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NORTHEASTERN RECREATION RESEARCH MEETING POLICY STATEMENT

The Northeastern Recreation Research meeting seeks to foster quality information exchange between recreation and travel resource managers and researchers throughout the Northeast. The forum provides opportunities for managers from different agencies and states, and from different governmental levels, to discuss current issues and problems in the field. Students and all those interested in continuing education in recreation and travel resource management are particularly welcome.

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The Steering Committee wishes to thank Mary Kate McCloud for all her behind-the-scenes work, especially during management transition at the New York State Parks Management and Research Institute.

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PROCEEDINGS of the 1994 NORTHEASTERN RECREATION RESEARCH SYMPOSIUM

April 10-12, 1994
State Parks Management and Research Institute
Saratoga Springs, New York

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FACTORS AFFECTING THE VALUE OF A WILDERNESS VISIT: A CONTINGENT VALUATION STUDY OF CARIBOU-SPECKLED MOUNTAIN WILDERNESS USERS

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A dichotomous choice contingent valuation model is estimated using an on-site survey of Caribou-Speckled Mountain Wilderness visitors. The results indicate that pre-trip expectations of various trip attributes such as congestion have a greater impact on a trip's value than the actual conditions of the visit. This research also shows that future economic studies of an area's non-market value can yield valuable information to managers about the characteristics and preferences of wilderness visitors.

Introduction

Land designated wilderness in the Eastern United States is very different than wilderness areas in the West. Unlike the West, Eastern wilderness has usually been logged in the past, and has historically been used for a variety of recreational purposes not generally associated with wilderness. Consequently, the challenge for the Eastern wilderness managers is not to preserve a wilderness, but to "grow" or "manufacture" wilderness where it has not existed in the past.

Designated in 1990, the Caribou-Speckled Mountain Wilderness (CSMW) is the White Mountain National Forest's latest contribution to the national wilderness system. A 12,000 acre tract located in Western Maine, the CSMW is best known for the open peaks of Caribou and Speckled Mountains and the waterfalls and slides along the brooks followed by the area's hiking trails. Typical of Eastern wilderness, the CSMW has been intensely logged three times in the past century, and one of its most popular recreation activities prior to wilderness designation was snowmobiling to the top of Speckled Mountain on a tote road leading to an abandoned fire tower. Its managers are now faced with creating a wilderness feel ing in the area, and have developed a wilderness implementation schedule to accomplish this goal.

Managers often speak of the dual goals of abiding by the wilderness implementation schedule and maximizing visitor satisfaction or benefits. Maximizing the benefits or satisfaction of visitors requires managers to have a knowledge of what aspects of a CSMW visit contribute significantly to its value. The wilderness implementation schedule of the CSMW calls for the removal of all non-conforming (human-made) structures and reductions in the amount of directional signs and trail maintenance. Whether or not the goals of the wilderness implementation schedule are in harmony with the goal of maximizing visitor benefits depends on how human-made structures, directional signs and trail maintenance affect a trip's value.

Perhaps more important than the freedom from the physical signs of human influence as laid out by the wilderness implementation schedule, the benefits of wilderness recreation are affected by the level of solitude experienced by visitors. Most studies of wilderness benefits focus on the affects of crowding and congestion. The first visitor to a wilderness area experiences perfect solitude, but each additional user reduces the enjoyment of all users because solitude is reduced. Fisher and Krutilla (1972) have explained this relationship in terms more familiar to an economist, " As long as the gain from admitting additonal numbers exceeds the loss due to congestion costs, aggregate net benefits will increase. Beyond a point the congestion costs exceed the gains experienced by the additional recreationists and total net benefits diminish. Optimal capacity is the point at which the total benefit is a maximum and the incremental or marginal benefit is zero." When studied by economists, the satisfaction or benefit derived from outdoor recreation is generally measured in terms of willingness-to-pay (WTP).

The effect of crowding on WTP was first studied by Charles Cichetti and Kerry Smith in the mid 70's. Cichetti and Smith (1974) mailed surveys to 600 Spanish Peaks (MT) users and had them respond their WTP to a variety of hypothetical recreational experiences which varied by the number of trail encounters, camp encounters and length of stay. They found both camp and trail encounters to have significant, negative impacts on willingness-to-pay. Subsequent studies (McConnell and Sutinen 1984, Shelby 1980) have further demonstrated this negative relationship between encounters and WTP. Congestion is usually defined as the total number of encounters, but may be better represented by the rate of encounters. People on a short hike probably have a lower tolerance for the total number of encounters than those on a longer trek. Thus, the WTP model in this paper uses both total encounters and encounters per hour of hiking as measures of congestion.

In addition to the affect of actual congestion, the role of prior expectations of crowding on WTP have been investigated (Prince and Ahmed 1988, Menz and Mullen 1980). It is believed that the failure of models such as Cichetti and Smith to account for unrealized expectations of crowding has a downward bias on WTP. Collecting information on prior expectations in a post-visit interview poses some data collection problems. The response to the expectations question immediatly following the visit, as done by Prince and Ahmed, is likely to be affected by the actual conditions. The response to an expectations question immediatly preceding a hike may be affected by the number of cars or the perceived level of crowding at the trailhead. Despite data collection difficulties, expected crowding has been shown to have some impact on WTP.

Table 1. Independent variables in the WTP logit model.

Variable Name	Expected Sign	Variable Definition
BID	-	$ amount presented to respondent
Trip characteristics		
$SPENT	+	total trip-related expenditures
LENVIS	+	time spent in CSMW in hours
ENC	-	# encounters with other groups
ENC PER HOUR	-	# encounters per hour spent in the CSMW
EXENC	-	# encounters Dummy variable (1=more than expected, 0=about as ex, -1 = less than ex)
EXWILD	+	amount of wildlife seen Dummy variable (1=more than expected, 0=about as ex, -1 = less than ex)
Site characteristics		
EXMM	-	# of man-made structures Dummy variable (1=more than expected, 0=about as ex, -1 = less than ex)
EXTRMT	-	level of trail maintenance Dummy variable (1=more than expected, 0=about as ex, -1 = less than ex)
EXSIGN	-	# of directional signs Dummy variable (1=more than expected, 0=about as ex,-1=less than ex)
Visitor preferences		
MORWILD	-	seeing wildlife or signs of wildlife (3=very imp., 2= somewhat imp., 1= not important)
FEWENC	-	seeing few other groups (3=very imp., 2= somewhat imp., 1= not important)
NOMM	-	no man-made structures in CSMW (3=very imp., 2= somewhat imp., 1= not important)
GOODTR	+	condition of trail system in CSMW (3=very imp., 2= somewhat imp., 1= not important)
FEWSIN	-	fewer directional signs in CSMW (3=very imp., 2= somewhat imp., 1= not important)
User characteristics/ Demographics		
HIKTR	-	#of hiking trips in past 12 months
CSMVIS	-	# of visits to CSMW in past 2 years
INC	+	total household income in 1992
EDUC	+	# of years of school completed
MEM	+	member of environmental group (1=yes, 0=no)
AGE	?	age of respondent in years
FEM	?	sex (1=female, 0=male)

Similar data collection problems confound efforts to include physical site condition variables mentioned earlier such as trail maintenance, man-made structures and the amount of directional signs. While the condition of a given trail may be the same for all visitors, its performance or effect on WTP is different. Asking people to make a subjective evaluation of quality has the problem of keeping people on the same scale (one person's good may be another's poor). Evaluating the effect of unrealized expectations of physical characterisics on WTP in a way similar to that done with congestion may be a good way to evaluate the importance of these various characteristics.

Most of these previous studies have used open-ended or iterative bidding games to elicit WTP. Recently, dichotomous choice contingent valuation in which an individual responds yes or no to whether they would be willing to pay. In this study, for example, respondents were asked if they would still have visited if their expenses had been $X more? The advantages of dichotomous choice questions is their similarity to more familiar "take it or leave it" style transactions, and that it avoids the starting point bias of iterative bidding games.

In this study, dichotomous choice contingent valuation is used to measure the value of a visit to the Caribou-Speckled Mountain Wilderness. The dichotomous choice contingent valuation model used for this study estimates the probability an individual would pay a given amount to retain their opportunity to visit the wilderness. It is estimated with a logit model as this is consistent with utility theory (Hanemann 1984; Loomis 1988). The theoretical logit model for CSMW users is

$$\log[p(yes)/1-p(yes)] = f(BID,TC,SC,PR,DEM) \qquad (1)$$

where BID is the dollar amount presented to the respondent, TC is a set of visit characterisitics, SC is a set of site characteristics, PR are the respondents preferences for various wilderness conditions, and DEM is a vector of user characteristics and demographic data. All the variables are defined together in Table 1.

Data Collection

Between June 15, 1993 and September 15, 1993, CSMW visitors were surveyed at trailheads as they left the wilderness area. Three sites (Caribou parking area, Brickett Place, and Stone House parking area) were each sampled for eighteen days, twelve weekdays and six weekend days at each site. The interviewer approached every recreational (non-commercial) group leaving the wilderness. Of the 259 groups encountered, only one group refused to complete the survey. A summary of the descriptive results of the survey is shown in Table 2. After removing unusable surveys due to missing data, a total of 171 observations were included in the Logit analysis.

Table 2. Selected summary statistics of survey respondents.

Average time in wilderness area	4.97 hours
Average number of encounters	4.27
Average encounters per hour	.88
Average expenditures for visit	$42.15
Previously visited CSMW	63.2%
Average Age	39.8 years
% Female	37.4%
Member environmental organization	52.6%
Average annual household income	$58,406

N=171

Logit Results

The results of the logit models are shown in Table 3. Column one shows the results when congestion is defined as total encounters, and column two uses encounters per hour as a measure of congestion.

None of the visitor preference or demographic characteristics are statistically significant. The inverse relationship between the bid amount and WTP is significant and expected. The significance of three of the five expectations variables is the most striking result. The difference between actual encounters and expected encounters is significant and signed as expected as is the difference between actual and expected number of human-made structures. While neither encounters or encounters per hour are statistically significant, it is noteworthy that encounters per hour performed better than total encounters.

Total expenditures is positively signed and significant, indicating that respondents were more willing-to-pay the additional amount if it was a smaller portion of their total expenditures. The significance of the expected encounters and insignifcance of the two actual encounters variables, indicate that the expected level of congestion is more strongly related to WTP than the actual level of congestion itself. The difference between expected and actual levels of trail maintenance and directional signing do not have as significant effect as wildlife and man-made structures.

Table 3. Results of logit model. (t- ratios in parenthesis)

Variable Name	(1)	(2)
CONSTANT	-1.220	-.761
	(-.56)	(-.34)
BID*	-.0492	-.0493
	(-5.33)	(-5.32)
Trip characteristics		
$SPENT*	.0119	.0118
	(2.21)	(2.18)
LENVIS	.194	.155
	(1.37)	(1.15)
ENC	-.0478	(-.48)
ENC PER HOUR	-.525	(-1.03)
EXENC*	-.950	-.882
	(-2.38)	(-2.19)
EXWILD*	-.841	-.872
	(-2.28)	(-2.36)
Site characteristics		
EXMM*		-1.084
	-1.041	
	(-1.99)	(-1.91)
EXTRMT	.300	.347
	(.78)	(.39)
EXSIGN	.272	.248
	(.69)	(.63)
Visitor preferences		
MORWILD	.201	.232
	(.49)	(.57)
FEWENC	.159	.138
	(.442)	(.384)
NOMM	.117	.082
	(.36)	(.25)
GOODTR	-.171	-.157
	(-.45)	(-.42)
FEWSIN	.215	.268
	(.58)	(.72)
User characteristics/ Demographics		
HIKTR	-.0625	-.0581
	(-1.02)	(-.95)
CSMVIS	-.372	-.330
	(-.72)	(-.63)
INC	.00000473	.00000480
	(.66)	(.67)
EDUC	.0612	.0525
	(.27)	(.23)
MEM	.307	.277
	(.62)	(.56)
AGE	.00642	.00388
	(.29)	(.18)
FEM	.234	.275
	(.51)	(.59)
McFadden R^2	.387	.391
N	171	171

* indicates significant at the 95% level

Discussion and Implications

This study shows that a wilderness visitors pre-trip expectations may be more important to a visit's value than the actual visit characteristics . If this is the case, it indicates that wilderness managers can enhance backcountry experiences by making more and better planning information available, so that potential visitors are able to have more accurate expectations of an area. Very little study has been done on the how backcountry visitors develop their expectations about the expereience. Further study on the formation of pre-trip expectations is necessary before good suggestions can be made as to how wilderness managers can help visitors form more accurate expectations before their visit.

As debate over the use of public lands intensify, there will likely be more studies of the non-market and recreational value of wilderness areas. This study shows that studies of economic value for wilderness areas can yield valuable information about visitor preferences for area managers if properly designed before hand. These results can even be extended to determine the use level which maximizes the area's total use value (see Cichetti and Smith 1973; Michael 1994). By getting involved in these economic studies, wilderness managers can utilize a valuable source of information on user characteristics, preferences and attitudes.

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SECTOR ANALYSIS OF ECONOMIC IMPACTS FROM HERITAGE CENTERS

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The economic impact of six of America's Industrial Heritage Project visitor centers was evaluated within a nine-county region of Pennsylvania. The total sales impact of these expenditures was $29.2 million. Over 60% of the direct sales impact was in the lodging and food service sectors. The labor-intensive character of both sectors created a substantial induced impact within the region. Although both sectors generated considerable employment within the region, their pay scales were below the regional average.

Introduction

The Southwestern Pennsylvania Heritage Preservation Commission contracted with The Pennsylvania State University in 1991 to determine the economic impact of its Heritage visitor centers. Each year, a particular set of centers is evaluated in terms of their regional impact and visitor characteristics. This year-by-year build of information will provide an overview of the entire Heritage system and an ability to project its future economic and marketing features.

The 1992 study included six Heritage centers with an annual visitation of over 330,000 non-resident tourists (Strauss et al. 1993). During their stay this audience spent $15.1 million. In turn, these expenditures generated a direct sales impact of $10.5 million and secondary sales impacts of $18.7 million. On a value added basis, this represented an $18.8 million net gain to the regional economy, with $11.8 million directed to wages and salaries in support of 844 annual jobs.

These results suggested the need to further evaluate the principal sectors receiving these impacts and their commercial linkages with other sectors. This review will also consider the economic prerequisites for growth in Heritage tourism and related policy issues in reaching this potential.

Procedures

In the 1992 study, visitors were surveyed at five Heritage centers during the June to mid-October tourist season. This included the Allegheny Portage Railroad National Historic Site, Horseshoe Curve National Historic Landmark, Johnstown National Flood Memorial, Johnstown Flood Museum and Johnstown Inclined Plane. On-site interviews were conducted to secure the respondent's socio-demographics and related trip information, with mail-back questionnaires used to obtain further details on trip expenditures. Over 2000 interviews were taken at the five visitor centers with 1766 questionnaires returned, representing a response rate of 83%. A sixth center, Altoona Railroaders Museum, was added to the 1992 study on the basis of having been surveyed in an identical fashion during 1991.

Average expenditures per visitor day were identified for the resident and non- resident visitors at the individual centers and for the types of purchases these people made within the nine-county region. Expenditures were also prorated among the different travel destinations identified on the visitor's travel itinerary. Total regional expenditures for non-resident visitors were built on the basis of the annual attendance records from the individual centers.

The financial impact of Heritage-related expenditures was modeled with the Impact Analysis for Planning (IMPLAN) System. The IMPLAN model was originally constructed for the USDA Forest Service to estimate the regional economic impacts of National Forest management plans (Alward et al. 1985). The model is based upon a national technology matrix describing the interrelationships between as many as 528 economic sectors in any particular economy. IMPLAN then uses county specific economic data to produce input-output models on a county-by-county basis, or for any aggregate region within the U.S.

Final demands, or direct sales, were analyzed by IMPLAN in terms of two types of secondary impacts; (1) the indirect impact upon sectors having commercial linkages to the direct and other indirect sectors and (2) the induced impact from the income spent by households employed in the direct and indirect sectors. The combination of direct, indirect, and induced impact was measured in terms of the total sales of goods and services, the value added to the region's economy, and annual employment.

The expanded analysis of impacts in this paper focused on the 1992 Heritage study (Strauss et al. 1993). Included are a review of the key sectors involved in the major types of economic impact and the input-output structure of these sectors. This effort also considers the growth potential of the Heritage system and related policy considerations.

Results

Overview of the 1992 Study

For the six Heritage centers, the direct sales impact was $10.5 million, with 85% placed in two groups of economic sectors; the Service group and the Wholesale and Retail Trade group (Table 1). An additional 12% of the direct impact was distributed among three other groups; Transportation /Communication/Utilities, Government Enterprises, and Manufacturing. Secondary sales of $18.7 million contributed to a total of $29.2 million for 1992 (Table 1). The major groups involved in this secondary process were: Finance/ Insurance/Real Estate with 27% of the secondary sales, Services with 25%, and Wholesale and Retail Trade with 19%.

Impact by Sector

The principal sectors receiving direct impact from Heritage tourism were Hotel and Lodging Places, Eating and Drinking Establishments, and Other Non-profit Organizations (Figure 1). Together, these three sectors captured 77% of the direct impact, with the remaining impact parceled in relatively small shares to over 30 other sectors. The non-profit sector largely represented the combination of public and private Heritage centers.

The relative importance of lodging and food services paralleled the expenditure profile of the non-resident visitor (Strauss et al. 1993). Nearly 60% of their expenditures were for lodging and food services, with 17% directed to travel costs (largely gasoline purchases), 10% to site-related costs, and 13% to other purchases. However, since gasoline was an out-of-region product, only a small proportion of these expenditures was credited as direct sales to the region. As such, the percentages of direct impact for lodging, food services, and site costs were higher than for those of expenditures.

Table 1. Total regional impact of six AIHP visitor centers, 1992.[a]

Economic Group	Direct Sales	Total Sales	Value Added	Employee Income	Employment
Agriculture, Forestry & Fisheries	$41,300	$457,800	$141,800	$50,900	8.01
Mining	$35,100	$78,200	$59,700	$10,400	0.36
Construction	$55,300	$739,300	$415,300	$314,500	15.25
Manufacturing	$325,100	$2,144,900	$725,500	$470,100	22.11
Transportation, Communications and Utilities	$465,400	$2,375,600	$1,327,400	$603,300	28.20
Wholesale and Retail Trade	$3,723,500	$7,266,800	$5,098,200	$3,734,800	374.38
Finance, Insurance & Real Estate	$208,600	$5,240,800	$3,691,800	$595,600	32.89
Services	$5,235,300	$9,914,300	$5,336,900	$4,064,500	298.31
Government Enterprises	$456,700	$990,000	$727,100	$660,000	15.02
Special Industries	$0	$0	$0	$0	0.00
National Park Service			$1,298,650	$1,298,650	50.00
Total	$10,546,300	$29,207,700	$18,849,350	$11,802,750	844.53

a/ Source: Strauss, C. H., B. E. Lord and S. C. Grado. 1993. Economic Impact and User Expenditures from Selected AIHP Visitor Centers, 1992.

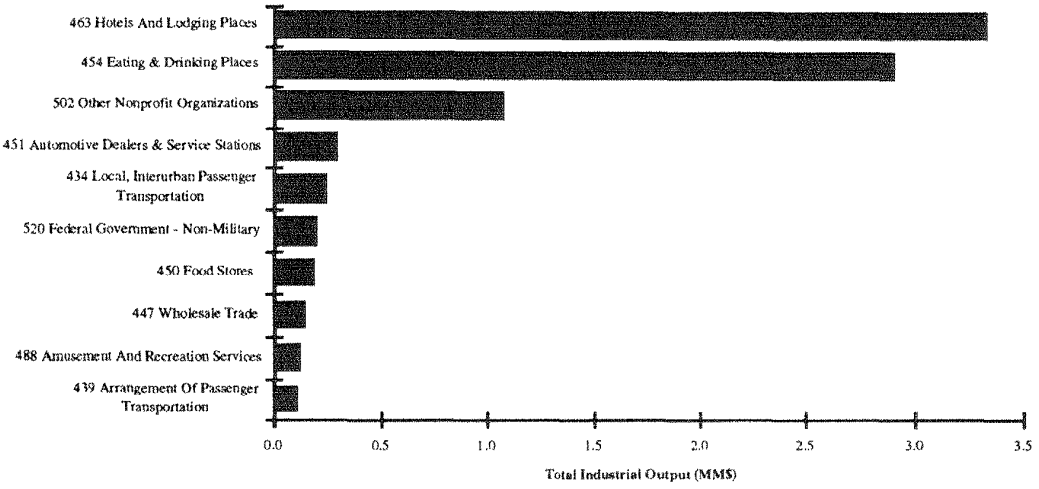

Figure 1. Direct sales impact by sector from AIHP Tourism, 1992.

Secondary impacts were of interest due to their size and distributions between indirect and induced impacts. As previously identified, secondary sales impacts were $18.7 million, with 11% originating from indirect impacts and 89% from induced impacts. Herein, is an important structural characteristic of tourism. Most of the direct impacts were placed in the lodging and food service sectors. Both sectors were labor intensive and had limited secondary ties with other regional sectors. Their labor dependency was also evident in the large induced impact.

In contrast to the direct impacts, indirect impacts were distributed over a wide variety of sectors. The three lead sectors; Maintenance and Repair Services, Electric Services, and Real Estate only had 25% of the indirect impact (Figure 2). Indirect impacts among the ten lead sectors were still under 50% of the total. For the most part, indirect sectors were also labor intensive and could be characterized as service trades in the business, maintenance, and communication fields.

Induced impacts were also distributed over a wide range of sectors, with the ten lead sectors capturing only 53% of this activity. The distribution of induced impacts followed the personal consumption pattern of the U.S. population (BEA 1992). The top sector was Owner-occupied Dwellings, representing household payments to the equity and maintenance of homes (Figure 3). This sector received nearly 16% of the induced impacts from IMPLAN and it represented 15% of personal expenditures for the U.S. (BEA 1992). Health care received the second largest induced impact. Hospital and doctor/dentist expenditures were 12% of induced impacts from IMPLAN and 10% of personal expenditures for the U.S.

Analysis of Key Sectors

Over 60% of the direct sales impact from non-resident Heritage tourists went to Sector 454, Eating and Drinking Establishments (EDE) and Sector 463, Hotel and Lodging Places (HLP). Within the nine-county region, the total output for Eating and Drinking Establishments was $373 million (Table 2).

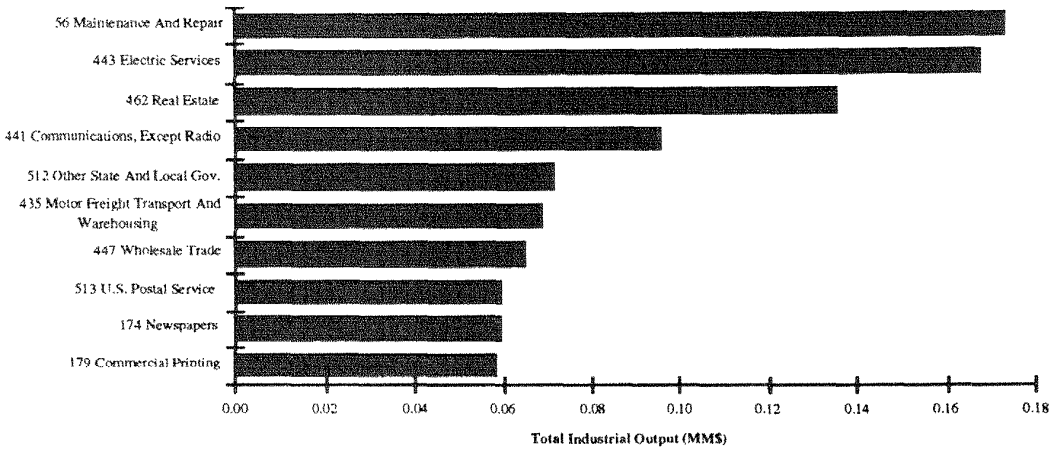

Figure 2. Indirect sales impact by sector from AIHP Tourism, 1992.

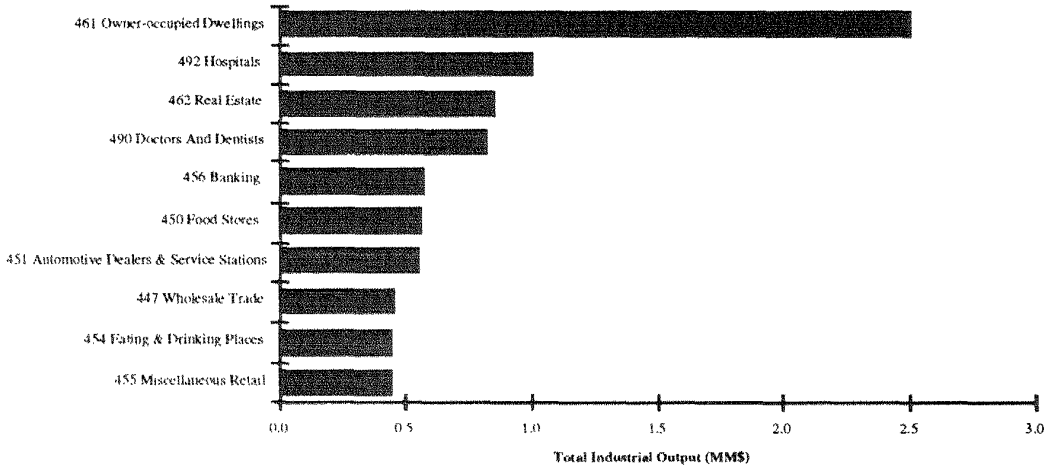

Figure 3. Induced sales impact by sector from AIHP Tourism, 1992.

