

The Effect of Prepaid and Promised Incentives: Results of a Controlled Experiment

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Abstract: This study evaluates the usefulness of both prepaid and promised monetary incentives in obtaining cooperation on a self-administered questionnaire. The experiment was conducted among respondents participating in a longitudinal study consisting of both face-to-face and telephone interviews. Three treatments were examined. One treatment group received a check for five U.S. dollars with the questionnaire along with instructions. A second group was told they would receive the five dollar payment when the questionnaire was completed. No mention of payment was made to the third group. The re-

sults indicate that a prepaid incentive may increase survey response rates but a promised incentive does not. Respondents in the prepaid category were more likely to return the questionnaire without follow-up calls. The prepaid incentive also resulted in a lower rate of item nonresponse. These findings suggest that the prepaid incentive may result in higher response rates and lower item nonresponse with only a moderate increase in cost.

Key words: Incentives; response rates; item nonresponse.

1. Introduction

Incentive payments have been used extensively as a means of improving response rates in mail surveys. In recent years, incentive payments have also been used increasingly in face-to-face interviews. Often the cost of the incentives is offset by a reduction in the number of respondent contacts needed to obtain high response rates. Nevertheless little experimental work has been done to assess the most

appropriate time for paying incentives. In this investigation, we examine the effect of incentives on response rates for a self-administered questionnaire in a panel study. The research suggests that the use of a prepaid monetary incentive can increase response rates and data quality. The data indicate that incentives are effective if they are prepaid but not if they are conditional on the respondent's cooperation.

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2. Issues Related to Incentive Payments

Although the use of incentives has been a common practice in market research, academic and government surveys have been less inclined to pay respondents. In recent years, however, it has become more difficult to achieve response rates high enough to provide statistically valid results, and remuneration has become more common. In the United States, federal surveys cannot use incentives without authorization from the Office of Management and Budget (OMB). OMB generally permits incentive payments only if it is considered payment for professional services (e.g., having a physician complete a questionnaire about a patient) or if it can be demonstrated that remuneration is necessary to achieve adequate response rates. Many of the Federal Government's largest surveys have been permitted to use incentives. These include the High School and Beyond Survey, the 1977 National Medical Care Expenditure Survey, the National Health and Nutrition Examination Survey, and the 1980 National Medical Care Utilization and Expenditure Survey. These surveys provided payment to respondents ranging from five to twenty dollars. Other federal surveys, such as the Survey of Income and Program Participation, have experimented with nonmonetary incentives.

The use of respondent incentives in surveys sponsored by the Federal Government is clearly controversial. Many believe that respondents should be sufficiently motivated by civic duty to participate. Others believe it is fair and appropriate to compensate respondents for their time, particularly in surveys which require substantial commitment on the part of the respondent. Moreover, the "social cost" of obtaining low response rates and the implications of using potentially biased data must be balanced against the ethical issues raised by the payment of an incentive. These issues become more complicated when prepaid incentives are considered since prepayment usually

results in some persons being paid even though they refused to participate. The trade-offs between costs and benefits of either paying an incentive after completion of the interview or investing in a prepaid incentive must be evaluated by the survey designer.

3. Previous Research

The use of monetary incentives to increase response rates has been addressed frequently in the survey literature. A review of the literature (Armstrong (1975), Kanuk and Berenson (1975), and Linsky (1975)) suggests that paying an incentive to respondents has a positive effect on response rates. More recent empirical studies further demonstrate the merit of incentive payments (Mizes et al. (1984), Gunn and Rhodes (1981), Godwin (1979), and Schewe and Cournoyer (1976)). These studies do not establish, however, whether incentive payments should be conditional upon the respondent's cooperation or whether they should be paid at the time the respondent's cooperation is initially solicited, regardless of the subsequent participation. In early uses, the incentive fee often consisted simply of a coin enclosed with a questionnaire. As the amount of incentives paid to respondents have risen, the promised approach has become the more common mode of remuneration. Thus, in studies using mail questionnaires reported by Godwin (1979) and Schewe and Cournoyer (1976), payment was offered contingent on the respondent's cooperation. Similarly, Dohrenwend (1970) promised payment to those who completed a telephone survey. Interest in prepaid incentives has continued nevertheless, and the literature contains reports of a number of studies in which respondents were given an incentive payment before being asked to commit themselves to participate. This approach was used in both the 1982 and the 1984 waves of the High School and Beyond Survey conducted for the National Center for Education Statistics.

Mizes et al. (1984), and Berry and Kanouse (1987) also reported successful use of prepaid incentives in surveys of physicians.

Armstrong (1975) and Schewe and Courmoyer (1976) argue that prepaid incentives are more effective than promised incentives. Their conclusions are based on comparisons of the type of incentive paid in *different* surveys. Because many factors other than incentive mode can affect response rates, the utility of such comparisons is limited. Observed differences in response rates could in fact be attributable to the length of the questionnaire, the subject matter, the nature of the sample, or other factors.

