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Using Visible Cash to Improve Response in the California Health Interview Survey: Evidence from Two Experiments

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Summary

The California Health Interview Survey (CHIS) invites sample cases to participate in a survey via several mail invitations with telephone follow-ups. CHIS has conducted several experiments showing the positive effects of incentives on survey participation since 2019. Sherr and Wells (2021) found that offering a $2 visible cash incentive, where the cash incentive was shown through an envelope window, successfully improved the cooperation rate from 6.8 to 7.3 percent in the 2021 CHIS. In the 2023 CHIS data collection, CHIS experimented with the use of letter mailed in a regular envelope that promised a $10 post-completion incentive to convert adult partial interviews to completes.

In CHIS 2024, we conducted two experiments with the use of a $2 visible cash incentive compared with a $2 non-visible cash incentive. The first experiment tests the effects of a $2 visible cash incentive in the initial recruitment of adolescents aged 12-17. The second experiment uses the $2 visible cash incentive to convert adult partial interviews to completes in the final follow-up mailing. Results suggest that the $2 visible cash has a limited impact on converting adult partial interviews to completes, while the $2 visible cash improves the cooperation rate among adolescents.

Introduction

The California Health Interview Survey (CHIS) has implemented a mixed-mode survey design, combining web and telephone modes since 2019. In response to declining response and coverage rates of random-digit dialing (RDD) telephone surveys in the United States, CHIS transitioned to an address-based sampling frame. The address-based sampling frame has proven to be a cost-effective sampling strategy that offers expansive coverage of U.S. households. Wells et al. (2019) showed that a mixed-mode push-to-web design in CHIS led to increased response rates and reduced cost per completed interview.

CHIS has conducted several experiments showing the positive effects of incentives on survey participation since 2019. Sherr and Wells (2021) found that offering a $2 visible cash incentive in the initial invitation letter successfully improved the cooperation rate from 6.8 to 7.3 percent in the 2021 CHIS. In the 2023 CHIS data collection, CHIS experimented with the use of a letter mailed in a regular envelope that promised a $10 post-completion incentive in addition to a $2 visible cash incentive in the initial invitation letter. Compared to the no reminder group, the promised $10 post-completion incentive significantly improved completion rates (Hughes et al., 2023). However, a $2 visible cash incentive has not been tested in adolescents and considered to convert partial interviews to completes in the CHIS context.

In this study, we conducted three experiments with the use of a $2 visible cash incentive in CHIS 2024. The first experiment tests the effects of a $2 visible cash incentive in the initial recruitment of adolescents aged 12-17. The second and third experiments uses the $2 visible cash incentive to convert insufficient partials and sufficient partials, respectively. CHIS defines insufficient partials as those that break off between Section A (basic demographics after

informed consent) and the end of Section K (approximately 80 percent of the questionnaire). Sufficient partials are defined as interviews that break off after the end of Section K but before the end of the survey.

Background

Including prepaid cash incentives in mail surveys has the risk of wasting the enclosed cash due to discarding unopened envelopes (DeBell et al., 2020). Recent studies have used window envelopes to reduce the nonresponse due to unopened envelopes and a lack of awareness of incentives (Bilgen et al., 2023; DeBell, 2023; DeBell et al.; 2020; Sherr and Wells, 2021; Zhang et al., 2023). Compared with a regular envelope, placing cash incentives in a window envelope has the advantage of making the cash incentives visible without needing to open the envelope.

A few studies have recently experimented with the use of a window envelope revealing cash incentives. DeBell et al. (2020) tested a $5 visible cash incentive in the second mailing in a nonresponse follow-up study in the American National Election Studies (ANES) 2016 Time Series Study and found that the visible cash condition significantly improved the response rate from 42.6 to 46.9 percent. Likewise, Zhang et al. (2023) experimented with the $2 visible cash incentive in the initial mailing in the American Family Health Study and found that making the incentive visible significantly increased the response rate from 15.5 to 16.8 percent. However, the visible cash incentives had limited effect in balancing response propensities.

