

The Role of the Interviewer in Survey Participation

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ABSTRACT

Using data from a survey of U.S. Census Bureau interviewers, this paper examines whether experienced interviewers achieve higher response rates than inexperienced interviewers, controlling for differences in survey design and attributes of the populations assigned to them. After demonstrating that the relationship is positive and curvilinear, it attempts to explain the mechanisms by which experienced interviewers achieve these rates and elaborate the nature of the relationship. It examines what behaviors and attitudes underlie the higher success, with the hope that they might be instilled in trainees.

KEY WORDS: Interviewers; Nonresponse; Response rates; Survey participation.

1. INTRODUCTION

Survey methodologists have long suspected the interviewer to be an important source of variation in response rates. Indicators of this include observed differences among trainees in the ability to absorb and put into practice the interviewing guidelines, interviewer variation in item missing data rates, individual interviewers' response rates, and the ability of some interviewers to convert the initial refusals of others. However, several of these indicators are affected by the fact that interviewers often do their work in different subpopulations, and thus face different challenges to complete their assignments.

Much of what we believe about the impact of the interviewer on survey participation remains untested or inconclusive. In an oft-cited study, Durbin and Stuart (1951) found experienced interviewers to be "decidedly superior" to student volunteers in terms of response rates. Groves and Fultz (1985) found that novice interviewers (1 to 6 months of tenure) had the highest refusal rates in a telephone survey. In a study cited by Inderfurth (1972), nonresponse rates for Census Bureau interviewers trained in 1962 and 1963 declined steadily over the first months of service, reaching the level of experienced interviewers after 22 months. In contrast, Singer, Frankel and Glassman (1983, p. 74) found the effect of experience on response rates in a telephone survey to be counter-intuitive, that is, more experienced interviewers did **not** achieve higher response rates. They do note, however, that this result is based on only six interviewers. In a study of 16 field interviewers in Sweden, Schyberger (1967) found nonresponse rates to be **higher** for experienced than for newly recruited interviewers. In short, the common belief of experienced interviewers being more successful is not uniformly supported empirically.

This paper examines the role of various interviewer characteristics, particularly experience, in achieving respondent cooperation. It should be noted that the interviewer represents only one part of a large set of factors that can affect survey participation. Such factors include respondent characteristics, the respondent-interviewer interaction, survey design features, and contextual and situational factors. For a review of these factors, see Groves, Cialdini and Couper (1992).

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We should also note that different models may be more suitable for different components of nonresponse. For instance, interviewer motivation, tenacity and effort expended may be more important in reducing noncontacts, while persuasion skills play a greater part in the refusal component of nonresponse. The data analyzed here do not permit us to distinguish between these components of nonresponse. This may weaken the explanatory power of the models tested.

In this paper we will address two questions: (a) do experienced interviewers achieve higher response rates? (b) if so, what are the mechanisms underlying the relationship between experience and rates? These questions are important to the survey research community. If the behaviors used by successful experienced interviewers can be taught to inexperienced interviewers, then their success might be transferred to the new recruits. If not, then the value of reducing turnover among experienced interviewers remains high for survey organizations.

2. TOWARD A MODEL OF SURVEY PARTICIPATION

A number of interviewer characteristics can be identified that have a potential impact on survey participation. These are illustrated in Figure 1. The effects of interviewer experience, expectations and behavior on response rates, controlling for assignment area and survey design features, will be explored. Each of the sets of variables will be discussed in turn.

2.1 Interviewer experience

First, interviewers' experience is expected to have a positive effect on the response rates they obtain. This stems from lessons learned through trial and error application of alternative techniques over time, and from alternative training guidelines and experiences on different surveys. Experience thus has two components: length and breadth. Length of experience might be indicated by the number of years a person has worked as an interviewer. One indicator of breadth of experience is the number of different organizations an interviewer has worked for, or the number of different kinds of studies an interviewer has worked on. It is argued that length and breadth of experience both serve to increase the variety of different interviewing situations to which an interviewer is exposed.

We expect the relationship between length of experience (as measured by tenure) and response rates to be curvilinear. Experience in the first few years of interviewing will have a greater impact on response rates than in later years. After a certain point, the number of new situations faced by interviewers declines, and interviewers become comfortable dealing with the wide variety of sample persons and assignment areas they may face. After this, additional years of experience may not produce further gains in response rates.

