

A PRELIMINARY ASSESSMENT OF
MANITOBA'S OUTDOOR RECREATIONAL NEEDS

By

J. David Etcheverry

A Thesis Submitted
In Partial Fulfillment of the
Requirement for the Degree,
Master of Arts

Geography Department
Faculty of Graduate Studies
The University of Manitoba
April 1981

A PRELIMINARY ASSESSMENT OF
MANITOBA'S OUTDOOR RECREATIONAL NEEDS

BY

J. David Etcheverry

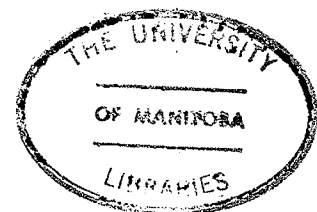
A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF ARTS

© 1981

Permission has been granted to the LIBRARY OF THE UNIVER-
SITY OF MANITOBA to lend or sell copies of this thesis, to
the NATIONAL LIBRARY OF CANADA to microfilm this
thesis and to lend or sell copies of the film, and UNIVERSITY
MICROFILMS to publish an abstract of this thesis.

The author reserves other publication rights, and neither the
thesis nor extensive extracts from it may be printed or other-
wise reproduced without the author's written permission.



ABSTRACT

The major purpose of this thesis is to define areas of 'need' in the province of Manitoba with regard to outdoor recreational facilities and to project the 'supply' and 'demand' for outdoor recreational facilities into the future. 'Need' is defined as the difference between the amount of a resource or facility demanded and the amount supplied. To determine the current 'need' for outdoor recreational facilities it is necessary to determine the current 'supply' and the current 'demand' for those facilities.

This study presents an inventory of facilities for various outdoor recreational activities. This study also presents current 'demand' information in the form of participation rates and the frequency of participation as determined through a telephone survey of approximately 2,000 Manitobans. Through various participation rate factors and facility standards, the participation information is transformed into the volume of resources demanded which is then compared to the volume of resources supplied thus revealing a deficit or a surplus of facilities. The surplus or deficit ('need') is then projected to the years 1990 and 2030.

This study also attempts to measure latent demand via the telephone survey but because of a poor response rate the attempt was unsuccessful. Facility adequateness is also examined through the survey along with campsite preference.

Many irregularities appear in the final 'need' figures which indicate problems with the participation rate factors and facility standards. Even with the indicated data limitations and project limitations, an order of priority of 'need' can be determined. With all factors considered, the activities of camping, golfing, and downhill skiing indicate the greatest deficits with regard to the facilities ranking first, second and third respectively on the priority list. These same activities rank fourth, eleventh, and first respectively on a priority list based on levels of registered inadequateness of facilities.

The study recommends that, (a) further work be carried out in the area of participation rates and standards, (b) the precise nature of the facility inadequacies be determined, and (c) emphasis be placed on the facilities which indicate the highest amount of deficit and the highest amount of facility inadequateness.

ACKNOWLEDGEMENTS

A Preliminary Assessment of Manitoba's Recreational Needs has been the result of a vast number of individuals responsible for supplying information for the purposes of doing an inventory of the outdoor recreational facilities in the province. I wish to acknowledge the Research and Planning staff of the Department of Natural Resources, Parks Branch who gave much direction to the project. A special thanks goes to Messrs. R. Wilson and D. Wang of the Parks Branch who contributed much of their valuable time.

I wish to gratefully acknowledge Mr. P. Spevack of the Department of Economic Development and Tourism who provided much of the expertise in the development of the computer program used to analyse the results of the questionnaire. A special thanks also goes to Mrs. J. Creamer who typed the majority of the tables and the final copy and to Miss P. Misko who typed the draft version of this thesis.

I would like to thank the respondents of the questionnaire especially those who gave added information in the form of comments. Suggestions were passed along by Dr. J. Romanowski of the University of Manitoba. Finally, I wish to acknowledge the assistance and encouragement of my wife, Emily, who had to endure many hours of preoccupation with the writing of this thesis and all that it involved.

