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I. INTRODUCTION

Traditionally, the Census Bureau has utilized personal-visit interviewing as the primary method for conducting most of its household surveys. For one-time surveys, this method has been preferred over other data collection techniques because of the belief that interviewers could more readily establish rapport with the respondent, better justify the legitimacy of the survey, and produce fewer refusals and terminations resulting in incomplete interviews. In addition, there was general consensus that the face-to-face interview results in better quality data. For some of the Bureau's recurring surveys, e.g., the Current Population Survey (CPS), the technique of telephone interviewing after obtaining an initial personal-visit interview has been used successfully, i.e., reducing cost while at the same time maintaining quality data.

The cost of locating sample households and conducting personal-visit interviewing has become increasingly expensive. The continuous rise in cost has prompted a growing interest in alternative survey methods, particularly Random Digit Dialing (RDD). RDD is a survey methodology for locating a sample of telephone households through the use of randomly generated telephone numbers. An RDD methodology seems particularly suited for screening large populations to identify small domains or rare characteristics. Survey sampling of rare characteristics or small domains of a population usually requires an initial screening of a large sample to identify the characteristics or domains of interest. The screening phase of a survey usually involves asking a few simple questions and can be done by telephone at a fraction of the cost of a personal interview. In such situations, telephone interviews by RDD seems particularly well-suited. As a result of the concern over increasing data collection costs, and indications that an RDD methodology may be a viable alternative, the Census Bureau considered use of the RDD sampling technique for the screening phase of the 1980 National Fishing, Hunting, and Wildlife Associated Recreation (FHWAR) Survey. It was eventually concluded not to use RDD for the following reasons: the cost associated with initial staffing and equipment would exceed the cost of the alternative procedure; and the need for pretest and pilot studies would jeopardize the intended field date for the national study. Instead, it was decided that an experimental study be undertaken using the RDD methodology for the State of Michigan. Results from the RDD study would be compared with results from the Michigan State portion of the National FHWAR Survey. The national study and the RDD study were conducted between January and April, 1981.

The two surveys allow us to compare estimates for nearly identical survey measured variables taken from identical populations (populations covered by telephone sampling excludes non-telephone households) located by two entirely different and independent methodologies. Other major differences between the studies are: roughly 75 percent of the households in the Michigan portion of the national FHWAR survey had been previously

contacted for some other Census Bureau survey, whereas all households in the Michigan RDD study were first-contact only households. In addition, the vast majority of interviewers assigned to the national FHWAR survey were experienced current programs interviewers, whereas in the RDD study, only two of the eight interviewers had had some limited interviewing experience.

The Michigan State Random Digit Dialing study objectives were two-fold; one, to assess the feasibility (cost, response rates, coverage analyses) of an RDD data collection methodology, and two, to evaluate the quality of data collected in a centralized RDD mode. Comparisons of variables of interest between the two surveys included but were not limited to: response rates, demographic distributions of the populations, social and economic characteristics, and recreational activity participation rates.

The remainder of this paper describes the design of the two surveys and presents the results of the study.

II. SAMPLE DESIGNS

A. The 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation (FHWAR) Survey

The 1980 National Survey of Fishing, Hunting, and Wildlife Associated Recreation [1] was designed to provide state level estimates of the participation rates for hunting and fishing and regional estimates of nonconsumptive wildlife activities. Fifty-one state samples were selected for the national study. The study was conducted in two stages; an initial screening of a sample of households to identify participants, and a followup enumeration of selected households with participants to collect detailed data about the household's wildlife related recreation. The 1980 FHWAR samples were selected from households formerly in the Current Population Survey (CPS) samples. The CPS samples used for the 1980 FHWAR survey had been mainly selected initially from the 1970 census files with coverage in all 50 states and the District of Columbia. The samples, while active, had been continually updated to reflect new construction. The CPS samples used were located in more than 1100 counties, independent cities, and minor civil divisions in the nation.