An alternative hypothesis is that self-selection rather than experience produces higher response rates among interviewers with longer tenure. In other words, it is not that individual interviewers get better over time, but that better interviewers tend to stay, while weaker interviewers leave the job. We believe that a combination of these two factors explains variations in interviewer performance. However, the self-selection hypothesis cannot be tested in a cross-sectional study such as this, and caution must be exercised in drawing inferences from these analyses.

If experienced interviewers achieve higher response rates, we hypothesize that this takes place through the intervening effects of interviewer expectations (*e.g.* confidence) and behavior (*e.g.* effective oral presentation). Note that we posit no direct effect of experience on response rates. In other words, is it possible to identify interviewer attitudes and behaviors that may account for possible differences in response rates?

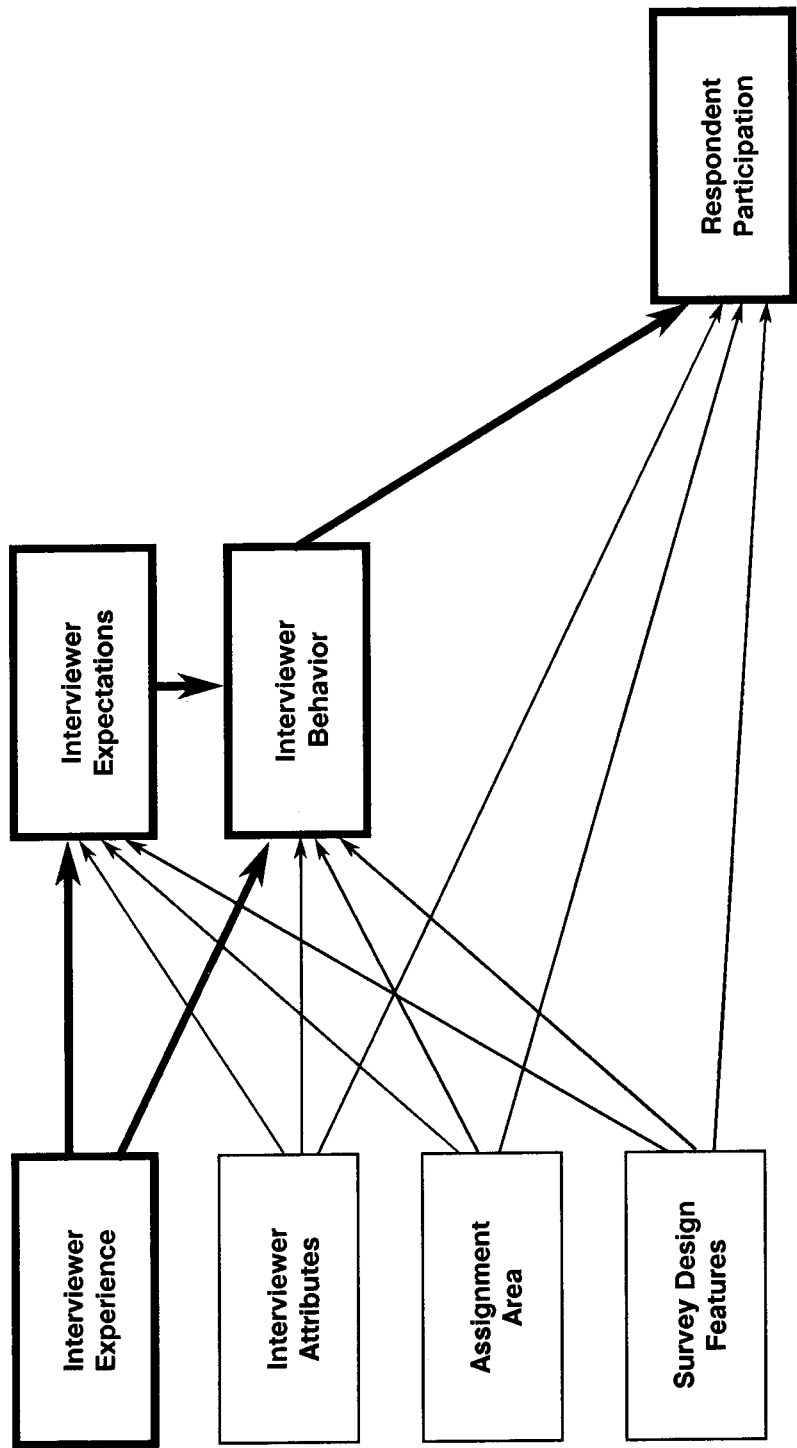


Figure 1. Model of Survey Participation Role of the Interviewer.