TABLE OF CONTENTS

ABSTRACT		i
ACKNOWLEDGEMENTS		iii
CHAPTER 1	INTRODUCTION	1
	1. Purpose	1
	2. Scope	2
	3. Sources and Methods of Collecting Data	2
	4. Limitations	3
	5. Background Information	3
	6. Plan of Presentation	4
CHAPTER 2	RECREATION RESEARCH AND PLANNING	5
	1. Forces Involved in the Growth of Recreational Activity	6
	A. Technological Forces	6
	B. Institutional Forces	7
	C. Socio-economic Forces	7
	2. Recreation Demand	16
	A. Defining Recreation Demand	17
	B. Factors Affecting Demand	19
	C. Other Considerations	21
	3. Recreation Supply	22
	A. Defining Recreation Supply	24
	B. Problems in Determining Supply	24
	C. Types of Recreational Supply	25
	D. Distribution of the Supply	26
	4. Recreation Need	26
CHAPTER 3	METHODOLOGY	27
	1. Scope of the Analysis	27
	A. Provincial Analysis	27
	B. Rural-Urban Analysis	27
	C. Regional Analysis	28
	2. Determining Recreation Demand	42
	A. Participation vs. Demand	42
	B. The Survey	42
	C. The Program (SPSS)	45
	D. Calculation for Determining Demand	47
	3. Determining Recreation Supply	53
	A. Listing the Inventory	53
	B. Source of Supply Information	55

	C. Updating the Inventory	57
	D. Calculations for Determining Supply	59
	4. Determining Recreation Need	59
CHAPTER 4	DATA ANALYSIS	60
	1. Survey Sampling Results	60
	2. Analysis of Demand (Participation)	61
	3. Analysis of Supply (Inventory).	61
	4. Analysis of Need	61
	Resources Needed	61
	5. Projection Analysis	80
	Need Projections	80
	6. Analysis of Latent Demand	84
	7. Analysis of Additional Outdoor Activities	84
	8. Analysis of Facility Adequateness	89
	A. Levels of Inadequateness	89
	B. Facility Adequateness Per Activity	89
	9. Analysis of Campsite Preference	94
	A. Provincial Analysis	94
	B. Rural-Urban Analysis	96
	C. Regional Analysis	96
CHAPTER 5	LIMITATIONS OF THE PROJECT AND THE DATA	97
	1. Data Limitations	97
	A. 'Demand' Data Limitations	97
	B. 'Supply' Data Limitations	103
	C. 'Need' Data Limitations	105
	2. Project Limitations	105
	A. Insufficient Data	106
	B. Participation Rate Factors	106
	C. Formulae Promulgating Factors	106
	D. The Survey Design	107
	E. Participation vs. Demand	107
	F. Defining 'Need'.	108
	G. Levels of Inadequateness	108
CHAPTER 6	EVALUATION OF THE FINAL RESULTS	109
CHAPTER 7	CONCLUSIONS AND RECOMMENDATIONS	112
	1. Conclusions	112
	2. Recommendations	116
LIST OF REFERENCES	120
APPENDIX A.	MANITOBA OUTDOOR RECREATIONAL PARTICIPATION QUESTIONNAIRE	123
APPENDIX B.	MANITOBA TELEPHONE EXCHANGES	127
APPENDIX C.	RURAL MUNICIPALITIES AND LOCAL GOVERNMENT DISTRICTS	136
APPENDIX D.	RURAL MUNICIPALITY AND LOCAL GOVERNMENT MAPS	143

APPENDIX E. NATURAL REGIONS	146
APPENDIX F. ANALYSIS OF DEMAND	151
APPENDIX G. ANALYSIS OF SUPPLY	188
APPENDIX H. ANALYSIS OF NEED	327
APPENDIX I. PROJECTION ANALYSIS	349
APPENDIX J. ADEQUACY OF OUTDOOR RECREATIONAL FACILITIES	355
BIBLIOGRAPHY	367

LIST OF TABLES

Table

1. Total Personal Expenditures on Recreation, Sporting and Camping Equipment, and Recreational Services in Constant (1971) Dollars	9
2. Population of Canada	11
3. Canadian Per Person Expenditure on Recreation, Sporting and Camping Equipment, and Recreational Services in Constant (1971) Dollars	12
4. Simple Regression Data Per Figure 2	13
5. Participation Rate Factors by Activity	49
6. Regional Survey Sample	62
7. Current Need of Recreational Facilities for Manitoba	64
8. Current Need of Resources Per Activity (Rural-Urban Breakdown)	66
9. Current Need of Resources Per Activity (Regional Breakdown)	68
10. Activities Ranked According to Participation and Needs	78
11. Provincial Need Projections	81
12. Projection of Need by Person Visits/Activity	83
13. Additional Activities of Facilities Provided	85
14. Participation and Frequency of Other Outdoor Activities	86
15. Levels of Facility Inadequateness	89
16. Type of Campsite Preference	95
17. Activities Prioritized Along Facility With Highest Level of Registered Inadequacy	115
18. Rural Manitoba Exchange Centres Listed by N,X,X. Code	128
19. Winnipeg Exchange Listed by N,X,X. Code	135

