

CHAPTER VIII TN 26: MEASURES FOR ASSESSING THE SIGNIFICANCE OF OBSERVED PARTICIPATION IN RECREATION ACTIVITIES

By J. Beaman and J.B. Leicester

ABSTRACT

At present, standards such as "x facilities per thousand people" are used as the basis for policy, and facility and program planning. However, these standards do not take into account such population characteristics as age and sex which directly influence the type of recreation programs required as well as facility design. Consequently, the reliability of the currently used standard or "general standard" is questionable. This paper presents an evaluation technique that considers the age-sex variable and postulates "Internal Standards" as a means of assessing the significance of participating in recreation activities.

The Internal Standards are derived from recreation participation records available for existing recreation facilities and programs. Population characteristics, age and sex, as well as the general class of recreation activity (i.e. athletic, social, etc.) information must be available before rates of participation can be determined. It is claimed that the minimum level of data required for making decisions in a large-scale operation is often the kind generated by the procedure described.

OBJECTIVE

The objective of this paper is to present a means of assessing the significance of participation and frequency of participation in recreation activities in relation to the planning and management processes for recreation areas and facilities.

INTRODUCTION

The current application of recreation facility standards such as "X" space or facilities per thousand people, which is accepted and used as a basis for policy, facility, program and area planning, leaves much to be desired. This is so because the utilization of these standards fails to take into account such factors as a population's age and sex characteristics; programs available; geographic accessibility of facilities, all of which have a marked effect on the type of recreation facilities and programs that will be used. Because of the abundance of work showing the importance of age, sex and other factors in explaining participation patterns no attempt is made to review this literature. Probably the best known works are Volumes 19, 20 and 22 of the USA Outdoor Recreation Resources Review Commission, O.R.R.R.C. Report(1962).

The general widespread use of the type of recreation facility standards referred to above can be partially explained by their availability as in the U.S. Department of the Interior's text, Outdoor Recreation Space Standards (Dept. of Interior 1965). This and similar books are devoted to the listing of standards for recreation areas and facilities for a comprehensive assortment of outdoor activities. In such volumes, there is a mechanistic matching of facilities need to numbers of people. Of course for planning and management purposes one could go to the other extreme of elaborate data collections and analysis involving the use of factorial and cluster programs. However, interpretation of the results of such sophisticated and costly programs are generally beyond the means of the majority of recreation administrators and planners, and so go unused.

What is needed is a relatively simple methodology to facilitate evaluation and planning decisions and to present such is the business of this article. It is important to note that although this paper deals with "national" recreation management and planning, the approach can also be used in neighborhood, municipal, regional or provincial contexts. Actually, the data used in this presentation were taken from the CORDS and detailed documentation on them is provided in the CORDS Data Documentation (Volume III). The data used were collected in 1972 from each of

the 4000 individuals, ten years of age and over, on their participation in eighteen outdoor recreation activities. But, the method of analysis presented here was developed by the authors in 1967 while conducting a study of participation at community centres in the City of Winnipeg. Rather than conducting a survey of Winnipeg's residents, existing participation data from community centres were used in generating assessment measures.

COMPUTATIONS

The rationale behind the assessment procedure presented is simple. Once the rudimentary procedure is understood, the relevance of a myriad of variations of the basic procedure to planning or to management problems becomes apparent. Also, how the appropriateness of different assessment measures depends upon the objectives of a given analysis can be easily explained when the mechanics of computing assessment measures can be ignored and the focus of discussion can be the "meaning" of the numbers computed. It is for these reasons that this section is devoted to introducing the computational procedure.

Before presenting some information on obtaining the numbers in Table 1, it is convenient to give interpretations of some of these numbers both to aid one in reading Table 1 and the discussions regarding it. So to proceed, one should look in Table 1 and find the following weighted survey results which relate to peoples participation in outdoor recreation between 1 November 1971 and 31 October 1972:

- (1) 19= Number of Male Historic Site users age 10 to 19 for the Atlantic Provinces
- (2) 91= Total number of visits by 30 to 49 year old Western Canadian females interviewed to Historic Sites amount of Use
- (3) 59= Number of 10 to 19 year old Atlantic Provinces males interviewed
- (4) 46= Number of 30 to 49 year old Western Province females interviewed
- (5) 2.96= Average number of Historic Site visits by 10 .19 year old Atlantic Provinces males Amount/Number of participants
- (6) 5.05= Average number of activities participated in by 30 to 49 year old Western Canadian females who participated in any of the 18 activities considered amount/number of participants
- (7) 39= Number of 30 to 49 year Ontario females who participated in at least one of 18 activities.
- (8) 259= Total number of the 18 activities participated in by Quebec males 50 or more years of age.