Table 2. Financial profile of sector 454, eating and drinking establishments, and sector 463, hotel and lodging places.a,b

	Sector 454 ($MM)	Sector 463 ($MM)
Inputs to Sector	160.39	38.91
Employee Compensation	196.47	50.52
Indirect Business Tax	34.91	7.41
Proprietary Income	16.87	-2.83
Other Property Income	-35.32	12.79
Total Value Added	212.94	67.90
Total Sector Output	373.33	106.80

a/ Source: 1990 IMPLAN model for a nine-county southwestern Pennsylvania region.
b/ Note: Total sector output equals value added plus inputs to sector. Negative values in Other Property Income and Proprietary Income represented insufficient income to cover property rent and self employed salaries, respectively.

In comparison, the total impact of Heritage tourism on EDE ($3.4 million) was about 1% of this sector's regional output. Employee compensation within this sector was 53% of its total output. In contrast, employee compensation across all sectors in the region averaged 33% of total output. The cost of intermediate inputs to EDE from all other sectors was 43% of EDE's total output.

The twenty lead input sectors to EDE provided 67% of EDE's intermediate input costs (Table 3). About 70% of this input was food products, with the remaining 30% coming from business and utility services. However, only 30% of all input was purchased within the region.

Table 3. Twenty lead input sectors to Sector 454, Eating and Drinking Establishments.[a]

Sector	Gross Input ($MM)	Regional Input ($MM)
Vegetables	5.33	3.01
Meat Packing Plants	6.34	2.24
Sausages and Other Prepared Meats	6.71	.96
Poultry Processing	6.58	.00
Creamery Butter	3.57	.72
Cheese Products	7.15	1.35
Ice Cream	2.98	1.72
Pickles/Sauces	3.56	.01
Frozen Specialties	9.97	3.79
Malt Beverages	5.40	2.00
Soft Drinks	2.84	1.05
Seafood	11.02	.00
Food Prep, N.E.C.	3.80	.16
Electric Service	5.71	3.42
Wholesale Trade	6.84	3.42
Real Estate	6.99	2.90
Advertising	4.61	3.26
Other Business Services	2.81	.94
Personnel Supply Services	2.99	.49
Mgt/Consult. Services	2.95	.92
Totals	108.15	32.36

a/ Source: 1990 IMPLAN model for a nine-county south-western Pennsylvania region.

Table 4. Twenty lead sectors providing input to Sector 463, Hotel and Lodging Places.[a]

Sector	Gross Input ($MM)	Regional Input ($MM)
Landscape Services	.72	.39
Maintenance, Other Facilities	2.43	2.35
Petroleum Refining	.58	.02
Misc. Plastic Products	.69	.00
Communications, except radio/TV	3.10	1.55
Electric Services	5.02	3.01
Gas Production and Dist.	.89	.70
Water Supply/Sewerage Systems	1.06	1.06
Credit Agencies	.86	.68
Real Estate	4.15	1.72
Advertising	3.07	2.17
Other Business Services	1.06	.36
Services to Bldg.	.62	.38
Personnel Supply Services	2.03	.37
Legal Services	1.07	.28
Acctg. Services	.62	.34
Mgt. Services	1.32	.41
R&D Services	.83	.59
Other State Enterprises	.79	.56
U.S. Postal Services	.59	.42
Totals	31.50	17.36

a/ Source: 1990 IMPLAN model for a nine-county south-western Pennsylvania region.

Hotel and Lodging Places had a total output of $107 million in the nine-county region (Table 2). The impact from Heritage tourism ($3.5 million) represented 3% of this sector's total regional output. Employee compensation was 47% of total output, also above the regional average of 33%. Inputs from all other sectors were 36% of HLP's total sales. The twenty lead input sectors to HLP provided 81% of all input (Table 4). Nearly 55% of this input was purchased from regional suppliers. Most of these inputs were business, utility, and communication services.

Summary

The direct sales impact from Heritage tourism was largely channeled into two sectors; Eating and Drinking Establishments and Hotel and Lodging Places. The indirect impact of these sales on other regional sectors was modest. In the case of Eating and Drinking Establishments, about 30% of their input was purchased regionally, and for Hotel and Lodging Places about 50% was from regional suppliers.

Both sectors were labor-intensive, devoting nearly 50% of the their total sales value to employee compensation. In turn these wages and salaries generated a substantial induced impact in other retail and service sectors.

Conclusions

Over the next ten years, the addition of seven new Heritage centers and an increased attendance at all other centers should generate 1.8 million visitor days of use by the year 2003 (Strauss and Lord 1993). Annual regional expenditures from non-resident visitors are estimated at $105 million. Assuming the region maintains the same level of economic self-sufficiency, these expenditures would provide a total impact of $185 million.

This expansion would represent a six fold increase to the impacts found in Table 1. In terms of the two leading sectors, this would increase regional sales to Hotel and Lodging Places by 16% and to Eating and Drinking Establishments by 5% (based upon the 1990 IMPLAN model). In turn, this would generate nearly 1900 new jobs within these two sectors.

Although the lodging and food services sectors have a positive effect upon regional employment, they also represent a lower paying and seasonal source of employment. A comparison of the key employment sectors within IMPLAN, found these sectors below the regional average of $19,991 per job (Table 5).

Table 5. Major Employment Sectors within the AIHP Region.[a]

Sector	Total Output (MM$)	Employee Compensation (MM$)	Employment (# jobs)	Annual Comp/Job ($/jobs)
State/Local Govt.	876.8	876.8	28,291	30,992
Eating/Drinking Est.	373.3	196.5	24,968	7,869
Wholesale Trade	902.2	522.5	19,660	26,577
Hospitals	1,052.3	436.1	17,440	25,006
State/Local Govt.	303.2	303.2	16,335	18,564
Food Stores	343.3	162.6	15,825	10,273
Main./Repair	520.9	250.1	11,774	21,240
Auto Dealers/Service	364.8	184.3	11,472	16,062
Labor/Civic Organ.	113.7	73.8	10,857	6,799
Gen. Merch. Stores	229.9	127.5	10,283	12,403
Motor Freight	610.5	217.7	9,992	21,787
Doctors/Dentists	483.2	273.8	7,872	34,784
Indust/Comm. Const.	513.7	143.2	6,655	21,515
Residential Const.	580.9	92.3	6,421	14,377
Coal Mining	621.3	292.0	6,238	46,813
Engin/Arch.	404.0	199.6	6,124	32,593
Hotel/Lodge Places	106.8	50.5	4,275	11,818
All Regional Sectors	26,793.7	8,753.2	437,857	19,991

a/ Source: 1990 IMPLAN model for a nine-county southwestern Pennsylvania region.

One of the potential challenges to tourism is identifying the general character of its employment market. This includes the types of job opportunities and assignments, educational and training needs, and the communications network between workers and employers. Local government could also assist this process by offering job training programs at high schools and vo-tech centers geared to the tourism industry. A coordinated effort among business and government could upgrade the calibre and stability of employment within these sectors and raise the general welfare and expectations of these people.

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TECHNIQUES FOR ASSESSING EXTRAMARKET VALUES

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Central to effective policy development and management of natural resources is an understanding of the trade-offs stakeholders are willing to accept and the values they hold. Although market prices reflect society's preferences to some degree, they clearly do not encompass all values or costs. Conjoint techniques offer a means to estimate and analyze stakeholder preferences.

Introduction

Demands on the planet's resources are intensifying as the earth's population expands by an astounding 93 million annually (Postel 1994). Growth in the consumption of many resources exceeds population growth and per-capita consumption for many goods will continue to rise as countries like China and India industrialize and demand a bigger slice of the consumptive pie (Durning 1994). These trends have led to a host of environmental concerns: lost biodiversity, species extinction, global warming, reduced water availability and quality, and many others.

Paralleling increased demands for goods is a realization that quality of life depends on more than pure consumption. This is reflected in society's views about how resources should be managed and is evident, for example, in the USDA Forest Service's emphasis on ecosystem management. Society is demanding more preservation, more environmental protection, and enhanced management for aesthetics, biodiversity, and wildlife habitats, but we also want to consume and recreate more. In short, we want more of everything from a shrinking resource.

Difficult choices must be made. Decision-makers need guidelines for determining the optimal way to allocate increasingly scarce resources. In a capitalistic society we generally look first to the market place to help allocate resources. Markets work to allocate some goods efficiently but fail dismally for others. There are many examples where markets fail to provide the appropriate allocation signals (prices). Two types of market failures that are of concern to resource managers have to do with the public good or common property nature of forest-related benefits and the presence of externalities. Both interfere with the ability of the price system to allocate resources efficiently. The nonexclusive or common nature of public goods (e.g., the air or water purifying benefits of forest ecosystems) provides an incentive for individuals to "free ride" by refusing to pay with the hope that others will provide this benefit. Externalities refer to interactions among firms or individuals that are not fully reflected in market prices. For example, damage to water quality, scenic vistas, wildlife habitats, or lost biodiversity are costs to society that are not fully accounted for in the market price of timber or recreation. There are many other examples of externalities that, in general, refer to costs or benefits that are not fully reflected in market transactions. The presence of market failures has been a strong argument in favor of public ownership of forest land. Public ownership effectively removes land from direct response to market signals.

When markets fail to provide the appropriate signals, there may be no clear guidelines for managers and they become caught in a lose-lose situation. No matter what they do, they fail to meet the expectations or desires of special interest groups and certain publics. This situation often leads to expensive and time-consuming litigation. Managers seek a systematic and rational means to analyze decisions that involve a wide range of biophysical, financial, social, and moral variables.

Central to effective policy development and decision-making is an understanding of the trade-offs stakeholders are willing to accept and the values they hold. Society has expressed that nonmarket benefits and costs are important and must be considered. A means is needed to translate society's preferences into meaningful goals and guidelines for decision-makers to follow. Conjoint techniques offer a tool for increasing our insight in this area.

Conjoint Analysis

Conjoint analysis, a technique used to measure psychological judgments, is frequently used in marketing studies to measure consumer preferences (Green et al. 1988). Respondents are asked to make choices between alternate products or scenarios with varying levels of selected attributes. For example, in a typical marketing application, an automobile manufacturer might be interested in consumer's preferences for certain features or attributes. The manufacturer may want to examine prospective consumers' willingness to accept decreased gas mileage for increased cargo space or their preferences for reduced prices or increased warranty length. Prospective consumers could be asked to choose between or rank their preferences for vehicles with various combinations of cargo capacity, gas mileage, warranty length, price, and other attributes of interest.

These data, which outline a respondent's preferences or the trade-offs he or she is willing to make, can be used to construct a predicted set of utilities for various factor or attribute combinations. Although the respondent evaluates complete bundles of attributes, conjoint techniques can be used to solve for the partial utility function for each attribute that is imputed from the overall trade-offs. These partial utilities can be combined to estimate any combination of interest, thus providing high leverage between the options actually evaluated and those that can be evaluated after the analysis.

A simplified hypothetical example will be used to illustrate the potential usefulness of conjoint techniques to resource or recreation managers. Suppose we are interested in managing a site for bird watching. Through discussions with experts, user surveys, or focus groups we might discover that the following attributes are important to bird watchers:

- total number of observations (birds);
- number of different species;
- condition of the understory;
- presence of interpretive information on the site.

We assume that one's bird watching experience is affected by both the number and diversity of observations, the presence of interpretive information, and the condition of the understory. Aesthetics, visibility, and perhaps the number and diversity of birds in the area could be influenced by management of the understory. We also assume that our preliminary work indicates that the following categorical breakdowns are meaningful:

Birds	Species	Understory	Interpretive
0 to 10	2 or less	Open	No
11 to 20	3 to 5	Moderate	Yes
21 to 30	6 or more	Dense	
31 or more			

There are many ways to collect the needed data (e.g., interview, focus group, and mail survey). Sample cards might be prepared, each card depicting a specific bundle of attribute levels. Each bundle of attributes might represent the outcome of a particular management strategy. Respondents could be asked to choose between pairs of sample cards, rank the cards in order of preference, or assign numerical ratings to each card. Obviously, numerical ratings provide the most information but also place the greatest cognitive demands on respondents. The analyst must consider the overall situation carefully when selecting a sampling technique and choosing the combinations of attribute levels to include on the sample cards. Green (1974) provides information on experimental design in the context of conjoint analysis.

In this example we assume that respondents were asked to give each of 18 sample cards a numerical rating from 1 to 10. Figure 1 shows 3 of the 18 sample cards. Multiple regression using dummy variable coding generally is used to estimate the part-worth or partial utility functions, which may be depicted graphically as in Figure 2. The part-worth functions can be used to estimate ratings for any combination of attribute levels. This provides high leverage between the data actually collected (18 different combinations of attributes) and those for which estimates can be developed (72 possible combinations in this example).

Card A	Card B	Card C
Birds: 11 to 20	**Birds:** 11 to 20	**Birds:** 31 or More
Species: 2 or Less	**Species:** 6 or More	**Species:** 3-5
Understory: Moderate	**Understory:** Open	**Understory:** Dense
Interpretive: No	**Interpretive:** Yes	**Interpretive:** No
Rating:_____	**Rating:**_____	**Rating:**_____

Figure 1. Sample cards.

For illustrative purposes, the estimated rating values for sample cards A and B in Figure 1 are calculated using the part-worth functions depicted in Figure 2 (see next page).

Card A values		Card B values	
11 to 20 birds	= 1.2	11 to 20 birds	= 1.2
Less than 2 species	= 0.0	6 or more species	= 2.0
Moderate understory	= 1.3	Open understory	= 1.5
No interpretive signs	= 0.0	Interpretive signs	= 0.7
Total estimated rating	= 2.5	Total estimated rating	= 5.4

Similar calculations can be performed to estimate the rating (preference) for any combination of attributes. Marginal rates of substitution among attributes or the trade-offs respondents are willing to make also can be calculated under various scenarios.

Researchers or managers may want to study the relationships between preferences and demographic or other background information on respondents. This is done by creating a matrix of attribute part-worths and demographic or sociological variables by respondent. These estimated relationships may be useful in forecasting the effects of demographic trends on future preferences and in understanding the preferences of various user groups. These types of analyses are somewhat analogous to identification of market segments in studies of consumer preferences.

The example cited illustrates the use of conjoint techniques to analyze preferences for various ways to meet a single objective (bird watching). Managers frequently must decide how to allocate funds or land areas to meet multiple and often conflicting objectives. Scientifically based recommendations or expert opinion may provide guidance in determining how and what land to manage to meet specific objectives, but determining the relative importance of objectives rests on human values. Although the analyses are more complex, conjoint techniques can be used to estimate preferences among objectives (e.g., bird watching, developed recreation, various wildlife habitats, and timber management). Results of these analyses provide estimates of the costs or trade-offs in terms of other objectives implied by the choices of the sample respondents.

Conjoint techniques also provide a viable means for collecting and analyzing public input. Respondents may be asked to express their preferences with respect to specific objectives and land areas, or with respect to more general value or allocational decisions. For example, Opaluch et al. (1993) described an approach that used paired comparisons to rank potential noxious facility sites in terms of their social impacts. Conjoint analyses are particularly useful in providing respondents with feedback concerning the acceptable trade-offs and values that their choices imply.

Summary

Difficult choices, often involving conflicting uses, must be made by resource and recreation managers. Biophysical information and technical expertise alone is not sufficient for choosing among alternative management strategies. Human wants, needs, beliefs, and values must be considered. Conjoint techniques are well suited for estimating and analyzing human preferences and values. Marginal rates of substitution or the trade-offs people are willing to accept among competing uses can be estimated and used to facilitate decision-making. Estimates of partial utilities that are implied by the respondent's choices can be used to estimate the effectiveness of various management or land allocation strategies. Conjoint techniques also provide a mechanism for collecting input from stakeholders, as required on National Forests and many other public lands.

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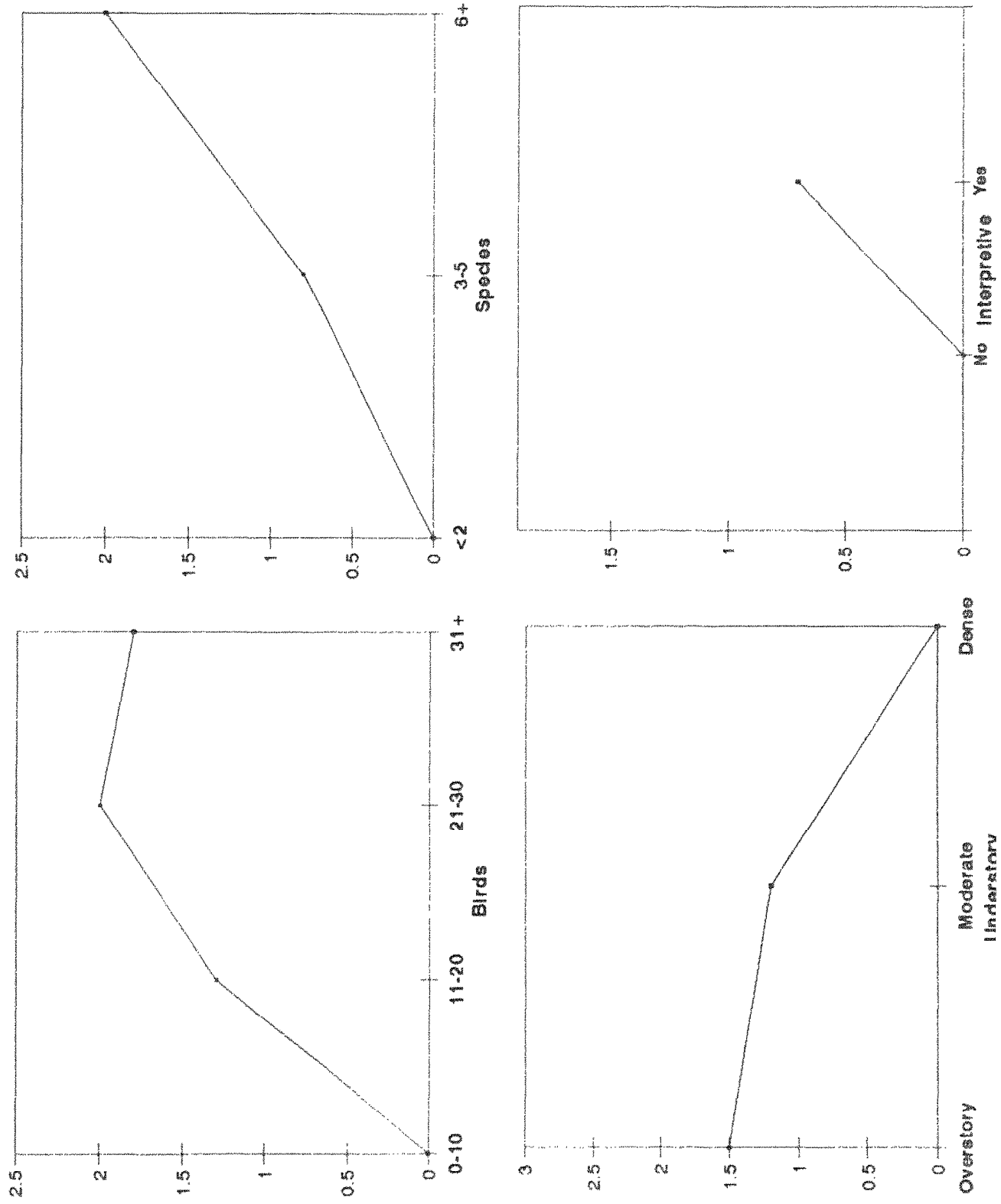

Figure 2. Part-worth functions.

THE INTEGRATED BUSINESS INFORMATION SYSTEM: USING AUTOMATION TO MONITOR COST-EFFECTIVENESS OF PARK OPERATIONS

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The cost-effectiveness of park operations is often neglected because information is laborious to compile. The information, however, is critical if we are to derive maximum benefit from scarce resources. This paper describes an automated system for calculating cost-effectiveness ratios with minimum effort using data from existing data bases.

Introduction

Parks Canada, like most other public agencies in North America, is faced with budgets that are shrinking. It is therefore becoming increasingly hard to meet client expectations or maintain standards that agency professionals consider adequate. Parks Canada's reaction to budget restraint has been to look for more "business-like" (or private sector-like) approaches to operating parks, with the idea that this will somehow solve the financial problems of a government operation.

The authors have heard "business-like" being described in Parks Canada in many ways. For example, business-like can mean that services which provide mainly a benefit for the user (e.g., camping), should be entirely paid for by user fees. Another characterization is that parks should generate revenue wherever they can to help finance their operations. In a simpler form, more business-like can simply mean costs have to be cut or levels of service must be lowered. These descriptions are often little more than counsels of virtue. They are not very concrete guides to action or rigorous criteria for decision making.

The authors believe that, if the concept of being "business-like" is to be useful in the facing severe financial restraint, it must be taken to mean "the concentrating of resources on those operations that are most cost-effective." Cost-effectiveness here is rigorously defined as the ratio of cost to the amount of effect or benefit produced by the expenditure. For example, if the agency considers the creation of a camping experience for one night to be an effect or benefit that the agency is mandated to produce, then the cost per party night of camping is a cost-effectiveness measure. This and similar measures can then be used to compare the performance of equivalent operations to determine which are more cost-effective and which less so. Then the agency can concentrate its resources on the most cost-effective operations. This, the authors contend, would be the business-like way to live within any budget constraints. Concentrating resources on the most cost-effective activities, and thus maximizing cost-effectiveness, of course, is exactly equivalent to the private firm's profit maximizing behaviour.

The approach raises problems, of course, not the least of which is how to measure the myriad of effects or benefits, often ephemeral, of the many products which an outdoor recreation agency produces (for an example of some of the complexity, see Stanley, Beaman, Teskey, 1993). These problems have by no means been solved. But as a general approach, it appears more fruitful than repeating truisms like "We must cut costs."

The particular problem which the authors attack in this paper is the one of where and how to get the information necessary for the cost-effectiveness measures which we believe managers need. Currently, in Parks Canada, the principal management information system, the financial system, only provides the manager with information on how much his budget is, how much he had spent so far in the budget year, and what was left. In other words, it only reports costs. To operate the park as a business, the manager must now also have information on benefits, to compare to costs. These benefits can be revenue, or they can be other kinds of measures such as number of people served, or amount of resources protected, but they somehow must be measured.

Table 1 shows a hypothetical example of the kind of information that is currently available to a park manager.

Table 1. Campground costs (hypothetical).

(1) Campground	(2) Costs ($)
Campground 1	320,500
Campground 2	571,600
Campground 3	290,300

We can see that campground 2 is the most expensive. We can see that campground 3 is cheapest. But does this mean that campground three is more efficient? It could merely be smaller. Campground 1 is cheaper than campground 2, but if campground 1 is always empty and 2 full, then expenditure on 2 is in some way better. There is very little we can conclude from the data in Table 1. Managers can probably come to conclusions of some sort since they have a great deal of informal (usually unquantified) knowledge about size (it's big), occupancy (it's crowded), efficiency (it's well run), and so forth. This informal information, however, is rarely used in connection with the financial information to draw any conclusions about campground operations. Furthermore, qualitative or categorical information about the size or popularity of campground 1 compared to campground 2 does not allow anyone to compare the cost-effectiveness.

If we add quantitative effect data, we can increase the value of the information in Table 1 enormously. This is done in Table 2, where we add party night data and then use the two pieces of data to calculate a simple cost-effectiveness measure: cost per party night.

Table 2. Campground costs (hypothetical), with party-night use and cost per party-night included.

(1) Campground	(2) Costs ($)	(3) Party-nights of Use	(4) Cost per Party-night ($)
Campground 1	320,500	15260	21
Campground 2	571,600	15448	37
Campground 3	290,300	5692	51

With the addition of use data, comparison between campgrounds suddenly becomes possible. We can now see that Campground 1 is the most cost-effective, providing a party-night of camping for $21, compared to campground 3, where it costs $51 (recall that campground 3 appeared to be the least expensive campground in Table 1). A manager can now see how much must be charged if the campground is to become self-financing. If it cannot be self-financing, the manager at least sees the amount of subsidy which

must be given to each party night of camping, and can start to consider whether such a subsidy level is justified. Managers now know where to look for examples of cost-effective practice which might be useful to emulate. Senior managers, examining this data, would know where to start to look for inefficiencies. In other words, with a combination of cost and effect data, we can begin to ask business questions.