Table

20.	Rural Municipalities and L.G.D.'s Listed by Community	137
21.	Rural Municipalities and L.G.D.'s by Natural Regions	147
22.	Number of Participant Days by Activity for Manitoba	154
23.	Outdoor Recreational Survey Comparisons of Participation Rates	157
24.	Rural and Urban Participation Rates of Frequencies in Selected Outdoor Recreational Activities	160
25.	Number of Participant Days by Activity for Rural Manitoba	163
26.	Number of Participant Days by Activity for Urban Manitoba	165
27.	Percentage of Total Participant Days by Activity (Rural-Urban Percentages)	168
28.	Regional Participation Rates and Frequencies in Selected Outdoor Recreational Activities	169
29.	Number of Participant Days by Activity for the Winnipeg Region	171
30.	Number of Participant Days by Activity for the Winkler Region	173
31.	Number of Participant Days by Activity for the Brandon Region	175
32.	Number of Participant Days by Activity for the Dauphin Region	177
33.	Number of Participant Days by Activity for the Interlake Region	179
34.	Number of Participant Days by Activity for The Pas Region	181
35.	Number of Participant Days by Activity for the Northern Region	183
36.	Per Capita Annual Participant Days by Natural Regions	186
37.	Campsites by Natural Regions	190
38.	Regional Summary of Provincial Parkland Camping Facilities	201
39.	Campsites by Natural Regions	203

Table

40.	Picnic Tables by Natural Regions	204
41.	Summary of Picnic Tables and Shelters - Parks System	216
42.	Picnic Tables by Natural Regions	218
43.	Museums by Natural Regions	219
44.	Museums by Natural Regions (Totals)	224
45.	Historical Sites by Natural Regions	225
46.	Historical Sites by Natural Regions (Totals)	230
47.	Designated Driving Tours by Natural Regions	232
48.	Designated Hiking and Interpretive Trails by Natural Regions	233
49.	Designated Hiking and Interpretive Trails by Natural Regions (Totals)	236
50.	Horseback Riding Trails by Natural Regions	238
51.	Horseback Riding Trails by Natural Regions (Totals)	240
52.	Serviced Beaches by Natural Regions	241
53.	Serviced Beaches by Natural Regions (Totals)	249
54.	Outdoor Swimming Pools by Natural Regions	250
55.	Outdoor Swimming Pools by Natural Regions (Totals)	254
56.	Designated Canoe Routes by Natural Regions	256
57.	Designated Canoe Routes by Natural Regions (Totals)	258
58.	Designated Cross-country Ski Trails by Natural Regions	260
59.	Designated Cross-country Ski Trails (Totals)	262
60.	Designated Snowshoe Trails by Natural Regions	263
61.	Designated Snowshoe Trails by Natural Regions (Totals)	265
62.	Downhill Skiing Areas by Natural Regions	267
63.	Downhill Ski Runs by Natural Regions (Totals)	268
64.	Toboggan Slides and Hills - City of Winnipeg	270

Table

65. Outdoor Skating Areas by Natural Regions	271
66. Outdoor Skating Areas by Natural Regions (Totals).	277
67. Designated Snowmobile Trails by Natural Regions	278
68. Golf Courses by Natural Regions	281
69. Golf Courses - Provincial Totals	288
70. Golf Courses by Natural Regions (Totals)	290
71. Tennis Courts - Provincial Totals	290
72. Outdoor Tennis Courts by Natural Regions	291
73. Outdoor Tennis Courts by Natural Regions (Totals).	296
74. Cottages by Natural Regions	297
75. Cottages by Natural Regions (Totals)	305
76. City of Winnipeg Parkland	307
77. City of Winnipeg District Parkland	312
78. City of Winnipeg Parkland (Area)	314
79. Area of Manitoba Provincial and Federal Parks by Natural Regions	315
80. Provincial Parkland (Area)	323
81. Area of Manitoba Provincial Parks by Natural Regions	325
82a. Demand Calculations by Activity for Manitoba	329
82b. Demand Calculations by Activity for Manitoba (Table Continued)	331
82c. Demand Calculations by Activity for Manitoba (Table Continued)	333
83. Total Volume of Resources Demanded	335
84. Volumes of Resources Demanded Per Day by Activity (Rural-Urban Breakdown)	337
85. Volumes of Resources Demanded Per Day by Activity (Regional Breakdown).	339

Table

86.	Total Volume of Resources Supplied	341
87.	Volumes of Resources Supplied Per Activity (Rural-Urban Breakdown)	342
88.	Volumes of Resources Supplied Per Activity (Regional Breakdown)	345
89.	Percent of Total Resources Supplied Per Activity (Regional Breakdown)	347
90.	Provincial Demand Projections	351
91.	Provincial Supply Projections	353
92.	Adequacy of Outdoor Recreational Facilities (Total and Rural-Urban Breakdown)	356
93.	Adequacy of Outdoor Recreational Facilities (Regional Breakdown)	361