Few previous studies have used a controlled experiment to examine the relative merits of prepaid and promised incentives. Berry and Kanouse (1987) tested the relative merits of a prepaid and a promised 25 dollar incentive in a survey of physicians conducted by mail with telephone follow-up. They obtained a 78 percent response rate for the prepaid incentive group and a 66 percent rate for those paid only after they had completed the survey. In a study of the career plans and labor market experience of 5 850 men and women interviewed three years after completing high school, Peck and Dresch (1981) found that a prepaid monetary incentive of three dollars yielded a response rate of 76 % compared to a 68 % response rate for a group to whom payment was promised and 54 % for the group to whom payment was not offered. Respondents to this mail questionnaire had all participated in an earlier study as part of the American College Testing Program. Since each of these studies investigating the effect of prepaid incentives was carried out with special populations, one cannot readily infer from them that similar results would be obtained in surveys of a more heterogeneous population.

4. Data and Methods

In 1985 the U.S. Public Health Service was

actively engaged in preparations for the 1987 National Medical Expenditure Survey (NMES). To aid in planning for NMES, a feasibility study was conducted to investigate a broad range of methodological issues (Mathiowetz and Ward (1987)).

The feasibility study consisted of two rounds of data collection with approximately 600 "reporting units" in eight sample sites. Reporting units were defined as all persons related to the household head living in the same dwelling unit. The eight sample sites were selected on a purposive basis to meet sample size requirements for subgroups of interest. The sample included an overrepresentation of the poor, elderly, and the non-white population. Specifically, the design consisted of:

1. A personal interview (the first round) which focused on questions of health care utilization and expenditures for the three months prior to the interview date. Data were collected for all members of a reporting unit. Persons age 17 and over were encouraged to report for themselves; however, proxy responses were accepted for adults not present during the interview as well as children under age 17. The interview lasted approximately 45–60 minutes and the person who provided the majority of information was paid five dollars at the end of the interview.
2. A second interview using an instrument similar to the round-one interview was conducted approximately three months after the initial interview. The round-two sample was divided into two groups by mode of interview. Half of the cases were designated for in person interviewing and the remaining half were interviewed by telephone. Deviations from the assigned mode of data collection were allowed for respondents with no home telephone and for respondents who reported during the round-one interview a hearing impairment or other condition that would limit their ability to participate by telephone. At the completion of the interview, the main respondent for the reporting unit was again paid five dollars.

3. Approximately two weeks prior to the second round of data collection, self-administered questionnaires were mailed to all adults in 180 of the 600 reporting units. The self-administered questionnaire was designed to take approximately 30 minutes to complete and included some moderately threatening questions on health behavior and mental health status.

Reporting units were divided into three treatment groups and all adults within a reporting unit received the same treatment. The treatment groups were: (1) "Prepayment" – persons were sent a five dollar check with the questionnaire; (2) "Promised" – persons were told that they would be paid five dollars when the completed forms were returned; and (3) "No mention" – persons were not given any information on payment. For purposes of equity, all participants who completed the questionnaire were eventually paid five dollars. (The payments, made for the purpose of equity, are not included in our analyses.)

Round-two cases assigned to the in person mode of interviewing were told to complete the self-administered questionnaire and hold it for the round-two interviewer to pick up. Those assigned to a round-two telephone interview were asked to mail the completed questionnaire to the central office using the postage paid envelope provided with the questionnaire. Regardless of the mode of the round-two interview, those who did not return the

questionnaire received up to two telephone callbacks and were offered the opportunity to complete the questionnaire over the telephone.

The design of the study limits inferences in two ways. First, the sample is not intended to be a representative national sample. The assignment into treatment groups was randomized. This preserved our ability to make unweighted comparisons among the groups. Second, as noted in the discussion of the design, the self-administered questionnaire experiment was part of a panel study, which may limit the applicability of these findings. However, as discussed later, the findings from the present research coupled with those of other studies do provide a consistent basis for drawing inferences.

5. Findings

5.1. Response rate

The results indicate that the prepaid incentive leads to a significant improvement in response rates. Seventy-three percent of those in the prepaid group completed the survey compared to 66 % who were not told of the incentive (Table 1). The prepaid incentive also worked better than the promised incentive, which resulted in a response rate of 60 %.

Table 1. Response rates by incentive treatment group and round-two mode of interview¹. Percent

	Phone	In-person	Total	Adjusted total
Prepayment	62 (52)	84 (55)	73 (107)	73
Promised payment	50 (50)	67 (67)	60 (117)	59
No mention of payment	50 (32)	75 (63)	66 (97)	63
Total	55 (134)	75 (185)		

¹ Numbers in parentheses are cell sizes.

