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Conversational Activity and the Quality of Information From Interviews for Obtaining Farm Facts

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It might be expected that a more active conversation between enumerator and respondent would provide better data in an interview. Such an effect had been reported for health interviewing. However, it was not discovered in farm interviewing in the survey analyzed in this paper. There is probably an effect on the quality of information from an active conversation interaction but it is likely to be a complex one that requires in-depth study to describe.

Key words: Interviewing; respondent reactions; conversational activity; data quality.

A recent study of response errors in reporting health conditions by household interviewing suggested that a more active conversation may improve the quality of health information being recorded during the interview.[1] In earlier studies of response errors in obtaining farm facts[2] we had noted some effects of conversational style on response errors, but we had not looked specifically at the amount of conversation as a possible explanation of response errors. This we will do in the present report.

The source of the data was an experiment-in-a-survey done in North Carolina in 1962. A Statewide sample of farm tracts parallel to that for the December Enumerative Survey[3] was selected. Six teams of enumerators, two in each of three geographic strata of the State, were each assigned to collect data on 24 farm tracts. The enumerators all used the standard questionnaire form but were instructed to vary the asking of the questions in accord with a 2^3 factorial design. The factors were choice of respondent (first or best), approach (friendly or official), and location (house or field). In the friendly approach, the enumerator looked at the respondent's eyes while asking the questions and down at his papers while the respondent answered. This was reversed under the official approach. In the friendly approach, the enumerator moved closer or stood beside the respondent, but stayed farther away and faced him in the official approach. Extra topics of conversation were discouraged in the official approach but pursued more naturally under the friendly approach.

The eight treatment combinations were assigned at random to the 24 farm tracts in each enumerator's workload. For one of the teams, the followup enumerator's entire set of questionnaires was lost; and for another team, there were so few tracts with crop entries (only nine of 24 tracts) that five and sometimes only four teams have been included in the following analyses.

With the aid of an instruction booklet and 4 days of training, each enumerator was prepared to use all of the experimental variations. Likewise, the observers were trained in scoring utterances, keeping time on various operations, and coding other aspects of the content of the interviews.

After the questionnaire form had been completed, the respondent was told that a supervisory enumerator would soon come by to ask the same questions again. Within a week a followup enumeration was done, and the differences in the two reports were used to measure response error. Incidentally, there was widespread acceptance by respondents of the followup enumeration. We feel that the survey's concern with accuracy in reporting, as explained by the enumerators, was understood and appreciated by the farmers.

[1] C. F. Cannell, F. J. Fowler, and K. H. Marquis, "The influence of interviewer and respondent psychological and behavioral variables on the reporting in household interviewers," Vital and Health Statis., Natl. Ctr. for Health Statis., PHS Pub. No. 1000, Ser. 2, No. 26, Washington, D.C., Mar. 1968.

[2] C. H. Proctor and Bill Stines, "An experimental survey to study response errors in agricultural enumerative surveys," Prog. Rpt. 34, Inst. Statis., N.C. State Univ., Raleigh, N.C., 1963. C. H. Proctor, "Variations in response errors induced by changing instructions to enumerators," Proc. Soc. Statis. Sec. Amer. Statis. Assoc., p. 51-55, 1965.

[3] These enumerative surveys are conducted twice yearly by the Statistical Reporting Service of USDA with State cooperation.