Reference to weighted survey results was made above because in the national survey from which data were obtained it was necessary to give different weights to different individuals to reflect the importance the individual should have. For details on the survey design and weighting one may see the CORD Study Data Documentation, specifically the chapter on national surveys.

To understand what information on total numbers of participants and amount of participation means in Table 1 is simple when one considers historic site use or fishing. In the case of these two activities the survey data include the answer to the question "How many times did you participate in the activity X?" (where X is a list of 18 activities). If a person indicated some participants one simply adds up the weights for all of the participants. The total amount of participation for people in a certain category (e.g. age-sex group) is obtained by multiplying the number of times that each individual indicated he participated by the weight that that individual has and adding up these products for all individuals in a certain category. For those who are not familiar with weighting of data, it is easy to see that each individual has a weight of 1 so that what is being added up is the number of times that the individual says they participated.

A problem in interpreting the information in Table 1 has to do with the "18 activities group". It is to know what is meant by this variable. This variable was created by determining how many out of 18 activities each individual participated in at least once. Therefore, a variable was created that has values between 0 and 18, with 0 indicating no participation in any of the 18 activities considered and 18 indicating participation in all of the activities considered. In the case of this variable, participated information indicates the proportion of the population that

participated in at least one of the 18 activities (had a non-zero value for this particular variable). The amount of information for this variable was generated by multiplying the weight for an individual by the number of activities that the individual actually participated in at least once. So the grand total amount is the weighted total number of activities in which all individuals participated. This explains the interpretation given to items six, seven and eight of the definitions for Table 1 which were given earlier.

TABLE 1: INFORMATION ON NUMBERS OF PEOPLE INTERVIEWED, NUMBERS PARTICIPATING IN THREE CLASSES OF ACTIVITIES AND AVERAGE AMOUNT OF PARTICIPATION PER PARTICIPANT (AMOUNT/PARTICIPATION)

Age Group	S E X	Number of Participants					Amount of Participation				
		Region					Region				
		Atl.	Que.	Ont.	West	B.C.	Atl.	Que.	Ont.	West	B.C.
		HISTORIC SITE USE									
	M	19	62	99	27	45	56	151	313	232	129
	F	19	46	109	19	35	169	124	393	67	107
		FISHING									
10-19	M	42	101	152	29	70	857	1003	2428	398	888
	F	10	60	68	20	31	65	428	794	103	139
		18 ACTIVITIES GROUP									
	M	56	179	216	49	108	402	1309	1746	396	815
	F	42	171	189	52	101	250	1088	1340	410	704
		HISTORIC SITE USE									
	M	10	33	65	11	33	54	401	328	54	134
	F	15	40	54	16	29	72	185	230	48	181
		FISHING									
20-29	M	16	57	60	22	33	116	494	763	152	271
	F	7	21	37	8	24	32	79	323	20	141
		18 ACTIVITIES GROUP									
	M	30	101	124	33	69	159	628	784	172	417
	F	34	107	125	25	67	157	506	762	151	396
		HISTORIC SITE USE									
	M	16	47	71	19	25	75	116	312	150	121
	F	10	54	76	19	39	37	208	277	91	150
		FISHING									
30-49	M	30	56	83	23	39	318	426	615	267	493
	F	11	29	40	7	20	143	195	261	43	179
		18 ACTIVITIES GROUP									
	M	39	121	166	46	74	183	567	825	235	383
	F	32	157	166	39	83	118	601	785	197	383
		HISTORIC SITE USE									
	M	7	20	49	17	19	20	56	306	162	55
	F	16	30	45	13	28	32	213	199	55	123
		FISHING									
50+	M	8	22	50	16	30	123	146	356	221	518
	F	0	9	8	7	7	0	70	92	109	40
		18 ACTIVITIES GROUP									
	M	25	82	131	38	68	82	259	435	147	291
	F	31	95	114	36	62	89	277	351	119	216

TABLE 1 (continued)