Of course, campground operations are much more complicated than this. One explanation for the higher or lower costs might be the quality of service in the campground. Another might be difficult operating conditions (for example, the $51 per party-night campground may be in the high Arctic). Specialised knowledge of situations, or further data, is necessary to properly interpret the data and ratios of Table 2 and not be misled by them. However, the use of even the simplest effect data starts to promote thinking about the business issues involved in the camping operations and how to maximize cost-effectiveness.

Operational Reviews: Managers Realize the Need for Information

One of the first steps Parks Canada took to adopt a more "business-like" approach was to conduct a series of operational reviews of various park services in 1992 and 1993. An operational review is a one time, in-depth study of the costs and benefits of providing a given service across the parks system. Its aim is to find efficiencies and ways to increase the benefits relative to the costs for a given service. Operational reviews were done of campgrounds, highways, heritage canals, staff housing, among many other services. Each of these reviews required a significant effort to collect data on cost and use, on actual and potential markets, on client satisfaction and on level of service offered (in other words, on effects). Each operational review was conducted by a specially designated task force, who took on the task in addition to their regular duties.

When managers in Parks Canada's Atlantic Region conducted their campground operational review (Horne and Stewart 1994), and saw cost data used in conjunction with effect data, they recognized the value of this information. They also realised that they needed this information regularly if they were to properly manage their operations. It was too valuable to just collect it once and then forget about it. Unfortunately, they also saw that the information was cumbersome and inefficient to collect and analyze.

The operational reviews conducted in the Atlantic Region consumed an immense amount of resources. Compiling the financial, use and investment data, recoding the data and formatting the output for these reviews required six months of time and involved several individuals, some of whom worked full-time on the effort. Utilizing spreadsheets as the analysis tool, resulted in difficulties in updating data, and correcting errors, as approximately 1,000 spreadsheets were created, a volume that is simply unmanageable. Clearly, it was not feasible to do this as part of the regular annual management cycle of activities.

Managers in the regional office therefore asked the authors of this paper to develop an automated solution whereby they could easily get the business information they needed from existing data sources, without the resort to the laborious methods previously used. The Integrated Business Information System was the result.

Integrated Business Information System (IBIS)

The first question to answer then was: the cost-effectiveness of what? The Parks Canada financial system contained data on expenditures listed by organizational unit. The asset data base contained information on condition and location of assets. The use data system contained data on volumes of use for assets and sometimes at events, but did not have information on organizational units or money.

The one element that all this data appeared to have in common was the "product" or service that the client received. (e.g., camping). Organizations spent money to provide products to the user (the Visitor Services unit incurred costs to provide a campsite). Capital assets often must exist for a product to be produced (a campsite must be built in order for camping to take place, a road must exist to give them access). Users consume products (campers camps and are counted when they do so). Finally, users express satisfaction with the experience of consuming the product (campers enjoy camping). We therefore chose the product as the unifying element, and defined a set of products that exhausted what a park spends its budget on.

With a unifying element defined, it was now possible to construct a data model. A data model is a concept of how data relate to each other and a set of rules for determining which records in which data bases belong together and so can be joined. For example, the rules tell us that any cost bearing a certain code in one data base relates to any use bearing a certain but totally different code in a different data base, and that both of these relate to the name of a product which bears yet a third code in a third data base. These rules allowed us to combine data from the cost and effect data bases in order to calculate cost-effectiveness ratios.

The concept and rules, of course, had to be implemented in a software which would actually link the data and perform the necessary calculations and print the reports. There were difficulties here. None of the data sources were designed with the intent of combining their data with another data source to do calculations. Therefore, the data were not always categorized or coded the same way. The financial system collects data to ensure a manager does not spend more money than is allocated, so it is categorized by organization, not necessarily by what the manager's product is. Extra coding had to be added, and managers had code their expenses to somewhat modified categories. The asset database is used to estimate the amount of money required for the upkeep of our assets. Which assets relate to which products had to be imputed, especially where an asset served to produce several products simultaneously (e.g., a general purpose information centre, theatre and administration building). The visitor use database stores data on the consumption of park services. Even though the same type of asset or activity took place in most parks, each park could have its own code for it, even in the national, common data base. Finally, the coding often changed from year to year within the same data base and park.

A great deal of effort was therefore expended to cross reference codes that represent the same thing and to generate common codes or correspondences. Tables of information had to be created to map these relationships among codings. As well, data often had to be manipulated so that it could be made to refer to a product being consumed by a client. The result, the working data model, is the first part of IBIS (see Figure 1).

The second part of IBIS is the analysis and report engine. Once the data has been integrated, the only thing that remains is to decide which data should be combined with which other data, and what ratios to be calculated. Table 2 above illustrates the kind of output which is produced by the report engine. Records from two or more different sources, each referring to the identical product, are combined, and a ratio is calculated. The calculation and report generation are standard functions of any data base language , and were easily implemented in Microsoft Access (Microsoft, 1993), which is the particular data base software the authors used.

The advantages of IBIS over the one-off Operational Reviews was immediately apparent to managers in the Atlantic region. Once IBIS was established in a park, the analysis of cost-effectiveness could be done repeatedly without laborious spreadsheet analysis and data collection. IBIS of course uses existing data that is being collected anyway as part of other operations.

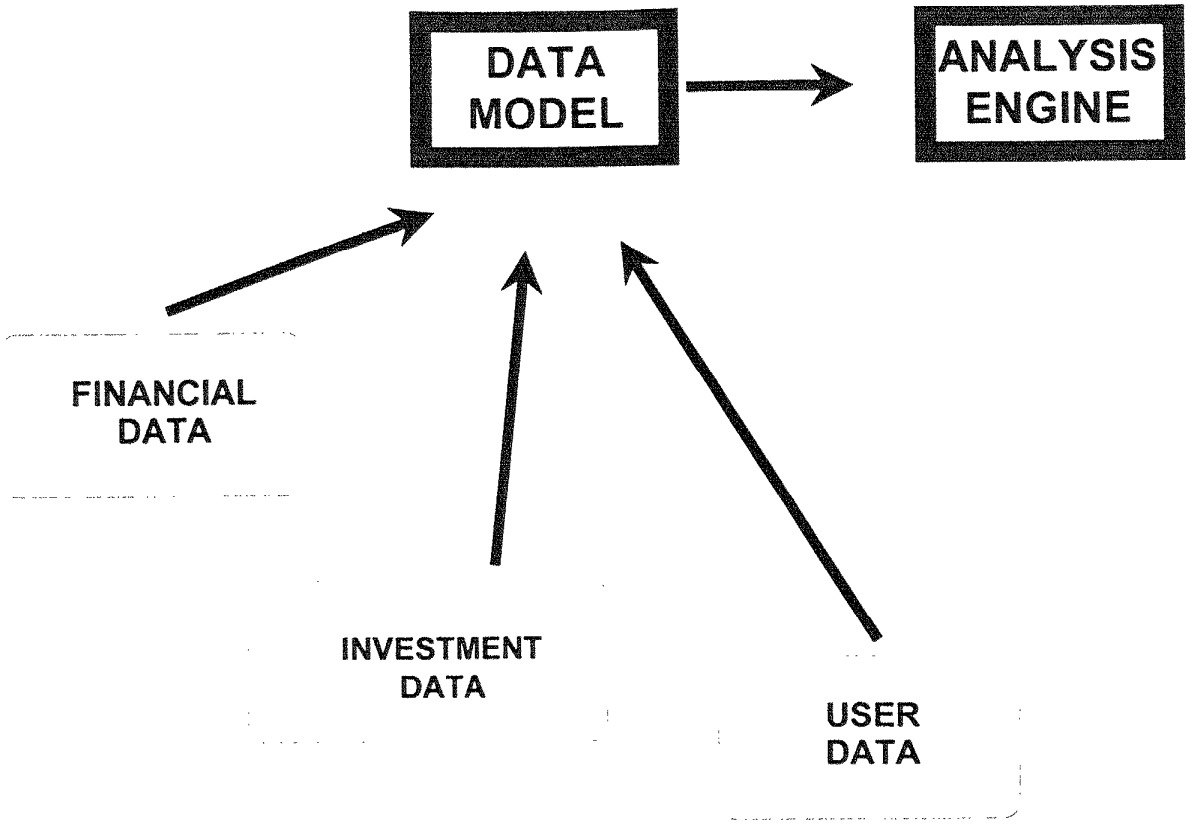

Figure 1. Parts of IBIS. Data model combines data from several data sources, and analysis engine does pre-defined calculations and produces report.

IBIS was developed as a database, while the Atlantic Region's operational reviews utilized spreadsheets. Why was this? Trade-offs are involved in selecting the "right" tool for any analysis. An approach using spreadsheets is easier to initiate and may be less intimating to the analyst. There is less conceptual overhead in identifying the relationships among the data as the user enters the values directly in spreadsheet cells, rather than in related normalized tables (For a discussion see: Beaman and Grimm 1989, Avedon 1991). This approach is very tedious, labour intensive and very time consuming. As a result it is difficult, if not impossible, for a manager to have "instantaneous" information. Updating the analysis is equally laborious: even though the spreadsheet is set up, to update the analysis, data must once again be manually entered in the spreadsheet cells.

Using a database as the analysis engine provides a method that allows instantaneous updating to be available to the manager. Databases, of course, come with their own overhead. They must be carefully designed, so that the tables used to store data do not contain redundant information. Furthermore, the tables must be designed so that "natural" relationships among the data are represented, and a user interface must be developed to allow easy access to the information. Once the database is designed and developed however, the manager has instant access to new information. The database can extract data from other sources and generate the reports, eliminating the need for manual recoding of data. As a consequence, any time the original data changes (for example, when new financial data is recorded in the financial system), a new report can be produced automatically.

To compare the two methods for analysis, estimates were drawn up to highlight the differences in time taken for various tasks in the analysis and tool development for both approaches and the time needed to complete subsequent analysis for future years (see Table 3).

Table 3: Comparison of time taken on analysis tasks for alternative approaches.

Task	Spreadsheet	Database
Time to Learn Financial System	0 months	2 months
Time Take to Complete Development	6 months	7 months
Estimated Time for Repeat Analysis	3-4 months	1-2 days

While development time is comparable, time to repeat analyses once the original report is set up is significantly lower with IBIS. This enables IBIS to be used regularly in the planning and resource allocation cycle.

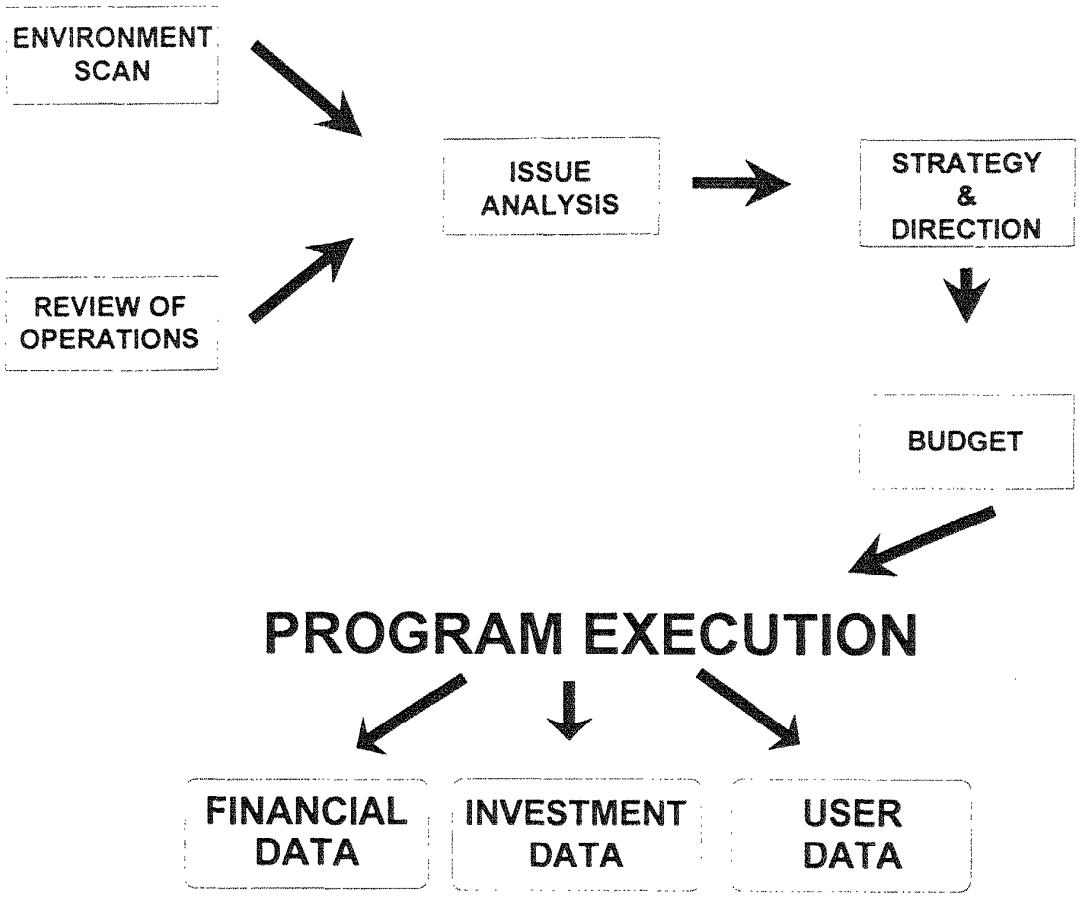

Figure 2. A typical resource planning and budgeting cycle.

How IBIS is used

Figure 2 illustrates a typical resource planning and budgeting cycle of the kind that could be used at any level in Parks Canada. The terminology and the exact steps will vary from place to place. Nor are all the stages are necessarily carried out every organization every time. It is, however, essentially the cycle that can be found in many complex organizations. The cycle starts with the **environmental scan,** an examination of the circumstances in which the organization finds itself. The environmental scan looks outside the organization to see what issues are impacting it, and what problems it will face. These could be anything from the fiscal climate to changes in market behaviour.

The **review of operations** is an examination of performance, efficiency, and cost-effectiveness within the organization. This is the stage at which the operational reviews mentioned above took place. Reviews of operations, when they happen at all, typically are major, one-time studies which are done by a specially assembled task force which spends a great deal of time and energy collecting operational data (see Table 3) and using its collective experience to interpret it. Once the review is finished, the task force typically disbands with great relief.

The combination of the information obtained at these stages leads to the identification of the key issues or problems (**issue analysis**) which the agency has to deal with, and an analysis of the options available to the agency to resolve the issues. The chosen options are set out as a strategy and sent out as instructions to the operating parts of the agency (**strategy and direction**), and resources necessary to carry out the instructions are allocated in a **budget**. The agency can then proceed to execute the program.

Something, however, is missing in the picture in Figure 2. The planning cycle loop is not closed. If we want to go through the complete cycle again, we must once again call together a task force to review the operations, as laboriously as before, something an organization is loath to do too often. This is why organizations often plan and allocate resources without going through all the steps.

Figure 3 illustrates that something important is, nevertheless, happening during program execution. A variety of information is being generated about program execution: its costs, the future investment needs it is creating, the use the program and its services and products are receiving, and a variety of other information. Some of this is being captured in automated systems.

This is where IBIS enters to complete the loop. Figure 4 illustrates that IBIS serves to scoop up the information that is being generated as a by-product of program execution, analyze it, and provide the reports for the review of operations. It is doing much of the work of the weary task force, and it is doing it automatically. It enables the planning cycle to be done frequently and be updated continually. IBIS provides the feedback on how well the strategy and direction has been achieved, as well as giving an indication of issues to be faced in the future.

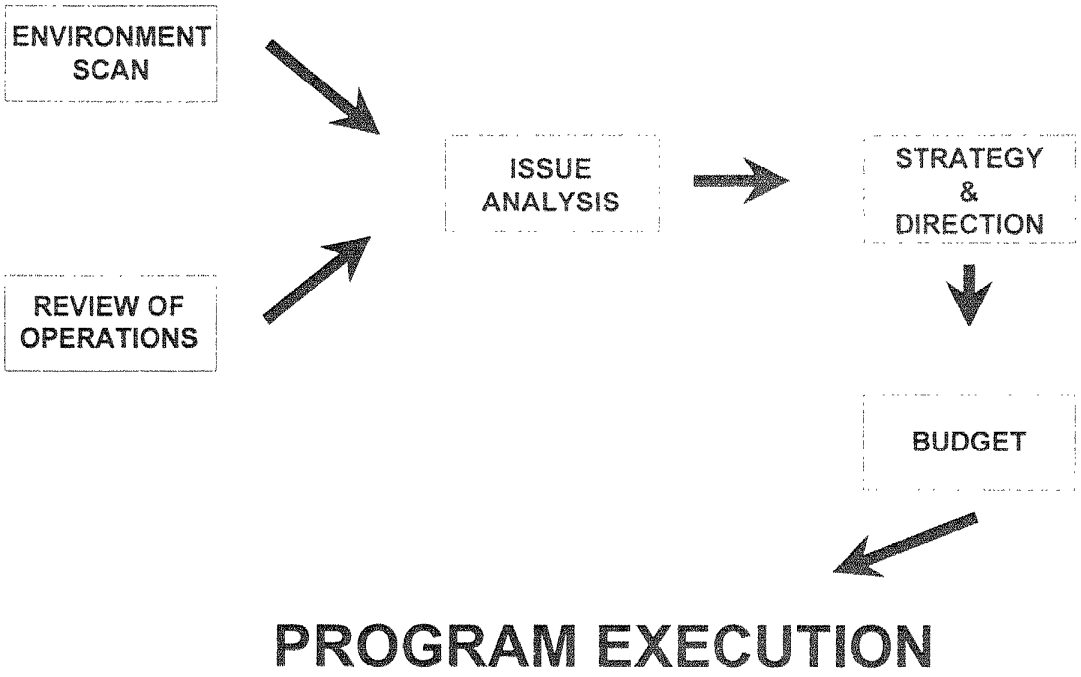

Figure 3. Program execution results in a variety of data being generated about the program.

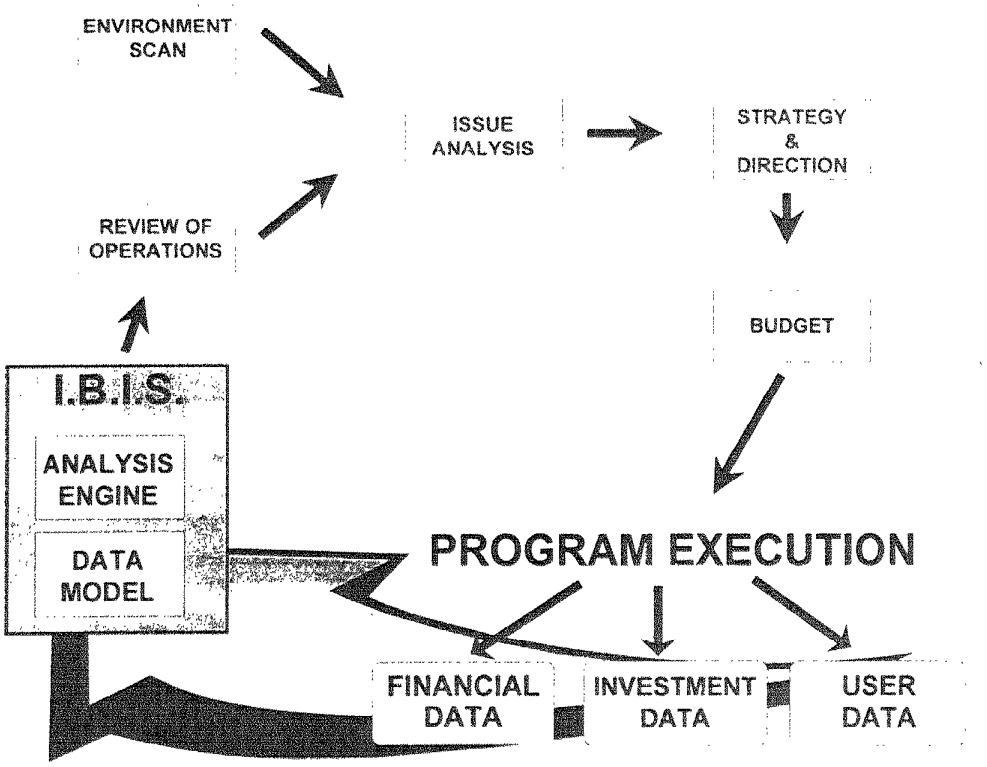

Figure 4. IBIS closes the loop and makes continual monitoring of program execution, and regular strategic planning feasible.

A "Hypothetical" Example

Table 4 shows a report from IBIS. Most of the data is drawn from the IBIS prototype application running in Parks Canada's Atlantic region. It is "hypothetical" only in that the numbers of day-users is estimated, based on weak assumptions, and the fee charged is purely speculative. No fee is currently charged for day use, and there are at this time no definite plans for such a fee.

There is a variety of information which a manager can derive from Table 4. Cape Breton Highlands, Kejimkujik and Terra Nova are all recovering their costs. Terra Nova is not as profitable as the other two parks, but weather is very harsh in Newfoundland, and discouraging to day-use, so being able to recover costs at all is probably an excellent achievement. Both Kouchibouguac and Prince Edward Island are operating at a loss. However, both these parks provide well equipped (and so expensive to maintain) beaches as part of their day use areas. The results might lead managers to consider the feasibility of charging higher fees for this extra service, thus making the areas profitable. Gros Morne profit per user-day is way out of line with the rest of the parks. This may be a place which needs special examination (or the data from the prototype is erroneous. The authors did not in fact verify the data for the prototype runs; however, even if it is erroneous, it is useful for the purpose of the example.)

Table 4. Analysis of the costs of day-use activity.

(1) Park	(2) Annual Costs ($000)	(3) Cost per User -day ($)	(4) Fee Charged ($)	(5) Profit (Loss) per User-day ($)
Cape Breton Highlands	331	1.16	2.00	0.84
Gros Morne	365	8.88	2.00	(6.88)
Kejimkujik	116	1.28	2.00	0.72
Kouchibouguac	218	3.16	2.00	(1.16)
Prince Edward Island	826	3.80	2.00	(1.80)
Terra Nova	139	1.64	2.00	0.36

Let us assume, for purposes of our example, that we have checked our data and the huge loss experienced by Gros Morne is true and not just a data error. Let us further assume that examination of the situation by experts and managers has revealed that the high cost is due to the fact that Gros Morne dayuse areas are brand new and very few visitors are yet aware of them. Therefore the costs may be reasonable in the short run, since the day use areas have not yet experienced the levels of use for which they were designed, but can be expected to in the near future. A good management strategy under these circumstances might be to determine what is a reasonable time period to wait for a profit to be realized. If past experience indicates that it takes about five years for a day use area to reach its full use potential (presumably, this would have been known when the area was built), then a reasonable profit trajectory can be built. Columns one and two of Table 5 shows such a trajectory. Managers can agree on this projection as a reasonable one, which, if it is realized, would cause no management concern.

Table 5. Comparison of expected and actual profits over five years.

(1) Year	(2) Expected Profit [management anticipation]	(3) Actual Profit [from IBIS]
1996	(6.00)	(6.88)
1997	(5.00)	(6.42)
1998	(3.00)	(5.75)
1999	(1.00)	(5.50)
2000	0.30	(5.57)

Up to column 2, the information to identify the problem could equally well have been produced by the task force as by IBIS. No task force or IBIS would be needed to produce the management strategy, just the analysis by the dayuse area manager, his superiors or subject matter experts.

Table 5 however also shows in column 3 what actually happened (hypothetically, of course). Here we can see that the losses stayed high. The number if visitors did not materialize in the time foreseen. Perhaps the original planning for construction was at fault. Perhaps other strategies such as promotion should have been tried. Whatever the case, the table clearly indicates there continues to be a problem, and that the original strategy is not working.

It is the third column in this table, which shows the results of five years of monitoring the strategy for Gros Morne day use areas, that is very hard for the manager or the long suffering task force to produce, and very easy to produce using IBIS. The difficulty of producing this column is why it is so rarely seen. Without this column, the problem at the park goes unrecognized, or at least can be conveniently hidden by the manager. With the column, management attention is focused on the problem, so it can be resolved, and the ineffective use of public money can be eliminated.

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Demographics

GENDER DIFFERENCES IN THE USE OF PUBLIC PARKS IN NORTHEAST OHIO

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Data from an in-park survey and a telephone survey were used to examine differences between men and women in their use of public parks in Northeast Ohio. Analysis of the surveys revealed that there were fundamental differences in the way men and women use parks, and the kinds of barriers that limited their use of parks.

Introduction and Purpose of the Study

The last 15years has witnessed a growing interest in gender issues as they relate to leisure and recreation behavior. Men and women have been found to differ in the meanings and definitions they assign to leisure (Iso-Ahola 1979; Kleiber & Crandall 1981; Henderson 1990), the amount of free time they have (Shaw 1985), the satisfaction they derive from leisure (Riddick 1985), the motives they have for leisure (Hirschman 1984), the benefits obtained from leisure (Tinsley et al , 1987), the continuity of leisure participation across time (Scott and Willit, 1989), and their rate of participation in different activities (Kelly 1980; Unkel 1981; Dargitz 1988).

