The Impact of Survey Incentive Amounts on Response Rates and Estimates of Sexual Assault Victimization

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Abstract

Survey incentives have proven to increase response rates in web surveys, but little is known about if or how incentives impact responses to sensitive survey questions and the estimates researchers derive. To evaluate the potential impact of incentives on response rates and estimates derived from sensitive items, we conducted an experiment to compare the effects of incentives of different monetary amounts in a survey on an extremely sensitive topic: sexual assault victimization. Bivariate analyses were used to determine whether larger incentives ($25 vs. $10; and $40 vs. $25) yielded significantly higher response rates (by sex) and whether victimization estimates differed by incentive amounts. Bivariate analyses indicate that $25 increased response rates over $10 for female and male students, but $40 did not increase response rates over $25 for female or male students. In terms of victimization, offering both $10 and $40 were associated significantly higher sexual assault victimization rates than offering $25 for female students. Modeled results, controlling for student characteristics produce mixed results.

Introduction

As part of the Campus Climate Survey Validation Study (CCSVS) Pilot Test (Krebs et al., 2016) which aimed to develop a valid and reliable methodology for campus climate surveys, we conducted an experiment intended to guide recommendations regarding incentive amounts for future efforts. The experiment compared the impact of different survey amounts ($25 vs. $10; and $40 vs. $25). The purpose of the experiment was to determine the optimal incentive amount for encourage survey response without impacting victimization rates. Although larger incentives have been found to lead to higher response rates, the returns tend to diminish (Cantor, O'Hare, & O'Connor, 2008). Additionally, the impact of a particular incentive amount depends on characteristics of the survey and sample, so an incentive amount that is effective for one survey may not be equally effective for another survey.

Although survey incentives have proven to increase response rates in web surveys, less is known about the impact that different incentive amounts have on estimates derived from data collected via survey questions on sensitive topics like sexual assault. As a result, two hypotheses were formed:

1. That larger survey incentive amounts would result in a higher response rates, and

2. Once controlling for differences in response, the victimization rates would not differ across the different survey incentive amount conditions.

Methodology

The CCSVS included nine U.S. institutions of higher learning. Data were collected via a web survey during the spring of 2015, with four of the nine institutions included in the incentive experiment. The $25 vs. $10 experiment was conducted at two schools and the $40 vs. $25 experiment was conducted at two schools. Because school context is likely to influence the impact of incentives, it is necessary to vary the conditions within each of the participating schools to rule out the possibility of school characteristics being responsible for any observed variability in the conditions. Therefore, rather than assigning all sampled students in a given school to receive one incentive amount

and then comparing its impact to the impact of a different incentive amount used at another school, the experimental conditions were varied (i.e., students were randomized to receive one or the other incentive amount) within each participating school. The experiment aimed to determine the optimal dollar amount for increasing response rates while balancing the costs of survey administration, which led to the decision to test three amounts: $10, $25, and $40. These amounts are similar to those used successfully in other federally funded surveys of college students, such as the Beginning Postsecondary Students Longitudinal Study (Wine et al., 2011) and the National Postsecondary Student Aid Study (Wine et al., 2013). Students at two schools were randomized to receive either a $10 or $25 gift card, and students at two other schools were randomized to receive either a $25 or $40 gift card. At the five remaining schools, students were offered a $25 gift card as incentive for completing the survey.[1]

Both experiments were powered to detect small differences in participation (3.65% or less) and victimization (2.64% or less) rates (**Table 1**).

Table 1. Minimum detectable differences in survey participation and sexual assault rates for the incentive experiment

	Females		Males	
	N	Minimum Detectable Difference	N	Minimum Detectable Difference
Participation Rates				
$25 vs. $10	9,898	2.80 %	7,277	3.04 %
$25 vs. $40	7,118	3.32	5,535	3.65
Victimization Rates				
$25 vs. $10	4,395	2.41	2,176	1.71
$25 vs. $40	3,623	2.64	2,030	1.79

Source: Campus Climate Survey Validation Study (CCSVS), 2015

Note: Detectable difference calculations assume a two-sided Pearson's chi-squared test with alpha=0.05 and 80% power. Observed sample sizes, participation rates, and victimization rates were used in the calculations, and detectable differences shown are in the direction of the observed difference.