Age Group	S E X	Amount/Participation					Number Interviewed				
		Region					Region				
		Atl.	Que.	Ont.	West	B.C.	Atl.	Que.	Ont.	West	B.C.
		HISTORIC SITE USE									
	M	2.96	2.44	3.16	8.59	2.86					
	F	8.89	8.9	3.60	3.53	3.05					
		FISHING									
10-19	M	20.4	9.9	15.97	13.72	12.68	59	191	210	49	110
	F	6.5	7.11	11.67	5.15	4.48	43	177	196	53	101
		18 ACTIVITIES GROUP									
	M	7.18	7.87	3.08	8.08	7.45					
	F	5.95	6.24	4.25	7.89	6.97					
		HISTORIC SITE USE									
	M	5.1	12.15	5.04	4.91	4.06					
	F	4.8	4.62	4.25	3.0	6.24					
		FISHING									
20-29	M	10.37	8.59	12.71	6.90	8.21	32	110	129	33	71
	F	4.57	3.76	8.72	2.5	5.89	39	113	140	26	69
		18 ACTIVITIES GROUP									
	M	4.63	6.21	6.32	5.21	6.04					
	F	4.59	1.46	6.09	6.04	5.91					
		HISTORIC SITE USE									
	M	4.69	2.34	4.53	7.89	4.84					
	F	3.7	3.84	3.64	4.79	3.85					
		FISHING									
30-49	M	10.6	7.6	7.39	11.61	12.64	44	144	180	48	80
	F	13.9	4.96	6.52	6.14	8.95	44	177	230	46	100
		18 ACTIVITIES GROUP									
	M	4.69	4.68	4.96	5.11	5.17					
	F	3.69	3.79	4.73	5.05	4.61					
		HISTORIC SITE USE									
	M	2.85	2.8	6.24	9.53	3.11					
	F	2.0	7.1	4.42	4.23	4.39					
		FISHING									
50+	M	15.33	6.63	7.12	13.81	17.27	44	111	177	49	87
	F	0	7.77	11.5	15.57	5.71	46	132	175	43	85
		18 ACTIVITIES GROUP									
	M	3.24	3.16	3.32	3.87	4.24					
	F	2.87	2.91	3.07	3.31	3.44					

Two technical points deserve mention for those who may choose to work with the data used to perform this analysis. One will find that some people did not respond properly to the questions asked and consequently there are codes that do not correspond exactly to the certain number of times that a person participated in activity X the year before the survey. These codes indicate responses such as participated several times or I participated monthly. Such codes were translated in a systematic way that is documented in the document section of the SPSS file from the data. The file is available from the University of Waterloo – see instructions in CORDS web posting introductory). The other point is, that for the purposes of the record the 18 activities on which the 18 activities group variable was based are:

- | | | |
|--------------------|-----------------------------------|----------------------------|
| 1. Tent Camping | 7. Sailing | 13. Picnicking/Cooking Out |
| 2. Trailer Camping | 8. Bicycling | 14. Walking/Hiking |
| 3. Pickup Camping | 9. Fishing | 15. Ice Skating |
| 4. Hunting | 10. Sightseeing - private vehicle | 16. Horseback Riding |

5. Power Boating
6. Canoeing

11. Snow Skiing
12. Snowmobiling

17. Visiting Historic Sites
18. Driving For Pleasure

In themselves the numbers in Tables 1 mean little since they depend on the size of sample. For example numbers like (3) and (4) defined earlier are numbers to which a total number participating must be related. To correct the "totals" so that they reflect the distribution of population, a second group of numbers must be calculated. Here these rates are called per capita attendance coefficients (PAC) and are computed by dividing numbers in the upper part of Table 1 by corresponding numbers interviewed from the lower right section of Table 1. One can see that the numbers in the upper part of Table 2 (such as the Per capita Frequency for Historic Site Use by western females 20-29) is obtained by dividing 48 from the upper right of Table 1 into 26 from the lower right.

TABLE 2: PER CAPITA PARTICIPATION AND AMOUNT RATES, AND NORMALIZED PER CAPITA PARTICIPATION AND AMOUNT RATES (BASED ON DATA IN TABLE 1)