2.2 Interviewer expectations

It is hypothesized that positive interviewer expectations lead to higher response rates. Interviewers who have a greater belief in their ability to persuade sample persons to participate, who believe in the legitimacy of the work they are doing, and who are confident that most people agree to participate in surveys, are likely to get higher response rates than those who believe otherwise. This argument has some empirical support in the study by Singer, Frankel and Glassman (1983), in which it was found that interviewers who anticipated prior to the survey that the task of persuading respondents was “moderately easy”, achieved higher response rates than those who believed the task to be “moderately difficult”.

2.3 Interviewer behavior

With regard to interviewer behaviors, we seek to identify the mechanisms by which greater experience and positive expectations translate into higher response rates. The behavior of interviewers in gaining cooperation from sample persons may be likened to that of other “compliance professionals” (such as salespersons, fundraisers, *etc.*). Based on an extensive review of experimental and observational evidence, Cialdini (1984, 1990) identifies six compliance principles used to decide whether to accede to a request. Briefly, these principles are as follows:

- (a) Reciprocation: One should be more willing to comply with a request to the extent that the compliance constitutes the repayment of a perceived gift, favor, or concession.
- (b) Consistency: After committing oneself to a position, one should be more willing to comply with requests for behaviors that are consistent with that position.
- (c) Social validation: One should be more willing to comply with a request to the degree that one believes that similar others would comply with it.
- (d) Authority: One should be more willing to yield to the requests of someone who one perceives as a legitimate authority.
- (e) Scarcity: One should be more willing to comply with requests to secure opportunities that are scarce.
- (f) Liking: One should be more willing to comply with requests of liked others.

We are interested in the extent to which interviewers make use of these principles to persuade sample persons to participate in a survey.

It is argued that interviewers who make appropriate use of each of these strategies are likely to have greater success in persuading reluctant sample persons to participate. However, the use of such techniques indiscriminately in all situations may backfire. For example, the invocation of the authority principle in areas where suspicion of government is high may well have a negative effect on cooperation. The use of these compliance principles may not be universally effective in all situations or for all sample persons.

Thus, it is not just **whether** these techniques are used by interviewers, but also **how** they are used. Two concepts are of interest here. One is the number of different techniques that an interviewer has at his/her disposal, and the second is how appropriately such techniques are applied. The first we will refer to as the “repertoire of techniques” available to the interviewer. A novice interviewer may learn one or two “canned” introductions during training, and use them on all sample persons he/she encounters. In contrast, the experienced interviewer has a wide repertoire of approaches upon which to draw, and can apply them as the situation warrants.

The second concept is that of appropriate application of the skills or techniques at the interviewer's disposal. We refer to this as "tailoring". An interviewer is expected to be an "astute psychological diagnostician" (Cannell 1964), to be able to size up a situation quickly, and apply the appropriate persuasive messages. These skills are gained through experience, either on the job or in life in general. The novice interviewer, with fewer skills and less confidence, may rigidly adhere to a small number of "tried and trusted" approaches. The experienced interviewer is better able to tailor his/her approach to each potential respondent.

It may be that adaptability and appropriate application of persuasive techniques are more critical than the actual behaviors or techniques themselves. If so, it should be possible to develop a more parsimonious model using only the latter concepts and dropping the specific behaviors measured.

2.4 Assignment area

To examine the effect of interviewers on survey participation, we need to take into account the fact that they are assigned different areas to interview. Ideally, the research design would have randomly assigned interviewers to sample areas, removing any statistical confounding between interviewer and population characteristics. Without such randomization, we attempt to specify those population characteristics important to response rate and statistically control for them.

First, the problem of obtaining cooperation from sample persons in inner-city areas is well known (see Steeh 1981, Smith 1983). House and Wolf (1978) found that rising crime rates, particularly in high density urban areas, have been a major deterrent to survey participation, and to trusting and helping behavior in general (Korte and Kerr 1975). We expect this arises both because of residents' reluctance to interact with strangers, and unease among interviewers on entering these neighborhoods.