Despite increased interest in gender issues, there is a dearth of research that deals specifically with whether men and women differ in their use of public parks in or near urban areas. Without such information, park managers and recreation leaders will be unable to provide services that cater to the special needs of both men and women. The purpose of this paper was to determine whether men and women differed in their use of public parks in Northeast Ohio

Study Area & Methodology

Data for this paper come from two sources: (a) an in-park survey conducted at 12 Cleveland Metroparks reservations, and (b) a telephone survey conducted of residents of seven Northeast Ohio counties.

The in-park survey was conducted within Cleveland Metroparks, a regional park district in Northeast Ohio. Cleveland Metroparks consists of over 19,000 acres of land in 12 different reservations (parks). Facilities and features operated by the Park District include hiking, bridle, all purpose and fitness trails, golf courses, swimming beaches, nature centers, interpretive programs, picnic areas, play fields, wildlife sanctuaries, and boating and fishing areas.

Approximately 5,000 people were interviewed during the spring, summer, and fall of 1991 by trained interviewers. Interviews were conducted on random weekdays and weekends. Visitors were interviewed using a random selection process. Respondents were asked about the kinds of activities they pursued during their visit, how often they visited, how long they planned to visit, their mode of travel, how long it took them to travel to the reservation, the number of people and children in their party, their use of other Park District reservations, their attitudes toward recreational development, and their ratings of Park District facilities and services. Demographic characteristics of respondents were also acquired.

Data for the second study were drawn in October, 1991. Using random digit dialing, 1,054 people in Northeast Ohio were interviewed about their use of public parks in the greater Cleveland Metropolitan area. Only people 18 years and older were interviewed. Respondents were asked how frequently they used public parks in Northeast Ohio. Non-users and infrequent users (individuals who used parks less than once a month) were asked questions about why they did not use public parks more often, and questions about whether different changes in park operations might result in their using parks more.

Chi-square tests were used to test whether women and men differed significantly in terms of their use of Cleveland Metroparks and parks in general.

Results: In-Park Survey

Rates of Cleveland Metroparks Visitation

A greater proportion of Cleveland Metroparks visitors are male (55%) than female (45%). While this difference may seem small, it is notable since women outnumber men in the region by about 6%. There was little variation in this general pattern by day of the week, time of day, and season of the year (Table 1). However, differences in visitation rates between the sexes increase dramatically with age. Only 36% of visitors between the ages of 65 to 74 were female: further, only 28% of visitors 75 years of age or older were female.

Table 1. Percentage of Park District visitors who are male and female - by temporal patterns.

		Women	Men	Chi-Square
Day of the Week				
Weekday	%	44.2	55.8	
Weekend	%	47.5	52.5	4.94*
Time of Day				
Morning	%	43.9	56.1	
Afternoon	%	46.6	53.4	
Evening	%	46.0	54.0	2.69
Season of the Year				
Spring	%	44.9	55.1	
Summer	%	46.6	53.4	
Fall	%	44.0	56.0	2.40

* $p \leq .05$

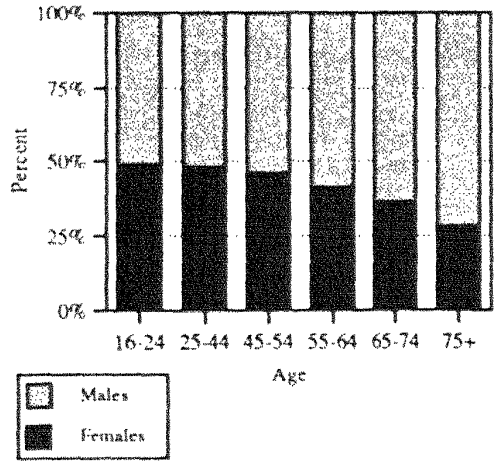

Figure 1. Sex by age differences in the use of Cleveland Metroparks.

General Patterns of Visitation

Men and women differed little in terms of how far away they live from a Park District reservation, mode of transportation to the reservation, and how long they stay while visiting (Table 1). In contrast, men and women differed significantly in terms of frequency of visitation, the number of children (under 14 years of age) accompanied by them, and the number of other Park District reservations they have visited in the last 12 months.

Men were more likely to be frequent visitors of the reservation they were visiting. If we define a regular visitor as someone who visits at least once a month, we observe that 66% of men fell in this category, compared to 56% of women.

Women are far more likely than men to visit in the company of small children. Nearly four out of ten women said they visited the reservation in the company of at least one child under 14 years of age. Only 22% of men said they were accompanied by at least one child. Women were more than twice as likely as men to visit with three or more children (15% to 7%).

Men were somewhat more likely than women to visit more Park District reservation in the last 12 months. Thirty-one percent of men said they had visited three or more other reservations, compared to 26% of women.

Table 2. General patterns of visitation at Cleveland Metroparks - by gender.

	Women %	Men %	Chi Square
Travel time to reservation			
Less than 15 minutes	58.4	60.1	
15-30 minutes	32.8	30.4	
More than 30 minutes	8.8	9.4	3.19
Frequency of visitation			
First-time visitor	12.8	9.1	
Less than once a month	31.1	25.3	
Once a month	12.9	14.0	
Once a week	20.5	23.6	
Almost daily	22.8	28.1	49.81***
Duration of visit			
Less than 1 hour	33.5	35.8	
1-2 hours	38.2	37.1	
2-3 hours	12.7	13.2	
2 hours or more	15.6	14.0	4.33
Mode of transportation			
Foot or bicycle	6.4	7.0	
Car or van	92.3	91.0	
Other	1.2	2.1	5.45
Number of children in group under 14 years of age			
Zero	61.9	78.0	
One or two	23.1	15.4	
Three or more	15.0	6.6	164.10***
Other Park District areas visited during the last 12 months			
Zero	30.9	28.5	
One or two	43.2	40.9	
Three or more	25.8	30.6	12.71***
Number of activities participated in during visit			
One	31.7	42.6	
Two	24.9	27.3	
Three	20.4	14.7	
Four or more	23.0	15.4	99.60***

*** $p \leq .001$

Activity Patterns

Table 3 provides a rank ordering of participation rates for different activities pursued in Cleveland Metroparks. While the rank orderings are quite similar for men and women, there were, nevertheless, significant differences in participation rates between the sexes. Walking/hiking and picnicking were the most widely pursued activities in Cleveland Metroparks among both women and men. However, women reported participating in both of these activities at higher rates than men. About half of all women said they walked or hiked, compared to 40% of men. One quarter of women reported picnicking compared to 16% of men. Significantly higher rates of participation were also reported among women in activities such as observing nature (14% to 11%), swimming (10% to 5%), and visiting a nature center (7% to 4%). In contrast, men reported participating in significantly higher rates in activities such as running/jogging (7% to 4%), bicycling (6% to 4%) and golf (4% to 2%).

Men and women differed not only in their rate of participation in different activities, but also in the number of activities they pursued during their visit (Table 2). In general, women reported participating in more activities during their visit than men. Forty-three percent of all men said they participated in only one activity during their visit, compared to only 32% of women.

Table 3. Rate of activity participation - by gender. [a]

	Women %	Men %	Chi Square
Walking/hiking	49.0	39.3	46.35***
Picnicking	25.2	15.8	66.01***
Play with children	16.7	7.1	108.03***
Observe nature	13.6	11.3	6.23**
Swimming	9.7	5.4	33.87***
Visit a nature center	7.2	4.4	16.52***
Fishing	4.7	9.5	42.06***
Running/jogging	4.2	7.4	21.58***
Bicycling	3.6	5.9	13.66***
Golf	1.8	4.1	20.79***

[a] Percentages includes those who said they participated in activity on day of interview.

** $p \leq .01$; *** $p \leq .001$

Results: Telephone Survey

Use of Parks in Northeast Ohio

Respondents to the telephone survey were asked how frequently they used parks in Northeast Ohio. A breakdown of responsesby--gender--is provided in Table 4. Women were far more likely than men to be nonusers of parks in Northeast Ohio. More than 30% of women said they did not use parks, compared to 22% of men. Men, in contrast, were more likely to be regular users of parks, defined here as using parks at least once a month. Forty-seven percent of men said they use parks at least once a month, compared to 34% of women.

Table 4. Frequency of park visitation in Northeast Ohio - by gender.

	Women %	Men %	Chi-Square
Never	30.7	22.2	
1-2 times per year	22.5	22.0	
Less than once a month	12.5	8.3	
Once a month	22.8	28.8	
Once a week or more	11.4	18.7	23.95***

*** $p \leq .001$

Barriers to Park Visitation

A rank ordering of different constraints to park visitation--broken down by gender--is provided in Table 5. The percentages correspond to that fraction of nonusers and infrequent users who said a factor was very important in limiting their use of public parks in Northeast Ohio. While men and women differed significantly in the kinds of barriers they said that limited their use of parks, the rank orderings of these barriers was similar for both.

Table 5. Factors that limit people's use of public parks in Northeast Ohio - by gender. [a]

	Women %	Men %	Chi Square
Lack of time46.8	41.3	1.65	
Busy with other activities	40.6	41.4	0.04
Fear of crime39.9	24.1	15.82***	
Busy with family	39.2	26.7	9.95**
Pursue recreation elsewhere	26.0	25.6	0.12
Lack of information	20.2	24.9	1.79
No one with whom to go	20.0	6.3	21.11***
Parks are too far away	14.8	9.5	3.47
No way to get to parks	14.0	5.9	9.63**
Lack public transp. to parks	13.1	5.4	9.02**
Cost too much	7.7	2.8	5.72*

[a] Percentages include individuals who said factor was very important in limiting their use of public parks.
* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Lack of time and being busy with other activities were the most important constraints cited by both women and men as limiting their use of parks. Over 40% of both women and men said these constraints were very important barriers to greater park use.

Fear of crime and family responsibilities were also cited by large numbers of both women and men, although more so for women than men. Four out of ten women said their use of parks was greatly limited by fear of crime or being too busy with family responsibilities. Only one-quarter of men said these constraints were very important in limiting their use of parks.

One-quarter of both women and men said they pursued recreation elsewhere. A large fraction of both women (20%) and men (25%) also said they lacked information about existing parks and park programs.

Significantly more women said lack of companionship was a very important barrier to park use. Twenty percent of women said they did not use parks more often because they did not have any one with whom to go. Only 6% of men cited this as a reason for not using parks more often.

Other constraints figured less prominently in limiting both men and women' use of parks. However, even among these items there were significant differences between the sexes. In particular, accessibility was more often cited as a problem by women than men. Fourteen percent of women said not having any way to get to parks was a very important barrier to greater park use, compared to only 6% of men. Thirteen percent of women said they lacked public transportation, compared to only 5% of men.

The effects of gender were found to interact with age in their effect on two of the constraints items: fear of crime (Figure 2) and lack of companionship (Figure 3). The importance of these constraints increased significantly with age for women, but remained relatively constant across the life span among men.

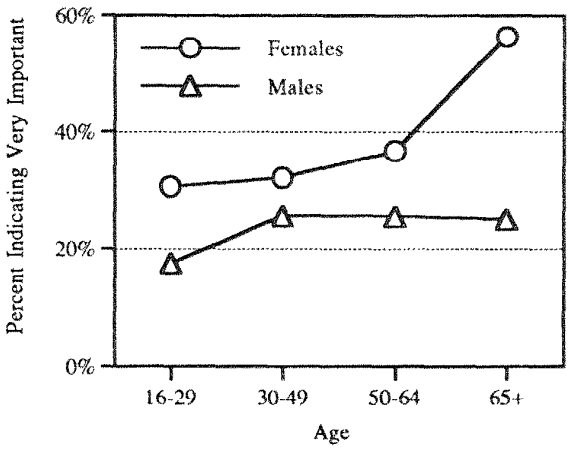

Figure 2. Percent citing fear of crime as a very important barrier to use of public parks - by gender and age.

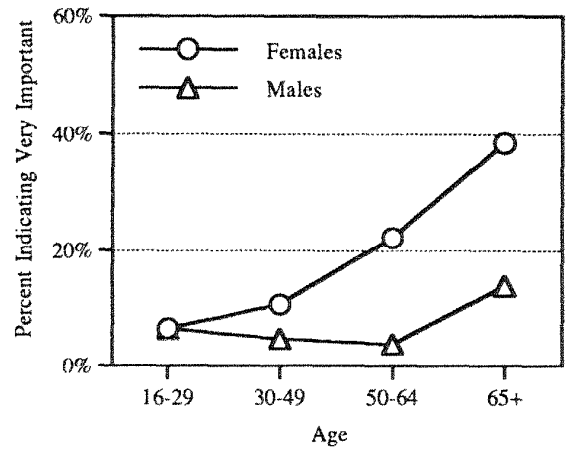

Figure 3. Percent citing lack of companionship as a very important barrier to use of public parks - by gender and age.

Conclusions and Implications

Men and women differed markedly in their use of Cleveland Metroparks and the factors contributing to non-use of parks in general. Data presented here raise a number of research questions and issues for individuals involved in the delivery of park services in Northeast Ohio.

a. Managers and park employees historically have looked at their services in terms of a "field of dreams" mentality: "If you build it they will come!" Frequently visitors do come but, as these data indicate, park visitors who do come tend to be disproportionately male. Moreover, differences in visitation rates between the sexes increase with age, with older men visiting at a far higher rate than older women. These results suggest that managers must tear away at some of their taken-for-granted understandings and seek to discern what role gender plays in people's use of public parks.

b. To a large extent, the way men and women use parks mirror their roles in everyday life. Women were much more likely than men to visit in the company of children. As a result, women were more likely to engage in activities that can be described as other-directed or, more simply, family-oriented. As evidence, we observed women reporting higher rates of picnicking and playing with children. Women also reported participating in higher rates of swimming and visiting a nature center--activities typically done within a family context. Men, in contrast, were more likely to engage in self-directed activities (fishing, golf, running or jogging). These differences in park visitation styles resemble styles of camping identified by Burch (1965) nearly 30 years ago. He pointed out that when men and women go camping together, their respective activities tended to reflect a traditional division of labor, with men engaging in "dramatic roles" and women engaging in more ordinary or practical ones.

c. Given the fact that men and women have distinct styles of park visitation, we may need to reexamine some of our theories and ideas about outdoor recreation behavior. Much of what we know about recreation specialization, for example, may be based on the experiences of men rather than women. Indeed, it could be that specialization occurs more among men than women. This study does provide some evidence for this, as men pursued significantly fewer activities during their visit than women. More systematic research is needed to test this proposition, however, and to test whether other theories (e.g., crowding) are gender neutral or gender specific.

d. Women's use of parks becomes increasingly problematic with age. This appears to be linked to a greater need for safety among women. While women were more likely than men to say they did not use parks because of fear of crime and not having anyone to go with, these tendencies increased dramatically among women as they aged. To better serve an older female population, park districts must be sensitive to their interests and their need to pursue such interests in a safe environment. Special programming, such as walking clubs, may help solve this problem. Programs such as these provide a safe and supportive social context for pursuing such activities.

e. Given that the data presented here are cross-sectional, we simply can not generalize findings to future generations of men and women. Only longitudinal data can do this. Moreover, these data do not consider the vast variability among men, on the one hand, and women, on the other (cf. Henderson, et al. 1989). Future research must explore this variability. One such example may be exploring differences in park visitation among African-American women, Hispanic women, and white women. Differences in park use among these three groups may also be explored in terms of age or life-cycle considerations.

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EXAMINING AFRICAN AMERICAN AND WHITE OUTDOOR RECREATION PARTICIPATION AFTER DEMOGRAPHIC STANDARDIZATION ON SELECTED CHARACTERISTICS

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The "marginality" explanation of differences between the outdoor recreation participation of African Americans and Whites was evaluated using demographic standardization of age, income, and education for a sample of African American and White Illinois residents. After standardization, African American/White differences in outdoor recreation participation were reduced in 12 out of 26 outdoor recreation activities and in the total days of participation across all activities. The results offer limited support for the marginality explanation.

African American and White Participation and the "Marginality Hypothesis"

The differences between White and African American outdoor recreation participation are well documented (Washburne 1978; Edwards 1981; Dwyer and Hutchinson 1990; Nadkarni and O'Leary 1992; Dwyer 1993b, 1994a). Most results are consistent with the conclusions from a recent analysis of participation by Illinois residents that African Americans are more likely than Whites to participate in sports; but less likely to participate in activities that take place in more remote areas and involve undeveloped settings or water/snow/ice (Dwyer 1993b).

An explanation for the differences in participation in outdoor recreation activities between African Americans and Whites is less well developed and agreed upon. Two explanations have been offered. The "ethnicity" explanation argues that the different participation patterns are attributable to different subcultures. "Marginality," on the other hand, argues that differences in recreation participation are attributable to socioeconomic differences (Washburne 1978). Research has yet to provide a clear understanding of the relative importance of these two explanations for differences in outdoor recreation participation (Wendling 1981; Hutchison 1988; Dwyer and Hutchison 1990).

If the marginality hypothesis is correct, then if two ethnic groups had the same socioeconomic characteristics, the differences between them would be eliminated or reduced if all other things are equal. Such an evaluation is done based on an analysis of data from a survey of the 1989 outdoor recreation participation patterns of Illinois residents.

Data Collection and Demographic Standardization

The data used in this study are from a random telephone sample of 1,000 Illinois residents age 18 and above. Data were collected by the Survey Research Laboratory at the University of Illinois at Champaign-Urbana for the Illinois Department of Conservation. There were 759 responses with sufficient data to be used including:

1. the number of days of participation in 26 recreation activities during the previous 12 months; and
2. their age, education, and income levels.

The 26 activities are shown in Table 1 along with the average days of participation for African Americans and Whites for each activity. Also shown is the sum of days over all activities.

Table 1. Effects of standardization on African American recreation behavior, 1989.

Activity	Mean Days White	Mean Days African American	Mean Days African American Standardized	African American-White Differences Not Standardized	African American-White Differences Standardized
Baseball	4.5258	4.2525	7.7021	0.2732	-3.1763
Backpacking	0.2197	0.0303	0.0604	0.1894	0.1592
Basketball	3.2394	5.6566	-6.5183	-2.4172	9.7577
Biking	12.5758	13.0809	2.8022	-0.5051	9.7736
Boating	3.2939	0.2525	0.2508	3.0414	3.0431
Canoeing	0.4258	0.0404	-0.0604	0.3854	0.4861
Downhill Skiing	0.2045	0.0202	0.0020	0.1843	0.2025
Driving for pleasure	15.1652	18.8081	11.8906	-3.6429	3.2745
Fishing	5.8955	0.6566	0.4922	5.2389	5.4033
Golfing	7.8939	0.7677	1.7657	7.1263	6.1283
Hiking	1.2061	0.0808	0.3393	1.1253	0.8667
Horseback riding	0.9606	0.5455	0.2098	0.4152	0.7508
Hunting	0.8227	0.1515	0.7461	0.6712	0.0767
Ice Skating	0.8333	0.1414	0.1618	0.6919	0.6715
Jogging	18.7697	20.8284	35.4671	-2.0587	-16.6974
Swimming in a lake	3.6545	0.3939	0.5156	3.2606	3.1390
Nature observation	6.6939	1.1818	1.3587	5.5121	5.3352
Off Road Vehicles	2.1121	0.4545	1.2480	1.6576	0.8641
Picnicing	3.1924	1.8586	1.3767	1.3338	1.8157
Swimming in a pool	9.7576	1.8182	2.8141	7.9394	6.9435
Recreation Vehicle Camping	1.1606	0.0202	0.0114	1.1404	1.1492
Sailing	0.8849	0.1212	0.2778	0.7636	0.6071
Tennis	2.0697	5.3435	6.3055	-3.2738	-4.2358
Tent Camping	0.5045	0.1717	0.3432	0.3328	0.1614
Walking	53.5136	52.8748	87.5935	0.6389	-34.0798
Cross country skiing	0.3258	0.0101	0.0030	0.3157	0.3229
Total activity days-All activities	162.0485	130.9597	191.4961	31.0888	-29.4476

The mean days of participation in an activity can be decomposed into components using regression techniques.

$$\text{Average Number of Days} = \beta_0 + \beta_{Age}X + \beta_{Education1}X + \beta_{Education2}X + \beta_{Education3}X + \beta_{Education4}X + \beta_{Income1}X + \beta_{Income\ 2}X + \beta_{Income3}X + \beta_{Income4}X + \beta_{Income5}X + \beta_{Income6}X + \beta_{Employment1}X + \beta_{Employment2}X.$$

Where:

$Income_i$ = dummy variables for 7 levels of income.
$Education_j$ = dummy variables for 5 levels of education.
$Employment_k$ = dummy variables for 3 levels of employment.
X = average values for the respective variables.

The average days of African American participation in baseball, 4.25, can be represented in a regression equation as:

4.25 » 1.79 + (-.02 x 41.04) + (4.43 x .17) + (19.37 x .19) + (-.15 x .38) + (1.35 x .18) + (1.17 x .57) + (-.83 x .08) + (-5.95 x .27) (-10.00 x .02) + (-3.41 x .22) + (-9.67 x .02) + (-3.27 x .22) + (14.58 x .10)

Substituting mean income, education, and age for the White sample into the above regression equation estimates the average number of days of participation for African Americans if they had the same levels of income, age, and education as Whites with nothing else changed (e.g., Althauser and Wigler 1972; Iams and Thornton 1975; Jones and Kelley 1984). The participation in baseball by African Americans having the same income, education, and age as Whites becomes:

7.70 » 1.79 + (-.02 x 43.04) + (4.43 x .07) + (19.37 x .37) + (-.15 x .25) + (1.35 x .21) + (1.17 x .57) + (-.83 x .13) + (-5.95 x .12) (-10.00 x .01) + (-3.41 x .16) + (-9.67 x .02) + (-3.27 x .02) + (14.58 x .01)

This same analysis was performed for all 26 activities and the total days of participation across all activities. The results are summarized in Table 1. In 12 activities standardization for age, education, and income reduced the difference in participation between the two groups was reduced. For 14 activities the difference became larger than before standardization. Prior to standardization there were five activities where African American participation was higher than Whites (basketball, bike, drive, jog, and tennis). After standardization there were four activities where African Americans participation exceeded that of Whites (baseball, jogging, tennis, and walking), plus the total days over all activities. One of the arguments in support of the marginality hypothesis is that the outdoor recreation participation of African Americans is often lower than that of Whites in many activities because of the generally lower socio-economic levels of African Americans. In this analysis, when African Americans are assigned the same average age, income, and education of Whites (i.e., standardization), their participation increases in 15 activities, but decreases in 11 activities.

Eleven activities fit the classic "marginality hypothesis" in that standardization increased African American participation and reduced the difference with Whites. Some of those activities might be expected to fit the marginality model including sailing, golf, and backpacking. There are some other activities, such as pool swimming, where differences in participation do not appear to be a result of marginal status. Standardization reduced participation by African Americans and increased the difference between African Americans and Whites in 10 activities. Some of the activities were urban and might be expected to exhibit such a pattern of behavior such as basketball, bicycling, and picnicking. There also are other activities, that seem quite inappropriate in that category, such as boating and RV camping.

While the pattern of outcomes across the individual activities is not particularly clear, when all activities are considered, there would be an increase in the number of days of participation by African Americans after standardization. Total African American participation exceeds the total for Whites. This result suggests some support for the marginality hypothesis.

Discussion

Limited support is present for the marginality hypothesis. Standardization reduced African American/White differences in 12 of 26 activities; and African American participation increased in 15 activities. There is not a clear pattern of results across the activities. Perhaps the pattern of results across activities would be clearer if additional variables were included in the standardization. Such as urban residence and characteristics of the family.

It is difficult to attribute the remaining differences between African American and White recreation to subcultural differences. The variables examined were "general" in the sense that they were not directly related to recreation. The tendency for African Americans to concentrate their recreation activity close to home has often been attributed to lower incomes, reduced access to transportation, and the desire to recreate in large extended-family groups. Examination of discrimination within the recreation setting might be more fruitful. There is increasing evidence of discrimination as a factor affecting participation patterns of African Americans and other groups (West 1989; Blahna and Black 1993; Gobster and Delgado 1993). Much of the recreation behavior of African Americans could be attributed to efforts to avoid discrimination in the recreation setting.

The fact that standardization produces the highest increases in average days of participation for activities already at relatively high levels of participation for African Americans suggests that the marginality explanation is most valid in instances where barriers are already relatively low or there are subculture preferences for the activities. Neither of these explanations were examined in this research but are suggested by the results.

Summary

This analysis offers limited support for the marginality hypothesis for explaining African American/White differences in days of participation. Income, age, and education standardization increases African American participation in 15 selected outdoor recreation activities and reduces the between group difference in twelve activities. Standardization for additional socio-economic variables such as urban/suburban/rural residence or family size and structure might offer more support for the marginality thesis. There appears to be ample room, however, for the ethnicity thesis as well as discrimination for explaining the African American/ White differences in outdoor recreation participation by this sample of Illinois residents.