The screening sample, for the State of Michigan, consisted of about 4,190 households identified from former CPS samples between the period January 1979 and February 1980. Of the initial 4,190 households designated for interview, about 14.6 percent were found to be vacant or otherwise out of scope. Of the remaining households, 7.5 percent could not be enumerated because the occupants were not found at home after repeated calls or were unavailable for some other reason. Overall, 3,339 completed household interviews were obtained for a response rate of approximately 92.5 percent. About 74 percent of the interviewed households were contacted by telephone and the remaining interviewed households were contacted by personal visit. Interviewing for the screening sample was completed in March 1981.

The Michigan portion of the national detailed sample consisted of a subsample of those house-

holds identified from the screening sample as containing at least one sportsman 16+. These households were assigned a level of participation dependent upon the highest level of participation according to the screening interview for any sportsman in the household. This procedure grouped households into two levels of participation, substantial households, i.e., at least one household member fished or hunted for 30 days or more, or spent more than \$500 for fishing or hunting, and nonsubstantial households. These households were further grouped by hunter households, i.e., at least one sportsman in the household was a hunter, and nonhunter household classifications. Differential sampling rates were applied to the four strata such that 1/4 of the households in the nonsubstantial nonhunter stratum were revisited, 1/2 of the households in the nonsubstantial hunter stratum were revisited, and all of the households in the substantial hunter and nonhunter strata were revisited. Once a household was selected for detailed interviewing, all sportsmen 16+, irrespective of their level of participation, were personally interviewed in detail.

B. The Michigan State RDD Sample

The Michigan State RDD sample was developed in two stages, a primary sampling stage and a secondary sampling stage. This two-stage clustered design for sampling households via Random Digit Dialing was suggested by Waksberg, 1978. [2] Some aspects of the Michigan RDD experiment are described below, e.g., (1) development of sampling frame, and (2) design of the first and second stages of sampling, and implementation of the design.

1. Development of the Sampling Frame

The universe from which a frame was developed for sampling the primary stage was the most current national listing of working area code-central office code (AC/COC) combinations (first six digits of a ten digit telephone number) provided by the AT&T Long-Line Department. Four area codes and 1,171 central office codes were listed on the file for the State of Michigan. We deleted all central office codes for directory assistance, but no further refinement of the listing was attempted. To each of the remaining 1,167 COCs, we affixed the 100 consecutive numbers 00 to 99. This gave us a sampling frame of 116,700 eight-digit primary clusters, i.e., a three-digit area code, a three-digit central office code, and the first two digits of a four-digit suffix.

The central office codes were stratified by area code, and grouped by exchange within area codes using the geographical coordinates provided on the tape. Only a few variables are available on the AT&T data file, therefore, we made no further attempts to stratify the file below the COC level.

2. Design of the First and Second Stages of Sampling and Implementation of the Design

The first-stage sampling selects clusters of 100 consecutive numbers within a central office code. The clusters of 100 consecutive numbers are selected with probability proportional to the number of working residential numbers within the cluster. This procedure is intended to increase the proportion of numbers that are working residential numbers. A systematic sample of 1,853

clusters was selected for our study. Once a cluster was designated for sample, the last two digits of the four-digit suffix were randomly generated. This procedure yielded 1,853 ten-digit telephone numbers, referred to as primary numbers. The 1,853 primary numbers were randomly called by four interviewers over a 2-week period. Each primary number was called to determine if it was residential (working household number) or nonresidential, i.e., business, commercial, nonworking, etc. If the primary number was determined to be residential, the eight-digit cluster, from which the primary number was generated, was retained for the secondary sample. If the primary number was determined to be nonworking or a non-household number, the eight-digit cluster was rejected. This procedure identified 471 residential clusters. The primary numbers were displayed on individual computer printout sheets which served as the screen form for this phase of the survey.

If contact was made with a respondent, he/she was asked a series of probe questions. Depending on the responses given, the interviewer assigned a primary disposition code from 1-12. With the exception of callbacks to convert refusals, most primary numbers were disposed of immediately (i.e., interviewers were able to complete the case).

