650006,66876221	6,1181	<0,0005
ERROR	34651174,60839844	80	433139,68260193		
TOTAL (ABOUT MEAN)	61151241,29589844	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0,4334	0,6583	0,3625	0,6021	658,13346387

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	-413,85547771	405,71487865			-2,0060	4,0240	0,048		
REGION2	56	129,43559626	152,22796426	0,07048	0,09303	0,7576	0,5740	0,451	0,08440	0,42929
REGION1	57	-1,16374474	321,21241350	-0,00030	0,08948	-0,0033	0,0000	0,997	-0,00037	0,43385
SIZE	3	11,46581379	3,69401321	0,97366	0,25934	3,7543	14,0951	<0,0005	0,38703	0,33352
SIZE2	58	-0,11233773	0,08517868	-0,57506	0,24138	-2,3824	5,6759	0,020	-0,25739	0,39315
DESTINATION	59	57,27412156	201,08656225	0,03526	0,12228	0,2883	0,0831	0,774	0,03222	0,43276
OVR NIGHT	60	144,73499816	227,21487067	0,07990	0,12373	0,6458	0,4171	0,520	0,07202	0,43043
FACILITY	66	84,14761965	80,27653727	0,08080	0,09518	0,8489	0,7206	0,398	0,09449	0,42825
SERVICES	67	58,77137630	50,73697910	0,18615	0,10639	1,7496	3,0612	0,084	0,19198	0,41167
ACTIVITY	66	-18,38412373	66,93900186	-0,02927	0,09646	-0,3033	0,0920	0,762	-0,03389	0,43270
SCORES	69	2,50944155	5,04927379	0,04836	0,09729	0,4971	0,2471	0,620	0,05549	0,43160

APPENDIX IV-7

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 26 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.32 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(64) NET INCOME AND INTEREST PAYMENT

AOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	21228.28511620	10	2122.82851160	3.1965	0.002
ERROR	53096.37620209	80	663.70495252		
TOTAL (ABOUT MEAN)	74324.68131828	90			

OBSERVATIONS	MULTIPLE CORR COEFS R2	R	R BAR 2	R BAR	S STANDARD ERROR OF ESTIMATE
91	0.2856	0.5344	0.1963	0.4431	25.76247179

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TB	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	-3[illegible].[illegible]9961719	15.88168646			-1.9085	3.6422	0.060		
REGION2	56	-2.[illegible]2925346	4.35[illegible]37102	-0.04654	0.10446	-0.4455	0.1985	0.657	-0.04975	0.28384
REGION1	57	-7.[illegible]8179944	12.66118148	-0.05647	0.10048	-0.5620	0.3158	0.576	-0.06271	0.28280
SIZE	5	[illegible].[illegible]5343837	0.11254859	0.61732	0.29119	2.1200	4.4942	0.037	0.23063	0.24548
SIZE2	58	-[illegible].[illegible]0335079	0.00023272	-0.44223	0.27102	-1.6317	2.6625	0.107	-0.17947	0.26184
[illegible]	59	4.24552869	7.87070065	0.07406	0.13729	0.5394	0.2910	0.591	0.06020	0.28302
[illegible]	60	[illegible].[illegible]1567031	8.49434641	0.08146	0.13892	0.5864	0.3439	0.559	0.06542	0.28254
FACILITY	66	-0.44469391	3.14240512	-0.01519	0.10686	-0.1421	0.0202	0.687	-0.01589	0.28544
SERVICES	67	3.22843065	1.98608645	0.17419	0.11946	1.6255	2.6423	0.108	0.17881	0.24282
ACTIVITY	68	1.69008811	2.38544209	0.07676	0.10833	0.7085	0.5020	0.481	0.07897	0.28113
SCORES	69	0.[illegible]2[illegible]5[illegible]287	3.19761342	0.16225	0.10924	1.4853	2.2062	0.141	0.16382	0.26591

APPENDIX IV-8

STATISTICS OF MODEL II

MICHIGAN PRIVATE CAMPGROUND SYMAP E VALUES

CURRENT TIME 1614 - 26 DATE 03/21/73
ELAPSED SINCE LAST CURRENT TIME 0.32 SECONDS

(UNRESTRICTED LEAST SQUARES)

DEPENDENT VARIABLE--X(33) AVERAGE BASIC CAMPING FEES

ANOV FOR OVERALL REGRESSION

	SUM OF SQUARES	DEG OF FREEDOM	MEAN SQUARE	F	SIG
REGRESSION (ABOUT MEAN)	20.68763835	10	2.06876383	5.6268	<0.0005
ERROR	29.40281440	80	0.36753518		
TOTAL (ABOUT MEAN)	50.09045275	90			

OBSERVATIONS: 91

MULTIPLE CORR COEFS

R2	R	R BAR 2	R BAR
0.4130	0.6427	0.3396	0.5828

S
STANDARD ERROR OF ESTIMATE
0.60624680

	VAR	REGRESSION COEFFICIENTS	STD. ERRORS OF COEFFICIENTS	BETA WEIGHTS	STD. ERRORS OF BETAS	TR	FB	SIG	PARTIAL CORR COEFS	R2 DELETES
CONSTANT	0	1.14289546	0.77373050			2.7903	7.7859	0.007		
REGION2	56	0.10499337	0.14943799	0.06650	0.09469	0.7023	0.4933	0.485	0.07828	0.46939
REGION1	57	0.24417502	0.29453311	0.07500	0.09108	0.8234	0.6780	0.413	0.09167	0.46883
SIZE	5	0.09414503	0.06201324	0.38892	0.26396	1.4734	2.1709	0.145	0.16264	0.39708
SIZE2	58	-0.01006804	0.00600477	-1.41422	0.24567	-1.6661	2.8429	0.096	-0.18525	0.39215
DENSITY	59	0.58154464	0.18521464	0.30294	0.12445	3.1502	9.9235	0.002	0.33220	0.34019
OCCUPANCY	60	0.26494793	0.20030395	0.27975	0.12593	2.2215	4.9351	0.029	0.24105	0.37679
FACILITY	66	0.16223504	0.07794760	0.21252	0.09687	2.1979	4.8135	0.031	0.23823	0.37769
SERVICES	67	0.07892016	0.04473692	0.18281	0.10829	1.6882	2.8469	0.095	0.18547	0.39209
ACTIVITY	68	0.07799284	0.05613462	0.17644	0.09820	1.3894	1.9304	0.169	0.15350	0.39884
SCORES	69	0.10433271	0.00465027	0.09226	0.09902	0.9317	0.8681	0.354	0.10361	0.40664