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FRONTCOUNTRY ENCOUNTER NORMS

AMONG THREE CULTURES

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Existing normative studies have focused on backcountry encounter norms reported by North Americans. This study extends previous research by comparing encounter norms reported by three different cultures - North Americans, Europeans, and Japanese - in a frontcountry day use recreation area. Data were obtained from on-site surveys distributed at the Columbia Icefield in Jasper National Park. Results indicated that European and Japanese respondents were more likely to have an encounter norm than the North Americans. Although the tolerance limits did not vary by culture, consistent with previous research, when contacts exceeded norm tolerance limits, crowding increased regardless of cultural origin.

Introduction

The normative approach has been developed as a useful way to conceptualize, collect, and organize empirical data representing value judgments about resource management issues (Shelby and Heberlein 1986, Vaske et al. 1993). Norms are standards that individuals use for evaluating activities, environments or management proposals as good or bad, better or worse (Vaske et al. 1986). They define what people think behavior *ought to* or *should be*.

Since the initial conceptual illustration of the normative model to natural resource environments (Heberlein 1977), the approach has been empirically used to understand *encounter norms* (Vaske 1977, Vaske et al. 1986, Shelby 1981, Heberlein and Alfano 1983, Heberlein et al. 1986, Whittaker and Shelby 1988, Patterson and Hammitt 1990, Williams et al. 1991, Roggenbuck et al. 1991, Shelby and Vaske 1991, Young et al. 1991, Martinson and Shelby 1992), and *perceived ecological impacts* (Shelby et al. 1988, Vaske and Donnelly 1988, Whittaker and Shelby 1988, Shelby and Shindler 1990, Shelby and Whittaker 1990). Encounter norms have been examined for canoeing, rafting, tubing, sailing, fishing, hunting, backpacking, and camping.

For backcountry resources, Vaske et al. (1993) suggest several general conclusions regarding norms. First, a number of specific types of norms can be identified. Encounter norms exist for particular types of contacts with certain types of visitors at particular places and for certain types of experiences. It is also apparent that recreationists have norms for acceptable distances between individuals, encounters with others at campsites or attractions, and waiting times to run a rapids. Second, individuals are capable and willing to specify their norms when asked. Third, although encounter norms vary for different activities and different areas, there is some consistency in the norms for certain types of backcountry experiences. For example, norms for encounters in wilderness areas tend to be quite low (approximately 4 or fewer encounters in most cases). Fourth, when encounters exceed an individual's normative tolerance limit, crowding (the subjective negative evaluation of a given encounter level) increases.

Most existing normative studies have been conducted in backcountry or wilderness areas which typically provide low density recreation opportunities. Research related to encounter norms in frontcountry settings is limited (Freimund et al. 1994). For these higher use environments, encounters may be relatively less important than other types of impacts (Whittaker 1992). Findings from the New River in West Virginia support this hypothesis (Roggenbuck et al. 1991, Williams et al. 1991). The New is a day use river with use levels reaching an average of over 1,000 persons per day on summer weekends. Following Shelby (1981), respondents were asked about three different types of trips on the New River: wilderness whitewater, scenic whitewater, and social recreation (Roggenbuck et al. 1991). For each type of trip, respondents were asked to give norms for the number of other boats seen on the river, percent of time in sight of other boats, and number of rapids where it was acceptable to wait in line before running. Response choices were "makes no difference," "makes a difference but can't give a number," or to give a number. A large percentage of New River floaters did not specify a number. There was, however, considerable variation across the type of experience and the type of norm; 1258 percent said "makes no difference," 13-34 percent said "makes a difference but can't give a number," and 29-66 percent gave a number. Boaters were more likely to specify a norm (and less likely to say "makes no difference") for the experiences closer to the wilderness end of the spectrum. They were also more likely to specify a norm for waiting at rapids than for number of encounters or time in sight.

Data from the Deschutes River suggest similar relationships. The Deschutes is a higher density river, and few users believe it offers a wilderness experience (Shelby et al. 1987). A higher percentage of users "don't care" about time in sight of other boaters, while a lower percentage felt this way about discourteous behavior, sharing or passing up camps, and human waste impacts. Relative to campsite impacts, users appear more concerned about sharing camps or camp competition than about camping within sight or sound of other individuals.

Differences in the types of impacts considered relevant may also vary across different cultures. Although virtually all recreation studies of encounter norms have concentrated on North American visitors, research in sociology and psychology identify cultural distinctions. In a study comparing Asians, British and Southern Europeans relative to the way they view and adapt to the physical environment, Gillis and associates (1986) found that Asians were most tolerant of high density, with respondents of British origin least adaptable. These findings are consistent with research (Altman 1975, Hall 1966, Rapoport 1977) showing that the Japanese have developed a wide range of strategies for coping with high density situations. Others (Homma 1990), however, conclude that while the Japanese view crowding as a negative experience, increasingly high levels of density and recent cultural/social changes have inhibited the effectiveness of various coping strategies.

Based on this previous research, this paper examines the following hypotheses:

H_1: Norm existence will vary by culture.

H_2: For those visitors who specify an encounter norm, tolerance limits will vary by culture.

H_3: Irrespective of cultural influences, when encounters exceed norm tolerance limits, crowding will increase.

Study Area

Results from a study conducted at the Columbia Icefield in Alberta, Canada were used to test these hypotheses. The Columbia Icefield is the most heavily visited day use area in Jasper National Park. More than 900,000 visitors traveled the Icefields Parkway through Jasper National Park in 1993, with over 500,000 stopping at the Columbia Icefield during May through September. Most of these individuals visit the adjacent Athabasca Glacier on one of the commercial snocoach tours. Visitors are typically 55 years of age or older, making their first trip to the area, and are of foreign origin (See Vaske et al. 1994, for a more complete description of the study area and visitor profile).

Methods

Data were obtained over a 12 day interview period during August and September of 1993. For purposes of this paper, individuals who visited the area on a commercial snocoach (n = 501) were included in the analysis. Respondents were asked to complete a onepage, selfadministered survey at the conclusion of their visit (response rate = 97%).

Independent Variable: Country of origin served as the independent variable. To ensure sufficient sample size, three cultural categories were identified: 1) *North Americans* Canadian and American visitors; 2) *Europeans* Italian, French, German and British visitors and 3) *Japanese*.

Dependent Variables: Three dependent variables were examined. *Encounters with others* were assessed by asking individuals, "While walking on the glacier, about how many other visitors were within eyesight?." This was an openended question in which the respondents specified a number. Following previous research (Shelby 1981, Vaske et al. 1993), *encounter norms* were measured by asking respondents "What is an acceptable number of other visitors to have within eyesight while you are walking on the glacier?" Response categories allowed individuals to either specify a number or to indicate that it did not matter how many visitors were within view. Individuals who checked this latter option were in essence indicating they did not have a norm for this situation. *Perceived crowding* was measured on a 9point scale ranging from "not at all" to "extremely" crowded (See Shelby et al. 1989 for a review of the crowding variable).

Results

The first hypothesis suggested that the three cultures would vary in the percentage of individuals who specified an encounter norm. The data supported the predicted relationship. Approximately half (54%) of the North Americans indicated a tolerance limit for seeing other visitors while walking on the glacier. By comparison, 77% of the Japanese and 79% of the Europeans specified a tolerable number of encounters. These differences were statistically significant ($\chi^2 = 21.59$, $p < .001$). Consistent with prior research in high density, frontcountry situations, this suggests that encounter norms for North Americans may be relatively less important than other impact indicators.

Table 1. Norm existence reported by three cultures.

Culture	% Reporting an Encounter Norm
North American	54
European	79
Japanese	77

$\chi^2 = 21.59$, $p < .001$

Among those who specified a norm tolerance limit, there were no significant differences among the three cultures relative to the average number of other visitors each group could tolerate (Column 1, Table 2). The average number of people the three groups could tolerate ranged from 95 for Europeans to 114 for the Japanese ($F = 1.97$, $p < .14$). These findings do not support Hypothesis 2. Column 2 of Table 2 shows the median acceptable number of contacts each culture could tolerate. The median acceptable encounter level can be interpreted as the contact level above which half of the respondents find the number of encounters unacceptable. Half of the North American and Japanese visitors could tolerate being in sight of 100 other visitors on the glacier. The median for Europeans was 75. As indicated by the range statistic (Column 3, Table 2), the acceptable number of contacts ranged upwards to 500 other visitors. These high tolerances, however, were reported by fewer than 5 respondents.

Table 2. Norm tolerance limits reported by three cultures.

Culture	Mean *	Median	Range
North American	99.07	100	1-250
European	95.53	75	5-500
Japanese	114.47	100	2-500

* $F = 1.97$, $p < .14$

Of those who reported an encounter norm, between 39 and 48 percent of the three cultural groups reported more contacts with others than their norm limit (Table 3). As predicted by Hypothesis 3, mean differences in perceived crowding were significantly higher for individuals indicating more contacts than their norm. For example, among the North Americans, those who reported more contacts than their norm had a mean crowding score of 5.27 (moderately crowded), compared to 2.00 (not at all crowded) for those reporting fewer contacts than their norm ($t = 5.57$, $p < .01$). This pattern of findings was observed for all three cultures.

Table 3. Norms and perceived crowding for three cultures.

Culture	Reported Contacts Compared to Norm: More Contacts	Reported Contacts Compared to Norm: Fewer Contacts	Mean Crowding Scores: More Contacts	Mean Crowding Scores: Fewer Contacts	t-value
North American	39%	61%	5.27	2.00	5.57 *
European	48	52	5.11	2.00	6.41 *
Japanese	45	56	4.01	2.32	7.27 *

* $p < .01$

Conclusions

Compared to backcountry settings, frontcountry visitors of North American origin were less likely to have an encounter norm (54%). Among the Europeans and Japanese, however, over three quarters gave an encounter norm when asked. Given the relatively higher densities these latter cultural groups may be accustomed to, it may be easier for these individuals to specify a tolerance limit. Generalizing this observation should be approached cautiously, however, due to the sample size constraints which prohibited the analysis of individuals from specific European countries. Moreover, given the differences between British and Southern European respondents noted by Gillis et al. (1986), the topic remains an issue for future investigation.

The encounter norm variable used in this investigation allowed for two types of responses: specifying a number of acceptable encounters or indicating that the number of encounters did not matter. These two options are likely to be sufficient for low density backcountry / wilderness settings where visitors are more likely to have a tolerance limit and where the presence of even a few other individuals may have a negative impact. In high density, frontcountry situations, however, the response categories ("makes no difference," "makes a difference but can't give a number," or specify a number) as suggested by Roggenbuck et al. (1991) may be more appropriate.

Among those who specified an encounter norm at the Columbia Icefield, the reported tolerance limits were considerably higher than those previously reported in backcountry research. For all three cultures, the average was approximately 100 contacts. This compares to wilderness research where 3 to 4 contacts represents the norm. Future research in other high density areas will assist in the definition of an appropriate encounter standard for frontcountry settings.

Some authors (Whittaker 1992, Brunson and Rodriguez 1992) have noted that other types of impact indicators may have a greater influence than encounters in frontcountry settings. Included among these indicators are norms for wait times to use facilities, depreciative behavior, human waste and litter. Future research is needed to examine the magnitude of these types of impacts on the quality of the visitor experience.

Taken together, the findings presented here suggest that Europeans and Japanese are more likely to have an encounter norm in high density situations than North Americans. Among those who reported a tolerance limit, however, the norms did not vary by culture. Consistent with previous research, when contacts exceeded norm tolerance limits, crowding increased regardless of cultural origin.

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Methods and Measurement

EFFECT OF INVOLVEMENT LEVEL ON MAIL PANEL SURVEY RESPONSE RATES

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A panel survey of golfers, skiers and windsurfers was conducted using mail questionnaires which were distributed three times over the course of a calendar year; in-season, off-season, and pre-season. Respondents' levels of enduring activity involvement were measured using Laurent and Kapferer's (1985) Involvement Profile scale. No support was found for the hypothesis that panel dropouts would be less involved with the activity than would those who completed all three data collection phases.

Introduction

Leisure research has a rich tradition of survey-based studies and critiques related to sampling techniques and response rates abound (e.g., Choi, Ditton and Matlock 1992; Dolsen and Machlis 1991; Wellman, Hawk, Roggenbuck and Buhyoff 1980). However, the performance of leisure researchers regarding the reporting of response bias checks for their survey research remains mixed. Fewer than 35% of empirical studies in the Journal of Leisure Research and Leisure Sciences since 1990 reported a response bias check. The purpose of this study was to investigate possible sampling biases that may result from the level of activity involvement held by potential survey respondents. Specifically, it was hypothesized that sample members with high activity involvement scores would be more likely to respond to repeated mailings in a panel survey study than would sample members with low activity involvement scores.

Involvement is an unobservable state of motivation, arousal or interest that is evoked by a particular stimulus or situation and has drive properties (Rothschild 1984). In leisure research the particular stimulus generally refers to an activity context (e.g., Backman and Crompton,1990; Dimanche, Havitz and Howard 1991; McIntyre 1989; McCarville, Crompton and Sell 1992; Norman 1991). Drive properties generally refers to the presumed influence of involvement on purchase decisions and on leisure behavior (see Reid and Crompton 1993 for a theoretical discussion of purchase decision issues). Indeed, involvement level has been linked to decisions such as whether or not to travel for pleasure (Norman 1991), to continue or discontinue recreation participation (Backman and Crompton,1990), length of participation, frequency of participation, and money spent on recreation related products (Howard and Havitz 1993).

The advantages and disadvantages of mail surveys in comparison with other data collection methods have been widely discussed (Dillman 1983). Random sampling is often used to ensure that the sample is reasonably representative of the broader target population to which results are to be generalized. Babbie (1992, p. 197) argued that "a sample will be representative of the population from which it is selected if all members of the population have an equal chance of being selected in the sample." Theoretically, random sampling eliminates problems related to noncoverage. However, Frankel (1983, p. 24) noted that survey populations may "differ from the target population because of noncoverage and non-response." Nonresponse is generally more difficult to address than is noncoverage because simple inclusion within a survey sample frame provides no guarantees that subjects will actually respond.

The affect of issue salience as a moderating variable on response rates is often implied. Intuitively, it seems likely that Audubon Society members would be more predisposed to respond to a survey on birding than would members of the general population. This may seem like an extreme example, nevertheless much leisure research is conducted on populations with relatively diverse levels of activity commitment and controls for issue salience among survey respondents are seldom reported. The Involvement Profile (IP) scale (Laurent & Kapferer 1985; Dimanche et al. 1991) may provide a promising method for measuring issue salience among respondents and nonrespondents alike.

Method

Sample and Data Collection

Respondents were selected from physical education activity classes related to golf, downhill skiing, or windsurfing at a large west coast university. These classes were open to all undergraduate and graduate students enrolled at the university, thus respondents represented numerous academic majors (leisure studies majors comprised less than five percent of the sample). Golf and downhill skiing classes were available at four different levels: beginner, intermediate, advanced, and competitive. Windsurfing classes were offered at two levels: beginner and intermediate/advanced. This mix ensured a reasonably wide range of activity involvement among members of the sample. Respondents were recruited to complete the study only in the context of the activity for which they were enrolled.

The questionnaire was initially completed in-season. Questionnaires were distributed in February for downhill skiing and in May/June for golf and windsurfing. Respondents were recruited in-class by a principal investigator who explained the voluntary nature of the study and the explained the data collection procedures. Respondents were notified that some of them would receive follow-up questionnaires in several months. All students in attendance during the recruitment procedure were invited to participate. Over 90 percent of the potential respondents agreed to participate in the research by completing the in-season questionnaire.

Respondents who completed usable questionnaires were mailed the second questionnaire several months after the in-season data collection. Postcard reminders were sent to all participants one week later. Non-respondents were sent replacement questionnaires one week after the postcard was mailed (two weeks after the initial second contact). Non-respondents were also contacted by phone whenever possible. Off-season data collection occurred in May/June for downhill skiing and in November/December for golf and windsurfing.

Several months later, the third questionnaire was mailed to all respondents who responded to the off-season data collection. Identical procedures to those used in the off-season were followed during this pre-season data collection. The pre-season data collection occurred in October/November for downhill skiing and in February/March for golf and wind-surfing.

Questionnaire

All data were collected with paper and pencil questionnaires. The questionnaire also included socio-demographic items and behavioral questions related to respondents' participation and purchase patterns and an 18-item version (three items each purporting to measure six facets of involvement) of the Involvement Profile (IP) scale written in the context of one of the three recreational activities.

There is general agreement that involvement has multiple facets. Importance, pleasure, sign, risk probability, risk consequences, and centrality have received support from various researchers (Havitz and Dimanche 1990). The IP scale was developed to measure five facets: 1) the importance of the product class to the

individual; 2) the pleasure or hedonic value derived from the product; 3) the sign or symbolic value (what a participant's perception of what her/his participation says about her/him to other people) attributed to the product; 4) the risk probability associated with a potential mispurchase; and 5) the risk consequences associated with a mispurchase (Laurent and Kapferer 1985). The sixth facet, centrality, has received support primarily in the leisure literature (McIntyre 1989; Siegenthaler and Lam 1992; Watkins, 1986). Centrality refers to the extent to which a participant's lifestyle and social networks revolve around a recreational activity.

The IP scale has been subjected to tests of trait and discriminant and convergent validity, multiproduct fit, reliability (internal consistency), and known group tests of construct validity (viz., Laurent and Kapferer 1985; Havitz, Dimanche and Howard 1993). The IP scale performed well in these studies and is probably the most widely used involvement scale in leisure research. Ten leisure involvement studies have been reported in the past four years using the IP scale. Factor analyses indicated in eight of the 10 data sets that the importance and pleasure facets merge in leisure contexts. This composite importance-pleasure facet has been labeled the attachment facet by some researchers. It represents an interesting derivation from research with consumer goods where the combination is rarely reported, and then only in the case of products, such as chocolate, which have hedonic properties (Zaichkowsky 1990).

Despite the small number of items in each IP subscale, the internal consistency of the various subscales has been consistently high across the 10 data sets. Importance/pleasure (or attachment) alphas have ranged from .69 to .89 (above .80 in eight of 10 studies); sign (or self expression) alphas have ranged from .66 to .96 (above .80 in six of 10 studies); risk probability alphas have ranged from .57 to .90 (over .80 in three of seven studies); and risk consequence alphas have ranged from .60 to .89 (over .70 in three of seven studies). McIntyre did not include risk items in either of his questionnaires and the risk dimensions failed to achieve eigenvalues of 1.0 in the Madrigal et al. research. Centrality alphas (only reported in the two McIntyre data sets) were .64 and .70. The risk facets have been criticized by some researchers as not directly applicable to enduring involvement (Mittal 1989; McIntyre 1989). In addition, factor analyses have consistently shown risk facet eigenvalues to be lower than those of other facets. Nevertheless, risk facets have received theoretical support in the literature (Havitz and Dimanche 1990; Laurent and Kapferer 1985) and have provided valuable information in several involvement studies.

Response

Over 90% of approximately 300 potential respondents completed the in-season questionnaire. All 282 in-season respondents were sent second round questionnaires. Current addresses could not be located for twenty-seven (9.6%) respondents during the off-season data collection and an additional seven (2.4%) addresses were unavailable during the pre-season data collection. Correcting for non-deliverable questionnaires, 69% of first round respondents completed the second round (off-season) questionnaire and over 52% of first round respondents completed the third round (pre-season) questionnaire. Response rates were highest for downhill skiing and lowest for boardsailing.

Comparison of the socio-demographic and behavioral characteristics of members of the present sample with the characteristics of a representative sample of American adult golfers and downhill skiers (data were not available for boardsailing) showed that the present sample over represented females, younger adults, singles, and highly educated people (Simmons Market Research Bureau 1991). As a group, members of the present sample also participated at above average rates (about 20 times per year for all three activities). Fewer than one third of adult golfers and 10% of adult skiers participate 20 or more times annually (Simmons Market Research Bureau 1991).

Results

Prior to hypothesis testing, the factor structure of the revised IP scale was examined in both activity and product contexts using principal components and principal axis factoring procedures and internal consistency scores (Cronbach's alpha) were obtained. These measures revealed a four-factor structure (importance, pleasure and centrality items generally loaded on one factor) and reliability levels consistent with past leisure involvement research. Several items with mixed or low loadings were not included in the hypothesis test. Males were over represented in the single response group whereas over half of the two and three response group were female ($X^2 = 9.92$; $df = 2$; $p < .01$). Although not statistically significant at conventional alpha levels, mean age of respondents ($F = 2.66$; $df = 2, 273$; $p = .07$) showed a pattern whereby older respondents were over represented in the single response group. Therefore sex and age were included as independent variables along with involvement scores (four facets including importance-pleasure, sign, risk probability and risk consequence) in the hypothesis test. The dependent variable was response pattern over the course of the panel survey. Multivariate analysis of variance (MANOVA) revealed no significant relationship between the independent variables and panel response patterns (Multivariate $F = 1.06$; $df = 16, 1032$; $p < .39$). Thus, the hypothesis was not supported.

Discussion and Implications

Long standing concern has been expressed regarding the extent to which survey respondents accurately represent the populations from which they are drawn. This concern will become more pronounced in the future if leisure research evolves from its heavy reliance on cross-sectional methodologies to a greater proportion of longitudinal inquiry as has been predicted and advocated. In general, the results provide good news for leisure researchers conducting panel surveys through the mail. Significant differences in IP scores among one, two and three time respondents would have suggested that response patterns were biased by respondents' levels of enduring activity involvement. Such differences could call into question the reliability and validity of panel research efforts. The results are especially interesting given their contrast to the demonstrated usefulness of involvement profiles in predicting behavior and for segmenting recreation markets.

Several limitations should be noted regarding this exploratory effort. First, no attempt was made to compare involvement levels of non-respondents with those who responded at least once. Such a test would have been difficult to conduct both because fewer than 20 potential respondents declined participation and because no measure of enduring involvement was obtained for members of that group. These results cannot be generalized from panel surveys to cross-sectional surveys. Second, the activity contexts were limited. Third, survey methods (e.g., telephone) other than mail surveys were not examined. Finally, the length of the panel survey was relatively short and was completed within the span of one year. This study should be replicated in a more activity contexts, over longer periods of time, and conducted in other survey contexts before definitive statements regarding response rates and enduring involvement levels can be made.

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FORECASTING OUTDOOR RECREATION PARTICIPATION: A COHORT-COMPONENT PROJECTION MODEL FOR ILLINOIS RESIDENTS [1]

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Population projections for Illinois predicts lower growth, an older population, and increased racial diversity. If percent of the population participating in outdoor recreation activities by age and race remains at present levels, cohort-component projection models suggest that with projected changes in the population between 1990 and 2025, the number of Illinois participants engaging in many outdoor recreation activities will increase at a slow rate or decrease. Future participants will be older and increasingly from non-white groups.

Demographic Trends

In the years ahead the Illinois population is projected to grow more slowly than in the past, become older, and have larger racial minority components (State of Illinois 1990). The Illinois population, which grew 15 percent over the decade of the 1950's and slightly more than 2 percent in the 1980's, is expected to grow at a slower rate in the decades ahead. Accompanying slower population growth and longer life spans will be an older population. Individuals under 30 made up more than half of the population in 1980, but are projected to account for 37 percent of the total in 2025. There will be increased racial diversity in the years ahead as well. Between 1990 and 2025 Illinois is projected to experience a loss of 770,000 White residents, while the number of African American residents increases by 367,000 and the number of other residents increases by 646,000. An older population will be particularly significant with the White population, somewhat less significant with African Americans, and much less significant with other races. Overall, between 1990 and 2025 increases in numbers are projected for Whites age 50 and above, African Americans age 35 and above, and others in all age categories.

Variation in Participation

Surveys of the Illinois population in 1987 and 1989 indicate statistically significant differences in outdoor recreation participation (i.e., percent participating) according to age and racial background (Dwyer 1993a), suggesting that changes in recreation participation could accompany changing age and racial/ethnic structure of the population in the years ahead. The variations in participation that are associated with race and age are summarized below. Subsequent discussion explores their implications for outdoor recreation participation in the years ahead.

Race

The most distinctive pattern across racial groups is that African Americans are significantly less likely than Whites or others to participate in a large portion of the outdoor recreation activities studied, particularly those that take place in a wildland setting or involve water/snow/ice. There is a tendency for African Americans and others to participate at a similar or higher rate than Whites in athletics and activities that take place close to home (Dwyer 1993b).

Age

There are significant differences in participation across age categories for every outdoor recreation activity included in the study. The general trend is a decrease in participation with older individuals, with activities differing as to when that decrease begins and how steep the decline will be. With nearly half of the activities (and particularly sports and athletics) there is a fairly steady decline in percent participating with age starting at fairly young age class (20-24), with nearly all of the other activities starting decline shortly after that age class. A notable exception is nature study where percent participating increases with age class through age 40-44, and then decreases slowly (Dwyer 1993a).