Turning to characteristics of sample households, household size has been found to correlate positively with response rates (see Gower 1979; Paul and Lawes 1982; Rauta 1985). Single-person households tend to have relatively high refusal rates (see Brown and Bishop 1982; Wilcox 1977). This may be due in part to the large proportion of elderly persons living alone. Families with dependent children, on the other hand, tend to have higher response rates. Lievesley (1988) notes that higher response rates in certain areas of the U.K. may be explained by the high probability of finding someone at home arising from high proportions of children aged 0-4.

The findings on sample person characteristics are somewhat more mixed. A number of researchers (see Brown and Bishop 1982; Hawkins 1975; Herzog and Rogers 1988; Weaver 1975) have found age to be associated with nonresponse. The impact of other sample person characteristics such as race, education, socio-economic status, gender, *etc.* are somewhat inconsistent (see Groves (1989) and Goyder (1987) for reviews of these factors).

2.5 Survey design features

Finally, survey design features (topic, burden, respondent selection rules, *etc.*) are likely to influence a sample person's decision to participate, both directly and in terms of constraints on interviewer expectations and behavior.

2.6 Interaction effects on response rate

We suspect that there may be a number of statistical interaction effects of influences on nonresponse. One question is whether there are some areas (such as high density central city areas) in which interviewer experience is more important than other areas. For example, high density urban areas may be more diverse, requiring greater experience to deal with a greater

variety of different situations. Behavior in areas where the situations presented to interviewers are all very similar could be more easily learned, as fewer persuasion strategies would be needed.

We also suspect that different surveys may obtain varying response rates for different subpopulations as a result of the differential salience of the survey topic to such groups. For example, it may be expected that the National Crime Survey (which focuses on criminal victimization) may get higher response rates in high crime areas than in low crime areas. Similarly, the National Health Interview Survey (which measures health-related activities) may obtain higher response rates in areas with an older than average population. Similar interactions may be expected between the Consumer Expenditure Survey and such variables as average household size and income level.

3. METHOD

3.1 Data collection strategies

The results in this paper are part of a larger study of survey participation in face-to-face surveys in the United States. The first part of the work involved a series of focus groups with interviewers working on a variety of different surveys around the country. The insights gained from these groups led to the development of a structured questionnaire to test some of these hypotheses on a larger audience of interviewers.

The interviewer surveys had the goal of measuring behavioral, experiential and attitudinal influences on levels of cooperation obtained by interviewers. The questionnaire was developed and tested by staff at the Survey Research Center in collaboration with staff from the U.S. Census Bureau.

This questionnaire was administered to U.S. Census Bureau interviewers working on the following three personal visit surveys:

- (a) the Consumer Expenditure Quarterly Survey (CE), sponsored by the Bureau of Labor Statistics;
- (b) the National Health Interview Survey (HIS), sponsored by the National Center for Health Statistics; and
- (c) the National Crime Survey (NCS), sponsored by the Bureau of Justice Statistics.

The questionnaire was mailed in February, 1990, to Census Bureau interviewers working on these three surveys. All interviewers were paid their normal salary rate for completing the questionnaire (most were paid for an hour of their time). In an effort to seek candid responses and eliminate the threat of supervisory intervention, interviewers were assured that their individual responses would not be seen by or discussed with any of their supervisors, and that the results would be reported only as statistical totals.

Questionnaires were mailed back to the central office. Reminder letters and telephone calls were used to increase the response rate. A total of 1,013 completed questionnaires were received, representing a response rate of 97.1%. A number of questionnaires were excluded from the analyses reported here. All supervisory interviewers (256) were excluded. These people often have no regular assignments of their own, and typically work on a number of different surveys. They are often used for refusal conversion, or to "clean up" otherwise incomplete assignments. With supervisory interviewers excluded, transfer of assignments from one interviewer to another on these surveys is rare. For purposes of calculating interviewer-level response rates, each nonresponse case was counted against the original interviewer, regardless of whether it was later converted by another. In addition, those interviewers who started work during the period

in which the interviewer survey was administered, and for whom no historical response rate information was available, were also excluded (46 interviewers). This left a total of 711 interviewers, 207 from CE, 139 from HIS and 365 from NCS. The numbers of cases included in the analyses may be further reduced due to missing data on certain variables.

