

# Using Monetary Incentives to Reduce Attrition in the Survey of Income and Program Participation

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## I. Introduction and Background

The 1996 panel of the Survey of Income and Program Participation (SIPP) differs from all previous SIPP panels in its design. It is the longest panel ever fielded, extending from two and a half years to four years.

This design change in length took effect as an effort to improve the reliability of SIPP estimates [3]. Such change at the same time gives rise to concerns over nonresponse bias, which has become particularly important, since response rates have been decreasing over time [9].

For the 1996 SIPP panel, the concern over nonresponse bias has increased because this is the longest panel yet, and has the highest nonresponse rate of any panel. The household non-interview rate as of Wave 7 was approximately 27% with no evidence that the rate was abating. The permanent sample loss rate through Wave 7 was 29.9%. These cases, known as Type A non-interviews (which we could not contact for two consecutive waves) are not eligible for further follow up interviews. Type A's occur when no one is home, household members are temporarily absent on vacation, or household members refuse to participate in the survey.

There are a wide variety of methods used to keep response rates at acceptable levels. These include: refusal conversion efforts, follow-ups, pre-notification letters, first class mailings, and using incentives. Sometimes, combinations of these are considered a more effective practice [2].

One special feature of the 1996 SIPP panel is that it is the first panel to offer monetary incentives to sample households since the first SIPP panel went into the field in February 1984.

For SIPP, the current practice is to revisit nonrespondents

once after their initial nonresponse. Currently, the average conversion rate of nonrespondent households to interview from one wave to the next is about a third.

To improve the conversion rate, we conducted an incentive experiment that directly targets Type A nonrespondents. We gave a \$0, \$20, or \$40 monetary incentive to nonrespondents in waves 7 and 8 of the 1996 SIPP Panel.

This paper presents the results of the experiment, which intended to answer the following questions:

1. Do incentives improve conversion rates?
2. Does the amount of the incentive play an important role in increasing conversion rates?
3. Are there differences between the refusals and the other non-interviews?
4. Do low income households react better to incentives?
5. Does the use of priority mail have a significant impact on the conversion rates?

## II. Supporting Literature

One important issue concerning the SIPP is that it is a government survey and there are issues concerning the government using monetary incentives.

It is often believed that using incentives in a government survey will increase nonresponse bias; that incentives are not effective; and that they may exert negative reactions from the participants [7].

There are few studies involving incentives where the population of interest is strictly nonrespondents to a longitudinal survey.

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<sup>1</sup>This paper reports the results of research and analysis undertaken by Census Bureau staff. It has undergone a more limited review than official Census Bureau publications. This report is released to inform interested parties of research and to encourage discussion.

- ◆ In a study by Lengacher, Sullivan, Cooper, and Groves [5] on how to keep respondents from dropping out of a longitudinal survey by using monetary incentives, the analysts concluded that large incentives had a positive, although not significant effect on response rates.
- ◆ A study by Berk, Mathiowetz, Ward, and White [1] supports the fact that using prepaid incentives increases response rates versus incentives promised to the persons contingent on the interview.
- ◆ Research by Shettle and Mooney [7] shows that incentives increased cooperation rates in a mail survey. Researchers did not find evidence that incentives exerted negative reactions from respondents, since none of the forms were returned with angry comments. Additionally, none of the respondents contacted brought up any negative issues about incentives. None of the respondents which called a toll-free number offered in the questionnaire cover letter or reminder letter complained about the incentive.
- ◆ The study by Warrimer, Goyder, Gjertsen, Hohner, and McSpurren [12] showed strong evidence that monetary incentives, work better than non-monetary incentives, such as coupons, pens, charities, lotteries, etc.
- ◆ Two incentive studies have been conducted on the 1996 SIPP panel prior to this incentive experiment. Both studies found that incentives significantly increase the overall response rates.
  - ▶ One study, which gave an incentive at the initial interview of the 1996 Panel (Wave 1), found incentives reduced the number of callbacks needed to obtain an interview. Incentives significantly decreased the nonresponse rates in the high poverty stratum. The larger incentive proved to have had a strong effect in helping retain households in the high poverty stratum. Also, the larger incentive was particularly effective for poverty and Black households [4] [6].
  - ▶ The second study which provided a Wave 7 incentive to all low income households that received an incentive in Wave 1, found that Wave 1 and Wave 7 combined appear to significantly reduce the nonresponse rate for low income households [10].

Incentives can provide a cost effective survey tool for use in government surveys when higher response rates are desired.