DeBell (2023) found that offering a $10 visible cash incentive increased response rates in a fresh sample for the ANES 2020 Time Series Study. However, the same incentive did not boost response rates in a panel reinterview sample, where participants had completed interviews in 2016 and were asked to participate again in 2020. In another study, Bilgen et al. (2023) studied the prepaid cash incentive amount and the presentation of cash incentives during the 2021 recruitment cycle of AmeriSpeak. They found that using a front window envelope with a visible cash incentive increased the recruitment rate from 4.7 to 5.7 percent. Moreover, making the amount of the dollar bill visible yielded a slightly higher recruitment rate compared to showing the face/image on the cash, and the positive effect of visible cash was strengthened when $5 was provided compared to $2 and $1.

Using visible cash incentives is a promising approach that can improve survey response rates by several percentage points at little or no extra cost in the prior studies. The visible cash incentives might increase the importance of the survey request and thus encourages sampled households to open the envelope. However, many questions remain unknown regarding the use of visible cash incentives in other survey contexts. First, less is known about the impacts of visible cash incentives in adolescents. Adolescents and adults have different recruitment processes in CHIS. To protect adolescents from risks associated with a research study, parental permission is required for adolescent participation.

Second, there is a limited understanding of the effects of using visible cash incentives to convert partial interviews to completes. In the existing studies, the visible cash incentives were

used to improve nonresponse rates. In our setting, we consider the use of visible cash incentives to address survey breakoffs, and the partial interviews are the households that have opened the envelope in previous survey requests but failed to complete a survey.

Methods

The CHIS Design

The CHIS survey represents California's non-institutionalized population through an address-based sample design. Within each selected household, CHIS randomly chooses an adult respondent using the next birthday method. In each year, around 20,000 adult interviews are completed from the sampled households. For a child ages 0 to 11, the interview is conducted with the selected respondent who is the child's parent or guardian. Adolescents aged 12 to 17 are interviewed directly after obtaining parental permission. CHIS interviews are available in several languages, including English, Spanish, Chinese (Mandarin and Cantonese), Korean, Vietnamese, and Tagalog.

Experiment 1: Improving Adolescent Survey Response

The adolescent's recruitment in the 2024 CHIS data collection followed an existing data collection protocol. Parental permission was obtained during the adult interview. If the interviewed parent refused to grant permission, an additional request was made with an option to exclude questions on sensitive topics, such as drug use and sexual behavior, from the CHIS adolescent survey.

After obtaining parental permission, the first mailing included a letter to the interviewed parent, as well as a sealed envelope providing the instructions for the adolescent to complete the survey. The parent's letter thanked them for participating in the CHIS survey, explained the offered incentives and the confidentiality of the adolescent's information, and highlighted how the results would aid researchers in understanding adolescent health issues. The adolescent's letter featured the survey URL, individual access code, and incentive details, emphasizing how their response could help other adolescents in California. A Frequently Asked Questions (FAQ) sheet was also included in the adolescent's envelope. Approximately seven days after the initial invitation, a reminder letter was sent to the nonresponding adolescent whose parents had granted permission to recontact the adolescent. Text reminders and follow-up calls were used to contact the adolescents if the parent provided the adolescent phone number.

The $2 visible cash incentive was introduced in the first invitation mailing and were placed in the interior envelope for the adolescent in the 2024 experiment, as illustrated in Figure 1. A random half of the eligible sample members received the adolescent invitation letter with a $2 pre-incentive in a visible cash envelope. The other random half received the adolescent invitation letter with a $2 pre-incentive in a regular cash envelope. The experiment was conducted in mailings sent between February and December, 2024.