If the interviewer was unable to complete a case (e.g., no answer, busy signal, circuit problems, no signal reached), the case was assigned a "temporary" disposition code and was recycled into the system to be called at a later time. Whenever possible, interviewers obtained information on the status of these primary numbers from the operator or repair service. Nonworking primaries were usually disposed of on the first call and included operator-confirmed nonworking numbers, double wrong connections, and confirmed number changes. By the end of the first phase, 471 of the total 1,853 primaries received a final disposition of "residential;" 21 primaries were "ambiguous or indeterminate;" and the remaining were identified as "nonresidential."

The second-stage sampling was as follows: Once an eight-digit cluster was determined to be residential, 40 secondary numbers, i.e., ten-digit telephone numbers within the cluster were randomly generated and displayed on a telephone listing sheet. For example, if the telephone number 313-212-5976 was determined to be residential, then the cluster 313-212-59- - was retained and 40 additional numbers like 313-212-5965, 313-212-5906, etc. were randomly generated. The ten-digit primary number was not eligible for random generation. The desired number of households to be reached in each of the residential clusters was five; thus, the first five numbers which were randomly generated within each cluster were called. If the number yielded an eligible residence, it was interviewed; if not, the number was systematically replaced by the next available number. The replacement procedure continued until five eligible residences were reached.

Eight interviewers were trained for this phase of the study. They were to dial the residential secondary telephone numbers and conduct the screening interviews with eligible household respondents. Calls were placed between March 5 and March 13. This period is referred to as Phase I. After March 13, in an attempt to reduce the refusal rate

and perhaps improve the quality of the data, four interviewers were released from the project. The four remaining interviewers completed Phase II of the project on April 24, 1981. Refusal rates are recorded for Phase I and Phase II of the study (each phase is a random sample) but limited resources has precluded any additional comparisons between the two periods.

The initial interviewing procedures were similar to those followed in the primary phase with one major difference--in the primary phase we were concerned solely with identifying a residential cluster. However, once a residential secondary number was identified, a screening interview was conducted with an eligible household respondent to obtain information about the extent of participation in fishing, hunting, and associated wildlife recreation activities of household members, and information on the socio-economic characteristics of these persons. With the exception of a few questions to identify types of housing units, the number and usage of telephones, and the respondent's mailing address, the form was identical to the screening questionnaire used in the national FHWAR survey.

The Michigan State RDD experiment was initially designed to consist of a detailed personal visit followup of a subsample of sportsmen identified in the secondary screening phase of the study. Results from the RDD detailed interviews would have been compared to similar data collected from the detailed interviews for the Michigan State FHWAR Survey. However, due to inadequate funding, the detailed interviews were not conducted as part of the RDD experiment.

III. RESULTS AND CONCLUSIONS

The following data tables¹ display some results from the Michigan State RDD experiment and present comparative data between the Michigan State RDD and the Michigan State FHWAR Surveys. For the most part, no strikingly dissimilar differences were observed between the two studies. Some observations however, which support the feasibility and quality of an RDD methodology are worthy of mention. For example, the response rate² obtained in the Michigan FHWAR survey was 92.5 percent. The corresponding rate for the Michigan RDD was 91.8 percent. Since the Michigan RDD experiment, other RDD studies [3] have been undertaken by the Bureau. None, however, have successfully replicated the level of response obtained in the Michigan RDD experiment. Perhaps the difference between response rates for the Michigan RDD and other Bureau studies can be explained from our use of a very small but highly motivated staff, or simply the content of the survey itself. No definitive reasons for the differences currently exist, and those we do offer are solely conjecture.

Since the total cost of the Michigan RDD experiment was not available, our comparison here is limited to field cost only. None-the-less, the average field cost per case for the FHWAR was \$12.59. The average field cost for the RDD study was \$8.26 per case. Since field cost is generally the majority of a survey budget, it is apparent that substantial savings are achieved with an RDD methodology.