Age Group	S E X	Per capita Number of Participants					Per capita Participation				
		Region					Region				
		Atl.	Que.	Ont.	West	B.C.	Atl.	Que.	Ont.	West	B.C.
HISTORIC SITE USE											
	M	.32	.32	.47	.55	.41	.95	.79	1.49	4.73	1.17
	F	.44	.26	.56	.36	.35	3.93	.70	2.01	1.26	1.06
FISHING											
10-19	M	.11	.53	.72	.59	.64	14.53	5.25	11.56	8.12	8.01
	F	.23	.34	.35	.38	.31	1.51	2.42	4.05	1.94	1.38
18 ACTIVITIES GROUP											
	M	.95	.94	1.03	1.00	.98	6.81	6.85	8.31	8.08	7.41
	F	.98	.97	.96	.98	1.00	5.81	6.15	6.84	7.74	6.97
HISTORIC SITE USE											
	M	.31	.30	.50	.33	.46	1.69	3.65	2.54	1.64	1.89
	F	.38	.35	.39	.62	.42	1.85	1.64	1.64	1.85	2.62
FISHING											
20-29	M	.50	.52	.47	.67	.46	3.63	4.49	5.91	4.61	3.82
	F	.18	.19	.26	.31	.35	.82	.70	2.31	.77	2.04
18 ACTIVITIES GROUP											
	M	.94	.92	.96	1.00	.97	4.97	5.71	6.08	5.21	5.87
	F	.87	.95	.89	.96	1.00	4.03	4.48	5.44	5.81	5.74
HISTORIC SITE USE											
	M	.36	.33	.39	.40	.31	1.70	.76	1.73	3.13	1.51
	F	.23	.31	.37	.41	.39	.84	1.18	1.36	1.98	1.50
FISHING											
30-49	M	.68	.39	.46	.48	.49	7.23	2.96	3.42	5.56	6.16
	F	.25	.16	.20	.15	.20	3.25	1.10	1.29	.93	1.79
18 ACTIVITIES GROUP											
	M	.89	.84	.92	.96	.53	4.16	3.94	4.58	4.90	4.79
	F	.73	.89	.82	.85	.83	2.68	3.40	3.87	4.28	3.83
HISTORIC SITE USE											
	M	.16	.18	.28	.35	.22	.45	.50	1.73	3.31	.68
	F	.35	.23	.26	.30	.33	.70	1.61	1.14	1.28	1.45
FISHING											
50+	M	.18	.20	.28	.33	.34	2.80	1.32	2.01	4.51	5.95
	F	0	.07	.05	.16	.08	0	.53	.53	2.53	.47
18 ACTIVITIES GROUP											
		.57	.74	.74	.78	.72	1.86	2.33	2.46	3.00	3.34
	F	.67	.72	.65	.84	.73	1.93	2.10	2.01	2.77	2.54

TABLE 2 (Continued)

Age Group	S E X	Normalized Per capita Number of Participants					Normalized Per capita Participation					
		Region					Region					
		Atl.	Que.	Ont.	West	B.C.	Atl.	Que.	Ont.	West	B.C.	
		HISTORIC SITE USE										
	M	.58	.58	.85	1.00	.75	.20	.17	.31	1.00	.25	
	F	.78	.46	1.00	.64	.62	1.00	.18	.51	.32	.27	
		FISHING										
10-19	M	.98	.73	1.00	.82	.88	1.00	.36	.79	.56	.55	
	F	.60	.89	.92	1.00	.81	.37	.60	1.00	.48	.34	
		18 ACTIVITIES GROUP										
	M	.92	.91	1.00	.99	.95	.82	.82	1.00	.97	.89	
	F	.98	.97	.96	.98	1.00	.75	.79	.88	1.00	.90	
		HISTORIC SITE USE										
	M	.62	.60	1.00	.66	.92	.46	1.00	.69	.45	.52	
	F	.61	.56	.63	1.00	.67	.70	.62	.62	.70	1.00	
		FISHING										
20-29	M	.75	.77	.70	1.00	.68	.61	.76	1.00	.78	.65	
	F	.51	.54	.74	.88	1.00	.35	.30	1.00	.33	.88	
		18 ACTIVITIES GROUP										
	M	.94	.92	.96	1.00	.97	.82	.94	1.00	.86	.96	
	F	.87	.95	.89	.96	1.00	.69	.77	.94	1.00	.98	
		HISTORIC SITE USE										
	M	.90	.82	.97	1.00	.77	.54	.24	.55	1.00	.48	
	F	.56	.76	.90	1.00	.95	.42	.59	.68	1.00	.76	
		FISHING										
30-49	M	1.00	.57	.67	.70	.72	1.00	.41	.47	.77	.85	
	F	1.00	.64	.80	.60	.80	1.00	.34	.40	.28	.55	
		18 ACTIVITIES GROUP										
	M	.93	.87	.96	1.00	.97	.85	.80	.93	1.00	.98	
	F	.82	1.00	.92	.95	.93	.63	.79	.90	1.00	.89	
		HISTORIC SITE USE										
	M	.46	.51	.80	1.00	.63	.13	.15	.52	1.00	.20	
	F	1.00	.66	.74	.86	.94	.43	1.00	.71	.79	.90	
		FISHING										
50+	M	.53	.58	.82	.97	1.00	.47	.22	.34	.76	1.00	
	F	0	.43	.31	1.00	.50	0	.21	.21	1.00	.18	
		18 ACTIVITIES GROUP										
	M	.73	.65	.95	1.00	1.00	.55	.70	.74	.90	1.00	
	F	.80	.86	.77	1.00	.87	.70	.76	.73	1.00	.92	

The coefficient produced in this way is referred to as a per capita participation rate if it is based on participation figures, while if it is based on amount of participation it is referred to as per capita amount rate. In terms of numbers presented earlier one may note that there should be no misimpression that a per capita rate of participation reflects the behaviour of an "average" individual. The participation information shows that varying proportions of the population in different age and sex groups in different regions participate. Average amount numbers like (5) and (6) show that there is often a high level of participation by the participants in an activity five or more times per year, while one knows from the other information that less than half the population participates in that activity. Obviously, an average number of participation per person in the population gives a very deceptive picture of how participation is distributed over the population. These are obviously enthusiasts for particular activities whose 100 participations per

year can become confused in an average with one participation by each of a hundred individuals or with two participations by 50 individuals, etc. One may note that one Canadian Outdoor Recreation Demand Study project carried out by Romsa (see TN 10, Table 9) indicates that many Canadians are "non participants" in outdoor activities while many others do little else than drive for pleasure. The 18 activities variable conveys similar information by showing that a very large part of the Canadian population only participated in one of the 18 activities considered during the year prior to the survey.