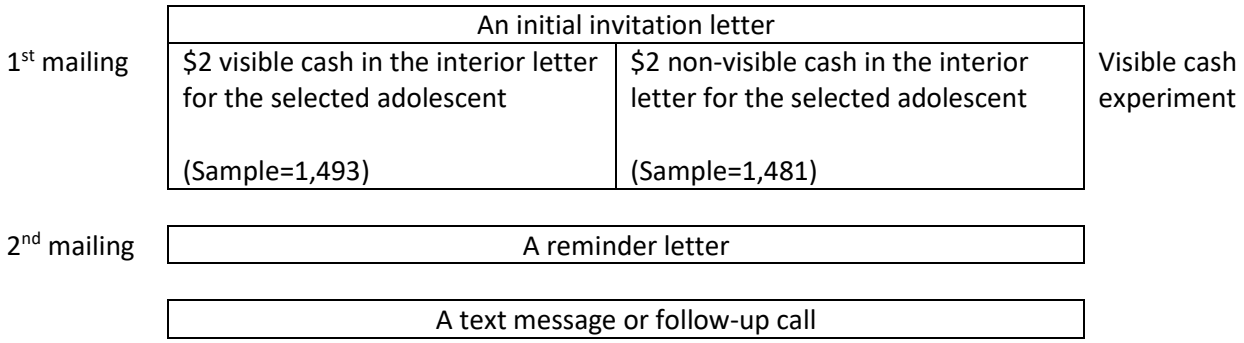
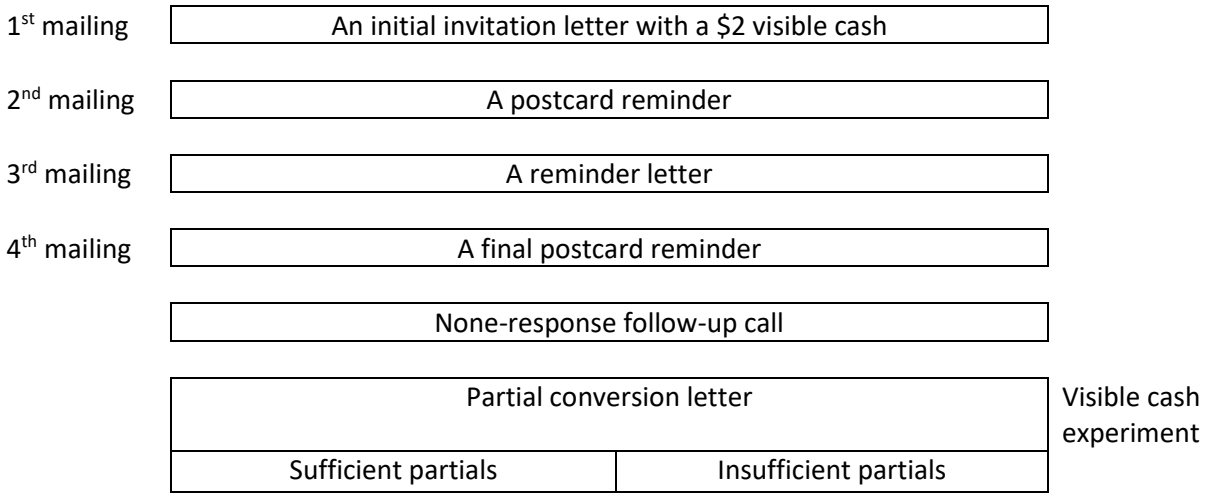


Figure 1. CHIS 2024 Adolescent Data Collection and Visible Cash Experiment Flowchart

Experiment 2: Converting Adult Partial Interviews to Completes

In the 2024 CHIS data collection, a sequential mixed-mode approach was employed, starting with a mail push-to-web method followed by telephone follow-up. During the first phase, the sequence of mailings included an initial invitation letter containing a $2 visible cash incentive, a postcard reminder, a second reminder letter, and a final postcard reminder. The first mailing included a survey URL, a unique access code for the respondent, and a FAQ sheet to assist with completing the survey online. The second mailing was a postcard reminder sent to all sampled addresses. This invitation also included the survey URL and a secure access code unique to the household. In the third mailing, a letter and FAQ was sent to households who had not yet responded, refused, or designated as undeliverable. The fourth mailing was a postcard reminder which included the survey URL and a secure access code specific to the household. In the second phase, computer-assisted telephone interviewing (CATI) was used to reach households that had not responded, provided their address could be matched with a listed phone number. Up to six call attempts were made to obtain an interview.



$2 visible cash + $10 post incentive[1]	$2 non-visible cash + $10 post incentive[1]	$2 visible cash	$2 non-visible cash
Sample=482	Sample=502	Sample=1,913	Sample=1,916

Note. [1]Based on the results of the 2023 experiment, a $10 gift card post-incentive was only offered to sufficient partials.

Figure 2. CHIS 2024 Adult Data Collection and Visible Cash Experiment Flowchart

CHIS conducted an experiment in 2024 to test the effect of a visible pre-incentive on converting partial interviews to completes. We assigned a $2 pre-incentive in a visible cash envelope to a random half of the partial interviews, while the other half received a $2 pre-incentive in a regular envelope. Figure 2 provides an overview of the adult data collection, including the experiment for converting partial interviews to completes. The experiment was conducted between May and October, 2024.