LIST OF FIGURES

Figure

1. Canadian Per Person Expenditure on Recreation, Sporting and Camping Equipment, and Recreational Services in Constant (1971) Dollars	10
2. Simple Regression Plot	15
3. Camping Permit Sales in Manitoba's Provincial Campgrounds, 1955-1979	23
4. Manitoba Official Regions for Data Collection	30
5. Parks Branch Regions	31
6. Department of Natural Resources Regional Boundaries - Parks Branch	32
7. Service Regional Boundaries	35
8. Natural Regional Boundaries	39
9. Natural Regions' Area of Overlap	41
10. Key to Tape Format	46
11. Manitoba Telephone Exchange Code Boundaries	100
12. Rural Municipal and Local Government District Boundaries . .	102
13. Sample Distribution for Camping	104
14. Rural Municipal and Local Government District Boundaries of Southern Manitoba	144
15. Rural Municipal and Local Government District Boundaries of Northern Manitoba	145

CHAPTER ONE

INTRODUCTION

"A Preliminary Assessment of Manitoba's Outdoor Recreational Needs" is an analysis of the relationship between recreation supply and demand as a part of the Manitoba Provincial Park Systems Plan. The study will link the participation rates in various service regions to the supply of recreation resources, and project recreation demand and supply into the future.

1. Purpose

The major purpose of this thesis is to define areas of need in the province of Manitoba with regard to outdoor recreational facilities. In order to define the need for facilities one must define the demand for the facilities and also define the existing supply of facilities. It is also the purpose of this thesis therefore to define and update the estimate of demand for and the supply of outdoor recreational facilities in the province of Manitoba.

Second to the major purpose, this study will attempt to project the supply and demand for outdoor recreational facilities into the future. The results of such a projection will, it is hoped, be used in planning future facilities.

Third, this study will also attempt to determine the 'latent' demand for outdoor recreational facilities. This will, it is hoped, give the reader an indication of the recreational preferences of Manitobans.

A fourth and minor purpose of this thesis is to determine the outdoor recreationists' view toward the adequacy of outdoor recreational facilities.

2. Scope

This study encompasses the entire province of Manitoba in regard to the supply of and the demand for outdoor recreational facilities. The study deals with the province as a whole along with rural-urban and regional breakdowns. Most of the information presented in this thesis is also available by municipality in the Appendices.

3. Sources and Methods of Collecting Data

The sources of data for this study have been many and varied. On the supply side of the study the major sources are: The 1971 Facilities Inventory as created by the Department of Tourism, Recreation and Cultural Affairs which has been updated in part to varying degrees each year since its creation; the 1979-80 Manitoba Vacation Guide published by the Government of Manitoba under the supervision of the Department of Tourism and Cultural Affairs; and various documents obtained from federal, provincial, municipal and city agencies. Much of the information thus obtained was further updated through personal contacts with people in the various agencies, and contacts with people in the field who are directly responsible for the various facilities.

The information for determining the demand for outdoor recreational facilities was obtained from a survey designed and carried out by the author for the purpose of obtaining current participation rates and frequency of participation in various outdoor recreational activities.

4. Limitations

There are two main types of limitations encountered by this project. There are data limitations and project limitations. Under the former there are data limitations associated with each of the 'demand', 'supply' and 'need' data categories. Under the project limitations there are problems associated with the primary and secondary data, the participation rates, formulae promulgating errors, survey design, defining participation (demand) and 'need', and problems in identifying levels of facility inadequateness. Each of the above limitations is discussed in detail in Chapter 5 of this thesis.

5. Background Information

To put this study into an academic perspective, it represents work done in the field of Geography under the sub-discipline of research and planning with regards to our natural resources, specifically the outdoor recreational use of land and water.

The study posed a problem in itself because little has been done to date in the area of defining the need for outdoor recreational facilities. A study entitled "The Need and Associated Benefits of Recreation in the Souris River Basin" contains the basis for much of the methodology used in this report. The above study was completed in co-operation between the Parks Branch and the Research and Data Services Branch both of the Department of Tourism, Recreation and Cultural Affairs in March of 1978. This study represents only a portion of the Souris River Basin Study. The Souris River Basin Study Board was made up of members from the governments of Canada, Manitoba and Saskatchewan.

6. Plan of Presentation

This thesis will first present some recreation research and planning concepts necessary for determining the demand and supply of outdoor recreational facilities. The following chapter will cover the methodology used to determine recreation demand, supply and need. This section will be followed by an analysis of the data and a list of the data limitations. The final results will be evaluated and conclusions and recommendations made.