Some Projections for the Future

Murdock et. al. (1990, 1991) developed a cohort-component projection model that uses projections of the population by age and race/ethnicity, together with activity-specific rates of participation by age and race/ethnicity to project number of participants in recreation activities in the years ahead. This approach is discussed by Dwyer (1993a, 1994a, 1994b). With the cohort-component projection model, the population is assigned to groups according to racial/ethnic and age classes (i.e., African Americans age 18-24), and estimates of the number of participants in an activity by the group are derived by multiplying the population by the percent of the group that participates in the activity. Total number of participants in the activity is the sum of the number of participants from each of the groups in the total population. Participation in future years is estimated from projections of the population by race/ethnicity and age. In the absence of projections of activity-specific participation rates by race and age for the years ahead, it is usually assumed that participation rates will remain the same over time. Thus the model provides estimates of future numbers of participants in an activity given expected changes in the population by age and race/ethnicity, assuming there will be no changes in participation rates by age or race/ ethnicity. The percent of the total population that participates in an activity may change over time with changing age and racial structure of the population. In sum, the model reflects three components of demographic change that are likely to influence the number of participants in a particular activity in the years ahead; changes in total population, age structure, and racial/ethnic structure. All other factors that influence outdoor recreation participation are assumed to remain the same over time.

Estimation of a cohort-component model is often limited by the availability of data, and in particular the need to have data on population projections match up with activity participation rates. Population estimates are generally taken from the U.S. Bureau of the Census or state agencies. Activity participation rates come from surveys of the general population. It is critical that the age and race categories used in outdoor recreation surveys match up with those used in population estimates. The model can be used to predict the number of days of participation in an activity; but that effort requires more data on recreation participation since there must be a sufficient sample of participants in the activity by age and race/ethnicity to estimate average days of participation for each group.

A cohort-component projection model was used to project future participation in outdoor recreation activities by Illinois residents based on Illinois Bureau of the Budget projections of the future population and its age and racial structure, as well as constant activity participation rates for age and racial groups developed from surveys of the Illinois population in 1987 and 1989. The two surveys were combined since the activity participation rates were similar. There was another survey in 1991 that also had similar participation rates; but age was not included in the questionnaire so it was not possible to use that information in this study. The results of that survey plus an earlier one in 1985 suggest relatively stable activity participation rates for Illinois residents over the period 1985-1991. The models project that growth in number of Illinois participants in 31 outdoor recreation activities during the period 1990-2025 will be lower than expected growth in the Illinois population (Table 1). While the Illinois population

aged 15 and above is expected to grow by 6.6 percent between 1990 and 2025, changes in the number of outdoor recreation participants 15 and older are expected to range from +4 percent to -21 percent, with a median of -10 percent. An older population and increasing numbers of racial minorities are responsible for keeping the projected growth in number of participants below that of the population, and for the projected decreases in the number of participants in 27 of the 31 outdoor activities. Projected decreases in number of participants that were attributable to aging ranged from 1 to 21 percent of the 1990 participation. Changing racial distribution of the population was associated with increases of up to 1 percent in four activities, and decreases of up to 14 percent in 27 activities. Overall, a larger change in number of participants was attributed to aging for 21 activities, while race was associated with a larger change in 10 activities.

The largest projected increases in number of participants are for activities that are relatively popular among older Americans and racial minority groups; and include walking, driving, and picnicking. The largest projected decreases are for activities that are particularly popular with younger White Americans; and include waterskiing, snowmobiling, trapping, and downhill skiing.

Projections suggest changes in the racial background and age of participants. In all 31 activities a decrease is projected in the number of White participants; but the number of African American participants is projected to decrease in only two activities -- downhill skiing and soccer, and numbers of participants from the other racial category are not projected to decrease in any activities (Table 2). Increases in the number of other participants is projected to exceed those of African Americans in 28 out of 31 activities. This is a reflection of greater increases in the other population, the concentration of a larger part of the increased growth of the other population in the younger age classes that have higher participation rates, and the generally higher participation rates for the other population when compared to African Americans. Participants in outdoor recreation activities are projected to be older and increasingly from African American and other racial groups. For example, there is projected to be an increase in White runners/joggers over age 45, African American joggers over age 35, and other joggers over age 15.

The projections of the numbers and characteristics of future participants developed for Illinois must be evaluated in light of two key assumptions of the model: (1) Participation rates by age and race will not change over time, and (2) Variables other than age and race that may influence participation are not explicitly considered. For a discussion of these assumptions and their implications for predicting the number of participants in selected activities in the years ahead, see Dwyer (1993a) who also provides suggestions for improved predictions, such as allowing participation rates to change over time. As the racial and age structure of the population changes over time, there will also be other demographic changes such as income, family structure, and education; as well as changing tastes and preferences and changing availability of opportunities to participate. It is important to recognize that these other factors exist and in some instances may overwhelm some of the forces for change that we are dealing with here. But for now we are focusing our attention on population growth and changing age and race and their possible implications for future participation.

Implications for Management

If participation rates in outdoor recreation activities by age and race remain constant over time, changes in the Illinois population and its age and racial composition are likely to bring significant changes in the outdoor recreation participation patterns of Illinois residents. While projected changes will vary significantly across activities, the number of outdoor recreation participants is projected to decrease or increase at a slow rate, and participants will be increasingly older and from non-white groups. The projected changes in the numbers of participants as well as their ages and racial/ethnic backgrounds will have wide-ranging implications for recreation resource management programs including design and management of recreation settings, the focus of visitor programs, information and marketing efforts, and the selection and training of those who work with visitors. It may be necessary to review fee structures in the years ahead, given the increasing proportion of participants that will qualify for "senior citizen rates." The selection of staff and the development of training programs must address the needs of increasingly diverse customers. Increased attention will need to be given to communication between managers and planners and the increasingly diverse populations that they will serve. These implications will be especially significant for the management and use of resources in or near urban centers which tend to be heavily used by racial/ethnic minorities and older Americans. Change will be the hallmark of recreation resource management programs even more than in the past, and it will be increasingly important to maintain flexibility and the ability to respond to the changing needs of changing customers.

Implications for Research

If information from recreation surveys is to be used to estimate participation rates for racial/ethnic groups and age categories, it is critical that the racial/ethnic and age variables are defined in a way that is consistent with those used in the population projections. This lack of compatibility is often a problem with cohort-component modeling. In the present analysis, the population estimates for Illinois were reported for three racial groups (White, African American, and other). The outdoor recreation survey of Illinois residents used five categories (White, African American, Hispanic, Asian, and other). Consequently, the participation data had to be aggregated into three groups to match up with the population estimates. There was no problem with age since individuals were asked to provide their year of birth and this made it possible to aggregate age into any desired classes; but it is important that the minimum age of those surveyed for their recreation participation correspond to the lower limit of one of the population categories used in the population projections. Limited observations from minority groups resulted in sketchy information on participation rates for those groups, particularly among older participants. At the national level, the U.S. Bureau of the Census records race as White; African American; American Indian, Eskimo, and Aleut; or Asian and Pacific Islander. The Census also asks if an individual is of Hispanic origin. The Census reports individuals of Hispanic origin across all of the races. This is seldom done in recreation surveys and it makes for problems in compatibility. It is also important that sufficient data are gathered on participation in recreation activities by minority groups of all ages, particularly if estimates of the number of participant days are desired. This might require oversampling those groups. It is also critical that attention be given to estimating future activity participation rates. Among the obvious problems with using current rates to project future participation is that older individuals sampled today grew up in a quite different environment than exists today and is likely to exist in the years ahead. As such, their participation was conditioned by the environment in earlier times, and may not be indicative of the behavior of present or future older citizens. Examples of trends that may make these participation rates change over time include increased availability of resources, increased activity of older Americans, and reduced barriers to use of recreation resources by minority groups. These trends need to be considered in efforts to project future participation rates.

Table 1. Predicted changes in the number of participants on outdoor recreation activities in Illinois, 1990 and 2025, and components of those changes.

Activity	Predicted number of participants age 15 and above (in thousands) 1990	2025	Change 1990-2025[1]	Components of change in participation 1990-2025 (in thousands) Population growth	Changes in Age	Race
Run/jog	2,732	2,516	-216 (-7.9)	+181 (+6.6)	-280 (-10.2)	-118 (-4.3)
Walking	6,433	6,675	+242 (+3.8)	+427 (+6.6)	-65 (-1.0)	-119 (-1.8)
Driving	5,516	5,638	+121 (+2.2)	+366 (+6.6)	-48 (-0.9)	-196 (-3.6)
Picnicking	4,741	4,907	+66 (+1.4)	+315 (+6.6)	-187 (-3.9)	-62 (-1.3)
Nature study	2,490	2,493	+3 (+0.1)	+165 (+6.6)	-50 (-2.0)	-112 (-4.5)
Fishing	2,457	2,395	-61 (-2.5)	+163 (+6.6)	-82 (-3.3)	-142 (-5.8)
Ice fishing	194	176	-18 (-9.3)	+13 (+6.6)	-4 (-1.8)	-27 (-14.1)
X-country skiing	560	476	-84 (-15.1)	+37 (+6.6)	-65 (-11.6)	-56 (-10.1)
Downhill skiing	844	698	-146 (-17.3)	+56 (+6.6)	-132 (-15.6)	-70 (-8.3)
Ice skating	912	766	-146 (-16.0)	+60 (+6.6)	-121 (-13.2)	-86 (-9.3)
Pool swim	3,994	3,642	-352 (-8.8)	+265 (+6.6)	-442 (-11.1)	-175 (-4.4)
Other swim	2,365	2,107	-259 (-10.9)	+157 (+6.6)	-246 (-10.4)	-169 (-7.2)
Water skiing	991	787	-205 (-20.6)	+66 (+6.6)	-177 (-17.8)	-94 (-9.5)
Motor-boating	2,104	1,887	-217 (-10.3)	+140 (+6.6)	-140 (-6.7)	-216 (-10.3)
Sailing	701	645	-56 (-8.0)	+47 (+6.6)	-55 (-7.8)	-48 (-6.8)
Canoeing	845	764	-82 (-9.7)	+56 (+6.6)	-91 (-10.7)	-47 (-5.6)
Backpack-ing	330	295	-35 (-10.6)	+22 (+6.6)	-44 (-13.2)	-13 (-3.9)
Hiking	1181	1066	-115 (-9.7)	+78 (+6.6)	-132 (-11.1)	-62 (-5.2)
Tent camp	1147	1018	-128 (-11.2)	+76 (+6.6)	-153 (-13.3)	-52 (-4.5)
Vehicle camping	616	601	-15 (-2.4)	+41 (+6.6)	-1 (-0.2)	-55 (-8.9)
Golfing	2,036	1,875	-160 (-7.9)	+135 (+6.6)	-138 (-6.8)	-157 (-7.7)
Tennis	1,742	1,629	-114 (-6.5)	+116 (+6.6)	-236 (-13.6)	+7 (+0.4)
Soft/ baseball	2,565	2,304	-261 (-10.2)	+170 (+6.6)	-464 (-18.1)	+33 (+1.3)
Basketball	1,663	1,535	-128 (-7.7)	+110 (+6.6)	-252 (-15.2)	+14 (+0.8)
Soccer	412	345	-66 (-16.0)	+27 (+6.6)	-60 (-14.7)	-33 (-8.0)
Bicycling	3,970	3,715	-255 (-6.4)	+263 (+6.6)	-477 (-12.0)	-42 (-1.1)
Horse riding	859	751	-108 (-12.5)	+57 (+6.6)	-177 (-20.6)	+12 (+1.4)
Snow-mobiling	401	320	-80 (-20.1)	+27 (+6.6)	-66 (-16.5)	-41 (-10.2)
Off-road vehicles	809	706	-103 (-12.7)	+54 (+6.6)	-114 (-14.1)	-42 (-5.2)
Hunting	525	488	-37 (-7.0)	+35 (+6.6)	-34 (-6.4)	-38 (-7.2)
Trapping	49	40	-9 (-17.9)	+3 (+6.6)	-10 (-20.4)	-2 (-4.2)

1. (x.x) = percent of 1990 participation.

Table 2. Predicted changes in the number of participants in outdoor recreation activities in Illinois between 1990 and 2025, by race.

Predicted change in the number of participants age 15 and above (in thousands)[1]		Components of change in participation 1990-2025 (in thousands)		
Activity	Change 1990-2025[2]	White	Black	Other
Run/jog	-216 (-7.9)	-358	+72	+70
Walking	+242 (+3.8)	-267	+236	+272
Driving	+121 (+2.2)	-282	+149	+254
Picnicking	+66 (+1.4)	-327	+150	+243
Nature study	+3 (+0.1)	-146	+62	+88
Fishing	-61 (-2.5)	-221	+67	+92
Ice fishing	-18 (-9.3)	-30	0	+12
X-country skiing	-84 (-15.1)	-90	+2	+3
Downhill skiing	-146 (-17.3)	-168	-2	+25
Ice skating	-146 (-16.0)	-194	+4	+43
Pool swim	-352 (-8.8)	-539	+40	+148
Other swim	-259 (-10.9)	-372	+21	+93
Water skiing	-205 (-20.6)	-218	+1	+12
Motorboating	-217 (-10.3)	-276	+19	+40
Sailing	-56 (-8.0)	-74	+3	+15
Canoeing	-82 (-9.7)	-136	+1	+53
Backpacking	-35 (-10.6)	-53	+2	+16
Hiking	-115 (-9.7)	-155	+4	+36
Tent camping	-128 (-11.2)	-195	+20	+47
Vehicle camping	-15 (-2.4)	-55	+9	+31
Golfing	-160 (-7.9)	-252	+21	+71
Tennis	-114 (-6.5)	-259	+26	+118
Soft/baseball	-261 (-10.2)	-420	+40	+118
Basketball	-128 (-7.7)	-252	+31	+94
Soccer	-66 (-16.0)	-85	-1	+19
Bicycling	-255 (-6.4)	-481	+86	+140
Horse riding	-108 (-12.5)	-132	+15	+10
Snowmobiling	-80 (-20.1)	-87	0	+7
Off-road vehicle	-103 (-12.7)	-139	+10	+26
Hunting	-37 (-7.0)	-67	+27	+3
Trapping	-9 (-17.9)	-9	0	0

1 Predictions are made from population projections provided by the Illinois Bureau of the Budget, and per capita participation rates for outdoor recreation activities derived from data provided by the Illinois Department of Conservation. Recreation participation data were available for Hispanic and Asian groups; but population estimates were not available for these groups so they were put in the "other" category.

2 (x.x) = percent change in estimated number of participants 1990-2025.

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THE OUTDOOR SITUATIONAL FEAR INVENTORY: A NEWER MEASURE OF AN OLDER INSTRUMENT

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This study examined the relationship of two methods of scaling the Outdoor Situational Fear Inventory-- continuum scaling and the more easily scored certainty method of scaling. Although item-by-item correlations varied widley, overall and subscale score relationships were strong. The data also suggested ways to clarify interpretations of earlier continuum scaled OSFI scores.

Introduction

Whether using fear to stimulate learning or using instruction to reduce fears, most outdoor pursuits educators are familiar with the positive and negative impacts of students' fears. Those studying the dynamics of fear in outdoor recreation experiences and environments have most frequently used an Outdoor Situational Fear Inventory (OSFI) to identify, describe, and measure changes in the fears of participants of outdoor recreation. Drawing from the literature of other disciplines, Ewert (1988, 1989) developed the original "situational fear inventory" to measure and describe social-based fears and physical- or environment- based fears of outdoor pursuits participants. After extensive use in studies with Outward Bound students and with input from researchers, outdoor instructors, and psychologists, the OSFI was revised for use in new studies of students in a college-sponsored outdoor education practicum (Ewert and Young 1992; Young and Ewert 1992).

Having an overall reliability, as measured by Cronbach's alpha, of .94 (Ewert 1986), the OSFI and its associated research have been useful contributions to the work of researchers and practitioners alike. Nevertheless, important concerns and sug gestions regarding its scaling have been expressed. The OSFI uses a "continuum scaling" method. Along a 10 centimeter line, anchored by the statements "not at all anxious" and "very anxious," subjects are to place a slash mark "at the point that best represents [their] level of concern for each item" (Ewert and Young, undated). Responses to each item on the instrument are literally measured, using a ruler. A portion of the OSFI is illustrated in Figure 1.

Directions: All of us experience different types of anxieties in the outdoor environment. Place a slash (/) on each line at the point that best represents your level of concern for each item. There are no right or wrong answers. Consider the following example:

	▯NOT AT ALL ANXIOUS	VERY ANXIOUS▯
LIGHTNING	|_____|	

	▯NOT AT ALL ANXIOUS	VERY ANXIOUS▯
BEING HURT OR INJURED	|_____|	
UNABLE TO CONTROL PHYSICAL ENVIRONMENT	|_____|	
UNABLE TO CONTROL SOCIAL ENVIRONMENT	|_____|	
EXPOSURE TO UNEXPECTED SITUATIONS	|_____|	
MAKING WRONG DECISIONS	|_____|	
LETTING MYSELF DOWN	|_____|	
LETTING OTHERS DOWN	|_____|	
TASK TOO DEMANDING	|_____|	
NOT HAVING ENOUGH PHYSICAL STRENGTH	|_____|	
NOT HAVING ENOUGH PERSONAL ABILITY	|_____|	
FALLING/SLIPPING	|_____|	

Figure 1. Excerpt from the continuum-scaled OSFI (not to scale).

The continuum-scaled OSFI poses several difficulties. First, the continuum scale is labor-intensive to measure. Thirty-three ruler measurements are made on each instrument. Second, continuum scaling scores may create an artificial sense of precision. For example, if a respondent felt an identical level of fear about "being hurt or injured" (item 1) and "falling/slipping" (item 11), the respondent is unlikely to draw the slash mark at exactly the same point on the continuum. OSFI item scores may range from 0 to 100, but some variations in scores may reflect respondents' imprecise markings more than the instrument's measurement sensitivity. Third, and most troublesome, OSFI continuum scores are difficult to describe. At what point along the continuum between "not at all anxious" and "very anxious" do students' levels of fear become noteworthy? In previous research, rarely have any mean OSFI items scores been above 50. Somewhat arbitrarily, Young and Ewert (1992) have regarded scores over 40 as "elevated."

To ameliorate these difficulties, Young, Quinn, and Steele (in press) modified the OSFI by substituting certainty scaling (Warren, Klonglan, and Sabri 1969) for continuum scaling. This method requires subjects to make two decisions. First, subjects indicate whether they agree or disagree with a statement (e.g., "I am anxious or fearful about lightning") by circling the "A" or the "D" on the instrument. Second, subjects circle a number between 1 and 5 to indicate the strength of their agreement or disagreement. Numerical values ranging from 1 to 10 are then assigned to the responses (D5 = 1; A5 = 10). This OSFI with certainty scaling has a Cronbach's alpha of .93.

I am fearful or anxious about...

Lightning ---------- A / D -- 1 2 3 4 5

Figure 2. Sample OSFI item using certainty scaling.

Purpose

The purpose of this study was to see if the more descriptive certainty-scaled OSFI could be used to shed new light on the less descriptive continuum scores. Toward that goal, this study first sought to describe the relationship between certainty-scaled and continuum-scaled OSFI item scores. Second, by using the "agree" or "disagree" element of the certainty-scaled instrument to form groups, the researchers could describe and compare the means and distributions of continuum-scaled OSFI item scores of subjects who, on the other form, did or did not acknowledge being fearful about the item. Doing so might provide better basis for estimating the beginning point on the continuum scale where scores reflect subjects being fearful.

Review of Literature

Fearful situations, both real and imagined, are strongly associated with being in wilderness and other primitive outdoor settings. Nash (1982) points out that even among wilderness devotees of recent times, ambivalence and anxiety recur. Ewert (1989b) notes that because risk and fear are fundamentally part of all human experience, they are also part of all outdoor experiences. He adds, however, that outdoor leaders must anticipate students' fears because "if ignored and permitted to reach dangerous levels, they can have a kind of paralyzing effect that is counterproductive from a teaching and learning perspective" (p. 44). Ironically, prior to the aforementioned studies by Ewert (1986, 1988) and Ewert and Young (1992), little was done to identify and describe the fears of outdoor program participants.

Fear is generally seen as a range of feelings from mild apprehension to panic that are associated with perceived threats, which are sometimes specific and tangible and other times elusive and indiscernible (Hauck 1975; Leary 1983). While some fears are instinctual or reflexive (e.g., a sudden clap of thunder), others are learned (e.g., not meeting group expectations) (Schacter and Singer 1962; Rachman 1974; Ewert 1988). People have been found to have a dispositional level fear called "trait anxiety," which is resistant to change (Spielberger 1966). In contrast, "state anxiety" refers to fears arising in response to specific events and contexts (Zuckerman 1976).

A variety of instruments that measure anxiety are described in the psychological literature. Most of these instruments rely on direct observations of subjects, physiological responses, or self-report questionnaires. Noting an imperfect relationship among systems of measurement, Rachman (1978) suggests avoiding reliance upon a single measure. Still, Rachman (1978) argues that self-reported indices of perceived fear provide a practical method of making preliminary estimations of subjects' fears. He states that "...self reporting of fear is indispensable and at the same time potentially misleading" (p. 23). Because research on situational fears of outdoor program participants is in its infancy, single instrument studies are necessary until various forms of measurement are developed, refined, and validated.

The certainty method of scaling was developed by Warren, Klonglan, and Sabri (1969) in an attempt to reduce measurement errors in sociological research. The researchers conducted a study comparing and contrasting conventional types of Likert scaling with certainty scaling formats similar to that depicted in Figure 2. The certainty method was deemed reliable and favored because it achieved the measurement sensitivity of an eleven point Likert scale in a format subjects and researchers preferred.

Although the original certainty method incorporated a neutral or undecided response option, instructions in this study called for a forced-choice because of the nature of the anxiety construct. Leovinger (1977) reports that people are rarely devoid of an attitude. Given the personal nature of fears and anxieties, it was believed that providing a neutral response option would too often furnish subjects with an opportunity to choose a "safe" or socially acceptable response when they did in fact have a directional feeling, however slight, about the items.

Methods

Over an entire season, 162 participants in a college outdoor/adventure program completed the continuum-scaled and the certainty-scaled versions of the OSFI on the first day of their two-week courses. Sequence effects were controlled by randomly assigning students to groups that would complete the instruments in opposite order in separate locations.

Because the certainty-scaled OSFI yields scores between 1 and 10 with a definite beginning point for being fearful (i.e., >- 6), a strong correlation (Pearson *r*) between certainty-scaled scores and continuum-scaled scores would permit a simple way of clarifying the degree of fear represented by continuum-scaled scores.

The "agree/disagree" nature of the certainty-scaled OSFI also permitted the formation of two groups for each OSFI item-- (1) those who "agreed" or were fearful about the item and (2) those who "disagreed" or were not fearful of the item. Forming these groups enabled a first-time examination of frequency distributions and other descriptive statistics of the continuum-scaled item scores of for fearful and nonfearful subjects.

Findings

Overall scores from the two versions of the instrument were strongly related ($r = .77$, $p < .001$). As seen in Table 1, item- by-item correlations ranged from a weak .394 to a strong .782 and were all significant at the .001 level.

Table 1. Item-by-item correlations of certainty-scaled and continuum-scaled Outdoor Situational Fear Inventories.

Item	r^a
Being hurt or injured	.664
Unable to control physical environment	.569
Unable to control social environment	.560
Exposure to unexpected situations	.419
Making wrong decisions	.523
Letting myself down	.637
Letting others down	.644
Task too demanding	.456
Not having enough physical strength	.782
Not having enough personal ability	.582
Falling or slipping	.658
Confrontation with others	.599
Going unrecognized in the group	.618
Not performing up to group expectations	.548
Not fitting in with the group	.672
Not performing up to leader expectations	.648
Being sexually harassed	.680
Bad Weather	.693
Poisonous plants	.759
Poisonous snakes	.758
Darkness	.683
Dangerous animals	.738
Being bothered by insects	.656
Becoming sick	.656
Fast or deep water	.701
Becoming lost	.610
Getting dirty	.462
Inadequate clothing	.394
Not enough training	.616
Insufficient food	.654
Course not meeting my expectations	.480
Not getting my money's worth	.708
Hot or cold temperatures	.637

$p. < .001$ for all items.

Tables 2 and 3 show descriptive statistics of the fearful and nonfearful groups' continuum OSFI scores for social-based fears and physical-based fears respectively. Examining those tables, one observes that in every instance the means of fearful and nonfearful groups differed by an average of 30 points. Striking is the fact that the minimum scores of both fearful and nonfearful groups were almost always less than 10 and the maximum, almost always over 80.

Without showing histograms for all 33 items, one effective way to compare the distributions of fearful and nonfearful groups' scores is to examine quartile distributions. Included in Tables 2 and 3 are the 25th. 50th, and 75th percentile scores of each group for each item. The average quartile distributions of each group for social-based, physical-based, and all OSFI items are shown in Table 4. The emerging pattern, high-lighted Table 4, is that 75% of fearful subjects have continuum OSFI scores above 30. Likewise, 75% of nonfearful subjects have continuum scores below 30. These figures might suggest that the earlier decision to regard scores above 40 as "elevated" (Ewert and Young 1991) should be revised to a score of 30.