Results of Bivariate Analysis

The $25 incentive led to significantly higher survey participation rates than the $10 incentive for both males and females (**Table 2**). For both sexes, participation rates were more than 5 percentage points higher for students who were randomized to the $25 incentive than the $10 incentive condition. For females, victimization rates were significantly higher for students who received the $10 incentive (observed difference of 1.7 percentage points), whereas no significant differences were found for males.

Table 2. Comparison of participation and sexual assault rates, by incentive amount ($25 vs $10), 2014–2015 academic year

	$25[a]			$10		
	Number	Percent	SE	Number	Percent	SE
Participation						
Males	1,186	32.6 %	0.4 %	990	27.2 %*	0.3 %

[1] Study contact materials informed sample members that if they completed the survey, they would be able to choose among nine online and in-store gift card options as a token of appreciation. The nine gift cards they could choose from were Amazon.com, Chili's, CVS, Domino's Pizza, Dunkin' Donuts, Panera Bread, Staples, Starbucks, and Walmart. Gift cards were sent to respondents electronically within two business days of completing the survey.

	$25[a]			$10			
	Number	Percent	SE	Number	Percent		SE
Females	2,325	47.0	0.3	2,070	41.8	*	0.3
Victimization							
Males	34	2.9	0.3	25	2.5		0.2
Females	179	7.7	0.3	195	9.4	*	0.3

Source: Campus Climate Survey Validation Study (CCSVS), 2015
Note: SE = standard error.
[a] Reference group.
* Rate for $10 incentive is significantly different from rate for $25 incentive at the alpha=0.05 level.

When evaluating the effects of the $40 incentive vs. the $25 incentive, there were no statistically significant differences in survey participation rates for males or females when pooling across the two schools (see **Table 3**). For females, sexual assault victimization prevalence rates were significantly higher for students who received the $40 incentive than for those who received the $25 incentive, whereas no significant differences were found for males.

Table 3. Comparison of survey participation and sexual assault rates, by incentive amount ($25 vs $40), 2014–2015 academic year

	$25[a]			$40			
	Number	Percent	SE	Number	Percent		SE
Participation							
Males	991	36.0 %	0.7 %	1,039	37.3 %		0.7 %
Females	1,769	50.3	0.6	1,854	51.5		0.6
Victimization							
Males	30	3.0	0.4	27	2.6		0.3
Females	133	7.5	0.4	163	8.8	*	0.5

Source: Campus Climate Survey Validation Study (CCSVS), 2015
Note: SE = standard error.
[a] Reference group.
* Rate for $40 incentive is significantly different from rate for $25 incentive at the alpha=0.05 level.

Results of Model-Based Analysis

It's not clear if the difference in victimization rates by incentive amount was due to the monetary difference or to differences resulting in composition due to response rates. Initial random assignment will not be able to account for differences in response propensities. To address this concern, two logistic regression models were fit for each sex for each incentive experiment to determine if controlling for student characteristics altered the bivariate findings: a participation model and a victimization model.