One can see from the top part of Table 2 that in terms of participation in an activity the degree of service to each age-sex group in each region varies greatly. The distance participants must travel to historic sites, for example, varies in different areas of Canada as does access to fishing areas or the availability of many of the 18 activities considered. Socio-economic characteristics are also different in the various regions of Canada and these differences may affect interest or financial ability to participate in certain activities. These and other factors lead one to expect and accept the variation in per capita rates from age-group to age-group and from region to region. It is these kind of "internal" factors that are the factors of interest to recreation planners who need a standard against which to plan. Also the information conveyed by the variance in per capita coefficients is information that may be used by managers in assessing the effectiveness of a program or the viability of a proposed plan.

However, the per capita figures are not the most convenient figures to use in making comparisons which often should be made in planning. By looking at the top part of Table 2 and the bottom part of Table 2 one will see that the simple operation of normalizing the per capita coefficient to the best coefficient for a particular age-sex group makes it much easier to tell at a glance what is going on in a given region. For example, one can see that Ontario or Western Canada consistently set the standard for participation have a coefficient of 1.00 for males and females for the different age groups but Quebec and the Maritimes sometimes set the standard in terms of frequency. Of course, Quebec City and Montreal residents visit a historic site as a regular part of a visit to downtown.

Regardless, the lower part of Table 2 is the focus of attention here for reasons that are made clear subsequently so the ratio of main concern in this paper is the relative attendance coefficient, RAC. As just noted, to get the RAC the PAC coefficients are normalized by dividing the best participation rate for a given age-sex activity group into the similar coefficients for other regions. Consequently, a group from a particular geographic area is compared to a standard that is set by people elsewhere (or themselves) with similar age-sex characteristics; thus an "Internal Standard" is defined. The "internal Standard Approach" is in fact the name given to the methodology described here when first developed by the authors.

FURTHER DEFINITION OF ASSESSMENT MEASURES AND RELATED CONSIDERATIONS IN USING THE MEASURES

The preceding section of this paper has presented a methodology for computing measures based both on participation in activities and amount of participation. One may wonder why both of these should be considered. Certainly, it cannot, in general, be concluded that considering both is redundant as already illustrated when regions that set a participation standard do not set the frequency standard. If the objective of an analysis is to understand the loading of facilities and there is not any particular concern with the equity (access by all the people in an age group) with which this loading takes place, then information on the amount of participation is certainly adequate for analysis.

However, consider for example that the participation information really amounts to

presenting information on what percentage of the people in a given age-sex group, in a given area participate at all in an activity (or in a collection of activities). Now, if 10% of the people participate in an activity, even if this results in one participation per capita (based on the amount figures), there is not equity in the sense that there is a broad base of participation in the activity or class of activities (see TN 32 for another approach to considering equity). To cite one further example, just because the number of visits to National Parks in a year is in the millions does not mean that a high percentage of Canadians are using national parks. Because the number of park visits in the province of Ontario residents is very large does not mean that a high percentage of Ontario residents are using Ontario parks, etc. Particularly when such factors as the repeat use of facilities by scouts, church groups, etc. results in some people having very high participation level, some people having nominal participation levels, some participating only a little and some not at all. Information on amount of participation can be extremely misleading (as in fact can information on participation at all).

The point that should be clear to the reader now is that in any analysis that is carried out the questions that must be asked, are: What is to be evaluated? What is an appropriate way to evaluate it? Should it be evaluated by determining what percentage of the population participates in an activity? It is more important for the objective of a given analysis to know about the amount of participation? Are both important, and if they are, how will results on these two factors be combined?

It is only through asking these kinds of questions that one will avoid the ad hoc use of an evaluation methodology possibly resulting in answering the right question with the wrong information, or answering a variety of questions with information that is quite irrelevant to what should really be done. As is indicated subsequently, there are cases when the RAC coefficient should not be used, but rather one should consider how participation is changing with age. Obviously when RAC's are computed age effects are eliminated from consideration. So, if this is the objective, one should not use the kind of analysis endorsed here and conclude because the RAC's do not vary with age that everything is fine as one moves from one age group to another. The method described has been chosen so that differences in participation by the different age groups can be ignored. This was done because such a policy orientation is relevant in a broad class of problems. The policy or planning matter of concern in such cases is whether people in the same age group in different areas are being served in an equitable way.