Table 2. Description of fearful and non-fearful groups' social-based continuum-scaled OSFI scores.

Expressed Fear	Group	n	Mean	S.D.	Percentile 25th	50th	75th	Min.	Max.
Unable to Control Social Environment	Fearful	59	47.5	28.8	25	46	66	2	97
	Non-fearful	102	22.4	16.2	9	20	29	0	68
Exposure to Unexpected Situations	Fearful	60	48.6	21.8	33	50	65	2	95
	Non-fearful	100	29.1	20.8	14	22	44	0	95
Making Wrong Decisions	Fearful	76	48.9	20.6	33	49	64	2	94
	Non-fearful	85	27.1	16.1	13	26	41	0	65
Letting Self Down	Fearful	64	51.8	24.5	31	51	72	1	95
	Non-fearful	97	23.9	18.7	11	18	33	0	86
Letting Others Down	Fearful	83	59.1	23.5	41	61	78	1	97
	Non-fearful	77	25.5	17.2	12	20	42	0	68
Task Too Demanding	Fearful	42	48.5	21.7	31	51	64	10	96
	Non-fearful	119	26.9	17.6	12	24	41	0	79
Confrontation With Others	Fearful	26	48.2	22.0	33	49	66	3	84
	Non-fearful	135	20.1	17.3	8	15	26	0	84
Going Unrecognized in Group	Fearful	40	48.8	24.3	28	50	64	6	93
	Non-fearful	121	19.7	15.5	8	15	29	0	70
Not Performing Up to Group Expectations	Fearful	66	49.6	24.5	27	49	72	4	98
	Non-fearful	95	24.1	19.1	11	19	32	0	82
Not Fitting In With Group	Fearful	57	51.9	25.1	35	56	71	5	97
	Non-fearful	102	19.1	15.5	9	14	26	0	76
Not Performing Up to Leader Expectations	Fearful	74	51.3	23.5	33	51	70	6	96
	Non-fearful	86	20.3	15.7	9	16	28	0	68
Being Sexually Harassed	Fearful	15	51.4	29.8	24	52	73	2	96
	Non-fearful	146	10.5	15.0	2	5	12	0	96
Not Getting Money's Worth	Fearful	24	61.4	26.0	40	64	84	16	96
	Non-fearful	134	16.4	16.5	6	10	24	0	92
Course Not Metting Expectations	Fearful	27	46.6	24.5	23	48	66	4	92
	Non-fearful	130	19.6	17.8	6	14	28	0	94
Mean of Social Fears Items	Fearful	50.9	51.0	24.3	31.2	51.9	69.6	4.6	94.7
	Non-fearful	109.2	21.8	17.1	9.3	17.0	31.0	0.0	80.2

Table 3. Description of fearful and non-fearful groups' physical-based continnum-scaled OSFI scores.

Expressed Fear	Group	n	Mean	S.D.	Percentile 25th	50th	75th	Min.	Max.
Unable to Control Physical Environment	Fearful	64	47.3	24.6	24	48	62	3	96
	Non-fearful	97	25.8	19.6	13	20	31	0	85
Bad Weather	Fearful	64	54.7	25.4	36	59	76	4	93
	Non-fearful	96	21.8	19.2	8	18	30	0	90
Being Hurt or Injured	Fearful	62	54.2	24.1	31	58	74	3	94
	Non-fearful	99	21.3	16.2	11	17	26	0	84
Poisonous Plants	Fearful	63	53.8	27.6	33	53	78	0	98
	Non-fearful	98	17.4	14.4	7	15	24	0	75
Poisonous Snakes	Fearful	87	64.0	27.6	41	73	87	0	99
	Non-fearful	74	18.8	16.5	6	13	28	0	80
Darkness	Fearful	21	57.7	22.9	47	54	75	8	97
	Non-fearful	140	17.4	18.5	4	11	24	0	91
Dangerous Animals	Fearful	72	59.3	25.6	42	63	83	0	98
	Non-fearful	89	18.3	18.2	5	13	21	0	74
Bothered by Insects	Fearful	98	53.6	25.3	37	56	71	0	99
	Non-fearful	60	20.0	17.7	6	18	27	0	82
Becoming Sick	Fearful	57	47.9	26.2	27	45	69	0	98
	Non-fearful	100	19.5	16.6	6	17	30	0	64
Fast of Deep Water	Fearful	46	53.3	22.6	42	54	70	2	98
	Non-fearful	112	18.7	17.0	5	15	27	0	94
Becoming Lost	Fearful	58	50.4	23.2	34	50	68	0	98
	Non-fearful	100	22.2	19.9	6	18	34	0	83
Getting Dirty	Fearful	17	37.9	28.3	13	43	53	1	98
	Non-fearful	140	12.6	17.0	3	7	16	0	92
Inadequate Clothing	Fearful	61	42.8	24.0	22	40	75	0	97
	Non-fearful	97	22.2	20.0	8	16	34	0	90
Not Enough Training	Fearful	56	50.4	23.7	33	48	70	0	98
	Non-fearful	102	22.6	18.7	8	19	32	0	90
Insufficient Food	Fearful	51	47.4	27.2	25	46	69	0	100
	Non-fearful	107	17.6	17.3	5	12	25	0	92
Cold/Hot Temperatures	Fearful	56	46.7	24.6	26	45	63	4	98
	Non-fearful	102	18.1	17.1	6	13	26	0	95
Mean of Physical Fears Items	Fearful58.3	51.3	2	5.2	32.0	52.0	71.4	1.6	97.4
	Non-fearful	100.8	19.6	17.8	6.7	6.0	27.1	0.0	85.1

Table 4. Averages of descriptive statistics of fearful and non-fearful groups' continnum-scaled OSFI scores.

Expressed Fear	Group	n	Mean	S.D.	Percentile 25th	50th	75th	Min.	Max.
Means for All Social Fears	Fearful	51	51.0	24.3	31	62	70	5	95
	Non-fearful	109	21.8	17.1	9	17	31	0	80
Means for All Physical Fears	Fearful	58	51.3	25.2	32	52	71	2	97
	Non-fearful	101	19.6	17.8	7	15	27	0	85
Mean for all SFI Items	Fearful	54.0	51.2	24.8	31.7	52.0	70.6	3.0	96.2
	Non-fearful	1004.0	20.6	17.4	7.9	16.9	28.9	0.0	82.0

Still, the temptation to use any continuum OSFI score to designate subjects as "fearful" should be approached cautiously. Not only is there considerable overlap in the distributions of fearful and nonfearful groups, there is also a difference in the size of these groups. On average, 34% of subjects comprised the "actually fearful" group (i.e., subjects who "agreed" that they were fearful or anxious about the item). In Table 5, by cross-tabulating the percentages of "apparently fearful" (i.e., OSFI >30) and "apparently nonfearful" (i.e., OSFI < 30) with those of the "actually fearful" and "actually nonfearful," one sees groups formed by continuum OSFI figures will exaggerate the percentage of fearful subjects.

Table 5. Percentages of fearful and nonfearful subjects based on continuum-scaling estimates and actual self-reports.

	Continuum OSFI Score Estimates		
Actually	Fearful (Above 30)	Nonfearful (Below 30)	Total
Fearful	25.5%	8.5%	34%
Nonfearful	16.5%	49.5%	66%
Total	42.0%	58.0%	100%

Conclusions

On an item-by-item basis, continuum-scaled and certainty-scaled OSFI scores are often not strong predictors of one another. In instances where the relationships are strong, one might reinterpret continuum scores in light of their relationships to certainty score descriptors.

As reflected by the overlapping continuum-scaled OSFI scores of those who fear and do not fear a given situation, the continuum scaling of OSFI items does not present a clear beginning point for those who are fearful. Nevertheless, when using the continuum-scaled OSFI in future studies or in reinterpreting findings of earlier studies, one might use with caution the quartile distributions presented here to provide a better basis for estimating what constitutes an elevated score.

Despite its usefulness and reliability in depicting patterns and changes of situational fears for groups, the continuum-scaled OSFI remains difficult to interpret. The continuum scale is viewed too differently by individual subjects to permit firm descriptors to be attached to its OSFI scores. Further, the continuum-scaled OSFI does not permit accurate separation of fearful and nonfearful subjects into discrete groups. The certainty-scaled OSFI or a continuum-scale OSFI with clearer end- and mid- points may represent more promising and informative approaches to studying persons' fears about outdoor experiences.

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REGIONAL TRADE MARKET ANALYSIS:

RESORT MARKETING APPROACHES

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This paper examines the value of geographic segmentation for a regional ski resort in New England. Customers from different user groups were surveyed along with a list of inquiries and a purchased list, and grouped according to their area of origin. An ANOVA was performed to determine if there were differences in attitudes and trip behaviors between the segments. It was concluded that geographic segmentation offers good insight into market potential and service design.

Keywords: marketing, segmentation, resorts, geographic segmentation, skiing, regional market analysis.

Introduction

There are many public and private resorts throughout the world that compete on regional, national and international levels. It is important for these resorts to determine their respective trading areas so they can identify the competition and determine the proper marketing strategies. For example, a resort in New England should know whether it is competing only with the other resorts in the area or with resorts throughout the country, or even the world. Many family resorts find themselves competing with DisneyWorld in Orlando, Florida no matter where they are located. Identifying a resort's trading area includes the identification of the target market profile and information on trip behavior. These additional characteristics will enable the resort to determine the mobility of the target market, and the likelihood that members of that market would travel outside the region.

The proper identification of a resort's trading area would also provide the firm with the ability to enlarge its market by tapping some of the areas that show potential. That is, the resort may notice that there is a segment of customers that visit from a geographic region that is not a major focus of its marketing program. As a result, more resources could be used to target that market in the event that other, perhaps closer, markets are becoming saturated. However, marketing research is necessary in order to determine the particular wants and needs of the travelers in these untapped markets. It could be a big mistake to use the same marketing program to attract all market segments.

Background

Market segmentation is an important element of marketing strategy. Segmentation is the process of dividing large heterogeneous populations into smaller homogeneous subsets. This strategy allows a firm to choose the subsets, or target markets, that best fit the organization's goals and products/services by developing an appropriate marketing mix for each segment. Certain criteria must be met in order for segmentation to be an effective strategy (Mason and Ezell 1993):

1) differential response - segments should respond differently to some aspect(s) of the marketing strategy,
2) substantiality - the size of the segment must be large enough to warrant special attention,
3) measurability - segments must be identifiable and measurable in numbers and in purchasing power,
4) accessibility - it must be possible to reach the segments with the promotion mix, and
5) reliability - segments should exhibit adequate stability over time.

If any of these criteria are not met, then it is not advisable for the firm to use a segmentation strategy .

Segmentation strategies are particularly helpful in the travel industry (Bojanic 1992; Javalgi, Thomas & Rao 1992; Showmaker 1994). There are five basic methods that can be used by marketing managers to segment consumer markets (Reid 1989). These methods can be categorized as geographic, demographic, psychographic, behavioral, and benefit segmentation. However, there is some debate as to whether hotels are putting too much emphasis on market segmentation rather than using a mass marketing approach (Del Rosso 1992). It is argued that segmentation is a less efficient and, in some cases, less effective approach to marketing. However, ski resorts still rely heavily on market segmentation as a means to optimize the use of resources and maximize sales and revenues (Waldrop 1991).

Geographic segmentation is very popular and efficient in the tourism and hospitality industries because geographic sub-markets exist in most countries (Garreau 1981; VanHove 1989). The most popular forms of geographic segmentation are: regions; population size of cities, counties or states; population density; and climate. It is very common in tourism and travel to concentrate marketing efforts in a few geographical markets rather than to spread resources into many countries and/or regions. According to VanHove (1989), the two most important variables for geographic segmentation are the regional breakdown and the city size or degree of urbanization of a population.

Regional marketing focuses not only on the shifting of consumers geographically, but also on the differences in their product preferences based on where they live. The goal is to develop marketing plans to reflect specific area differences in taste preferences, perceived needs, or interests. For example, segmenting a hotel's market based on zip code origin of the guests is a very useful way to identify those areas that deserve the heaviest concentration of marketing resources. The geographic segmentation, or trading area analysis, could be coupled with a survey of attitudes, interests and opinions of the consumers so that a marketing program can be developed for each target market.

Ski resorts tend to have two basic markets: day use guests and overnight guests. It is important for the resort to manage the customer mix so that it can benefit from the daily frequency of day use guests as well as the greater profit potential from overnight guests. Day use guests will tend to be the local market and the overnight guests come from regional and national/international markets. New England ski resorts seem to draw most of their market share for overnight guests from regional markets (Anonymous 1992; Beilinson 1993).

Purpose of the Study

The purpose of this study is to utilize this approach for a resort to determine its ability to effectively segment the market. First, consumers will be segmented into geographic regions based on the state and/or country of origin. Zip codes would provide more detailed information that would be useful in targeting promotions but the size of the sample requires aggregation for analysis purposes. The next step is to evaluate consumer differences between regions based on demographics, psychographics and attitudes/preferences. As a result, the resort can consider various growth strategies and evaluate them on their merits.

Methods

The firm used in this study is a ski resort in New England. The resort is known for its exceptional family programs. The sample for the study consisted of three major groups: 1) past guests of the resort, 2) people who inquired about the resort, and 3) names obtained from a purchased list of potential ski enthusiasts. The sampling frame used for the study was the resort's entire database of customers, inquiries for the past three years, and names on a purchase list of potential skiers acquired from a regional direct mail dealer. This resulted in a total of approximately 23,000 households from throughout the United States and Canada. The entire population was included in the survey and had the opportunity to respond.

The respondents were mailed a self-administered questionnaire that covered current programs and tested ideas and concepts for new programs. In addition, the questionnaire had a detailed section for gathering information on the demographics of the sample. The geographic segmentation was done by state where there was adequate density, and then by U. S. regions (other New England, Mid-Atlantic and other U.S.) and a segment for Canadians. The states that were worthy of separate treatment were: Connecticut, Massachusetts, New Jersey and New York. This resulted in eight separate geographic regions. The breakdown by region is presented in Figure 1.

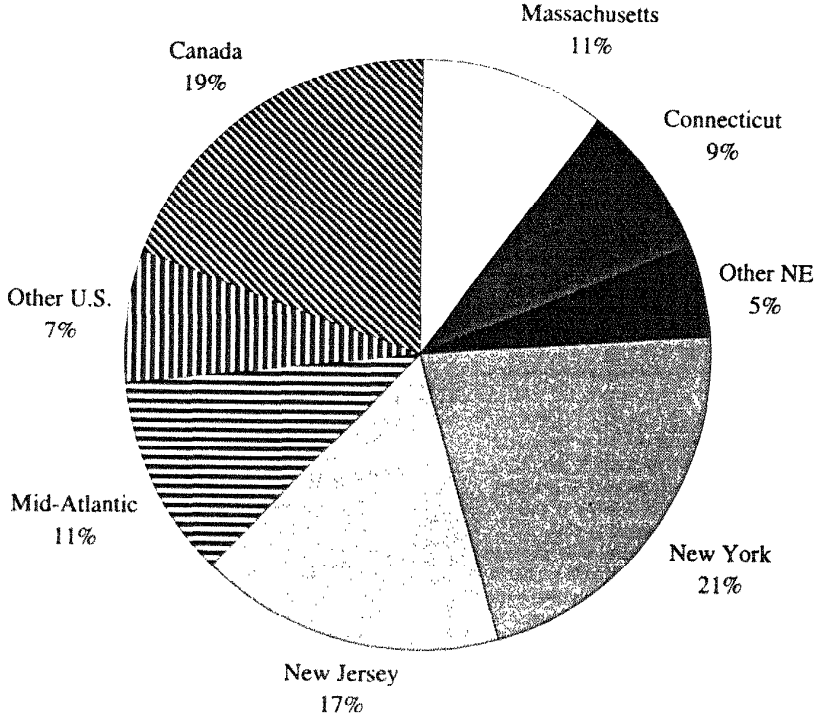

Figure 1. Sample distribution by region.

The overall response rate for the survey was approximately 20%, however, it varied by segment from the mid-teens for the purchase list to the upper twenties for the past guests. The analysis by geographic region included the 2,981 respondents out of the 4,400 total respondents who provided addresses (which were optional but necessary for the drawing for a free weekend incentive). The profiles of the respondents based on demographics and geographic region were compared with the records maintained by the resort and it was concluded that they were not significantly different. Therefore, nonresponse bias should not be a major problem.

Results

The results of the survey can be grouped into four major categories: 1) basic programs and activities, 2) fitness and exercise facilities, 3) lodging facilities, and 4) skiing activities and facilities. Mean ratings of preferences for programs, amenities and services were obtained for each of the geographic regions and then tested for statistical significance using analysis of variance (ANOVA). The ANOVA results were further analyzed using the Duncan mean separation test to determine which means were significantly different from which other means. All of the results for the study appear in Table 1.

Basic Programs and Activities

One of the significant findings in this section was that respondents from the "Other U.S." region tended to rate the children's programs lower than the other regions but rated the other activities relatively high. The respondents from the "New England" region rated dining options and shopping relatively low compared with other regions. The "Canada" region tended to rate nonski activities lower than most other regions. Overall, the most distinguishing attributes in this section were children's programs and dining options.

Fitness and Exercise Facilities

The most important attributes in this section were pool facilities and hot tub/spa. In fact, the pool and hot tub facilities rated third and fourth, respectively, in terms of overall importance. The "Canada" region rated the pool and tennis facilities higher than most of the other regions. Respondents from the "Other U.S." region tended to rate most of these activities low. This would seem to indicate that they are most concerned about skiing rather than nonskiing activities when vacationing in the winter.

Table 1. Ratings by region of resort attributes.

Attribute	Massachusetts	Connecticut	Other NE	New York	New Jersey	Mid-Atlantic	Other U.S.	Canada	F
Children's Programs	5.21	5.20	5.06	5.13	5.30	4.93	4.62	4.90	2.74*
Dining Options	5.07	4.99	4.94	5.31	5.27	5.19	5.25	5.21	2.60*
Night life	4.16	4.16	4.12	4.33	4.22	4.14	4.35	4.18	0.94
Nonski Activities	4.60	4.39	4.43	4.51	4.53	4.29	4.52	4.23	2.93*
Shopping	3.66	3.59	3.44	3.82	3.73	3.68	4.15	3.96	4.15*
Spa/Hot Tub	5.46	5.49	5.52	5.54	5.50	5.50	5.47	5.40	0.39
Ice Skating	4.87	4.96	4.89	4.66	4.88	4.53	4.25	4.29	8.79*
Pool	6.03	5.97	6.20	5.99	5.88	5.70	5.36	6.01	8.87*
Tennis	3.49	3.50	3.39	3.70	3.61	3.26	2.96	3.59	4.10*
Fitness	4.24	4.21	4.25	4.39	4.38	4.12	4.08	3.93	3.35*
Maid	4.79	5.10	4.78	5.33	5.21	4.94	5.19	4.93	5.11*
Dormitories	2.05	2.16	1.94	2.22	2.08	2.10	2.24	2.24	1.21
Hotel	4.55	4.55	4.34	4.95	4.62	4.58	4.77	4.49	3.96*
Condominiums	6.40	6.37	6.46	6.23	6.42	6.26	6.23	6.25	2.41*
Motel	3.73	3.69	3.57	3.86	3.42	3.69	3.73	3.80	2.61*
Access to Slopes	4.68	4.75	4.70	4.81	4.95	5.12	5.34	5.09	5.61*
Evening Skiing	4.31	4.68	4.33	4.42	4.36	4.58	4.87	4.81	4.86*
Quality Ski Conditions	6.49	6.49	6.55	6.42	6.51	6.50	6.20	6.54	3.38*
Adult Lessons	4.33	4.42	4.09	4.58	4.65	4.22	4.39	4.85	5.01*
Children's Lessons	5.26	5.09	4.90	5.19	5.25	4.83	4.54	5.04	3.41*
Total Budget	$1,530	$1,700	$1,545	$1,825	$1,935	$1,945	$2,185	$1,915	7.44*
Number of Vacations	2.15	2.08	2.33	2.28	2.22	2.13	1.98	2.15	0.85
Number of Children	1.85	1.95	1.94	1.73	1.89	1.73	1.45	1.71	4.77*
Sample Size	314	256	146	647	492	334	213	579	2,981

scale: 7="extremely appealing" to 1="not at all appealing"
* significant at the .05 level.

Lodging Facilities
Condominiums were rated as the most important type of lodging facility for the overall sample, and it was rated as the second highest of all the attributes in terms of importance. The least preferred type of lodging was the dormitory style. The "Canada" region and most of the New England regions rate maid service and hotels relatively low. In contrast, the "New York" and "Other U.S." region tend to rate hotels and motels higher than the rest of the sample.

Skiing Activities and Facilities
This is the most important section of attributes because the main purpose of the vacation destination choice is to ski. The most important skiing attribute was having quality skiing conditions. In fact, this attribute was rated as having the most importance in choosing a vacation destination. The "Massachusetts" and "New Jersey" regions rate the children's ski lessons higher in importance than the other regions. The "Massachusetts" and "Other New England" regions also rate adult ski lessons, access to slopes, and evening skiing relatively lower than the other regions. This is probably due to the fact that most of the respondents in these regions ski with some regularity and are not as concerned about attributes relating to extra ski time and improving adult skiing ability. For example, the "Other U.S." region rates access to slopes and evening skiing relatively high, and lessons and quality of skiing conditions relatively low. Finally, the "Mid-Atlantic" region rates adult and children's

lessons lower than the other regions and tends to rate the other attributes in this section higher than the other regions.

Trip Behavior

The number of ski vacations in a year for the different regions ranged from 1.98 to 2.33. The regions that take ski vacations with the highest frequency are: "other New England" (2.33), "New York" (2.28), and "New Jersey" (2.22). Those regions with the lowest frequency are: "other U.S." (1.98) and "Connecticut" (2.08). The average number of children per region ranged from 1.45 to 1.95. The regions with the highest averages are "Connecticut" (1.95) and "other New England" (1.94). The regions with the lowest averages are "other U.S." (1.45), "Canada" (1.71) and "Mid-Atlantic" (1.73). Finally, Figure 2 illustrates the differences in trip budgets between the regions. Those regions further away tend to have higher budgets for skiing vacations, primarily due to transportation costs and length of stay.

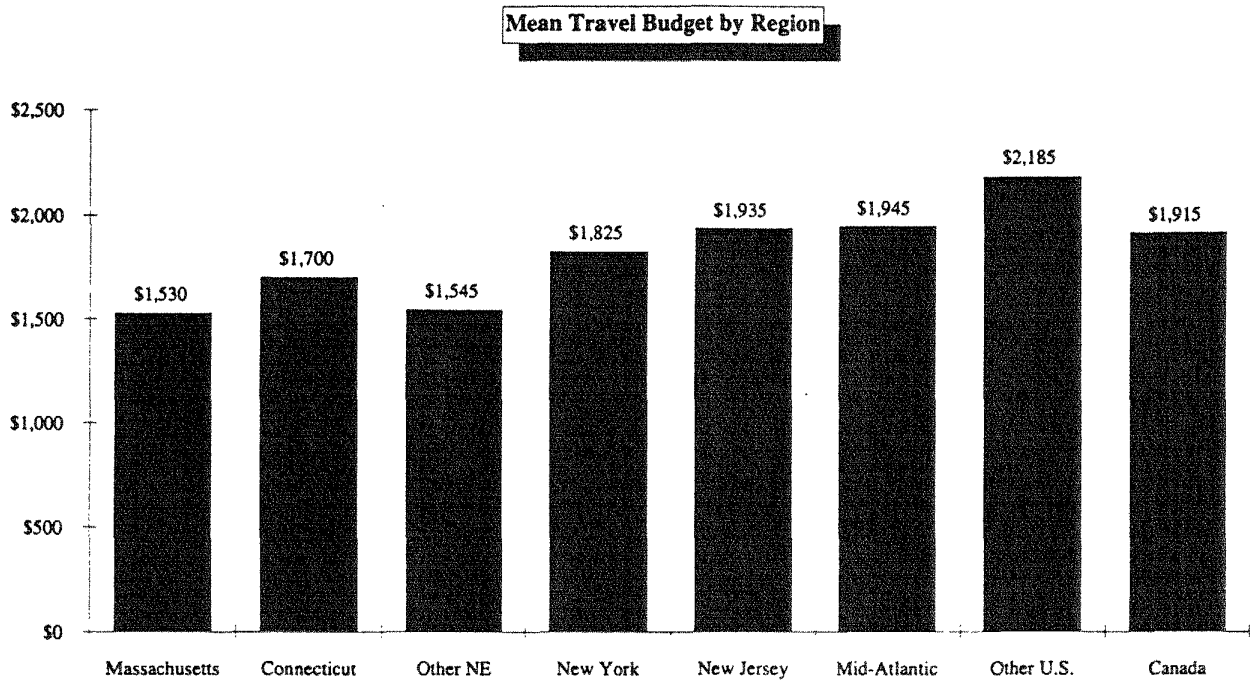

Figure 2. Mean travel budget by region.