3.2 Data structure

In addition to the questionnaire responses, other variables were added to the data file. These included a set of variables to represent each interviewer's assignment area. Typically, the primary sampling unit (PSU) in which an interviewer works consists of one or more coterminous counties. County-level data were extracted from the County and City Data Book (Bureau of the Census 1988), aggregated to the PSU level, and attached to the interviewer records. Note that these variables can only reflect gross differences in assignment area and cannot, for example, distinguish between central city and suburban areas.

The date each interviewer was hired by the Census Bureau was obtained from administrative records to create a variable to serve as a measure of tenure. Although it does not indicate length of experience on a particular survey, it does reflect the length of time an interviewer was employed by the Census Bureau.

A major drawback of this study is that it was not possible to obtain measures of race, age, gender, or other demographic attributes of the interviewer. Confidentiality restrictions prevented access of personnel records for this information, nor could these be asked in the interviewer questionnaire.

3.3 Analytic plan

Three different surveys are represented in the data set. Instead of introducing control variables measuring key design features of the surveys, dummy variable indicators of the survey were used to control on important design differences among them.

The dependent variable is aggregate response rate for the six month period, October 1989, through March 1990. It was not possible to obtain interviewer-level data on the components of nonresponse (particularly refusals) for this period. These rates thus do not distinguish between noncontact and refusal components of nonresponse. Hence, it should be noted that the analyses reported here are based on interviewer-level **response** rates rather than **refusal** rates.

The nonresponse rates for the three surveys for 1990 (based on national sample totals) are presented in Table 1.

Refusals as a proportion of total nonresponse varies from 87% for CE to 52% for NCS. We suspect that different sets of factors operate to affect these two components of nonresponse. Ideally, separate models would be fitted for each component, but this was not possible given the current data. To the extent that factors affecting refusals are different from those affecting other components of nonresponse (such as noncontacts), the results will be confounded (see Lievesley 1988). It can also be seen that nonresponse rates for these three surveys are low to begin with. This may further restrict the ability of these models to explain differences among interviewers.

Given that the size of the interviewer assignments vary (and hence affect the variance of the measured individual response rates), we used weighted least squares (WLS) with assignment size as the weight. Comparisons of the WLS results with those using ordinary least squares (OLS) solutions were made, and it was found that WLS reduces the size of the coefficients marginally, but does not affect the sign or relative strength of the coefficients. All the analyses reported here are based on the WLS solutions.

Table 1
1990 Nonresponse Rates for Three Surveys

Survey	Nonresponse rate	Refusal rate
	%	%
Consumer Expenditure Survey	13.4	11.6
Health Interview Survey	4.5	2.8
National Crime Survey	3.1	1.6

A series of tests were performed to determine the appropriateness of the models specified. A number of outliers in the dependent variable were detected. However, removal of these outliers had little or no effect on the results obtained, and they were therefore retained in all analyses. Tests of the normality assumption were also conducted. The normal probability plots show that the residuals from these models do not differ markedly from a normal distribution.

It is hypothesized that the effect of tenure on response rate is greater in the first few years. The tenure variable is transformed (the natural log is used) to reflect this. The transformed variable indeed produced an improvement in fit over the linear tenure variable.

A more detailed description of the variables used in these analyses can be found in Appendix A.

4. LIMITATIONS

Before describing the analyses, it is important to note some of the limitations of these data. First, these findings refer only to interviewers working on three ongoing national surveys at the Census Bureau at the time at which the interviewer survey was conducted. It is not possible to generalize to other face-to-face or telephone surveys conducted by academic or private sector organizations.

Furthermore, the data are cross-sectional in nature. Cohort and period effects are confounded with the effects of experience. That is, any observed response rate differences by interviewer experience may be due to changes in the quality of interviewers hired over time, in the effectiveness of interviewer training over time, or in differential turnover by interviewer quality. Hypotheses can be constructed to support both positive and negative effects of these factors on response rates. Hence, the measured impact of interviewer experience on response rates is a complex combination of these factors. Longitudinal measurement of interviewers is needed to disentangle these effects.