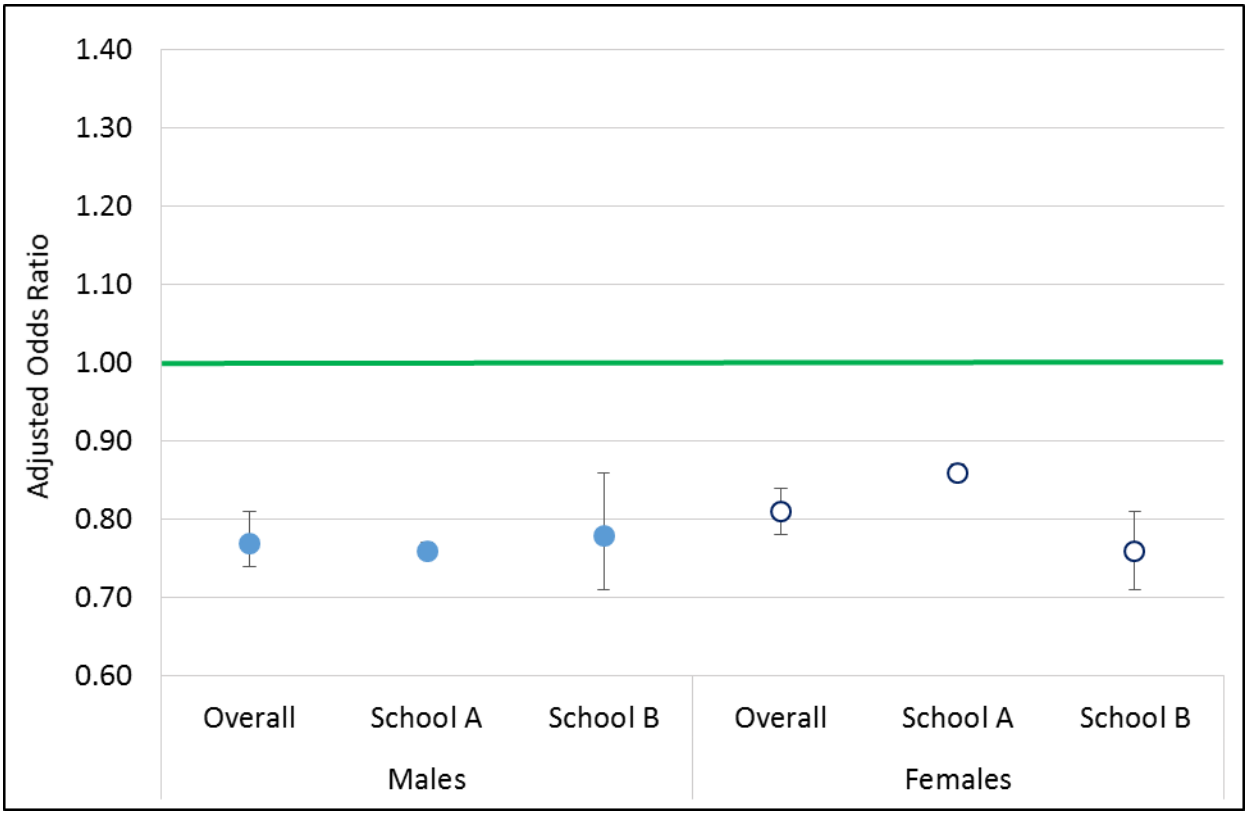
Participation Models

In the participation models, the odds of participating in the survey were assessed for both incentive conditions. Due to differences in student characteristics provided by schools on their rosters, different control variables were used in each model. For the $25 vs. $10 experiment, odds ratios were adjusted based on each student's age, year of study, full- or part-time status, race/ethnicity, and school attended. For the $25 vs. $40 experiment, odds ratios were adjusted based on each student's age, year of study, and school attended. The school-by-incentive amount interaction was included in all models to allow for different results between the incentive experiment schools.

Adjusted odds ratios of survey participation for the $25 vs. $10 and $25 vs. $40 experiments, respectively, by school[2] and sex were generated (**Figure 1** and **Figure 2**). In both figures, the $25 incentive is the reference group and the odds of participating in the CCSVS Pilot Test for the $10 or $40 incentive group relative to the $25 incentive group are shown. Thus, odds ratios of more than one (horizontal line) indicate that the alternative incentive amount ($10 or $40) resulted in a higher likelihood of survey participation, whereas odds ratios of less than one indicate that the $25 incentive resulted in a higher likelihood of survey participation.

The overall (pooled) estimates for both males and females are well below the line, as the odds that students who received the $10 incentive would participate were about 0.8 times (odds ratio of 0.77 with a 95 percent CI of 0.74 to 0.81 for males and 0.81 with a 95 percent CI of 0.78 to 0.84 for females) those who received the $25 incentive when controlling for student characteristics (**Figure 1**). For males, the odds ratios for School A and School B were not significantly different. For females, the odds ratios for School A and School B were significantly different, but the effects were relatively small and in the same direction (odds ratio of 0.86 with a 95 percent CI of 0.86 to 0.87 for females at School A and 0.76 with a 95 percent CI of 0.71 to 0.81 for females at School B).

Figure 1. Adjusted odds ratio of survey participation for Incentive Experiment 1 ($25 vs. $10), by sex and school, 2014–2015 academic year