TRANSLATING TO PLANNING SCORPS

As implied in the last section, recommendations to promote action in the programming or development of facilities can be made for age-sex groups in a specific locale by using, the RAC. However, the difference between an RAC of .7 and one of .6 may be of no practical significance given the reliability of PAC coefficients, the accuracy of planning, the accuracy of policy formulation or for other reasons. The point here is that information should not be presented in more detail than is necessary or useful. Table 3 was prepared to reproduce the bottom part of Table 2 in as much detail as the authors thought was necessary in most planning. They believe there should rarely be the need for a final display of RAC for planners or management to involve more than a 3 or 4 point scale (A, B, C or A, B, C, D). To present RAC in two significant figures, even if they are accurate, is presenting more information than is useful in a given program or facility planning exercise or in most program assessment and proposal evaluation exercises.

It should be clear that the RAC values defining the A, B, C, and D standards must depend on the particular situation being considered as well as the statistical concern that allows for the range in the RAC values. Clearly, there should be a wide leeway in how these values are defined.

The planner may wish to express the fact that a general low level of cultural activity is deserving of priority consideration over actions in relation to another activity.

In terms of the results presented in Table 3, the following points should give the reader a practical insight into what was being alluded to above.

The scores in the lower part of Table 2 have been translated into A, B, C and D ratings in a way consistent to some extent with their variation so that at a glance one can see what is occurring. The scale for transformation is given in Table 3. The reason that a special scale is used for the eighteen activity group participation results is to make it clear that in this case an A score is considered to be any score above .8: variation between about .8 and 100 is not seen as being very significant. No behavioural basis really determined the choice out of 100 to 70 as a A score for participation nor was 100 to 75 chosen as an A score for frequency for any behavioural reason. However, the difference between the participation scale and the frequency scale was chosen intentionally so that with the frequency information one would be aware of the very broad range of variation of the frequency coefficient.

No more effort was spent on defining these translated scores so they would have meaning because the high level of geographic aggregation means that the coefficients do not mean too much in terms of behaviour. Obviously people's access to historic sites varies drastically within western Canada, the Atlantic provinces; in fact all the regions considered. The same is true of people's access to opportunities to fish. A level of aggregation which focused attention on areas within which travel is reasonably feasible would result in coefficients which could be considered much more meaningful because then people would be related to the supply accessible to them. The material presented here was for illustration purposes, not as input to policy makers or as an example of the "level" at which analysis should be carried out.

STATISTICAL AND DATA GATHERING CONSIDERATIONS

In discussing the introduction of A, B, C, D scores it was mentioned that one reason for using such scores was not to exaggerate the apparent accuracy of the coefficients that were calculated. Actually, in raising the issue of statistical accuracy two matters are important. For the moment these may be identified as:

- (1) What cost is acceptable in carrying out a study?
- (2) What accuracy is needed?

These two considerations are interrelated. If a survey is being carried out, or even if information is being collected through the use of administrative records so that a evaluation measures can be computed, cost increases as the amount of information collected and/or processed increases. If the acceptable cost for data collected is too low to produce worthwhile results, then a project should not be initiated. On the other hand, one of the most reprehensible practices now followed is that of establishing a budget for a project without consideration of what accuracy is needed. Someone decides that \$40,000 is necessary to collect data and the number of interviews to be carried out is determined on the basis of having \$40,000.

Part of the purpose of having a good statistical design for a survey is in seeing that the objectives of the survey are achieved at a minimum cost. If the kind of analysis described in this paper is to be carried out and if that the planners are willing to accept certain error, then the objective of the survey design is to see that information is collected with an accuracy that is compatible with the planning needs. It may be necessary to carry out the survey as a "pretest" to see what kind of accuracy can be obtained. The important step is to be able to state clearly how far one is willing to go from the qualitative RAC scores to an A to D type of scoring that is adequate for planners and thus to be able to state what accuracy is really needed.