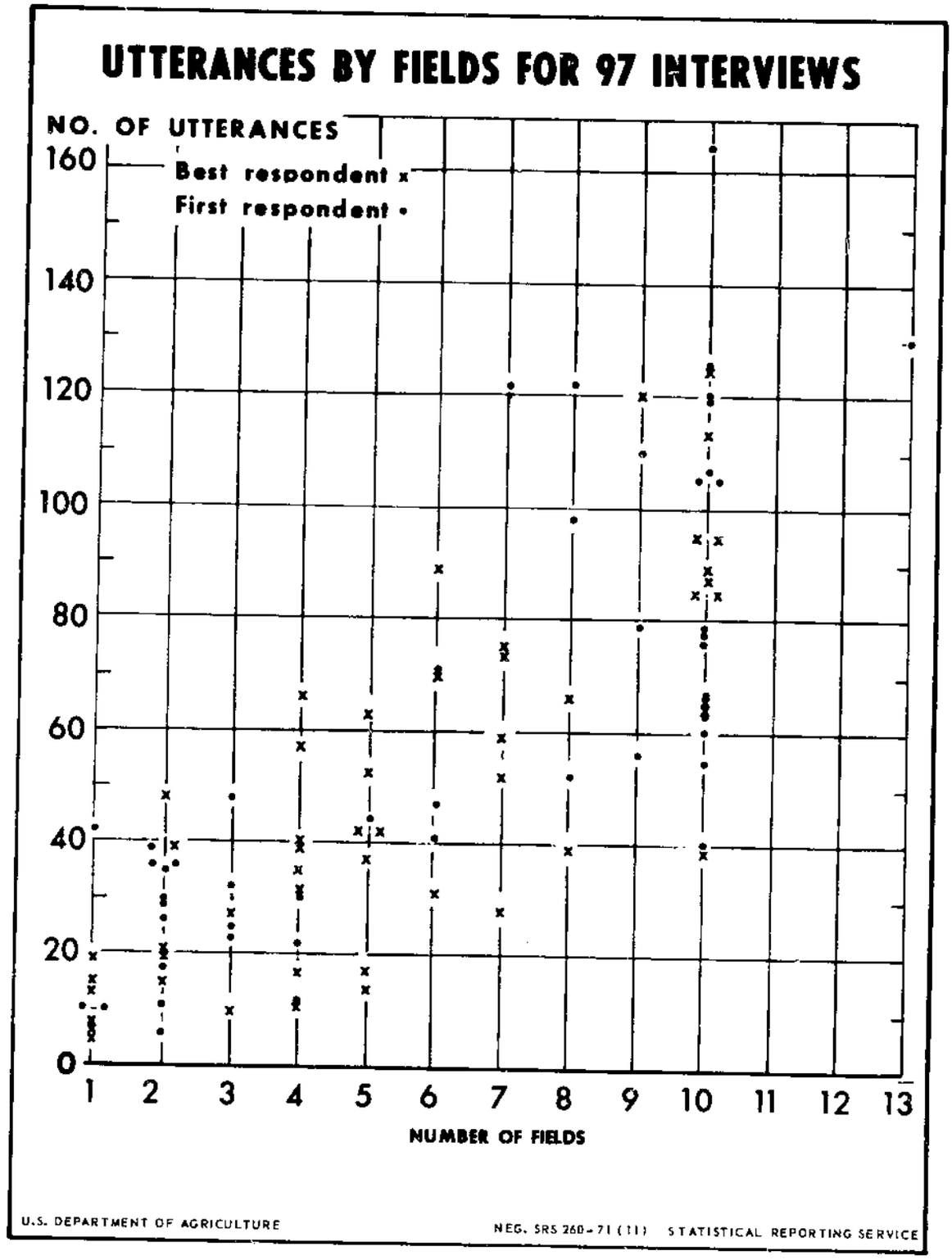
UTTERANCES BY FIELDS FOR 97 INTERVIEWS
NO. OF UTTERANCES
Best respondent x
First respondent •
160
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13
NUMBER OF FIELDS
U.S. DEPARTMENT OF AGRICULTURE
NEG. SRS 260-71 (11) STATISTICAL REPORTING SERVICE

Figure 1

From all the items of information on the questionnaire form, the present study focuses on acreages reported for three classes of land use: Crops, hay and other pasture, and other land such as woods or houselot. The absolute differences between acreages reported on the initial and on the followup interview were added and divided by the total of all acreage reported. This produced the percent discrepancy scores that constitute the dependent variable of the study. Tracts where no acreages were reported in any of the three categories were not included in the analyses.