Finally, some interesting observations emerge when the population coverage for the two surveys, as compared to the independent post-censal esti-

mates of the population for the reference period is considered. For example, the proportion of males for Michigan, derived from the independent estimates is 48.7. For the RDD study, it was 49.1 percent, for the FHWAR-All Households, it was 48.4 percent, and for the FHWAR-Telephone Households only, it was 48.5 percent. No significant differences were detected among these estimates. As for age, 40.3 percent of the independent estimates of the population were over age 34. No significant differences were detected among the corresponding percentages for the FHWAR-All Households, (41.0 percent), the FHWAR-Telephone Households Only (41.9 percent) and the RDD Households (41.6 percent). For race, the independent estimate of the nonblack population for Michigan is 87.0 percent. The corresponding estimates for the FHWAR-All Households, the FHWAR-Telephone Only Households, and the RDD study are 87.8, 88.2 and 89.6 percents respectively. Although no significant differences were detected among these estimates, the FHWAR-All Households sample estimated a larger proportion of blacks (12.2 percent) than the RDD study (10.4 percent). Perhaps nontelephone households, being mostly black, may have influenced the apparent under-representation of blacks in the RDD study.

From a quality standpoint, the proportion of sportsmen 6+ identified in the Michigan FHWAR was 31.7 percent, and for the RDD survey, it was 33.9 percent. Of persons 16+, 13.7 percent were hunters in the Michigan FHWAR as compared to 14.3 percent obtained from the RDD study. Likewise, 27.1 percent of persons 16+ were fishermen as compared to 29.2 percent for the RDD experiment. The apparently larger proportions of sportsmen, hunters, and fishermen estimated from the RDD, however, were not statistically significant. The RDD study identified more ardent sportsmen and households than the Michigan FHWAR. (These comparisons, however, are between the RDD households and the Michigan FHWAR-All Household sample. Lack of funding prevented us from an evaluation of selected quality variables for the Michigan FHWAR-Telephone Households Only.) The Michigan FHWAR Survey estimated that 50.8 percent of all hunters participated in the activity nine days or less, the corresponding percentage from the RDD study was only 43.4 percent. Likewise, for monies spent, the Michigan FHWAR identified 22.9 percent of all hunters spending less than \$16.00, for the RDD study, the percentage was only 15.7.

For fishermen in the Michigan FHWAR, 49.8 percent spent less than \$16.00, and the corresponding percentage in the RDD study was 38.7 percent.

The nonconsumptive user data emerged quite differently between the two surveys than did the sportsmen data. Nonconsumptive users, i.e., persons who participated in some form of wildlife related recreation, were consistently represented in far greater proportions in the RDD study when compared with the Michigan FHWAR. This was true for all categories under consideration. It is known that, unlike fishing and hunting activity, nonconsumptive use tends to be more associated with rural areas. We therefore suspect the Michigan FHWAR sample could have had a disproportionately higher representation of the urban areas of the state. We hope to investigate this more fully in the future.

Another observation of interest between the two data sets appears to be the level of nonuse-

able data, i.e., reported "don't knows, refusals, blanks, or out-of-range" in the RDD study. For income particularly, the percentage of nonuseable data was 24.8 as compared to 12.2 percent for the FHWAR. These findings are consistent with similar findings reported by Groves and Kahn [4], and Monsees and Massey [5]. For "Number of Days Fishing," "don't know" was reported 3.5 percent for all fishermen in the Michigan FHWAR as compared to 9.5 percent in the RDD.

Of considerable interest to us was the willingness of the respondent to provide an address in the RDD experiment. If RDD sampling is used to screen a population with personal visit follow-up for detailed information, then, an address would be needed. Of the respondents, 71 percent provided a complete address, 1 percent provided a partial or incomplete address, and 28 percent refused to provide an address. We hypothesized that the level of refusals may have been conditioned by the respondents being asked to report income immediately before the address question. Future questionnaire design studies could possibly support our hypothesis and enable us to increase the level of positive reporting for this item.

Based upon the response rate and cost considerations, it appears that an RDD methodology would be quite feasible. However, no definitive conclusions could be drawn about the quality of the data. Except for the nonconsumptive data, there was no consistent under or over reporting between the two studies, and the observed differences for the most part seemed to be random. The differences observed for race and income do suggest potential undercoverage and/or biases of the RDD mode. However, the use of a dual frame (RDD sample supplemented by a small sample from another suitable area or list frame) which is generally necessary for representation of non-telephone households could also be effective in correcting such biases of the RDD sampling.