## II. Facts about the SIPP

The SIPP's main objectives are: (1) to provide policy makers with accurate and comprehensive information about income and program participation of persons and households in the U.S., and (2) to provide information about the principal determinants of income and program participation.

Additionally, the survey offers key data to assist in the formulation and evaluation of initiatives in welfare reform, tax reform, and the improvement of entitlement programs, such as Social Security and Medicare.

The survey population for SIPP consists of the non-institutional population of the United States, which includes persons living in group quarters, such as dormitories, rooming houses, religious group dwellings, and family-type housing on military bases. Persons living in military barracks and institutions, such as prisons and nursing homes, are excluded.

The SIPP is a nationally representative longitudinal survey with a multi-stage sample design. Its design consists of two strata within each Primary Sampling Unit (PSU)—one for households below 150% of the poverty threshold (high poverty stratum) and another for those households above the same poverty threshold (low poverty stratum). In the high poverty stratum, we oversampled households by means of stratification within each PSU.

The 1996 Panel introduced in April 1996 will continue through March 2000. It began in April instead of the conventional start of February, due to the furlough of 1995. Sample households will have been interviewed twelve times during the life of the panel (12 Waves). There were 36,730 interviewed households at first interview (Wave 1).

The SIPP uses a rotating panel design. One round of interviews is called a wave. To spread out the interview and processing workloads, each wave is divided into 4 subsamples or rotation groups. The survey uses a 4-month recall period. Interviews for each wave take place over a 4-month period, with one rotation group interviewed each month [8].

All household members 15 years old and over are interviewed by self-response, if possible; proxy response

is permitted when household members are not available for interviewing.

### III. Design of Experiment

This study was part of Waves 8 and 9. The sample size consisted of approximately 2,900 households refusing to participate in Waves 7 and 8. We created four sample selection strata by cross-classifying the poverty category (high poverty stratum / low poverty stratum) by the refusal status category (refusals / other non-interviews).

Refusals are those sample units occupied by persons eligible for interview, but an interview was not completed because the unit refused to give information. Other non-interviews are those sample units occupied by persons who are unable to provide an interview either because of language barrier, no contact after repeated visits, or because they are temporarily unavailable.

Once we defined strata boundaries, we sorted the units by geographical region and selected three random subsamples of almost equal size, assigning each one to one of the three treatment conditions (a \$20 incentive, a \$40 incentive, or no monetary incentive).

Consistent with current procedures:

- a) all groups received an advance letter prior to the interviewer's visit;
- b) the letter received by the incentive groups provided information about the incentive and included a debit card;
- c) the letter received by the no incentive group was the usual letter sent to nonrespondents;
- d) all letters were sent via priority mail, to ensure that respondents received the incentives (priority mail is not usually used to follow up nonresponding cases).

Field representatives gave an incentive at the door, if a respondent claimed he did not receive the letter with the prepayment (Note: we used prepayment to reduce interviewer procedural error).

We conducted the survey using Computer Assisted Personal Interviewing (CAPI). Although the interviews were face-to-face, telephone follow-ups were used to obtain missing information. The instrument used for the experiment was the same used for regular SIPP.

### IV. Methodology

First, we conducted an evaluation of the conversion rates. Conversion rates were calculated as the interviews over the interviews plus the non-interviews. The non-

interviews consisted of the Type A's and first time Type D's (households where the members have moved to an unknown address or have moved outside a SIPP PSU).

We excluded all units that had been demolished or condemned (Type C's), vacant and under construction (Type B's), and two-time Type D's. We also excluded cases in the no monetary incentive group (control group) who were given an incentive after discovering that the incentive study was ongoing; there were about 10 of these cases.

We compared conversion rates for wave 8, wave 9, the combined waves, and the control group for combined waves against the conversion rate for wave 7 (the wave prior to incentive study). Additionally, we compared the overall conversion rates for the refusals and the other non-interviews for wave 7 to those for the combined waves.

Within each of the following groups we compared conversion rates by incentive group: (a) for waves 8 and 9 combined; (b) for the other non-interviews; (c) for the refusals; (d) for households in poverty; and (e) for non-poverty households.

To conduct these tests, we used two-tailed tests of the hypothesis for the normal approximation to the binomial. T-tests were evaluated at the .10 level of significance. We computed weighted estimates, using SIPP base weights which are the inverse of the probability of selection.