Once the enumerator and respondent were launched into the question-and-answer pattern required by the questionnaire, the observer tallied each utterance. An utterance is defined as "a stretch of talk, by one person, before and after which there is silence on the part of the person." The total number of utterances of both enumerator and respondent for the crops, hay and other pasture, and other land questions were found to be proportional to the number of fields in the tract. The relationship is shown in figure 1. Each additional field seemed to bring forth about 10 additional utterances. Therefore, we took the ratio of utterances per field as a standardized measure of the amount of conversation. This variable then became the independent one.

The "best" instruction for the choice of respondent almost invariably led to the farm operator, while the "first" instruction sometimes led the enumerator to conduct the interview with a son, a housewife, or a grandfather. Unfortunately, our reporting forms did not include the name nor status of the respondent. This was an unintentional mistake that caused the loss of useful information. Thus in the following analyses we have separated the data into two parts, by respondent instruction, and treated them separately.

Part of the calculation was done using a multiple regression program[4] in which the team and treatment effects were represented by dummy variables. After removing the team and treatment main effects, the regression coefficient of discrepancy score on the utterance ratio was .175 with a standard error of .451 for the 50 interviews done under the "best" instruction and .131 ± .319 for the 46 interviews done under the "first" instruction. In light of their similarity, pooling the two estimates would appear to be a reasonable procedure, and it yields .153 ± .175. The coefficient .153 is interpreted as an increase of .15 of a discrepancy score per added utterance per field. Thus there is no evidence of an effect such as was reported for the health interviews. In fact, if higher levels of conversation had reduced response errors, the sign of the regression coefficient would have been negative.

To examine the effect of the treatments, the nine observations from team 2 were discarded. Then it was found that the numbers of observations in the 32 cells (4 teams by 8 treatment combinations) were sufficiently similar to do an unweighted means analysis of variance. The means are shown in table 1 and the analysis of variance computations in table 2.

When the enumerator was instructed to collect data from the first person he found, the friendly approach produced considerably more high-discrepancy scores than the official. For this group of interviews, table 2 shows that the team-by-treatment interaction was similar enough to the within-cell variability to pool error sources.

For interviews done under the instruction to interview the best respondent, both of the main effects were apparently present. That is, interviews done in the fields had lower discrepancies than those done near the house, and interviews done under the official approach had lower discrepancies than when using a friendly approach. For these interviews, there was some team-by-treatment interaction that gave us pause before pooling the mean squares. We decided, however, that the enumerator of team 3 was responsible for the interaction and that for generalizing to enumerators more like those of teams 1, 4, and 5 it would be correct to use, as a compromise procedure, the pooled mean square as the error mean square.

Team 3 showed an almost contrary pattern of having a relatively high level of discrepancies under the combined friendly with fields instruction. The enumerator for team 3 would be judged as more of the caliber of a supervisory enumerator, while those of the other teams were more like the usual survey enumerator. It seems quite likely that the team 3 enumerator would be more uncomfortable interviewing under the friendly instruction and this could cause the discrepancy score to rise.

The salutary effect on discrepancy scores of the official approach, in the case of the first respondents, is quite likely due to its encouraging whoever was being bombarded with questions to call for the farm operator. As was confessed earlier, we failed to record who was the respondent and thus we can't verify this suspicion. The enumerator of team 3 again shows a somewhat different pattern of effects in that his "friendly" interviews had fairly low discrepancies. This lends some support to our belief that his natural style was "official" even when under the friendly instruction.

Each enumerator was carrying an aerial photo of the

[4]The program, called Statistical Analysis System, was developed by A. J. Barr and J. H. Goodnight at North Carolina State University and the computations were done at the Triangle Universities Computing Center with support from a National Science Foundation Grant.