IV. ACKNOWLEDGEMENT

The authors wish to thank Kenneth D. Kaplan for preparing the data tables used in the analyses of this study. Special thanks to Edith Oechsler and Linda Sinanian for their patience in typing numerous drafts and the final copy of this paper.

¹ Additional detailed data tables and analyses are part of the unabridged report and are available upon request to: Bureau of the Census, Statistical Methods Division, Washington, D.C.

² The response rate for the Michigan FHWAR was computed as the ratio of interviewed households to all eligible households, i.e., interviewed and eligible noninterviewed households. For the Michigan RDD survey, the response rate is the ratio of interviewed households to interviewed households, eligible noninterviewed households, and telephone numbers for which we obtained a ring but no answer, and their residential status was indeterminate.

REFERENCES

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Table 1. A COMPARISON OF SOME NONCONSUMPTIVE USER DATA VARIABLES BETWEEN THE TWO SURVEYS

Characteristic	Regular 1980 Fish & Hunt Survey		The RDD Fish & Hunt Survey	
	Sample Households	Percent	Sample Households	Percent
1. Nonconsumptive User HHS 16+	2437	73.0 ^{1*}	1662	81.4 ¹
Persons 16+	5160	74.6 ^{2*}	3502	82.4 ²
Users 16+	4211	60.9 ^{2*}	3050	71.8 ²
2. Nonconsumptive User-Only HHS 16+	1157	34.7 ^{1*}	813	39.8 ¹
Persons 16+	2275	32.9 ^{2*}	1541	36.3 ²
Users 16+	1799	26.0 ^{2*}	1319	31.0 ²
3. Triptaker Households	1733	51.9 ^{1*}	1334	65.3 ¹
Triptakers	3258	47.1 ^{2*}	2602	61.3 ²
Residential Users	1637	23.7 ^{2*}	1459	34.3 ²
4. Nontriptaker Households	649	19.4 ^{1*}	328	16.1 ¹
Residential Users	779	11.3 ^{2*}	399	9.4 ²
Total Triptakers	3258	47.1 ^{2*}	2602	61.3 ²
Total Residential Users	2416	34.9 ^{2*}	1858	43.7 ²

¹ Expressed as a percent of Total interviewed households.
² Expressed as a percent of Total persons 16+.
 * The difference between the Regular 1980 Fish and Hunt Survey Estimate and the RDD Fish and Hunt Survey Estimate was significant at the 5 percent level.

Table 2. OBTAINING AN ADDRESS IN THE RDD STUDY

	Percent
Interviewed Households	100.0%
Obtained Complete Address	71.1
Refused	27.7
Incomplete Address	1.2

