APPENDIX D

REINTERVIEW RESULTS [1]

As one means of measuring the quality of the sample results, the National Recreation Survey included an independent reinterview survey. The second interview, conducted by an interviewer different from the first one, was made a week to 10 days following the original interview. The questionnaire used for the second interview was identical in all respects with the first questionnaire.

The results of the reinterviews enabled us to measure in part the effectiveness of the training sessions and the areas of the questionnaire which needed improvement in subsequent surveys of this type. Differences arising between the original interview and the reinterview provide an indication of difference attributable to the measurement process.

The reinterview survey was conducted in all four quarters of the survey year. The relative size of the reinterview for the September 1960 quarter was 10 percent of the original interview assignments located in approximately 75 segments. The reinterview sample in December 1960 was half that size (5 percent) and was 2.5 percent for the March and June 1961 surveys. Only results from the September 1960 reinterview survey are presented here, this being the largest of the reinterview samples.

Method

Results from the original interview and the reinterview were classified and processed by the same procedures and methods and each were subjected to the same quality control methods. The resulting classification of the two responses to a selected sample of questions were presented in tables in which the original response was distributed across columns and the reinterview response across rows. Most sample persons reported identically in the two interviews, but a few respondents did not. Changes in response were largely self-compensating, so that the distribution of responses to an item (or question) for the reinterview sample on the first interview (that is, the interview which is included in the September 1960 National Recreation Survey) is quite similar to the distribution of responses resulting from the second interview. These distributions will be compared in the discussion which follows. [2]

Preferences

Table 1 presents results of selected preference items. The first column of the table shows the estimate based upon results for the entire first survey. For example, the preference for attending outdoor sports events is presented in part II, table 1.21. The second column of table 1 shows the same calculation based upon the first interview with the sample chosen for reinterview. The third column shows the estimate based upon the second interview with the reinterview sample. Comparison of column 1 with column 2 shows the representativeness of the reinterview sample. Comparison of column 2 with column 3 shows the consistency of estimate between the two interviews with the same respondents. Column 4 shows the percent of respondents giving consistent responses on the two interviews.

Comparison of the percentage of the sample expressing various preferences leads to the conclusion that the percentage estimates are highly consistent.

Preferences, being expressions of attitude, are expected to vary more, when measured by single items, than more factual items. However, the degree of agreement between the two interviews leads to considerable confidence in the estimates of the population having particular preferences.

Leisure Hours, Ownership, Income

Table 2 compares items of various types. Hours per person spent on outdoor recreation on Labor Day shows a mean decrease between the first and second interview of 0.19 hours. Interviewers were instructed to record to the nearest hour and were told, "approximations are sufficient." The final table (table 1.34) is presented in broad classes.

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[1] Tabulations for this section were prepared by William E. Enright of the Bureau of the Census.

[2] The sum of the agreeing responses expressed as a ratio of all responses sometimes is used to measure response consistency. Use of the measure presents several difficulties. (1) It overstates the error, since perhaps one-half of the responses falling in cells off the diagonal are correct ones. (2) It is a function of the number of cells in the matrix, since the more response categories provide more chances for variation between the first and second interview, and hence the statistic cannot easily be compared between matrices of different ranks. (3) It is a function of the marginal distribution; comparison of the statistic for markedly different distributions is not appropriate. Other measures of association are discussed by Leo A. Goodman and William H. Kruskal, "Measures of Association for Cross Classification," Journal of the American Statistical Association, 49 (December 1954): 732-764. If one may assume uncorrelated deviations trial to trial, an estimate of the response variance may be calculated; Morris H. Hansen, William N. Hurwitz, and Max A. Bershad, "Measurement Errors in Census Surveys," Proceedings of the Social Statistics Section, 1959. Washington, D.C.: American Statistical Association, 1959. pp. 2-5.

Footnote 2 continued in next column.

Table 1. Percent preference for various activities on two interviews with reinterview sample, September 1960, National Recreation Survey

Questionnaire item No.	Item	First interview		Second interview–reinterview sample	Percent agreement interview and reinterview
		Total sample	Reinterview sample–first interview		
		(1)	(2)	(3)	(4)
1.	Preference for attending outdoor sports events:				
	1st choice	3	3	5	....
	2d choice	4	4	1	....
	3d choice	5	5	3	....
	All (1,2,3d)	11	9	9	.87
	Swimming:				
	1st choice	22	21	21	....
	2d choice	12	11	11	....
	3d choice	7	8	8	....
	All (1,2,3d)	42	40	40	.73
	Walking for Pleasure:				
	1st choice	3	3	3	....
	2d choice	3	4	2	....
	3d choice	4	4	5	....
	All (1,2,3d)	11	9	11	.85
	Fishing:				
	1st choice	18	19	21	....
	2d choice	9	8	9	....
	3d choice	6	6	4	....
	All (1,2,3d)	33	33	34	.79
4.	a. Vacation preference, sightseeing–percent mentioning	21	20	24	.77
	c. Outing preference for picnicking–percent mentioning	31	29	30	.77
	c. Outing preference for swimming–percent mentioning	14	13	14	.87
2.	Do you . . . as often as you would like? Yes	....	30	27	.55
3.	If "no", Why don't you . . . more often? Lack of time	....	32	37	....
	Lack of money	....	6	5	....
	Health reasons	....	4	6	....
	Lack of facilities	....	9	8	....
	Lack of companion	....	3	2	....
	Other	....	13	9	....
	No answer	....	2	5	....