Since the prepayment category included a larger proportion of second-round phone contacts than did the other categories, an adjusted total was calculated through use of a simple weight to correct for the allocation of cases by round-two interview mode. This adjustment resulted in a response rate of 73 % for the prepaid group, 59 % for the promised incentive group and 63 % for those not told of payment. The difference between the response rate for the prepaid group and that of either the promised payment group or the no mention group is statistically significant when a simple *t*-test is used. However, the significance tests were recalculated using Scheffe intervals to provide for simultaneous 95 % protection for all comparisons rather than just for a single comparison. Using the Scheffe confidence intervals, a comparison of all possible pairs indicates that the only significant difference in response rates was between the prepaid and promised incentive groups.

The findings presented in Table 1 also indicate a significant interaction between the mode of the round-two interview and the treatment group. The finding of a higher response rate among the prepaid treatment is not consistent across the mode used in the round-two interview. Among those interviewed in person for round-two, the response rate for the prepaid group is higher than the response rate for the promised payment group ($p < .05$, Scheffe confidence interval, i.e., 0.68–0.99). Among those interviewed in round-two by telephone, however, the difference in response rate by treatment group is not significant. In part, the lack of a significant difference among those interviewed by telephone is due to the small cell size.

The overall higher response rate among those interviewed in person (75% vs. 55%; $Z = 3.87$; $p < .01$) raises a question concerning when the self-administered questionnaires were completed. It may be that the respondents completed the self-administered ques-

tionnaires while the interviewers were present for the round-two interview. Since information on when the self-administered questionnaire was completed are not included in the data, we are unable to determine the reason for this finding. The knowledge that an interviewer would ask for the questionnaire during an in person visit (as opposed to a prompt during a telephone interview) may have also influenced the respondents in the in person group to respond at a higher rate.

Although the difference is not statistically significant, it is interesting to note that the promised incentive resulted in a slightly lower response rate than was obtained when no incentive at all was offered. One possible explanation lies in the perceived implicit commitment on the part of the respondent. In the case of the prepaid incentive, respondents may feel they have an obligation to “earn” the money they have been sent. The perceived implicit commitment may still be partially present in the group not offered payment. Since all participating reporting units were paid five dollars for completing the round-one interview, some respondents may have viewed completion of the self-administered supplement as part of a continuing obligation to project participation. Little obligation, however, is likely to be perceived by those in the promised incentive group. The very offer of an incentive implies that the respondent is being asked to enter into a *new* agreement. Failure to complete the questionnaire relieves all parties of any social obligation.

5.2. Data quality

Item nonresponse rates were calculated for each completed self-administered questionnaire and were used as a general measure of data quality. We recognize that this is a measure only of the completeness of the data and not an indication of its accuracy. Neverthe-

less, it provides useful information about the care and thoroughness with which respondents completed the self-administered questionnaires. Peck and Dresch (1981) hypothesized that the promised incentive group would have fewer missing answers since some standard of quality would be perceived as implicit in the promised payment. They found, however, that the quality of data supplied by respondents in the promised category was only slightly higher than that of the prepaid respondents and that this difference was too

small to offset the beneficial effect of prepayment on overall response.

Our finding, however, is that prepayment leads to lower item nonresponse (Table 2). Ninety percent of those who were prepaid answered all of the questions in the 18 page questionnaire, compared to only 74 % in the promised group and 87 % in the no mention group. All possible pairwise comparisons using Scheffe confidence intervals indicate that the only significant difference is between the prepayment and promised groups.

Table 2. *Item nonresponse by incentive treatment group*

	Percent with:			(N)
	0 items omitted	1-3 items omitted	4+ items omitted	
Prepayment	90	0	10	(78)
Promised payment	74	16	10	(70)
No mention of payment	87	6	6	(63)

Row totals do not equal 100% due to rounding.

Source: National Medical Expenditure Feasibility Study, 1986.

5.3. Cost

The data presented above indicate that the prepaid incentive increases the overall response rate while maintaining data quality. But how much does it cost a survey to pay all of its sample members, including those who choose not to participate? Our experience was that when total survey costs are considered, the prepaid incentive was cheaper than the promised incentive but higher in cost than offering no incentive at all.

The true cost of an incentive payment cannot be determined without considering the savings produced by more easily obtained completed questionnaires. In a mail survey, callbacks are normally required to prompt re-

spondents who do not return their questionnaires on time and to convert respondents who might initially refuse. Consistent with findings in the Berry and Kanouse study of physicians (1987), we found that the prepaid incentive reduced the need for follow-up calls. Seventy-six percent of the respondents in the prepaid group did not require a follow-up, while 57 % in the promised group and 68 % of the no mention of payment group did require a follow-up (see Table 3). Only seven percent of the respondents in the prepaid group required more than one callback, whereas 16 % of those promised an incentive and 23 % of those not told of payment required more than one callback.