Interviewers are not randomly assigned to areas. Although we have attempted to control for a number of characteristics of assignment area that may impact on response rates, there may be many other factors that could explain differences in response rates across assignment area. Further, we are limited to weak controls, on attributes of counties and groups of counties, not on attributes of specific assignment areas within counties given to interviewers. A hierarchical analysis containing data on individual respondents and interviewers assigned to them would improve these control factors.

Finally, the dependent variable was measured for a time period up to and including the administration of the interviewer questionnaire. More recent response rate data were not available at the time. Given that behaviors and expectations were not measured before the response rates were obtained, caution should be exercised in attributing causality.

Despite these limitations, these data provide us with the opportunity to test prevailing beliefs about the role of interviewer experience in response rates, and to explore the role of interviewer expectations and behavior in face-to-face surveys.

5. RESULTS

First, we measured the impact of experience, controlling for characteristics of assignment areas and dummy variables for the surveys (Model 1 in Table 2). Let us first examine the coefficients of the control variables. With few exceptions, most of the assignment area variables have a significant impact on response rates. Both population density and crime rate act as expected, with lower response rates being obtained in high crime, high density areas. The negative effect of household size is contrary to expectation. This may be explained in part by the fact that these surveys all collect information from or about **all** adult household members, thereby increasing the reporting burden for large households. This is contrary to many surveys where a single adult is selected from each household. The effect of age is as hypothesized, with response rates tending to be lower (but not significantly so) in areas with larger proportions of persons over 65, but higher in areas with many households who have young children.

The large effects for the two survey variables (relative to the omitted category of the Consumer Expenditure Survey) reflect differences in the mean response rates for these three surveys. Such differences can be attributed to a host of survey design differences (length of the interview, respondent selection rules, panel versus cross-sectional designs, content of the questionnaires, *etc.*) that are beyond the scope of this paper. Nevertheless, it is clearly necessary to control for these differences.

Now, let us examine the measured effect of experience, given these control variables. It can be seen that tenure has a strong positive effect on response rates, even when controlling for the nature of the area to which an interviewer is assigned. This appears to confirm prevailing beliefs about the role of interviewer experience. Interviewer differences in response rates appear to be more than simply artifacts of differences in the areas to which they are assigned, and experience plays a key role in such interviewer differences.

The inclusion of an indicator for breadth of experience was also tested, but found to have no significant effect in the presence of the remaining variables. It thus appears that, for Census Bureau interviewers at least, experience working for other survey organizations does not appear to have any marginal impact on response rates over and above that of tenure.

Does tenure have a differential impact on response rates in different assignment areas? Model 2 in Table 2 includes an interaction term between the log of tenure and population density. An additional interaction term between tenure and crime rate was also tested, but this coefficient was found to be insignificant, and the interaction had little impact on remaining elements of the model. The interaction term in Model 2 is statistically significant, but the sign is opposite to that expected. We hypothesized that experience would have a greater impact in high density areas, but this does not appear to be the case. An alternative explanation may be a "burnout effect". More experienced interviewers in high density urban areas may be losing their enthusiasm sooner than experienced interviewers in less stressful rural areas, and this contributes to lower response rates. Interviewer burnout may be one factor contributing to higher turnover rates in the large metropolitan areas.

Table 2
Results of WLS Regression Analyses of NCS, HIS, CE Interviewer-Level Response Rates