Table 3. A COMPARISON OF SOME SELECTED VARIABLES ** BETWEEN THE TWO SURVEYS

Characteristic	Regular 1980 Fish & Hunt Survey		The RDD Fish & Hunt Survey	
	Sample Households	Percent	Sample Households	Percent
Interviewed Households	3339	92.5	2042	91.8
Noninterviewed HHS	269	7.5	183	8.2
Total Households	3608	100.0	2225	100.0
Total Persons	9353	90.8	5603	100.0
Persons 6+	8494	74.0	5145	91.8
Persons 16+	6916	74.0	4248	75.8
1. Sportsmen Households 6+	1511	45.3 ¹	973	47.6 ¹
Persons 6+	4413	52.02 ^{2*}	2827	54.9 ²
2. Sportsmen 6+	2690	31.7 ²	1743	33.9 ²
2. Sportsmen Households 16+	1441	43.3 ¹	945	46.3 ¹
Persons 16+	3343	48.33 ^{3*}	2194	51.6 ³
3. Sportsmen 16+	2155	31.2 ³	1428	33.6 ³
3. Hunter Households 16+		23.2 ¹		24.2 ¹
Hunters 16+		13.7 ³		14.3 ³
Fishermen 16+		13.7 ³		13.9 ³
Substantial HHS		5.51 ^{4*}		8.4 ¹
Substantial-Hunter		1.53 ^{4*}		2.4 ³
Nonsubstantial-Hunter		2.1 ³		2.9 ³
Substantial-Fishermen		3.93 ^{4*}		5.9 ³
Nonsubstantial-Fishermen		.3 ³		.4 ³
Nonsubstantial HHS		17.8 ¹		15.9 ¹
Nonsubstantial Hunters		10.2 ³		9.0 ³
Nonsubstantial Fishermen		9.53 ^{4*}		7.7 ³
4. Nonhunter Households 16+		20.1 ¹		22.0 ¹
Fishermen		13.5 ³		15.3 ³
Substantial HHS		3.81 ^{4*}		5.8 ¹
Substantial-Fishermen		2.53 ^{4*}		3.8 ³
Nonsubstantial-Fishermen		.1 ³		.2 ³
Nonsubstantial HHS		16.3 ¹		16.3 ¹
Nonsubstantial-Fishermen		12.4 ³		11.3 ³

¹ Expressed as a percent of all interviewed households.
² Expressed as a percent of Total persons 6+.
³ Expressed as a percent of Total persons 16+.
⁴ The numbered characteristics in the table were used to stratify the Michigan FHWAR Screening Sample in order to select the detailed sportsmen sample.
^{*} The difference between the Regular 1980 Fish and Hunt Survey estimate and the RDD Fish and Hunt Survey estimate was significant at the 5 percent level.

Table 4. SOCIAL AND ECONOMIC CHARACTERISTICS

Percent of Households Reporting or Persons Reported by Household Respondent	The Michigan State Regular Fish and Hunt Sample		The Michigan State RDD Fish and Hunt Sample
	All Households	Telephone HHS Only	
1. Age	N = 9353	N = 8893	N = 5603
0-5	9.2	9.0	8.2
6-17	20.4	20.2	19.5
18-24	12.4	12.2	12.6
25-34	17.0	16.8	18.3
35-44	11.1	11.2	12.6
45-54	10.4	10.7	10.1
55-64	9.8	10.0	9.4
65+	9.7	10.0	9.1
DK,Ref.,Blank,Out-of-Range..	0 *	0 *	.2
2. Sex			
Male	48.4	48.5	49.1
Female	51.6	51.5	50.9
3. Education			
Never Attended	8.5	8.2	7.5
Kindergarten	1.6	1.5	1.7
Elementary	22.1	21.8*	19.4
High School	44.8	44.7	44.5
College	23.1*	23.8*	26.6
DK,Ref.,Blank,Out-of-Range..	0 *	0 *	.4
4. Race			
White	86.2	86.8	87.4
Black	12.2*	11.8	10.4
American Indian, etc.2	.2	.3
Asian or Pacific6	.5	.9
Other8	.7	1.0
5. Household Income	N = 3339		N = 2042
Under \$20,000	50.8*		38.6
Over \$20,000	37.0		36.6
DK,Ref.,Blank,Out-of-Range..	12.2*		24.7
Under \$20,000	N = 1697		N = 789
Less than \$5,000	20.7*		14.2
\$5,000-\$10,000	27.9		27.6
\$10,000-\$15,000	22.2		23.3
\$15,000-\$20,000	21.9		19.0
DK,Ref.,Blank,Out-of-Range..	7.2*		15.8
Over \$20,000	N = 1235		N = 748
\$20,000-\$25,000	33.2*		26.2
\$25,000-\$30,000	26.4		22.7
\$30,000-\$40,000	19.5		18.7
\$40,000-\$50,000	8.2		8.6
\$50,000+	7.0		5.6
DK,Ref.,Blank,Out-of-Range..	5.7*		18.0

* The difference between the 1980 Regular Fish and Hunt Survey, all households or telephone households only and the RDD Fish and Hunt Survey was significant at the 5 percent level.