Table 1.—Discrepancy scores and means by enumerator teams and treatments

Enumerator team	First respondent				Best respondent			
	Fields		House		Fields		House	
	Official	Friendly	Official	Friendly	Official	Friendly	Official	Friendly
1.	0.0	0.0	1.1	0.0	19.7	0.0	33.3	21.0
	---	26.5	0.0	44.2	21.0	0.0	6.7	0.0
	---	4.0	0.0	6.1	---	2.3	---	8.1
Mean . .	0.00	10.17	.37	16.77	20.35	.77	20.00	9.70
3.	0.0	2.2	28.6	0.0	0.0	0.0	10.0	.7
	6.7	10.2	1.5	0.0	0.0	32.0	0.0	14.0
	17.4	6.2	0.0	---	4.9	---	6.2	1.2
Mean . .	8.03	6.20	10.03	0.00	1.63	16.00	5.40	5.30
4.	5.3	12.0	0.0	21.8	0.0	1.8	49.7	25.4
	2.5	17.3	0.0	30.8	32.2	.2	29.1	6.4
	---	---	16.7	19.8	0.0	.9	34.0	5.0
Mean . .	3.90	14.70	5.57	24.13	10.73	.97	37.60	12.27
5.	13.1	28.3	2.6	9.8	15.3	0.0	24.6	0.0
	.5	2.6	7.4	17.3	13.0	2.7	9.4	8.9
	10.7	27.6	0.0	---	0.0	4.2	48.4	31.9
Mean . .	8.10	19.50	3.33	13.55	9.43	2.30	27.57	13.60
Unweighted mean. .	5.01	12.64	4.83	13.61	10.54	5.01	22.64	10.22

Table 2.—Analysis of variance for the unweighted means of table 1

Source	First respondent			Best respondent		
	DF	MS	F	DF	MS	F
Teams	3	36.38		3	50.20	
Location	1	.62	0.01	1	299.81	[1]5.17
Approach	1	269.70	[1]5.60	1	322.20	[1]5.55
L x A	1	1.33	.03	1	47.61	.82
Team x Trt. . . .	9	43.32		9	86.79	
Within	26	49.77		29	49.09	
Pooled error . . .	35	48.11		38	58.02	

[1]Since $F_{.025}(1, 40) = 5.42$, all three F values have a significance probability of about .025. The positive skewness of the scores suggests caution in interpreting this probability too exactly.

farmer's fields, and he referred to it during the interview. Even so, the instruction for going into the fields seems to improve the data. We suspect from our own experiences, as well as from the data, that most of this improvement is in a better statement of woodland than of cropland acreages. If this is the case, then it may well not be worth while for the enumerators to make it a practice to go into the fields, since the aerial photo can be and is planimetered in the office to yield more reliable acreages of woodland and at much less cost.

The finding of superiority for the official approach is somewhat at variance with the longstanding admonitions (possibly originating within USDA itself) to enumerators to get and hold rapport with the respondent. The instructions in this study to the enumerator for attaining the friendly, as distinct from the official, approach dealt with surface behavior, namely eye contact, distance and orientation of the body, and extra topics of conversation, and not with "feelings." It would seem reasonable that, even though for the measurement of attitudes or opinions a more friendly and equalitarian atmosphere may reduce response errors, for the recording of facts the more impersonal, official approach is to be preferred.

The central negative finding was that more conversation was not associated with a reduction in discrepancy scores. This does not, in itself, contradict the experiences with health interviews. It suggests that recording farm facts such as acreages is quite a distinct task from reporting health information such as episodes of sickness. Then too, the presence of a positive relationship in our data may be due to the tendency to talk a bit longer in those cases where doubt arises out of the intrinsic difficulty of knowing boundaries. This sort of reverse causality does not preclude the possibility that including probes in the questionnaire, or some other techniques for increasing the volume of conversation, might reduce response errors.