CHAPTER TWO

RECREATION RESEARCH AND PLANNING

It has been generally accepted by most people that the amount of leisure time available to the general population has been on an upswing for at least the past fifty years. This trend started much earlier but the most dramatic changes can be seen since the 1920's. Problems have arisen because of this increase in free time and many agencies have had to face these problems squarely. Various levels of government have had to cope with planning and administrative problems in order to deal with an increasing demand for active and passive recreational, entertainment and cultural facilities to mention a few. As indicated above, this thesis will deal mainly with the need for recreational facilities as they pertain to the out-of-doors type of recreation.

For the purposes of this study, outdoor recreation is defined as an activity or experience carried on out-of-doors, usually chosen voluntarily by the participant, either because of the immediate satisfaction to be derived from it, or because one perceives some personal or social values to be achieved by it. It is carried on in leisure time, and has no work connotations.

1. Forces Involved in the Growth of Recreational Activity

According to Thomas L. Burton there are three main forces which have caused a rapid growth in recreational activity. They are technological, institutional and socio-economic forces (Burton, 1970:14).

A. Technological Forces.—It appears that improvements in the methods of transportation and in the movement of information and ideas are the major technological forces which influence the growth of recreational activity.

(1) Transportation.—Mobility has and will probably always play a major role in the formation of recreational patterns. The development of the railroad was responsible for making accessible, areas normally out of reach for most people. Excursions to remote areas of the country developed. Seaside resorts were no longer available to only the higher income earners. The relative inexpensiveness of the railroad catered to all classes of society.

The family automobile soon replaced the train as the main form of transportation. With the coming of the automobile greater mobility resulted. People were no longer restricted by the routes and schedules set by the railroads. As the road network developed many formerly isolated places became havens for people pursuing recreational activities. "The way was literally paved for the automobile to become king of travel in America" (Jensen, 1973:39). The automobile has also played a major role in urban recreation especially in the large urban centres.

Air travel has also influenced the mobility of the general population as a whole but this form of travel is not as important as the family auto in terms of movement of people on a local or regional scale.

(2) Movement of Information.—Along with improvements in transportation there has also been a significant development of communication through radio, television, and the telephone. These developments have tended to introduce to people new ideas for leisure-time activity through information flow. In some cases they have become recreational pursuits in themselves (Burton, 1970:16).

B. Institutional Forces.—Changes in labor legislation have played an important role in the development of patterns of recreational activities. The law defines the maximum number of hours of work per week and also guarantees the right to each and every employee that they receive certain statutory holidays and a certain amount of annual leave all without loss of pay.

Trade unions are another institutional force which has shaped recreational patterns. The trade unions have been responsible for negotiating shorter working hours per week, longer periods of paid annual leave, and a general increase in wage rates.

Institutional forces have influenced the balance of time between work and recreation, and in the amount of discretionary income people have available for recreational and other pursuits.

C. Socio-Economic Forces.—According to Thomas L. Burton, the socio-economic forces have been of three main kinds: demographic factors, income and occupation, and education.

(1) Demographic Factors.—Of the demographic factors; age, sex and family structure are the most important. These factors are particularly significant in determining the nature and amount of recreational activities in which people take part. Past trends seem to indicate that participation in most outdoor recreational pursuits are at their highest

levels at ages below 25 years, and that participation rates decline with age thereafter (Burton, 1970:19). Family structure and sex factors affect the type of activity that people pursue, more so than the amount of activity.

(2) Income and Occupation.—Income has been steadily increasing along with the cost of living but C. R. Jensen suggests that "in terms of purchasing power per capita, today's consumer is more than two and one-half times as well off as the consumer in the mid 1930's" (1973:45). This statement was made in the early 1970's. As can be seen from Table 1, the total personal expenditure on recreation, sporting and camping equipment and recreational services in Canada has increased from less than a billion dollars in the late 1940's to over 6 billion in the late 1970's. Figure 1 illustrates this growth in constant (1971) dollars for each person based on population levels from Table 2. The amount of money spent on recreational equipment and services has increased by 384% during the period 1947 to 1978 (Table 3).

One may argue that the expenditure figures represent the Canadian average and not the average of Manitobans. The expenditure data is only available for a Canadian aggregate and is not broken down by province. As a result, a simple linear regression model was applied to find the amount of correlation between the average Canadian expenditure on recreational goods and services on the one part and the Manitoban average participation rate in park use on the second part with the latter being the dependent variable and the former being the independent variable.

