

EFFECTS OF INCENTIVES IN A MULTI-MODAL SURVEY OF ELITES: FINDINGS FROM THE NATIONAL STUDY OF POSTSECONDARY FACULTY¹

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A growing literature suggests survey response rates have declined during the past twenty-five years². Private and public survey organizations report substantial declines in response across a wide spectrum of survey topics and virtually all modes of questionnaire administration, including mail, telephone, and in-person interviewing, although mail surveys tend to have the lowest response rates³. Surveys of both general and special populations are affected, but the problem is most serious in surveys of rare populations⁴.

Declining response rates may seriously threaten the quality of survey inferences about the populations that the surveys seek to represent. The reason is that nonrespondents generally differ from respondents with respect to the measured characteristics. The magnitudes of nonresponse bias are difficult to quantify⁵. Given current levels of nonresponse, it is plausible that nonresponse biases in many surveys may exceed all other levels of sampling and nonsampling error combined.

To identify methods that can reverse this trend, researchers have experimentally tested a variety of alternative survey protocols, questionnaire instruments, and modes of administration⁶. Previous research indicates that monetary incentives, mail and telephone follow-up, pre-notification letters, and university sponsorship, in particular, can be effective in improving the response rate to mail surveys. The incentive experiments are especially important in suggesting that, with a few exceptions, the use of incentives almost always increases response rates. Some of the experimental findings are, however, limited to demographic subpopulations or by other survey design considerations⁷. Since methods of increasing response rates may be differentially effective depending on the targeted population, there is a need for methodological experiments focusing on groups of special interest.

This paper reports findings from a recent field test experiment designed to increase the response rate among one special population: higher education faculty⁸. Given the high prestige of their occupation, college faculty can be viewed as an elite population⁹. Because of numerous and often

conflicting demands placed on their time--instruction, research, publishing, advising, etc.--faculty may experience a high level of response burden. At the same time, their high level of literacy means that this respondent population can be expected to be highly competent in completing self-administered mail questionnaires (SAQs). Therefore, with the exception of the survey that we discuss in this paper, virtually every faculty survey conducted so far (approximately 12 to date) has relied exclusively on SAQs¹⁰. The response rates for these surveys have generally been quite low, averaging about 50%.

The National Study of Postsecondary Faculty

The National Study of Postsecondary Faculty (NSOPF) is the most comprehensive survey of higher education instructional and non-instructional full-time and part-time faculty to be conducted. NSOPF is sponsored by the U. S. Department of Education's National Center for Education Statistics (NCES), and receives additional support from the National Science Foundation and the National Endowment for the Humanities. The first cycle of NSOPF was conducted in 1987-88 with a sample of 480 two-year, four-year, doctoral-granting, and other colleges and universities, over 3,000 department chairs, and over 11,000 faculty. The second cycle, which is currently in progress, has been substantially expanded to sample approximately 800 public and private nonproprietary higher education institutions and 33,000 faculty across all types of teaching disciplines. The study is designed to provide a national profile of faculty: their professional backgrounds, responsibilities, workloads, salaries, benefits, and attitudes. The second cycle of NSOPF is being conducted by the National Opinion Research Center (NORC) at the University of Chicago.

The 1987 field test and 1988 full-scale study employed a mail survey with mail and telephone follow-up. Institution Coordinators were also used to prompt faculty at their institutions. Telephone follow-up was used primarily for prompting and, although interviewing by CATI (computer-assisted telephone interviews) was available in the 1988 full-scale study, it was used only at the end of the

survey, and then only to complete 179 interviews or 2% of the completed cases (n=8,382). The response rates for the field test and the full-scale study were 68% and 76%, respectively. Because it was anticipated that Institution Coordinators could not be used in the 1992-93 cycle of NSOPF, and also in order to increase the response rate to 85% in compliance with NCES standards for cross-sectional surveys, the design of the second cycle of NSOPF was modified. It would again rely on a multi-modal design using a mail survey with mail and telephone prompting, but with CATI as a major supplement. Table 1 illustrates the response rates for the three NSOPF faculty surveys to date.