Table 2. Leisure time, ownership of equipment, income and health as reported on two interviews, reinterview sample, September 1960, National Recreation Survey

Questionnaire item No.	Item	First interview		Second interview–reinterview sample	Percent agreement, interview and reinterview
		Total sample	Reinterview sample–first interview		
		(1)	(2)	(3)	(4)
48.	Average hours of outdoor recreation on Labor Day	1.75	1.77	1.58	.71
50.	"Any other boat" owned–percent	13	8	10	.97
	Owned and used–percent	9	6	7	.96
51.	Shotgun or rifle owned–percent	38	36	36	.92
	Owned and used–percent	18	16	16	.90
	Golf set–owned percent	14	14	13	.98
	Owned and used	7	5	5	.97

Table 2. Leisure time, ownership of equipment, income and health as reported on two interviews, reinterview sample, September 1960, National Recreation Survey—Con.

Questionnaire item No.	Item	First interview		Second interview—reinterview sample	Percent agreement, interview and reinterview
		Total sample	Reinterview sample—first interview		
		(1)	(2)	(3)	(4)
58.	Family income	....	....	....	.67
	under $1,500	9.9	12.7	14.5	....
	$1,500 to $2,999	13.0	13.4	8.4	....
	$3,000 to $4,499	17.0	13.4	16.0	....
	$4,500 to $5,999	20.4	21.4	18.9	....
	$6,000 to $7,999	16.1	23.3	22.6	....
	$8,000 to $9,999	9.0	6.2	7.6	....
	$10,000 to $14,999	8.5	6.2	7.6	....
	$15,000 to $19,999	1.8	1.8	1.8	....
	$20,000 and over	1.3	0.4	0.4	....
	No answer	2.9	1.1	2.2	....
61.	Health (percent)	....	....	....	.72
	Excellent	36	29	33	....
	Good	39	43	37	....
	Fair	18	22	20	....
	Poor	6	6	9	....

The ownership items are among the most reliably reported. 3/ The consistency of response is quite high for owning a boat and a golf set, but is somewhat lower for owning a shotgun or a rifle. On income the original interview and reinterview produce closely corresponding distributions.

Vacation, Trip, and Outing Characteristics

Distributions of estimates based upon the two responses that are presented in table 3 are almost identical. All of the percentages quite closely agree and so do the mean number of trips or outings.

The two items showing June, July, and August separately are of interest, since, with the interviewing in early September, it was expected that less reliable results might accrue for events which happened in June than for more recent events occurring in August. Since interview and reinterview were a week or 10 days apart, we may consider that they represent independent responses and that the time-lapse to the event reported upon is roughly the same in both interviews. While none of the statistics by month differ greatly, the August average outings shows greater difference than the other 2 months. Hence, our expectations were not realized, and the quality of the data reflecting events occurring during the first month of the quarter are as satisfactory as those occurring during the last month of the quarter. In the formal presentation of results, however, only quarterly totals are shown.

In analyzing miles traveled on vacation, the reinterview results were divided into deciles, just as were the responses for the entire sample for the first interview. All but three of the 10 class intervals were slightly different, the greatest difference being 50 miles. The percentage in the resulting classes do not differ more than 0.01, and the mean miles per trip do not differ greatly.

The same procedure as that described above was followed to determine the difference in class intervals for total vacation expense. Differences range from $0.50 to $5.35, with the mean difference being $2.30. The mean vacation expense from the first interview was $32.76 and from the second interview, $31.57.

Days away on vacation and major purpose of most recent trip for the most frequently mentioned purposes show similar consistency.

Days of Activity per Person

Table 4 presents days participation per person by various activities. The first three items in the table are not presented in the published tables, since the total days participation, irrespective of whether the days occurred on vacation, trip, or outing, or otherwise, was used. However, camping and fishing, each on vacation, show highly consistent results, and sightseeing days on vacation show fair agreement.

For the remaining activities, the days per person estimated from interview and reinterview correspond quite closely. Activities which we have classified as "passive" in the study show somewhat more variation between first and second interviews than activities requiring more exertion. Swimming and playing outdoor games and sports, two activities in which youth participate heavily, are reported better than the "passives" and not quite as good as the water activities. However, the sample of

3/ Reports on kind and condition of washing machines in the household were consistent, survey to survey, (0.88 and 0.93) but year acquired was not consistent (0.33) in a recently reported study: Carol M. Jaeger and Jean L. Pennock, "An Analysis of Consistency of Response in Household Surveys," Journal of the American Statistical Association, 56 (No. 294, June 1961): 320-327.