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error	Coefficient	Std. error
Intercept	96.94	(3.19)	96.21	(5.39)	94.95	(3.25)	93.44	(3.35)
Assignment area:								
Population density	-0.00017**	(0.000023)	-0.000078*	(0.000038)	-0.000084*	(0.000038)	-0.000071	(0.000038)
Crime rate	-0.00024**	(0.000055)	-0.00021**	(0.000055)	-0.00023**	(0.000056)	-0.00022**	(0.000056)
Percent 65 or older	-0.057	(0.051)	-0.054	(0.050)	-0.061	(0.051)	-0.061	(0.052)
Percent under 5	0.41*	(0.16)	0.37*	(0.16)	0.29	(0.17)	0.35*	(0.17)
Household size	-3.20*	(1.70)	-2.92*	(1.24)	-2.88*	(1.26)	-3.09*	(1.27)
Survey Indicators:								
NCS ¹	6.72**	(0.40)	6.67**	(0.40)	6.68**	(0.41)	6.55**	(0.42)
HIS ¹	5.65**	(0.46)	5.63**	(0.46)	5.64**	(0.47)	5.65**	(0.48)
Interviewer experience:								
Log (tenure)	0.62**	(0.14)	0.74**	(0.14)	0.69**	(0.15)	0.72**	(0.15)
Log (tenure) × density			-0.00010**	(0.000032)	-0.00011**	(0.000032)	-0.00011**	(0.000032)
Interviewer expectations:								
Confidentiality								
Rate/quality					0.61	(0.37)	0.59	(0.37)
Efficacy					0.046	(0.40)	-0.00073	(0.41)
					0.55**	(0.15)	0.53**	(0.15)
Interview behaviors:								
Authority							0.14**	(0.055)
Reciprocation							0.67*	(0.29)
Social proof							0.18	(0.32)
Saliency							-0.19	(0.33)
Scarcity							-0.66*	(0.29)
Consistency							-0.21	(0.29)
Repertoire							-0.0068	(0.065)
Tailoring							-0.042	(0.054)
Adjusted R ²	0.3553	(679)	0.3640	(679)	0.3784	(645)	0.3873	(639)
(n)								

** $p < .01$

* $p < .05$

¹ CE Interviewers are the omitted category.

Interactions between the three surveys and various assignment characteristics were also tested. None of these appear to have any noticeable effect in these models, and are not discussed further. As a further test for the presence of additional interactions involving the survey variables, separate models were fitted for each of the three surveys. The models obtained are essentially the same for each of the three surveys examined. Thus, although the level of response differs across the three surveys, the **relative** impact of tenure on response rates appears to be the same.

Given that it appears that experienced interviewers achieve higher response rates regardless of the areas to which they are assigned, we can proceed to address the question of **how** experience impacts on levels of cooperation. What makes a more experienced interviewer better at gaining cooperation from respondents?

The first step involves the addition of interviewer expectation variables to Model 2. The results are presented as Model 3 in Table 2. All three expectation variables act in the expected direction, although only one achieves statistical significance at traditional levels. It appears that those interviewers who have a greater belief in their ability to convince reluctant respondents to participate, actually achieve higher response rates.

It should be cautioned that the causal link between expectations and response rates cannot be established in a cross-sectional study such as this. It may be that greater success leads to greater expectations of future success, rather than the other way around. This interpretation opposes the hope that instilling a greater sense of self-efficacy in interviewers will produce higher levels of response. Nevertheless, this finding is an intriguing one that demands further attention.

The next step was to add the set of interviewer behaviors into the model. The results can be seen in Model 4 in Table 2. Two things can be noted about these results. First, the inclusion of this set of interviewer behaviors failed to explain away the effect of tenure. In fact, the coefficient for tenure is hardly affected by the addition of either the expectation variables or the behavior variables.

Second, the results for the specific behaviors are somewhat mixed. It was expected that the coefficients for all the behavior variables would be positive. This is not the case. The results for authority and reciprocity indicate that interviewers who use these techniques achieve higher response rates. In contrast, use of the scarcity principle appears to have the opposite effect. Pressure on a respondent to meet certain deadlines may well backfire. The remainder of the behavior variables do not appear to have a significant effect on the response rates attained by Census Bureau interviewers.

It was suggested earlier that a reduced model, using only repertoire and tailoring, should be considered. In Table 2 it was seen that these two variables do not have significant effects in the presence of the other behavior variables. Even after removing the other behavior variables from the model, repertoire and tailoring still have little impact on response rates. Thus, the argument that the way interviewers use various compliance techniques are more important than the actual behaviors themselves gains little empirical support from these data. However, the measures of these two concepts may be weak, and a better test of their role should be done at the contact-level of analysis.

6. DISCUSSION

This paper set out to measure whether experienced interviewers achieve higher response rates than inexperienced interviewers. It found they do. It then tried to explain why they do. It largely failed. One reason may be that the model is incorrect. However, continued discussions with interviewers and supervisory staff lead us to believe that this theoretical formulation has some merit.