Effects of Incentives on Faculty Response Rates

The 1992 field test offered an opportunity to experiment with alternative procedures for increasing the response rate for the 1993 full-scale study. The field test consisted of a multistage national probability sample of 136 two-year, four-year, doctoral-granting, and other higher education institutions from which a sample of 636 faculty were selected. (The number of respondents represented equals 605. Of 636 persons originally sampled, 31 were later found to be ineligible or out-of-scope.) An experiment was designed to test the effects on faculty response of two motivational factors (with a 55-minute self-administered questionnaire). Sampled faculty were randomly assigned to one of eight treatment combinations, formed by crossing two experimental factors:

Incentive (four levels): Approximately one-fourth of faculty were randomly assigned to receive a \$2 bill, one-fourth received a novel (*Nice Work* by David Lodge), one-fourth received a copy of the 1988 NSOPF report (*Profiles of Faculty in Higher Education Institutions, 1988*), and one-fourth were given no special incentive to respond.

Prompt (two levels): One-half of sampled faculty were to be prompted by a "coordinator" (usually a high-level official assigned by the institution's Chief Administrative Officer) to complete and return their questionnaires. One-half were not to be prompted. However, because of the data collection schedule, it proved impossible to implement the second of these experimental factors--the coordinator prompt. Thus, the analysis that follows considers only the effects of the first factor--the incentive--on faculty response rates.

Table 2 presents the response rates of sampled faculty who were assigned to the four types of

incentive. We assume that, regardless of their response status, all of the eligible faculty received the mailed questionnaire and were made aware of the incentive when it was offered.

We use a chi-square test of independence to test for differences among the response rates in Table 2, that is, to test the overall association between four types of incentive and two response statuses (response versus nonresponse)¹¹. The chi-square test statistic equals 3.82 with 3 degrees of freedom. (Attained significance $p = .28$.) At the .05 level, the data provide no evidence against the null hypothesis that the four types of incentives result in the same response rate.

Chi-square tests of independence were also used to individually test each of the first three treatments (\$2 bill, novel, and report) against the fourth treatment (no incentive). The likelihood-ratio chi-square statistics for these three hypotheses equal 3.31, 0.21, and 0.04, respectively, each with one degree of freedom. The attained significance levels for \$2 bill vs. none, novel vs. none, and report vs. none equal .07, .65, and .84, respectively. Only the first comparison, \$2 bill vs. no incentive, gave rise to a difference in response rates close to significance at the .05 level.

Even though the inclusion of a \$2 bill in the initial questionnaire packet yielded a higher response rate than no incentive (87% vs. 79%), these data provide no strong evidence that paying \$2 or providing an NCES report or a novel produces higher response rates than no incentive.

Because the field test was designed as a mixed-mode survey, we also tested the effects of incentives on unit nonresponse separately for persons who were asked to complete a self-administered questionnaire (SAQ) and for persons whose data were collected by computer-assisted telephone interview (CATI). All sampled faculty were initially asked to complete an SAQ and those who failed to respond were then asked to complete a CATI interview. Only such self-administered questionnaire nonrespondents are included in the analysis of CATI nonresponse since only these persons were asked to respond via CATI. The analysis of self-administered questionnaire nonresponse, in contrast, includes all eligible faculty, since all sampled faculty were initially mailed a self-administered questionnaire. Both CATI respondents and CATI nonrespondents are treated as nonrespondents in the analysis of self-administered questionnaire nonresponse.

When we tested for an overall association for CATI and SAQ response and nonresponse sepa-

rately, we found no statistically significant differences. The CATI nonresponse rate is 37.7% for persons receiving \$2, and 51.7% for those receiving no incentive. Among self-administered questionnaire sampled faculty, the nonresponse rate is 34.6% for those receiving \$2, and 40.8% for those receiving no incentive. In both analyses, the nonresponse rate is lower among faculty receiving \$2 than among those receiving no incentive. In neither analysis do we find a significant difference in response rates.

Restriction to Respondents and Refusals

The analysis above included all nonrespondents regardless of the reasons for not responding. Individuals who refused to complete an interview were included with individuals for whom it was not possible to make contact--i.e., not-at-homes, unlocatables, etc. (In mail surveys, it is always difficult to know how many nonrespondents for whom no telephone contact was made actually received the mailed questionnaire.) Given the purpose of the experiment, it makes sense to restrict the analysis to sample members who either completed the questionnaire or refused to do so. Based on this assumption, we redid the analysis after eliminating all individuals for whom contact was not made. Table 4 shows the revised analysis is based on 538 faculty, 495 who completed the questionnaire and 43 who refused.