The data (Table 4) was plotted and the "best fitting" line which minimizes the sum of squares of the deviations of the observed values of the dependent variable from those predicted was constructed

TABLE 1

TOTAL PERSONAL EXPENDITURE ON RECREATION,
SPORTING AND CAMPING EQUIPMENT AND RECREATIONAL
SERVICES IN CONSTANT (1971) DOLLARS
(IN MILLIONS OF DOLLARS)

Year	Recreation, Sporting & Camping Equipment	Recreational Services	Total
1947	234	442	676
1948	241	444	685
1949	242	488	730
1950	249	519	768
1951	262	510	772
1952	275	551	826
1953	327	560	887
1954	362	543	905
1955	425	515	940
1956	498	479	977
1957	535	475	1,010
1958	570	481	1,051
1959	634	476	1,110
1960	668	475	1,143
1961	733	475	1,208
1962	801	481	1,282
1963	867	507	1,374
1964	974	541	1,515
1965	1,069	585	1,654
1966	1,193	646	1,839
1967	1,299	815	2,114
1968	1,394	767	2,161
1969	1,517	765	2,282
1970	1,568	820	2,388
1971	1,990	942	2,932
1972	2,524	1,023	3,547
1973	3,055	1,118	4,173
1974	3,524	1,346	4,870
1975	3,632	1,421	5,053
1976	4,008	1,574	5,582
1977	4,241	1,589	5,830
1978	4,454	1,650	6,104

Sources: Canada. Statistics Canada. 1975. National Income and Expenditures Accounts. No. 13-531 (1): 94,194,294. Ottawa: Queen's Printer.

Canada. Statistics Canada. 1979. National Income and Expenditures Accounts. No. 13-201 (1): Table A. Ottawa: Queen's Printer.