Second, we conducted an evaluation of the characteristics of the respondents, such as refusal status, poverty status and incentive amount, using WesVar PC logistic regression. The tests of the hypothesis in logistic regression take into account the complexity of the SIPP design. Additionally, by controlling for the other covariates in the model(s), we avoid making any erroneous interpretation of the results. To estimate the standard errors, we used Fay's Method with a factor of 0.5, per SIPP variance estimation procedures [3].

### V. Analysis and Results

#### *Evaluating Incentives and Priority Mail on Conversion Rates*

The overall conversion rate for the study was 50.8%. For each incentive group the rates were 46.4% for the control group, 51.4% for the \$20 group, and 54.3% for the \$40 group.

For Wave 7 (wave prior to study), only 41.9% of the Type A's became interviews after several attempts. For waves

8 and 9 combined, the conversion rate was 50.8%. The 8.9% difference (50.8%-41.9%) was statistically significant at the .10 level. This leads us to conclude that the combination of the incentives and priority mail is a plausible explanation for this boost in response.

To determine if the 8.9% difference was due to any one of the two waves involved in the study, we obtained an overall conversion rate for Wave 8 of 51.5% and for Wave 9 of 49.8%. We then compared each wave's rate against the rate for Wave 7. Both comparisons were statistically significant at the .10 level. For Wave 8, the 9.6% difference had a t-value of 5.18; and for Wave 9 the 7.9% difference had t-value of 3.94. We can conclude that the use of incentives and priority mail together have a very strong effect in increasing the conversion rates for each wave as well as for both waves combined.

To test the effectiveness of priority mail alone, we compared the overall conversion rate for the control group of the combined waves— 46.4% to the 41.9% rate for Wave 7. This 4.5% difference was statistically significant with t-value of 2.07. Therefore, priority mail alone induces participation from the Type A's.

Table 1 below presents incentive group comparisons. The \$20 and the \$40 incentive groups resulted in a significant increase in the conversion rates when compared against the control group. There was no significant difference between the two monetary groups.

**Table 1. Overall Incentive Group Comparisons**

Comparison (Conversion Rates)	Conversion Rates Difference
\$0 vs \$20 (46.4%-51.4%)	-5.0%*
\$0 vs \$40 (46.4%-54.3%)	-7.9%*
\$20 vs \$40 (51.4%-54.3%)	-2.9%

\* Significant at the .10 level and through logistic regression

**Conversion Rates by Type A Non-interview**

The study's overall (combined waves) conversion rate for the refusals and the other non-interviews were 41.6% and 64.6%, respectively.

From Wave 7, 30.9% of the refusals and 58.7% of the other non-interviews changed to interviews after refusal conversion efforts. When comparing these rates to those obtained from the combined waves (41.6% and 64.6%) the differences, 5.9% for the other non-interviews, and

10.7% for the refusals were significant at the .10 level, with t-values of 2.31 and 5.32, respectively.

To examine the effect that using priority mail without an incentive had on the refusals, we compared the conversion rate for the control group for the refusals (36.2%) to the 30.9% rate for Wave 7. Priority mail alone was effective in getting households in the refusal group to cooperate with the survey (diff=5.4%, t-value=2.01).

When looking at cases by incentive groups, participants in the refusal group had conversion rates of 36.2% for the control group, 41.4% for the \$20 group, and 47.0% for the \$40 group. For the other non-interviews, the conversion rates were 62.1%, 66.3%, and 65.3% for each one of the incentive groups— control, \$20, and \$40, respectively.

In Table 2, we see that incentives were significant in converting nonrespondents in the refusal category. The \$40 incentive appears to have a strong effect in helping to convert refusals (diff=10.8%, t-value=3.87). The \$20 incentive was not effective in converting this group (diff=5.2%, t-value=1.64). It is evident that the \$40 incentive works better than the \$20 incentive for this particular group of nonrespondents (diff=5.6% and t-value=1.77).

**Table 2. Refusal Group Comparisons**

Comparisons (Conversion Rates)	Conversion Rates Difference
\$0 vs \$20 (36.2%-41.4%)	-5.2%
\$0 vs \$40 (36.2%-47.0%)	-10.8%*
\$20 vs \$40 (41.4%-47.0%)	-5.6%*

\* Significant at the .10 level and through logistic regression

The story is different for the other non-interviews. In Table 3, the results indicate that incentives do not significantly help in converting the other non-interviews.