We used a chi-square test to test for differences in the overall association between four types of incentives and two response statuses (completed questionnaire vs. refusal). The likelihood-ratio chi-square test statistic equals 4.69 with 3 degrees of freedom. (Attained significance $p = .20$.) At the .05 level, the data provide no evidence that the incentives yielded higher response rates. We used the same chi-square test to test for differences among the four incentives in the response statuses of SAQ and CATI attempts. Only the test with SAQ responses and refusals came close to statistical significance ($p = .06$). To further analyze SAQ respondents and refusals, we conducted pairwise comparisons of each of the three incentives with no incentive. As shown in Table 5, only the comparison of report vs. no incentive came close to significance at the .05 level. About 43% of contacted faculty who were offered the report were mail nonrespondents vs. 36% of contacted faculty who were offered no incentive. The chi-square statistic for the \$2 bill vs. no incentive equals .38 with one degree of freedom and, for novel vs. no incentive, .48 with one degree of

freedom. The attained significance levels equal .54 and .49. These results provide no strong evidence that the incentives made a difference.

Conclusion

The 1992 NSOPF field test was designed to experimentally test the effects of two motivational factors--an incentive crossed with a coordinator prompt--in increasing the response rate on a relatively elite population of higher education faculty. Owing to changes in schedule, however, only one of the factors--the incentive--was actually tested with a 55-minute self-administered questionnaire. In general, the findings do not provide any strong evidence to suggest that motivational incentives, such as a \$2 bill, an NCES report, or a novel, make a difference in the overall response rate or in the pairwise combinations between each incentive and no incentive. These findings are inconsistent with the overwhelming published evidence that suggests that monetary incentives are effective in improving response rates, including the response rate of elite (and professional) populations¹². At the same time, two borderline statistical findings suggest two possible lines of inquiry that might be worth pursuing in future studies with this population. One involves the use of a monetary incentive (\$2 vs. no incentive) for faculty; the other finding suggests that an NCES report may be a useful incentive in mail surveys. Both of these findings offer some support, albeit weak, to suggest that alternative experimental variations (e.g., higher monetary incentives, briefer reports, etc.) might be worth considering. Overall, however, the multi-modal survey design used in the 1992 NSOPF field test (self-administered mailed questionnaire combined with mail and telephone prompting and CATI interviewing) resulted in a relatively high response rate (82%), one that was higher than that produced in the two earlier cycles (76 and 68%) of the study, both of which relied on a similar design but with a heavy reliance on followup by Institution Coordinators and less reliance on CATI. The field test experiment indicates that a multi-modal survey design with this population is sufficient to achieve the intended response rate without incentives.

ENDNOTES

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in making this study possible. We also thank Kenneth Rasinski and Daniel Zahs of NORC.

2. A notable mention of declining response rates was made at the 1973 American Statistical Association Conference on Sampling of Human Populations. See *Report on the ASA Conference on Surveys of Human Populations*, 28(1): 30-34. A similar concern was echoed by the Council of American Survey Research Organizations (CASRO) in June 1982; see "On the Definition of Response Rates," *A Special Report of the CASRO Task Force on Completion Rates*. The same issue received attention during the 1992 American Association for Public Opinion Research (AAPOR) conference in St. Petersburg, Florida. See N.M. Bradburn, "Presidential Address: A Response to the Nonresponse Problem," *Public Opinion Quarterly*, 56: 391-397.

3. In a 1988 Refusal Rate Study, conducted as part of the "Your Opinion Counts" project and sponsored by survey organizations affiliated with CASRO, it was determined that between 1985 and 1988 the overall refusal rate had not increased, but had remained constant at 38%. See also "Response Rates at Academic Survey Research Organizations," *Survey Research* 23(3-4): 18-20.

4. See T.W. Smith, "The Hidden 25 Percent: An Analysis of Nonresponse in the 1980 General Social Survey," *Public Opinion Quarterly*, 47: 386-404; C.N. Weaver et al., "Some Characteristics of Inaccessible Respondents in a Telephone Survey," *Journal of Applied Psychology*, 60(2): 260-262; C.G. Steeh, "Trends in Nonresponse Rates, 1952-1979," *Public Opinion Quarterly*, 45(1): 40-57; and R.M. Groves, *Survey Errors and Survey Costs* (New York, Wiley, 1989): 185-238.

5. See L.R. Aiken, "The Problem of Nonresponse in Survey Research," *Journal of Experimental Education*, 56: 116-119; J.T. Lessler and W.D. Kalsbeek, *Nonsampling Errors in Surveys* (New York, Wiley, 1992); and R.M. Groves, *Survey Errors and Survey Costs* (New York, Wiley, 1989).