Four explanations can be posited. First, the model is being tested at the wrong level of aggregation. Although the questionnaire focused on what interviewers usually or typically do, we are more interested in how they act in specific situations. A more appropriate test of these ideas should be conducted at the contact or household level. Second, the measurement of various concepts may be inadequate. Improvements in the translation of concepts from the compliance literature into specific interviewer behaviors may be made. Third, it should again be noted that these models deal with response rates not refusal rates. It may be that certain behaviors are more appropriately directed at persuading sample persons to participate (aimed at reducing refusals), while others may serve more to gain access to sample persons (the non-contact portion of nonresponse). Separate models for these two processes could not be developed here. Finally, other unmeasured characteristics of interviewers (appearance, voice quality, dress, *etc.*) may also play a role in influencing the respondent's decision.

These possible shortcomings do not negate the role of these behaviors in affecting response rates. Rather, the findings suggest further research and analysis to explore the relationships between specific behaviors and their application on the one hand, and interviewer-level response rates on the other. We feel that this line of inquiry has merit, and are working toward a fuller understanding of the role of interviewer experience, expectations and behavior in survey participation.

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APPENDIX A

VARIABLES USED IN ANALYSES

The creation of the variables used in the analyses are summarized here. Copies of the questionnaire can be obtained from the authors.

Dependent variable

Response rate: This is the response rate obtained by each interviewer for the six-month period in question, expressed as a percentage.

Assignment area

Population density: Population density (persons per square mile).

Crime rate: Crime rate (crimes per 100,000 population).

Percent 65 or older: Percentage of population 65 years of age and older.

Percent under 5: Percentage of population under 5 years of age.

Household size: Average household size.

Survey

Set of dummies to indicate which survey each interviewer works on:

HIS: Does interviewer work on the Health Interview Survey.

1 = Yes

0 = No

NCS: Does interviewer work on the National Crime Survey.

1 = Yes

0 = No

CE: (the Consumer Expenditure Survey) is thus the omitted category.

Interviewer experience

Tenure: Measured in days of service employed at the Census Bureau as an interviewer, rescaled to fractional years.

Breadth of experience: A count of the number of different survey organizations for which an interviewer has worked.

Interviewer expectations

Confidentiality: Interviewers were asked whether they thought there were any situation under which the Census Bureau would give individual survey response to any of a number of agencies (FBI, CIA, INS, IRS, state and local government agencies).

1 = High confidentiality belief (Census Bureau would not give responses to any of these agencies).

0 = Low confidentiality belief (Census Bureau would give responses to one or more of the agencies).

Rate/quality: Trade-off between response rate and data quality. Which one of the following statements comes closest to how you feel as an interviewer:

1 = It's better to persuade a reluctant respondent to participate than to accept a refusal.

0 = It's better to accept a refusal from a reluctant respondent.

Efficacy: Interviewers were asked the extent to which they agreed or disagreed with the following statement: With enough effort, I can convince even the most reluctant respondent to participate.

Four-point ordinal scale, 1 = strongly disagree, 4 = strongly agree. High score indicates greater belief in self-efficacy.

Interviewer behaviors

Authority: Interviewers were asked how often they left various materials (request for appointment, copy of the advance letter, *etc.*) at respondents' home when they found no-one at home. The responses to these questions were combined to form a scale of frequency of use of these authority-enhancing materials. High score indicates greater use of authority.

- Reciprocation: How often do you make a point of complimenting something about respondent's home or personal appearance?
 1 = Always, sometimes
 0 = Rarely, never
- Social proof: How often do you say "Most people enjoy doing the interview"?
 1 = Always, sometimes
 0 = Rarely, never
- Saliency: How often do you explain to respondents how the survey results could affect them personally?
 1 = Always, sometimes
 0 = Rarely, never
- Scarcity: How often do you tell a respondent that the interview must be completed by a certain date?
 1 = Always, sometimes
 0 = Rarely, never
- Consistency: Before a respondent has shown any sign of cooperating, how often do you begin asking the survey questions?
 1 = Always, sometimes
 0 = Rarely, never
- Repertoire: In an open-ended question, interviewers were asked to list all things they usually do to persuade reluctant respondent to participate. A count of the number of distinct things mentioned serves as an indicator of the repertoire of techniques available.
- Tailoring: In a series of 15 behavior items, interviewers responded whether they always, sometimes, rarely or never performed such behavior. An indicator of tailoring in the application of various persuasion techniques is obtained by counting the number of times an interviewer used the middle categories (sometimes or rarely) to these questions. A high score indicates greater use of tailoring.

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