Table 5. A COMPARISON OF SOME FINAL DISPOSITION RESULTS BETWEEN PHASES I AND II OF THE MICHIGAN STATE RDD STUDY

Final Disposition	Phase I	Percent	Phase II	Percent	Combined	Percent
Interviewed Households	659	92.3%	1381	96.1%	2040	94.8%
Confirmed Refusals	55	7.7%	56	3.9%	111	5.2%
TOTAL	714	100.0%	1437	100.0%	2151	100.0%

Table 6.

FISHING, HUNTING, AND WILDLIFE ASSOCIATED RECREATION CHARACTERISTICS

Percent of Households Reporting or Persons Reported by Household Respondent	The Michigan State Regular Fish and Hunt Sample	The Michigan State RDD Fish and Hunt Sample
1. <u>Did Anyone in Household Hunt?</u>	N = 3339	N = 2042
Yes	23.6	24.4
No	76.4	75.5
DK,Ref.,Blank,Out-of-Range..	0	0
2. <u>How Many Days Hunted?</u>	N = 1029	N = 656
1-9	50.8*	43.4
10-14	16.0	20.1
15-19	7.2	6.3
20-29	9.2	9.0
30-365	15.6	12.2
DK,Ref.,Blank,Out-of-Range..	1.1*	9.0
3. <u>How Much Was Spent for Hunting?</u>	N = 1029	N = 656
0-\$15	22.9*	15.7
\$16-\$250	61.5	58.1
\$251-\$500	9.0	11.9
\$500+	4.1	3.8
DK,Ref.,Blank,Out-of-Range..	2.4*	10.5
4. <u>Did Anyone in Household Fish?</u>	N = 3339	N = 2042
Yes	39.3	41.3
No	60.6	58.4
DK,Ref.,Blank,Out-of-Range..	.1	.3
5. <u>How Many Days Fishing?</u>	N = 2398	N = 1541
1-9	42.7	41.5
10-14	14.3	12.8
15-19	5.0	3.2
20-29	11.3	9.1
30-365	23.1	23.8
DK,Ref.,Blank,Out-of-Range..	3.5*	9.5
6. <u>How Much was Spent for Fishing?</u>	N = 2398	N = 1541
0-\$15	49.8*	38.7
\$16-\$250	41.0	45.0
\$251-\$500	4.6	5.6
\$500+	3.0	4.3
DK,Ref.,Blank,Out-of-Range..	1.5*	6.4
7. <u>Did Anyone Take Special Interest in Wildlife Around the Home?</u>	N = 3339	N = 2042
Yes	24.6*	31.0
No	75.1*	67.9
DK,Ref.,Blank,Out-of-Range..	.2	1.0
8. <u>Did Anyone in the Household Feed Wild Birds?</u>	N = 3339	N = 2042
Yes	55.6*	61.5
No	43.8*	37.5
DK,Ref.,Blank,Out-of-Range..	.6	1.0
9. <u>Did Anyone in the Household Photograph Wildlife Around The Home?</u>	N = 3339	N = 2042
Yes	13.2*	17.2
No	86.8*	82.8
DK,Ref.,Blank,Out-of-Range..	0	0

* The difference between the Regular 1980 Fish and Hunt Survey estimate and the RDD Fish and Hunt Survey estimate was significant at the 5 percent level.

Table 7.

ESTIMATES OF STANDARD ERRORS FOR THE MICHIGAN FHVAR SURVEY, ALL HOUSEHOLDS, TELEPHONE HOUSEHOLDS ONLY, AND THE RDD FISH AND HUNT SURVEY

Percentage \ N =	600	1000	2500	4000	5600	7500	9400
2 or 98	.8	.7	.4	.3	.3	.2	.2
5 or 95	1.3	1.0	.6	.5	.4	.4	.3
10 or 90	1.8	1.4	.9	.7	.6	.5	.5
15 or 85	2.2	1.7	1.1	.8	.7	.6	.5
25 or 75	2.6	2.0	1.3	1.0	.9	.7	.7
50	3.0	2.3	1.5	1.2	1.0	.9	.8