Results

Experiment 1: Improving Adolescent Survey Response

Table 1 illustrates the response rates among adolescents in two experimental groups. The response rate for the $2 visible cash group was 34.0% (n = 1,493), while the $2 non-visible cash group had a slightly lower response rate of 32.1% (n = 1,481). However, the difference in the response rates between the two groups was not statistically meaningful (p = 0.274).

Table 1. Response rates among adolescents by experimental group.

	n	Response rate (%)	Chi-square p-value
Experimental group			0.274
$2 visible cash	1,493	34.0%	
$2 non-visible cash	1,481	32.1%	

Table 2 summarizes the costs associated with the visible cash experiments for adolescent interviews. In the $2 visible cash group, there were 507 completed interviews with a cost per complete of $30.54. For the $2 non-visible cash group, there were 475 completed interviews with a slightly lower cost per complete of $29.85.

Table 2. Costs for the adolescent interviews.

	No. completes	Cost per complete
$2 visible cash	507	$30.54
$2 non-visible cash	475	$29.85

Note: The cost per complete includes printing, postage, and incentives.

Experiment 2: Converting Adult Partial Interviews to Completes

Table 3 presents the success rates among adult partial interviews. The success rate for sufficient partial interviews is defined as the rate of conversion into complete interviews, while for insufficient partial interviews, it is defined as the rate of conversion into either sufficient partial interviews or complete interviews. For sufficient partial interviews, the treatment group with $2 visible cash achieved a success rate of 14.9% (n = 482), while the group with $2 non-visible had a slightly lower success rate of 13.2% (n = 502). The difference between these groups was not statistically significant (p = 0.419).

For insufficient partial interviews, the $2 visible cash group had a success rate of 9.0% (n = 1,913), slightly lower than the 9.6% success rate (n = 1,916) observed in the $2 non-visible cash group. The results were statistically insignificant (p = 0.550).

Table 3. Success rates among adult partial interviews by experimental group.

	n	Success rate (%)	Chi-square p-value
Sufficient partials			0.419
$2 visible cash + $10 post incentive	482	14.9%	
$2 non-visible cash + $10 post incentive	502	13.2%	
Insufficient partials			
$2 visible cash	1,913	9.0%	0.550
$2 non-visible cash	1,916	9.6%	

Table 4 provides the costs of converting sufficient partials and insufficient partials by experimental group. Among sufficient partials, the group with $2 visible cash and a $10 post-incentive had 72 completes, with a cost per complete of $36.85. The group with $2 non-visible and the same $10 post-incentive achieved 66 completes with a slightly lower cost per complete of $36.48. For insufficient partials, the group with $2 visible cash had 172 completes, with a cost per complete of $44.44. While, the group with $2 non-visible cash yielded 183 completes, with a lower cost per complete of $36.88.

Table 4. Costs for the sufficient and insufficient partials conversion.

Sufficient partials	No. completes	Cost per complete
$2 visible + $10 post incentive	72	$36.85
$2 non-visible + $10 post incentive	66	$36.48
Insufficient partials	No. completes / sufficient partials	Cost per complete/ sufficient partial
$2 visible cash	172	$44.44
$2 non-visible cash	183	$36.88

Note: The cost per complete includes printing, postage, and incentives.

Discussion

We experimentally tested the use of a $2 visible cash incentive to convert adult partial interviews to completes and encourage adolescent participation. We found that the $2 visible cash incentive had little effect on converting adult partial interviews. Notably, the $2 visible cash incentive improved the adolescent response rate from 32.1% to 34.0%, though the change was not statistically significant. Overall, the use of a window envelope did not substantially increase the costs of data collection in our two experiments. Although the cost difference between the window and regular envelopes is small, the large number of insufficient partials results in approximately $1,000 in an additional cost for the $2 visible cash group compared to the $2 non-visible cash group.

In summary, the use of visible cash incentives might slightly improve the response rate among adolescents, but would likely have negligible effects on improving the success rates of partial conversion. Considering the costs and response yield, the 2025 CHIS data collection operations will use the $2 visible cash for adolescents but not for converting partial interviews.

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