1971 CONSTANT DOLLARS

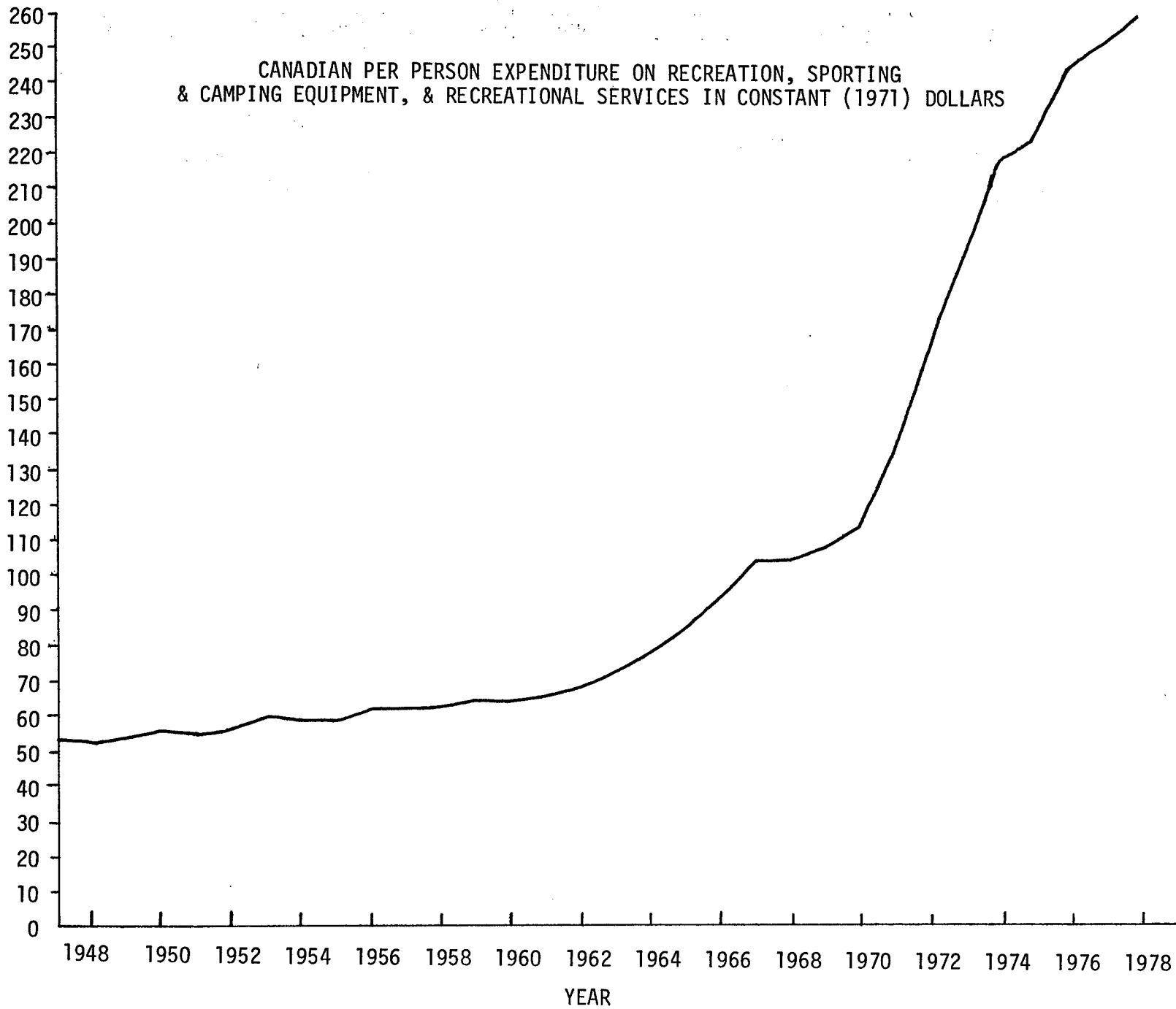


Figure 1

TABLE 2

POPULATION OF CANADA (IN MILLIONS)

<u>Year</u>	<u>Population</u>	<u>Year</u>	<u>Population</u>
1947	12.6	1964	19.3
1948	12.8	1965	19.6
1949	13.4	1966	20.0
1950	13.7	1967	20.4
1951	14.0	1968	20.7
1952	14.6	1969	21.0
1953	14.8	1970	21.3
1954	15.3	1971	21.6
1955	15.7	1972	21.8
1956	16.1	1973	22.0
1957	16.6	1974	22.4
1958	17.1	1975	22.7
1959	17.5	1976	23.0
1960	17.9	1977	23.3
1961	18.2	1978	23.5
1962	18.6	1979	23.7
1963	18.9		

Source: Canada. Statistics Canada. 1979. National Income and Expenditures Accounts. No. 13-201 (1): Table A. Ottawa: Queen's Printer.

TABLE 3

CANADIAN PER PERSON EXPENDITURE ON RECREATION,
SPORTING AND CAMPING EQUIPMENT, AND RECREATIONAL
SERVICES IN CONSTANT (1971) DOLLARS

Year	Amount*	Year	Amount*
1947	\$ 53.65	1963	\$ 72.70
1948	53.52	1964	78.50
1949	54.48	1965	84.39
1950	56.06	1966	91.95
1951	55.14	1967	103.63
1952	56.58	1968	104.40
1953	59.93	1969	108.67
1954	59.15	1970	112.11
1955	59.87	1971	135.74
1956	60.68	1972	162.71
1957	60.84	1973	189.68
1958	61.46	1974	217.41
1959	63.43	1975	222.60
1960	63.85	1976	242.70
1961	66.37	1977	250.21
1962	68.92	1978	259.75

*Calculation Formula: Totals from Table 1 divided by population figures from Table 2.

TABLE 4

SIMPLE REGRESSION DATA
PER FIGURE 2 (1964-1978)

Year	Dependent Variable ¹ Manitoba Park Use Participation Rate (Per Capita)	Independent Variable ² Canadian Expenditure On Recreation Goods & Services (Per Capita)
1964	1.47	78.50
1965	1.63	84.39
1966	1.60	91.95
1967	1.94	103.63
1968	1.83	104.40
1969	2.47	108.67
1970	2.70	112.11
1971	3.03	135.74
1972	3.26	162.71
1973	3.93	189.68
1974	3.68	217.41
1975	4.05	222.60
1976	4.18	242.70
1977	3.92	250.21
1978	3.94	259.75

Sources:

1. Manitoba. Department of Natural Resources. Parks Branch. 1978.
"Manitoba Park Use - Participation Rate - Indexed. (Unpublished data). Winnipeg: Parks Branch.
2. From Table 3.

(Figure 2). The simplest functional form is the straight line which is constructed by the formula $Y = a + bX$.

Where: Y = dependent variable - park use

X = independent variable - expenditure

a = the value of Y at the Y axis when $X = 0$

b = the increase in Y for each unit increase in X

As a result of computing the data (Table 4) using the simple linear regression equation it was determined that there was a correlation coefficient (r) of 0.94. The correlation coefficient varies from zero (no correlation) to ± 1.0 (perfect positive or negative correlation). A correlation coefficient of 0.94 is almost a perfect positive correlation. The square of the correlation coefficient yields the coefficient of determination (r^2) which may be defined as a measure of the extent to which the independent variable accounts for the variability in the dependent variable. The calculated coefficient of determination is 0.89. A test of significance (student's t-test) indicated that the Canadian per capita expenditure on recreational, sporting and camping equipment and recreational services explained 89% of the variation in the Manitoba per capita park use participation rate at the .05 significance level.