Conclusions

Linking the survey attributes with the geographic regions provided some new insights into the marketing of a resort. The resort has done an excellent job of studying current trends in its markets and predicting future trends. The resort is seen as an innovator in family ski vacations but the other resorts in New England are attempting to copy the successful elements of its programs. Therefore, it is incumbent upon the management of the resort to stay abreast of major trends and changes, and to continually seek to be their first to develop new programs and new markets. Examining new market segmentation approaches and strategies are necessary in order to pursue new markets or refine old market strategies. Linking survey preference information with different geographic markets does show promise.

The findings of the study suggest some areas for future development. The closer markets, or regions, seem to have placed a greater emphasis on the family atmosphere and children's programs. Furthermore, a resort which heavily targets families with young children may find a restrictive geographic market. Families probably prefer to travel only so far with children in tow. Although not reported here, the households' most popular competitive winter vacation options were most highly represented from ski resorts within New England. Conversely, the more distant markets were most concerned about the skiing conditions and the basic accommodations. The resort could "unbundle" its all inclusive package to allow more "a la carte" selections. The major reasons for people not visiting the resort are price and location/distance. Travelers that place less value on family programming can find a more suitable package to fit their needs. However, management must be willing to depart from the current theme of the resort and be prepared to support this decision throughout the long term.

The Canadian market offers strong opportunities for this resort in the future. In general, they are basic skiers looking for a good value. At the present time they are pleased with the package but they must be monitored so that any necessary changes can be implemented in a timely fashion. This would also suggest that the resort develop some type of strategy to "unbundle" the package components at some future date. Many of the other New England resorts are not as familiar with the Canadian market and do not

cater to them the same way as this resort. In some respects, the Canadian market can act as a hedge against adverse economic conditions in the United States.

The trading area for this resort is definitely regional at this point (the Canadian visitors are within a 300-mile radius). That is not to say it will not change in the future, either out of necessity or design. It is important for the resort to decide if it wants to maintain the smaller family atmosphere or "commercialize" like other ski resorts in New England. The resort needs to decide if it can maintain this status with the present offering and the present markets. If growth is a goal of the firm, then it must decide among four major strategies: market penetration, product development, market development and/or diversification. The results of this study are useful in evaluating the first three strategies, especially market development.

In this study only the preferences for programs, amenities and services were addressed by geographic regions. However, additional insights can be gained as suggested by Mason and Ezell (1993) by examining/monitoring: a) the willingness to visit the area or the resort (a measure of likely responsiveness); b) the changing sizes of these different regional markets over time (a measure of sustainability); c) the demographic attributes -- income, education and professional status (a measure of measurability); d) the media preferences or how individuals learned about the attraction or resort (the accessibility measure); and e) the stability of the geographic market segments over time (the reliability measure). Furthermore, a measure of efficiency may be useful by determining the return on investment of geographic segmentation.

There are some limitations associated with this study. As with any sample, there are questions involving response bias and nonresponse bias. However, in this study the sampling frame included a large portion of the overall population and there was a substantially large response pool. These two factors should help to minimize these biases, which were analyzed to some extent by comparing the characteristics of the sample with the characteristics of the population. Nonsampling error could also have occurred as it relates to mail surveys. Respondents were asked to interpret the questionnaire and complete it in an uncontrolled environment. The questionnaire was pretested in order to minimize reliability and validity problems. Finally, the generalizability of a survey can always be questioned. The researchers intended this study to be an example of a procedure that could be used by any firm. The results are only applicable to this particular resort, and to some extent to other ski resorts in New England.

Finally, the linking of other dimensions to geographic segments does show promise here. These dimensions should be helpful to recreation and park resource managers, both public and private, as we enter into a more competitive tourism marketplace. When an agency seeks to expand its market beyond it current regional trade area, it is worthwhile to examine the preferences and differences of more distant markets. Implementation of this approach and careful monitoring over time will help to determine the success of such approaches.

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UNDERSTANDING SEASONAL HOME USE:

A RECOMMENDED RESEARCH AGENDA

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Seasonal homes are a part of many people's recreation and tourism experiences, yet few studies address the choice, characteristics, use, or impacts of seasonal homes. Methodological issues associated with seasonal homes research are discussed, and a study underway in Michigan is described to show how some of these issues can be dealt with.

Introduction

Seasonal homes are a familiar feature of the urban-wildland interface, springing up wherever there are rural, amenity rich areas within a day's drive of a population center. Between 1960 and 1980, all but 9 states recorded a net gain in the number of seasonal housing units (Spotts 1992). But in spite of their importance, visibility, and familiarity, little is known about how seasonal homes are used or the impacts of this use on the local area. Seasonal home use has some characteristics of tourism, in that it involves overnight travel away from home. Seasonal home visitors also make use of local recreation resources, and tend to be familiar enough with the local community that their use patterns and information needs are more like those of local residents than those of other tourists.

Perhaps because seasonal home use has characteristics of both recreation and tourism, neither field has done much research on seasonal homes. Information about seasonal home ownership is very limited, and comes mostly from occasional questions included in studies of other recreation or planning issues. This paper outlines the reasons seasonal home research is needed, the unique characteristics of seasonal homes that make such research difficult, and the methods that might be useful in overcoming these problems. The paper concludes with an example of how research design issues were resolved in a study of seasonal home users currently underway in Michigan.

Seasonal home use has strong links to outdoor recreation activity. Seasonal homes provide overnight lodging for single purpose trips (e.g., to a ski area) while also serving as a base for a variety of resource-based recreation activities. A 1978 study showed that a quarter of all Michigan skiers relied on family-owned seasonal homes for overnight housing during their ski trip (Stynes and Mahoney 1980). The 1980 Michigan Boating Survey found that 30% of registered boat owners also own a seasonal home, and a quarter of all registered boats are kept at seasonal homes (Stynes and Safronoff 1982). The boating study included enough seasonal home owners to identify some patterns of ownership. Young families had the lowest rates of seasonal home ownership, and rates were highest among older families and empty nesters .

Based on the findings from the boating and skiing studies, we speculate that seasonal homes may account for up to a quarter of the outdoor recreational activity in Michigan. Seasonal home ownership also plays an important role in shaping the travel and tourism behavior of seasonal home owners, including travel to and from seasonal homes as well as day trips emanating from a seasonal residence. The financial commitment associated with owning a seasonal home represents one of the biggest recreation/tourism budgeting decisions a household will make. Many subsequent leisure choices may be affected as the seasonal home becomes the primary vacation destination, and spending to furnish and maintain the home precludes other travel or recreation-related purchases.

A Suggested Research Agenda

As with any research topic, seasonal homes research should progress from exploratory to descriptive to explanatory. Seasonal homes research from the late '60's and early '70's provided some exploratory and descriptive information, including patterns of ownership and use for selected areas (Coppock 1977; Marans and Wellman 1976; Ragatz 1969). As this exploratory research is updated, we need to use qualitative approaches to enrich our understanding of behaviors, lifestyles, and meanings associated with seasonal homes.

Future descriptive research should update and expand upon early seasonal homes studies. Generating descriptions of seasonal homes trends and spatial patterns from Census data and other secondary sources would be a good place to start. Land use planners are interested in tenure, land and housing characteristics of seasonal homes, while real estate agents want to better understand the seasonal home choice process. Many business, community service, and recreation and tourism groups are interested in use patterns and needs and wants of seasonal home owners. Further descriptive research on these and other topics in different geographical areas will provide a firmer basis for explanatory and predictive studies.

Explanatory research can help us to understand the spatial, temporal, and activity patterns associated with seasonal homes in order to anticipate future patterns (e.g., Bell 1976; Burby et al. 1972; Tombaugh 1968). Explanatory studies are also crucial in assessing the short and long range social, economic, and environmental impacts of seasonal homes (Gamble et al. 1975; Gartner 1986). Establishing linkages between seasonal homes research and other areas of research, such as retirement migration, recreation, leisure time, travel, land use, and community development is a critical part of seasonal homes research. Existing fields of study such as these will continue to be a major source of theoretical concepts and models, at least until seasonal homes research makes significant progress.

Seasonal homes research topics are many and varied. Four general research themes deserve some attention: 1. seasonal home choice processes; 2. characteristics of seasonal homes/properties; 3. characteristics and behavior patterns of seasonal home owners and users, and 4. impacts of seasonal home properties.

Understanding Seasonal Home Choice

Buying a seasonal home involves a complex, extended decision process which does not resemble the simpler consumer or recreation choices upon which most choice research to date has focused (Stewart 1994). The seasonal home decision provides an opportunity to conduct basic research on long term, complex choice processes. Understanding how people learn about, evaluate, and choose among options can provide new insights into other complex decisions consumers make, and may also shed new light on simple choice processes. Because the seasonal home is not a necessity, the buyer is seldom under time pressure to complete the decision process. This condition, together with the spatial dispersion of the alternatives being considered and the lack of a centralized information source, makes the pace of seasonal home decision making quite slow compared to other decision processes. While decision research rarely includes a temporal component, there is reason to believe that the passage of time does affect decision making (Stewart and Stynes in press). Observing a decision process which occurs slowly allows identification of the sequence of events and potential inter-dependence between time, the decision making environment, and the decision maker.

The seasonal home choice process also highlights the factors that draw buyers to an area. Understanding the buyer's decision process can help real estate agents anticipate problems the buyer may experience at different stages of the decision process, so that s/he can provide the right kind of assistance throughout the buying process.

Seasonal Home Characteristics

Although Census of Housing data provides an estimate of how many seasonal homes there are in a given area, there is seldom any other information available on the characteristics of seasonal properties. Research needs to provide more descriptive information, including structural characteristics (single or multiple unit, winterization), spatial distribution, physical setting (lake, forest), subdivision or association affiliation, ownership type (condominium, timeshare) and so on. The environmental impacts of seasonal properties were a particular concern in the 1970's (e.g., American Society of Planning Officials 1976; Gamble et al. 1975), and can be best understood if the physical characteristics of seasonal properties are known. In the wildland-urban interface where wildfire may be a threat, it is important to assess the structural characteristics, building materials, and lot characteristics (e.g., distance to trees, driveway configuration) to determine what steps could be taken to make a property more defensible in the event of wildfire (Fried 1993). General land use planning, often a contentious process in amenity-rich areas facing development pressures, is also facilitated by information about seasonal home properties.

Understanding Seasonal Home Owners and Users

Seasonal home owners and users represent two population groups with many potential differences. Describing the demographic characteristics of these groups is a necessary precursor to any other seasonal homes research. The motivations for seasonal home ownership or use, the patterns of use, recreation activity patterns, and market area for seasonal home developments should also be addressed.

The attitudes, values, and beliefs of seasonal home owners are often different from those of permanent residents (Marans and Wellman 1978). When a community is seeking the input of its residents, it is important that seasonal residents are systematically included. Seasonal residents' preferences for community services, health care, education, and infrastructure should be considered, and should not be assumed to mirror those of permanent residents (Girard and Gartner 1993).

Public land managers will have contact with seasonal residents in many areas because public lands provide viewsheds, open spaces, and recreational resources that seasonal residents value. Seasonal residents generally have less experience with rural land management practices, do not hold jobs in the local area, and are very concerned about maintaining the recreational and amenity resources, which taken together can make them unsympathetic to extractive uses of natural resources. Their viewpoints may be backed by enough education and experience with policy issues to make them a formidable interest group, whichever side of the land management debate they favor.

Measuring The Impact Of Seasonal Properties

The impacts of general tourism have been of great interest to tourism researchers and local communities, especially regarding how much tourism is "worth" to an area in economic terms. Seasonal visitors bring money into the region, and may spend considerably more, perhaps in less "leaky" sectors, than do short-stay visitors. Groceries, recreational equipment - often including major items such as boats or skis - home furnishings, and home maintenance services are a few of the categories where seasonal residents are quite likely to outspend other tourists. Many of these purchases are made in the local area because the items are specifically designed for the resort area (e.g., "cottage" style furnishings). Others are difficult to transport, making it impractical to bring them from home (e.g., appliances or fresh food). Including seasonal home owners and users in economic impact studies, preferably as a separate segment of visitors, would allow us to refine our understanding of tourism impacts, and to know what kind of impacts a community can expect when much of its tourism activity is generated by seasonal homes (Waters, 1990).

Recreation planners need to know how many people visit the seasonal homes in their area, for how long, and in which seasons of the year. Seasonal home owners and their guests often make use of local recreational facilities and should be included in local recreation needs analyses. The availability of major recreation facilities (e.g., downhill ski areas, golf courses) and amenity natural resources (e.g., forests, streams, and lakes) are important factors in attracting seasonal home buyers to a location (Stewart 1994). Performing a recreation needs analysis that does not include seasonal residents not only undercounts potential users, but also fails to recognize the needs and preferences of a group of tax paying citizens.

Traditional population forecasting methods that rely on permanent resident counts have proven very inaccurate in predicting amenity-related migration. Seasonal home owners often convert their seasonal residence to a permanent retirement home. Research is needed to identify the property types, seasonal home owners or user characteristics, and communities where conversion is most likely. By estimating conversion rates for seasonal home communities and/or housing types and including them in population and economic forecasts, we can better predict future retirement migration in an area.

Social impacts associated with seasonal properties range from seasonal upswings in infrastructure and public service demands to potential for future retirement migration to clashing values and beliefs. Unlike tourists who visit for a short time and then leave, seasonal residents participate in community life more fully. They patronize local businesses, use public resources and facilities, and involve themselves in local policy issues. Seasonal home owners pay local property taxes in amounts that can be significant, in that they often own a rural area's most valuable residential property.

Methodological Issues

There are two ways we can learn more about seasonal homes and their use; (1) through studies targeted specifically at seasonal homes, owners, or users; and (2) by clearly identifying seasonal home owners or users as subpopulations in general recreation and travel studies. The former are critical to obtaining a comprehensive profile of seasonal homes, their owners, and users. The latter help place seasonal home activity within the broader context of recreation and tourism.

Seasonal homes research is complicated by several factors. The basic design issues are discussed under two broad categories:

1) population and sampling issues, and
2) measurement problems.

Population and Sampling Issues

In any survey it is important to begin with a clear definition of the study population. There are four populations relevant to seasonal homes research; seasonal homes, seasonal home owners, seasonal home users, and trips to seasonal homes. Studies that measure characteristics of all four populations within a single instrument must keep careful track of units of analysis and apply appropriate weights and adjustments to account for differences between the sampling unit and the unit of analysis. For example, if one samples homes and asks about the last trip to the home, trips by frequent users will be underrepresented. Conversely, a traffic intercept study would overrepresent owners who make frequent trips. The potential biases and appropriate weighting procedures are similar to those discussed by Perdue (1986) for travel surveys. Most seasonal home surveys will sample from populations of homes or properties in seasonal home areas. Complete sampling frames rarely exist, as most property listings do not clearly distinguish seasonal from permanent residences. What was a seasonal home one year may be a permanent residence the next, or vice verse. Whether a cabin, trailer, camping vehicle, or boat is classified as a seasonal home will depend on the study purpose.

Home owners are rarely in one to one correspondence with seasonal home properties, so some care must be taken when sampling properties to study home owners. For many variables of interest, different responses will be given by male and female heads of a household. The variety of joint ownership arrangements associated with seasonal homes (e.g., partners in ownership, extended family ownership, time-sharing) can further confound surveys. Should all owners be surveyed, just the principle owner, or a randomly chosen owner? There is no one way to deal with these issues, but the researcher must be aware of them and plan a way to handle them.

Studying seasonal home users poses even more difficult problems. Users may include the owner, family, and friends, as well as renters. The owner may handle rentals or may turn the job over to a property management firm. Users will include both day and overnight visitors. The owner may not be able to speak for all users, and may not even be aware of some. Use will vary over the course of the week, weekend and year with recreational activities, season, and school vacation schedules. Sampling should be done carefully to insure adequate representation of different time periods.

Measurement Issues
The wider the variation in seasonal home characteristics, the more difficult it becomes to design structured questionnaires that apply well to all the possible situations. Personal or telephone interviews have the clear advantage over mailed instruments in allowing for flexible questions and response categories, but both approaches introduce sampling problems in that seasonal homes are occupied on an infrequent basis and may not have telephones. A seasonal home use scenario illustrates several measurement problems:

> *Chris and Pat Doe own a cabin in northern Michigan. Chris comes up to the cabin with two children and stays the whole month of June. Pat commutes every day for the first week, doesn't come the second week, and spends the last 2 weeks at the cabin on vacation. On one day of their stay, Chris and Pat drive 60 miles to a nearby National Park, sightsee in the area, then return to their cabin that night. During this time their eldest daughter and her family stay at the cabin for 4 nights, and two other couples visit on weekends. The Does leave the key for a neighbor who may use the cabin in the next two weeks.*

Complex patterns of use like these pose problems in how to measure "use". Should one measure nights or days the cabin is occupied, or trips to the cabin? How should one handle commuting and distinct parties arriving in separate vehicles? What is "party size" in this situation? Measuring recreation activity is even more difficult as different people may engage in different activities in each day of their stay.

The Doe's trip to the National Park illustrates problems with handling trips originating at the seasonal home in recreation and travel surveys. Would a survey of park visitors ask for the Doe's permanent address and assume the trip began there? Origins and destinations become less well defined when the seasonal home is used as a temporary "permanent" residence. Determining trip origins is especially troublesome for people who split their time between two permanent residences (e.g., in Michigan and Florida). Problems like these must be handled properly to insure the data's reliability and validity.

A Study of Seasonal Homes

A study of seasonal homes and home owners currently underway in northern Michigan illustrates some of the research questions that can arise in seasonal homes research, and our decisions on how to address them in this situation.

This study has three primary objectives: 1) to describe characteristics of seasonal homes (location, acreage, value, tenure, and setting), and seasonal home owners (household size and makeup, income, age, motivations for ownership, retirement status, recreation interests); 2) to measure patterns of seasonal home use, and recreation activity associated with seasonal homes; and 3) to estimate local area economic impacts associated with seasonal homes .

Design
The study objectives suggest somewhat distinct survey approaches. Based on the first objective alone, the study called for a general cross sectional survey of seasonal homes or seasonal home owners where we would send out surveys to a representative sample for a single point in time. As we began designing possible questions, it became clear that this approach posed problems for obtaining reliable information on use, recreation activity, and spending. While owners could probably estimate annual property tax, insurance, and major maintenance and repair costs for the past year, it was unlikely that they could recall detailed patterns of use and trip spending over an entire year. We could simplify the task by getting "last trip" information, but then the timing of the surveys becomes critical. No single time could capture complex seasonal use and activity patterns. Meeting objectives 2 and 3 required sampling throughout the year. Options included using a panel study in which the same home owners would be recontacted throughout the year, or drawing independent samples to be surveyed, in our case a subsample for each month of the year.

The use of a panel survey was ruled out. Not only would patterns of seasonal home use tend to aggravate the usual problems of panel attrition, but contact would need to be made by telephone, which many seasonal homes, especially the more modest ones, do not have. There were problems with surveying a new group of seasonal home owners each month as well. If general population characteristics were measured in different months, would the answers vary by season? Assessing economic impacts required measures of both annual and trip-related expenses in the local area. If independent samples were surveyed each month should we fix the year for annual expenses at calendar 1993 yielding distinct recall periods for different samples, or should we request annual spending within the past 12 months, so that each group was reporting spending for a different set of 12 months? We concluded that annual spending on property taxes, insurance, and so on were best gathered near tax time, suggesting a mailing to the full sample in the spring.

This left us with the problem of how to collect reliable data on seasonal home use, including recreation activity and spending while at the seasonal home. We were not sure that owners could make reliable estimates of these variables for an entire year's activities. Serious recall problems seemed likely, compounded by extremely variable use patterns across individuals and seasons of the year. Measuring use with any reasonable degree of accuracy and precision called for a different approach. We decided to adopt the "last trip" approach from travel surveys. We would ask for detailed information about party size, spending, and recreation activities only for the most recent trip. This would reduce recall error and simplify the questionnaire.

After weighing the two approaches (e.g., one survey sent in the spring versus surveys sent each month), we decided to compromise and do both in a two-phase survey. A general survey was sent to the full sample of 1300 seasonal homes in late May. The ***general*** survey covers descriptive information (objective 1) and annual expenses associated with the seasonal home. This will be followed by a 2-page ***trip*** survey that measures length of stay, recreation activity, party size, and trip spending for the most recent trip to the seasonal home. The trip survey also measures the number of nights the home has been occupied during the previous month. The first trip survey was mailed with the general survey to save on mailing costs. In subsequent months, we will sample only from subjects who have returned the general survey and agreed to fill out another 1 page (trip) survey. This allows us to eliminate properties that do not qualify as seasonal homes, and should significantly increase response rates for the phase 2 surveys.

Sampling
Our sample of seasonal homes was drawn from names of property owners on county property tax roles. Six counties were chosen to provide good representation of Great Lakes and inland areas on both the east and west sides of Michigan's northern lower peninsula. Three townships within each county were chosen, and names and addresses selected randomly from the property tax listings. Properties were considered "seasonal" if the permanent mailing address was non-local. Vacant properties were eliminated by excluding all properties valued at less than $10,000. Rental, commercial, and other non-seasonal home properties will be screened out by the first questionnaire. This sampling approach misses some low value seasonal homes, and any seasonal home owners whose tax bills are mailed to the seasonal home. Mailing to all property owners, however, would at least double the cost of the study. Going door-to-door was also considered, but judged to be too expensive and not effective enough, since few people are at seasonal homes in early spring.

Measurement
Some of the complexities of the design and reasons for particular questions can be illustrated for objective 2. For each county or area, we would like to estimate the number of people staying in seasonal homes by season or month. To estimate this number, we need to multiply the number of seasonal homes in the area by the average number of days per month it is occupied, by the average number of people in the home each day. Seasonal home counts are available from the Census. Monthly occupancies will be obtained in the trip survey. Respondents will be asked to circle the days of the month the home will be occupied on a calendar for that month. We will compute the average days occupied, test for variations by region and other characteristics, and estimate some simple models to explain variations and predict occupancy rates by month. Party size will be estimated for the most recent trip to the seasonal home. Information about guests and other visitors staying at the seasonal home during the recent stay will be included in estimating a daily party size. Recreation activity participation data for the recent stay will be gathered so that person days of boating, fishing, hunting and so on can be estimated in a form comparable to recreation use estimates for permanent residents. In a related study we will estimate recreation activity for visitors staying overnight in campgrounds and motels and for day users from outside the county in order to round out the complete picture of recreation use at the destination.

Conclusions
Seasonal homes are an important element of recreation and tourism. The existing research on seasonal homes needs to be updated and extended, working from exploratory to descriptive to explanatory studies.

A number of somewhat unique definitional, sampling, measurement, and overall research design problems arise in studying seasonal homes. These problems require attention to increasing the efficiency of seasonal home studies, while also capturing quite extensive variations within the population: variations in seasonal home types, in the characteristics and motivations of owners, in the recreational activity patterns of seasonal home users, and in the spatial and temporal use patterns of owners and others. As with recreation and tourism research more generally, seasonal home research will benefit from a variety of research approaches, including qualitative and quantitative, cross sectional and longitudinal, and use of both primary and secondary data sources. The temporal dimensions of seasonal home choice and use indicate a need to employ longitudinal designs, including time diaries, panel studies, and creative analyses of secondary data.

Other sources of information about seasonal home users include general recreation and travel studies. Recreation activity at and trips to seasonal homes are frequently measured in these studies, although the extent and accuracy of coverage is often unclear. If seasonal home owners are not explicitly included as a population subgroup in a recreation or travel study, much seasonal home related activity will be missed or measured inaccurately. It is better to exclude seasonal home use entirely than to be unsure about which or how much seasonal home activity has been included in a general recreation or travel study. In particular, general survey measures of the temporal patterns of both vacation trips and recreation activity could be substantially affected by the inclusion of a subgroup of seasonal home owners. If seasonal home use is to be covered by a recreation or travel study, the definition of the study population, sampling, and measurement instrument (i.e., the design and wording of questions) must be given careful attention. Questions should be evaluated to make sure they apply to the seasonal home subpopulation, and analyses should take into account the distinct patterns of this subgroup. As we gain a better understanding of the characteristics and behavior patterns of this population subgroup, our ability to accommodate them properly within other studies will improve.

Finally, recreation and travel surveys that do not intend to measure seasonal home related activity must be aware of possible contamination in their results if such activity is not explicitly excluded in their sampling frame or through filter questions. Recreation and travel researchers should assume that any activity potentially related to seasonal home use (e.g., local recreation during the tourism seasons, travel to and from popular recreation or tourism areas) may involve a population subgroup of seasonal home owners. Researchers need to make a conscious decision to include or exclude seasonal home owners. If the choice is to include the seasonal home subpopulation, we recommend treating it as a separate population stratum and carrying out some subgroup analyses. This approach will assure that the seasonal home component has been properly covered, while also contributing to our understanding of this important component of recreation and travel activity.

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