Table 3. Various vacation, trip, and outing characteristics as reported on two interviews, reinterview sample, September 1960, National Recreation Survey

Questionnaire item No.	Item	First interview		Second interview–reinterview sample	Percent agreement interview and reinterview
		Total sample	Reinterview sample–first interview		
		(1)	(2)	(3)	(4)
13.	Percentage who did not go on vacations, trips, or outings (during summer)	....	10	10	.87
14.	Percentage reporting a vacation in last 3 months:				
	June	....	7	7	....
	July	....	14	14	....
	August	....	13	13	....
	Total	34	34	34	.96
16.	Percent reporting traveling . . . miles on vacation in past 3 months:	....	....	....	.93
	No vacation	66	65	65	....
	(Original) (Reinterview)				
	0-72 0-72	....	4	4	....
	73-200 73-230	....	4	3	....
	201-325 231-336	....	3	4	....
	326-500 337-500	....	5	5	....
	501-600 501-600	....	3	2	....
	601-800 601-800	....	3	4	....
	801-1050 801-1100	....	3	4	....
	1051-1600 1101-1600	....	5	4	....
	1601-2000 1601-2032	....	2	2	....
	2001-5200 2033-5200	....	3	4	....
	Miles per trip	12.35	928	955	....
18.	a. Percent reporting days away on vacation	....	....	....	.92
	0	....	66	65	....
	1-3	....	3	2	....
	4-6	....	7	8	....
	7-13	....	16	18	....
	14-20	....	5	4	....
	21-over	....	2	2	....
21.	h. Total vacation expense	....	....	....	.79
	None	....	68	68	....
	(Original) (Reinterview)				
	$0 to $1.9 $0. to $2.9	....	3	3	....
	$2.0 to $5.0 $3.0 to $5.8	....	3	3	....
	$5.1 to $9.4 $5.9 to $12.0	....	6	4	....
	$9.5 to $12.6 $12.1 to $16.6	....	1	3	....
	$12.7 to $20.0 $16.7 to $21.0	....	3	5	....
	$20.1 to $22.0 $21.1 to $25.0	....	3	2	....
	$22.1 to $30.1 $25.1 to $30.3	....	3	2	....
	$30.1 to $44.2 $30.4 to $38.6	....	2	3	....
	$40.3 to $69.3 $38.7 to $64.2	....	3	3	....
	$69.4 to $201.0 $64.3 to $201.0	....	4	3	....
	Mean vacation expense	23.98	32.76	31.57	....
23.	Number of trips per person during last 3 months	.40	.26	.25	.96
25.	Major purpose of most recent trip, for most frequently mentioned purposes	....	....	....	.95
	Fishing (percent)	10	4	3	....
	Camping (percent)	4	3	2	....
	Sightseeing (percent)	3	2	2	....
	Swimming (percent)	7	1	2	....
	Other (percent)	2	3	5	....
32.	a. No. outings during August: Mean	....	.94	1.10	.74
32.	b. No. outings during July: Mean	....	1.06	1.10	.70
32.	c. No. outings during June: Mean	....	.92	.82	.80

Table 4. Days per person participation during June-August 1960 in various activities on two interviews with reinterview sample, September 1960, National Recreation Survey

Item	First interview		Second interview–reinterview sample	Percent agreement interview and reinterview
	Total sample (1)	Reinterview sample–first interview (2)	(3)	(4)
Camping days on vacation	.....	.12	.18	.98
Fishing days on vacation	.....	.36	.34	.96
Sightseeing days on vacation	.....	.96	.72	.84
Swimming	5.15	4.93	4.53	.90
Boating other than sailing and canoeing	1.22	.96	.90	.94
Playing outdoor games and sports	3.63	2.50	2.40	.90
Picnicking	2.14	1.71	1.68	.82
Hiking	.26	.38	.34	.97
Driving for pleasure	6.68	6.60	7.50	.77
Walking for pleasure	4.34	4.70	5.23	.87
Fishing	1.99	1.96	2.76	.89
Sightseeing	2.20	2.00	1.63	.84
Attending outdoor sports events	1.32	1.50	1.42	.93

activities was chosen because of high participation rather than for representativeness of these groupings.

Conclusion

In summary, a sample of original interviews from the September 1960, National Recreation Survey, which covered the June-August 1960 period, have been compared with a second interview with the same sample. Population estimates resulting from these two interviews have been found to be essentially the same. Considering that the items selected for analysis range over the various types of items included in the survey, we are led to considerable confidence in the data. It has been suggested that presence of respondent error is partly a function of the type of question and the type of activity reported upon.