As a result of this highly significant correlation, this paper will assume that the recreational expenditure figures as calculated for the average Canadian will also apply to the average Manitoban.

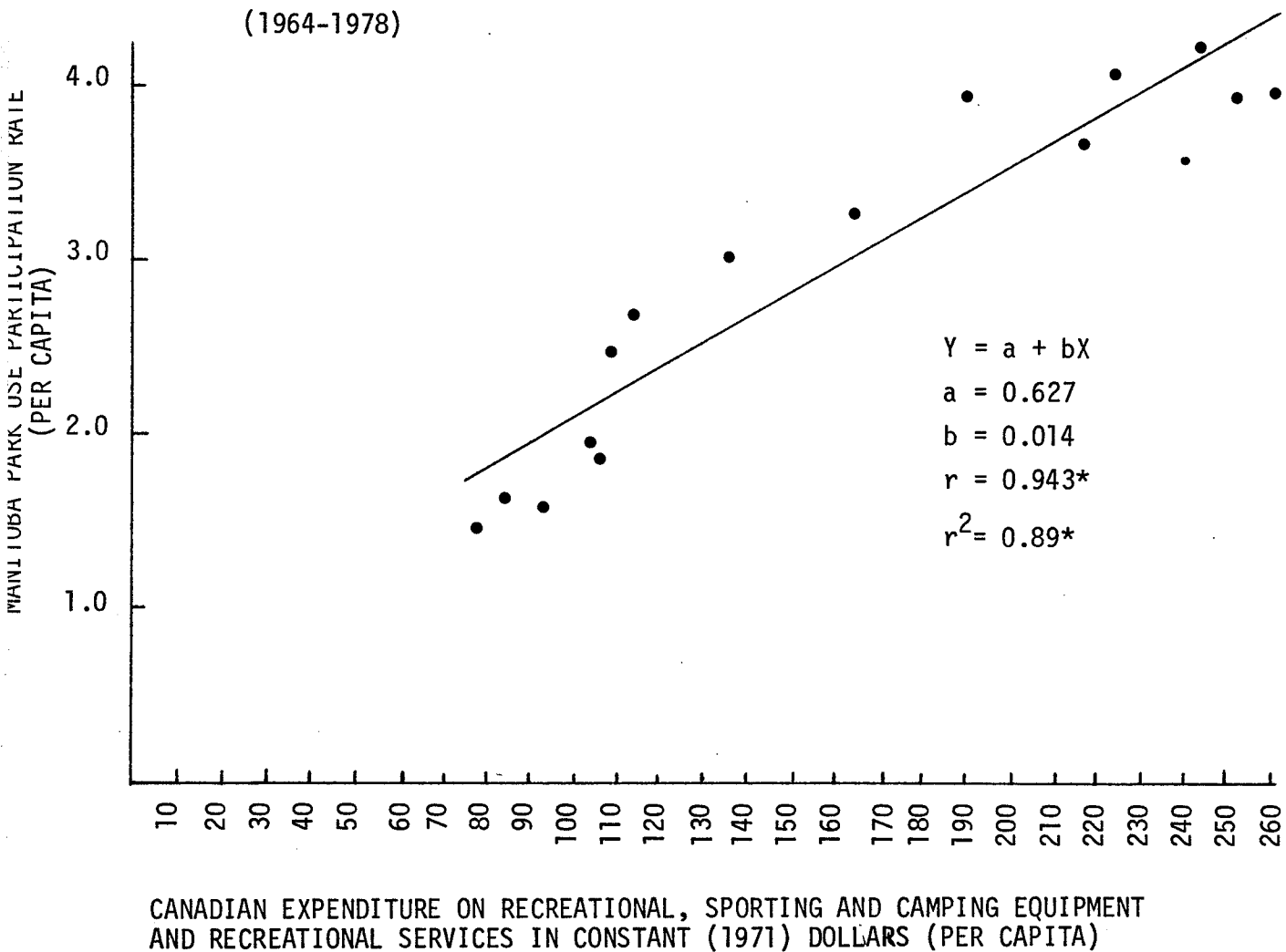
It seems that after a certain point, people make a decision to "choose free time over increased production" (Jensen, 1973:45). In recent decades our productivity has improved greatly and now we have a choice between additional goods or increased leisure time. It is

Figure 2

SIMPLE REGRESSION PLOT

INDEPENDENT VARIABLE: CANADIAN EXPENDITURE ON RECREATIONAL
GOODS AND SERVICES

DEPENDENT VARIABLE: MANITOBA PARK USE PARTICIPATION RATE



*Statistically significant at the .05 level.

Source: Table 4.