**Table 3. Other Non-interviews Comparisons**

Comparisons (Conversion Rates)	Conversion Rates Difference
\$0 vs \$20 (62.1%-66.3%)	-4.2%
\$0 vs \$40 (62.1%-65.3%)	-3.2%
\$20 vs \$40 (66.3%-65.3%)	1.0%

**Conversion Rates by Poverty/Non-poverty Status**

Households in poverty had conversion rates of 47.1%, 61.7%, and 54.9%, for the control, \$20 and \$40 incentive groups respectively. The conversion rates for households not in poverty were 46.3% for the control group, 48.9% for the \$20 incentive group, and 54.2% for the \$40 group.

**Table 4. Households in Poverty Comparisons**

Comparisons (Conversion Rates)	Conversion Rates Difference
\$0 vs \$20 (47.1%-61.7%)	-14.6%*
\$0 vs \$40 (47.1%-54.9%)	-7.8%†
\$20 vs \$40 (61.7%-54.9%)	6.8%

\* Significant at the .10 level and through logistic regression

† Significant only through the logistic regression

The comparison results are shown in Table 4. For this comparison we also analyzed the results using logistic regression. The test results indicated that the difference (6.8%) between the two monetary groups was not statistically significant. However, when comparing incentive versus no incentive, both the \$20 and the \$40 incentives significantly increased conversion rate.

Table 5 provides the results for the households in the non-poverty stratum. For this group of respondents, the \$40 incentive worked well at inducing response to the survey (7.8%, t-value=2.88). It performed better than the \$20 incentive (diff=5.3%, t-value=1.94).

**Table 5. Households not in Poverty Comparisons**

Comparisons (Conversion Rates)	Conversion Rates Difference
\$0 vs \$20 (46.3%-48.9%)	-2.6%
\$0 vs \$40 (46.3%-54.2%)	-7.9%*
\$20 vs \$40 (48.9%-54.2%)	-5.3%*

\* Significant at the .10 level and through logistic regression

**Logistic Regression Results**

For each of the comparisons presented in tables 1-5, we ran logistic regression models. With the exception of the test marked by a † in Table 4, the results for each comparison test achieved the same results in the logistic regression. For † test in Table 4, after controlling for the other covariates in the model, it shows that the \$40

incentive works very well at inducing participation to the survey for households in poverty.

**VI. Summary of Findings**

The findings for the study summarize as follows:

- ◆ The overall conversion rate for the study increased significantly when compared to wave 7 (wave prior to the study). We attribute this boost in conversion rate to the use of incentives and priority mail combined.
- ◆ The conversion rate for both wave 8 as well as wave 9 were significantly improved by the use of incentives and priority mail.
- ◆ Priority mail alone significantly induced participation from Type A respondents.
- ◆ Both the \$20 and the \$40 incentives were significant at improving the conversion rates. Overall, there was no significant difference between the two incentive amounts.
- ◆ The conversion rates for both the refusals and the other non-interviews were significantly different from that of Wave 7 refusals and other non-interviews.
- ◆ Priority mail was effective in getting households in the refusal category to cooperate with the survey.
- ◆ For the refusals, the \$40 performed better than the \$20 incentive.
- ◆ For households in the poverty stratum, results indicated no difference between incentive groups. However, when comparing incentive versus no incentive, both \$20 and \$40 incentives significantly increased response.
- ◆ For households in the non-poverty stratum, \$40 incentive had strong effect in keeping respondents in sample. Also, it performed better than the \$20 incentive.

**VII. Conclusions and Recommendations**

The results of the 1996 SIPP Panel Waves 8 and 9 Incentive Study revealed that offering incentives do improve conversion rates. Also, the use of priority mail as a method for following up nonresponding cases is effective, both as a stand alone and in combination with incentive payments. The results also show that the

amount of the incentive plays an important role for certain subgroups of the SIPP. [4]

A \$40 incentive works better for households that are refusals and part of the non-poverty stratum. For low income households, there was no significant difference between the incentive amounts, i.e., both the \$20 and the \$40 incentives performed equally well. The results also indicate that incentives do not significantly help in converting the other non-interviews. [5]

To ensure that providing incentives is a cost effective survey tool for SIPP, we recommend that only Type A hard refusals be offered incentives, via priority mail, during nonresponse follow-up. \$40 incentives should be offered to non-poverty households and \$20 to low income households. [6]

### VIII. Future SIPP Research

Based on preliminary results for Wave 8, of the incentive experiment presented on this paper, the Office of Management and Budget approved the continuation of the experiment until Wave 12 (the last wave of the 1996 Panel). [7]

The new proposal assigns Type A refusals to either a \$20 or a \$40 incentive group; and other non-interviews to either a \$0, \$20 or \$40 incentive [11]. There are no results available yet. [8]

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