TABLE 3: NORMALIZED PER CAPITA PARTICIPATION AND AMOUNT RATES (OF TABLE 2) TRANSLATED TO "NEED FOR ACTION SCORES"

Age Group	S E X	Per capita "Translated" Participation					Per capita Amount "Translated" Normalized Rates					
		Normalized Rates					Rates					
		Atl.	Que.	Ont.	West	B.C.	Atl.	Que.	Ont.	West	B.O	
		HISTORIC SITE USE										
	M	B	B	A	A	A	D	D	C	A	C	
	F	A	B	A	B	B	A	D	B	C	C	
		FISHING										
10-19	M	A	A	A	A	A	A	C	A	B	B	
	F	B	A	A	A	A	C	B	A	C	C	
		18 ACTIVITIES GROUP										
	M	A	A	A	A	A	A	A	A	A	A	
	F						A	A	A	A	A	
		HISTORIC SITE USE										
	M	E	F	A	B	A	C	A	B	C	B	
	F	B	E	B	A	B	B	B	B	B	A	
		FISHING										
20-29	M	A	A	A	A	B	B	A	A	A	B	
	F	B	B	A	A	A	C	C	A	C	A	
		18 ACTIVITIES GROUP										
	M	A	A	A	A	A	A	A	A	A	A	
	F					A	B	A	A	A	A	
		HISTORIC SITE USE										
	M	A	A	A	A	A	B	D	B	A	C	
	F	B	A	A	A	A	C	B	B	A	A	
		FISHING										
30-49	M	A	B	B	A	A	A	C	C	A	A	
	F	A	B	A	P	A	A	C	C	C	B	
		18 ACTIVITIES GROUP										
	M	A	A	A	A	A	A	A	A	A	A	
	F					A	B	A	A	A	A	
		HISTORIC SITE USE										
	M	B	B	A	A	B	D	D	P	A	D	
	F	A	B	A	A	A	C	A	B	A	A	
		FISHING										
50+	M	B	B	A	A	A	C	D	C	A	A	
	F	C	H	C	A	B	D	D	D	A	D	
		18 ACTIVITIES GROUP										
	M	B	A	A	A	A	B	B	B	A	A	
	F	A	A	B	A	A	B	A	B	A	A	

TABLE 3 (continued)

The following scores define A,B,C,D for participation:

- (1) Historic Site Use; and
- (2) Fishing:
100 - 70 = A
69 - 40 = B 39 - 0 = C
- (3) 18 "Activities Group": 100 - 80 = A
79 - 0 = B

- For frequency:
- (1) Historic Site Use;
- (2) Fishing; and
- (3) 18 "Activities Group":
100 - 75 = A
74 - 50 = B 49 - 25 = C 25 - 0 = D

While these considerations are important to the planner and administrator there are others that must be of importance to the survey designer or research person responsible for seeing that data are collected. Here is the problem of bias arising due to lapses of memory. There are other matters that need to be considered in the design of questionnaires and in administering questionnaires that have to do with creating a disposition that will cause a person to respond correctly to a question.

One important point to note regarding statistical concerns and the difficulties that arise when information is obtained by surveys is that as indicated earlier administrative records may be the source of information for the kind of analysis described. Whether it is parks organizations that process information from hunting licenses or Parks Canada that processes information obtained from some kind of permit, there are distinct advantages to using administrative information. In many cases it is quite clear what a permit entitles a person to do. Or if the issue of concern is not whether the person carried out the activities but simply that he was entitled to carry it out, then administrative records can be particularly good. There is a whole other class of administrative records which in fact are records of people's participation in certain activities and these records are ideal information on which to base analysis of amount of participation. The problem of recall bias is eliminated when such records are used and the only problem that remains is that of capturing all participation of a given type at facilities of concern (if in fact the concern is with all participation in a given activity or class of activity).

OTHER CONSIDERATIONS IN FORMULATING AN ANALYSIS CONSIDERING OBJECTIVES

The preceding discussion has treated participation in an activity as the "object of interest". However, to take a particular example, not only does the Federal Government operate historic sites, there are provincial historic sites and there are municipal and local as well as some private historical sites or displays. If different organizations or agencies are responsible for programs, it may be desirable to consider what proportion of the RAC is accounted for by activities sponsored by each agency. Such an approach might in fact be useful to the agency in evaluating the degree to which their dollars are spent as effectively as the dollars of some other group involved in the same program area. Why should one not ask what percentage of the market for use of historic sites goes to National Historic Sites rather than to provincial or other historic sites? At the same time why should not the relative budgets be considered to look at the relative efficiency in investment? The preceding is taken as an example not because it is a particularly good example, but because many people may immediately react to it from a policy perspective. They may ask themselves if a National Historic Site really provides the same commodity as a provincial site or they may ask themselves some other relevant questions. Similarly in a municipal situation it is important that evaluations not proceed at a face value and result in criticism of an organization that works in a problem area because it incurs a higher cost for the amount of participation that it encourages whereas a municipal agency appears to offer the same program at a relatively low cost. Evaluation is a tricky business. Evaluation based on a methodology being used without the insight derived from careful comparison of project objectives and project targets can be a destructive influence that calls something a failure when in fact it is a success.