Table 3. Level of effort needed before final status by incentive treatment group. Percent

	No callback required	1 callback required	2+ callbacks required	(N)
Payment	76	18	7	(107)
Promised payment	57	26	16	(117)
No mention of payment	68	10	23	(97)

Row totals do not equal 100% due to rounding.

Source: National Medical Expenditures Feasibility Study, 1986.

The cost for incentive payments alone was, of course, greatest for the prepaid group. In this group, both respondents and nonrespondents received an incentive check, whereas in the promised payment group, only those who cooperated received a check. However, in our study, even this comparison is not quite as clear as one might expect. In both groups, almost everyone who completed a questionnaire cashed the incentive check (86 % of those in the prepaid group and 94 % of those in the promised group). Some of the 29 persons who did not complete the forms despite the prepayment, however, evidently felt uncomfortable about accepting payment. Eleven of the 29 failed to cash their checks. This savings is factored into the cost comparison shown in Table 4 and accounts for the fact that the average incentive for the prepaid groups is less than the face value of the incentive checks.

Table 4 presents the comparison of costs for the three treatment groups, including costs of

the incentive payments and costs of follow-up. We estimated the direct and indirect costs of each telephone callback at about ten dollars, including interviewer wages, telephone charges, and supervisory and administrative costs. Because the prepaid incentive apparently stimulated respondents to complete their questionnaires promptly, callback costs for the prepaid group were much less than those for either the promised group or for the group not told of payment. The cost of callbacks averaged \$3.08 for the prepayment group, \$5.89 for the promised payment group, and \$5.56 for no mention group. The average cost per case, with both the incentive and the callbacks taken into account, was \$7.43, \$8.71, and \$5.56 for the three groups. With the higher response rate achieved in the prepaid group, the cost per completed case was \$10.19 for the prepaid group, \$14.56 for the promised group, and \$8.56 for the group to whom incentives were not offered.

Table 4. Estimated costs by incentive treatment group. U.S. dollars

	Mean cost of incentive per case	Mean cost of callbacks ¹ per case	Mean cost per case	Mean cost per completed case
Prepayment	4.35	3.08	7.43	10.19
Promised payment	2.82	5.89	8.71	14.56
No mention of payment	0.00	5.56	5.56	8.56

¹ Each callback is estimated at 10 dollars.

Source: National Medical Expenditures Feasibility Study, 1986.

6. Summary and Discussion

Our findings indicate that the use of a prepaid monetary incentive is advantageous; incentives can increase response rates and reduce missing data. Our results are generally consistent with those reported by Peck and Dresch (1981). Peck and Dresch, however, found that the promised incentive was also useful although not as effective as a prepaid incentive. The results of our investigation suggest that if the incentive is not prepaid, there is little value in promising an incentive.

While none of the controlled studies comparing prepaid and promised incentives is by itself conclusive and each has the limitation of its specific focus, a consensus is emerging. The Peck and Dresch (1981) study was limited to 5 850 recent high school students while the Berry and Kanouse study (1987) focused on 2 028 physicians. The results presented here are based on a sample that is generally representative of the hard to interview population, but the sample is small. Thus, while each of the three studies has limitations, when taken together the findings build a relatively compelling case for using prepaid incentives rather than remuneration paid only upon the completion of a survey task. The difference in response rates between prepaid and promised incentives was 12 % in the Berry and Kanouse (1987) study, 14 % in the study discussed here, and 22 % in the Peck and Dresch (1981) inquiry.

Despite these findings, many researchers will be reluctant to use prepaid incentives. Some government agencies are adverse to offering any incentives, particularly ones that are prepaid, and some (Sheatsley and Loft (1981)) have questioned the use of paying incentives for research in the public interest.

We do not see anything inherently unethical about paying respondents for a substantial commitment of their time, although we share the view of Berry and Kanouse (1981) that the approach should not be "heavy handed or

blatantly manipulative." The prepaid incentive may help respondents understand the importance of the survey and this may increase satisfaction with participation and decrease the perceived burden of cooperation.

Every investigator must balance the consequences of offering incentives against the cost of not paying incentives. While we would prefer that incentives were not necessary, the consequences of drawing inferences from data that may not be representative must also be of concern to those conducting surveys. Our research suggests that the prepaid incentive can result in higher response rates and more complete data with less need for follow-ups than the promised incentive or the use of no incentives at all. Overall, the use of the prepaid incentive does add to the cost of a survey. However, the net added costs may be far less than the value of the incentive payments, since a substantial part of the incentive costs is offset by savings in the follow-up activities. Accordingly, the use of prepaid incentives should be carefully considered in surveys in which there is a risk of low rates of participation.

7. References

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