6. For a summary of mail survey experiments, see L. and C. Berenson, "Mail Surveys and Response Rates: A Literature Review," *Journal of Marketing Research*, 12: 440-453; R.J. Fox et al., "Mail Survey Response Rate: A Meta-Analysis of Selected Techniques for Inducing Response," *Public Opinion Quarterly*, 52: 467-491; M.M. Pressley, *Mail Survey Response: A Critically Annotated Bibliography* (Greensboro, N.C.: Faber and Co., 1976); J.M. James and R. Bolstein, "The Effect of Monetary Incentives and Follow-up Mailings on the Response Rate and Response Quality in Mail Surveys," *Public*

Opinion Quarterly, 54: 346-361; L. Harvey, "Factors Affecting Response Rates to Mailed Questionnaires: A Comprehensive Literature Review," *Journal of the Market Research Society*, 29(3): 341-353; W.J. Duncan, "Mail Questionnaires in Survey Research: A Review of Response Inducement Techniques," *Journal of Management*, 5(1): 39-55; and J.S. Armstrong, "Monetary Incentives in Mail Surveys," *Public Opinion Quarterly*, 39(1): 111-116.

7. See R.M. Groves, *Survey Errors and Survey Costs* (New York, Wiley, 1989), esp. pp. 185-238.

8. The findings will appear in the forthcoming publications, S.Y. Abraham et al., *National Study of Postsecondary Faculty: Field Test Reports I and II, Volumes 1 and 2*, (Washington, D.C.: National Center for Education Statistics, June 1993).

9. The concept "elite" has been used with a variety of meanings in the sociological literature. We use the term to describe a population of higher education faculty with relatively high occupational prestige. For a summary of recent findings, see G.M. Moyser and M. Wagstaffe (eds.), *Research Methods for Elite Studies* (London: Allen and Unwin, 1987).

10. Among others, these surveys include: Teaching Faculty in Academe, 1972-1973; Survey of the American Professoriate, 1977; Higher Education Research Institute Faculty Survey, 1980; Characteristics and Trends of Illinois Public Community College Faculty and Staff, 1983-1985; Study of the Condition of the American Professoriate, 1984; Faculty at Work: A Survey of Motivations, Expectations and Satisfaction, 1988; Research Participation and Characteristics of Science and Engineering Faculty; Carnegie Survey of College and University Faculty, 1989; UCLA Faculty Survey, 1989; and Higher Education Panel Survey, 1990.

11. Because the chi-square tests were not adjusted for complex sampling, the true significance level of the test is greater than .05. Chi-square tests serve as a rough indicator only. Given that our main finding is no evidence, this conclusion would not change if the chi-squares were adjusted.

12. See R.K. Goodwin, "The Consequences of Large Monetary Incentives in Mail Surveys of Elites," *Public Opinion Quarterly*, 43(3): 378-387. Also, K.D. Hopkins, B.R. Hopkins, and I. Schon, "Mail Surveys of Professional Populations: The Effects of Monetary Gratuities on Return Rates," *Journal of Experimental Education*, 56(4), 173-175; and S.H. Berry and D.E. Kanouse, "Physician Response to a Mailed Survey: An Experiment in Timing of Payment," *Public Opinion Quarterly*, 51: 102-114.

Table 1. Facility Response Rates by NSOPF Cycle

NSOPF Cycle	Eligible Sample	Completed	Response Rate
1987 Field Test	235	160	68.1%
1988 Main Study	11,013	8,382	76.1%
1992 Field Test	605	495	81.8%

Table 2. Faculty Response Rates by Type of Incentive

Type of Incentive	Base n	Response Rate
\$2	153	86.9%
Novel	154	81.2%
Report	150	80.0%
No Incentive	148	79.1%
Total Respondents	605	81.8%

Table 3. Comparison of Incentives Vs. No Incentive

Comparison	Chi-Square*	DF	P
\$2 vs. none	3.33	1	.07
Novel vs. none	0.21	1	.65
Report vs. none	0.04	1	.84

*Chi-squares not adjusted for complex sampling.

Table 4. Completed Interviews by Type of Incentive and Refusal Rate

Type of Incentive	Base n (Respondents and Refusals)	Refusal Rate
\$2 bill	139	4.3%
Novel	136	8.1%
Report	135	11.1%
No Incentive	128	8.6%
Total	538	8.0%

Table 5. Incentives Vs. No Incentives

Comparison	Chi-Square*	DF	P
\$2 bill vs. none	0.38	1	.54
Novel vs. none	0.48	1	.49
Report vs. none	3.69	1	.06

*Chi-squares not adjusted for complex sampling.