Turning to a completely different matter, one should note that the coefficients suggested here are not the only ones that can be developed from the kind of data used. Many of the readers have already no doubt scanned the upper part of Table 2 and noticed how the per capita coefficients drop off with age. In many situations this drop off is justified because, as suggested

earlier, any "discrimination" against age groups is a matter of policy. However, it is not inconceivable that an organization, in examining its policy, may wish to look at the relative situation of different groups over various ages in different geographic areas. In this case coefficients similar to the RAC coefficient could be developed by simply normalizing, by dividing by the largest PAC coefficient regardless of the age or sex group for which it occurred. This might be appropriate in the case of a national health and welfare program for which the objective was encouraging some kind of physical activity within a certain range of activities. In this case a variable like the 18 activities variable might be generated for several fitness activities and the results of the analysis would be meant to focus on the success of involving the Canadian population with respects to their being active in at least one of these groups of activities.

When one starts to broaden out the range of consideration along the lines indicated in the last paragraph, one often begins to think of the desirability of knowing whether or not a person actively participated in an activity. By careful definition of what is meant by being a regular participant it would be possible to get answers to the questions "Did you participate regularly in activity X?" With the response to such a question one could prepare a table that would give a profile of people in terms of what they do regularly rather than what they may have happened to do at least once during a year. One could elaborate on the 18 activity kind of analysis to see where, between the extremes indicated by amount of participation and the minimum indicated by participation, people's regular participation lies. But unfortunately, pursuing any of these ideas becomes the topic for another paper. Also, pursuing them without particular objectives results in much obtuse and hypothetical comment. So, the authors consider it more important to terminate this section, hoping that some of the ideas presented allow the reader to see the broad range open for applying, modifying and extending the analyses technique introduced here.

THE ROLE OF THE PLANNER AND/OR MANAGER

The preceding material has been clear about the importance of objectives in deciding how the methodology proposed in this paper should be applied and regarding what data should be used. However, what it has not stressed is the importance of the planner and/or manager, not so much as a specifier of objectives but as an active and important element contributing to the actual analysis. In the original study in which the method presented here was developed, there were neighborhoods in which community recreation centre use was very low. Some of these neighborhoods had low use of facilities, lack of program, etc. Other neighborhoods showed low per capita use of community facilities because there were ethnic communities with such a high degree of solidarity that they did not use community facilities. Within the City of Winnipeg, Mennonite and Ukrainian groups (to cite but two examples) have extensive facilities of their own either associated with ethnic community centres or with churches. It is important to recognize this relationship and to accept that it would be foolish to attempt to increase use of public facilities in these ethnic communities. It is necessary that the people involved in carrying out analysis be conversant with the areas that they are studying and the social and geographical factors that influence what goes on in those areas.

If the kind of analysis proposed here were carried out for a particular province, it would be relatively easy in most provinces to find geographic areas in which special considerations would be relevant in understanding the activities in which people participated. Much more obvious with respect to certain activities like hunting and fishing is that a game warden or resource manager can (from his knowledge of the availability of good hunting or good fishing) give a ready idea of what some of the variations and RAC coefficients mean without the need for becoming involved in mapping the amount of supply available or in developing maps of the potential to participate

(see, for example, TN 5, TN 16 and TN 17).

These comments are not meant to indicate that the results of analysis procedures such as those presented in TN 5 and 17 are not useful or that work on supply measurement procedures such as that reported in TN 16 is without value. Rather, the point which is seen as important enough to stress this article is that today there is a tendency to use overly sophisticated quantitative analyses and to put too much reliance on external experts (who unfortunately are often not experts) while ignoring a great deal of knowledge that is contained within the experience of people who know the area being studied. Yes, it is tricky using local knowledge without getting local bias but this does not mean one should not try.

CONCLUSION

It may appear that the authors are making an issue of something no more sophisticated than ordinary age specific participation rates. Yet, any economist, sociologist or demographer knows that though such rates are simple, their use is one of the most effective ways to understand a social phenomena where a large number of events are involved.

However, in conclusion the authors feel it is important to stress again that the technical considerations reviewed should not dictate the ultimate decision as to the "real" significance of any coefficient. Every evaluation involves a policy decision and a data analysis methodology should not define policy, but only be useful in policy definition and evaluation. If it is policy not to provide recreation facilities or programs for adults or aged, it is not surprising that adults do not appear very frequently in attendance figures. Should it be a policy to provide school programs at historic sites in a certain geographic area, the fact that this area sets the standard does not imply that the other areas are being deprived of a program to which they are entitled (or that they need). "The planning tool" which should not be forgotten is the integration of knowledge of the areas studied and of a political situation with the quantitative guidelines that can be set by defining measures using the methodology presented.