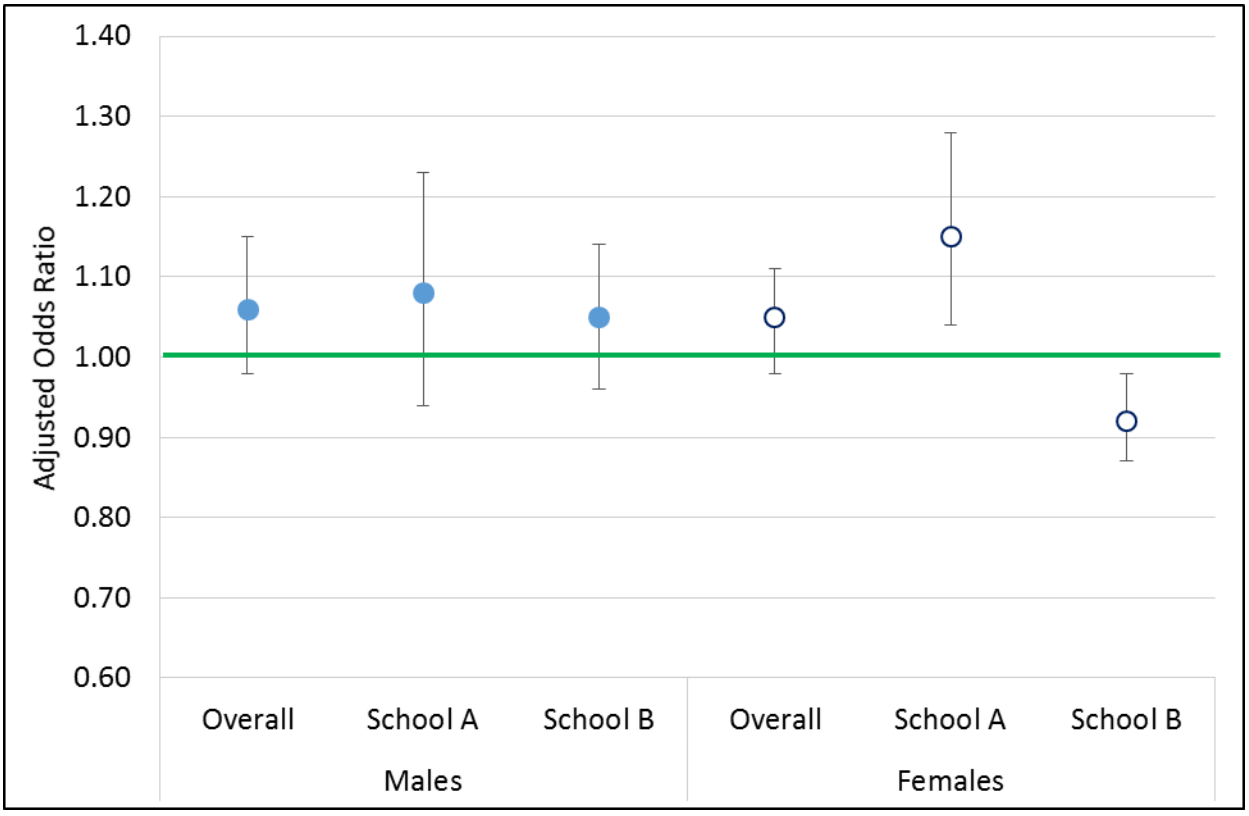
Source: Campus Climate Survey Validation Study (CCSVS), 2015
Note: $25 incentive is the reference group; no mapping between school numbers and school letters is implied.

The overall (pooled) odds ratios for Incentive Experiment 2 ($25 vs. $40) are slightly more than one (odds ratios of 1.06 for males and 1.05 for females), but the 95 percent confidence bands include one (95 percent CI of 0.98 to 1.15 for males and 0.98 to 1.11 for females) (**Figure 2**). Thus, the odds of participation in the survey for the two incentive amounts are the same when controlling for student characteristics. However, when examining the odds ratios at the school level, it is evident that opposite trends were observed for females. At School A, significantly higher survey participation rates were observed for the $40 incentive group (odds ratio of 1.15 with 95 percent CI of

[2] The two schools in each figure are denoted by School A and School B, but these represent different schools in each figure and no mapping to Schools 1-9 is implied for these four schools.

1.04 to 1.28), whereas at school B significantly higher participation rates were observed for the $25 incentive group (odds ratio of 0.92 with 95 percent CI of 0.87 to 0.98). Because the effects were in opposite directions, the pooled effects cancelled out, leading to no detectable differences in the impact of different incentive amounts on survey participation.

Figure 2. Adjusted odds ratio of participation for Incentive Experiment 2 ($25 vs. $40), by sex and school, 2014–2015 academic year



Source: Campus Climate Survey Validation Study (CCSVS), 2015
Note: $25 incentive is the reference group; no mapping between school numbers and school letters is implied.

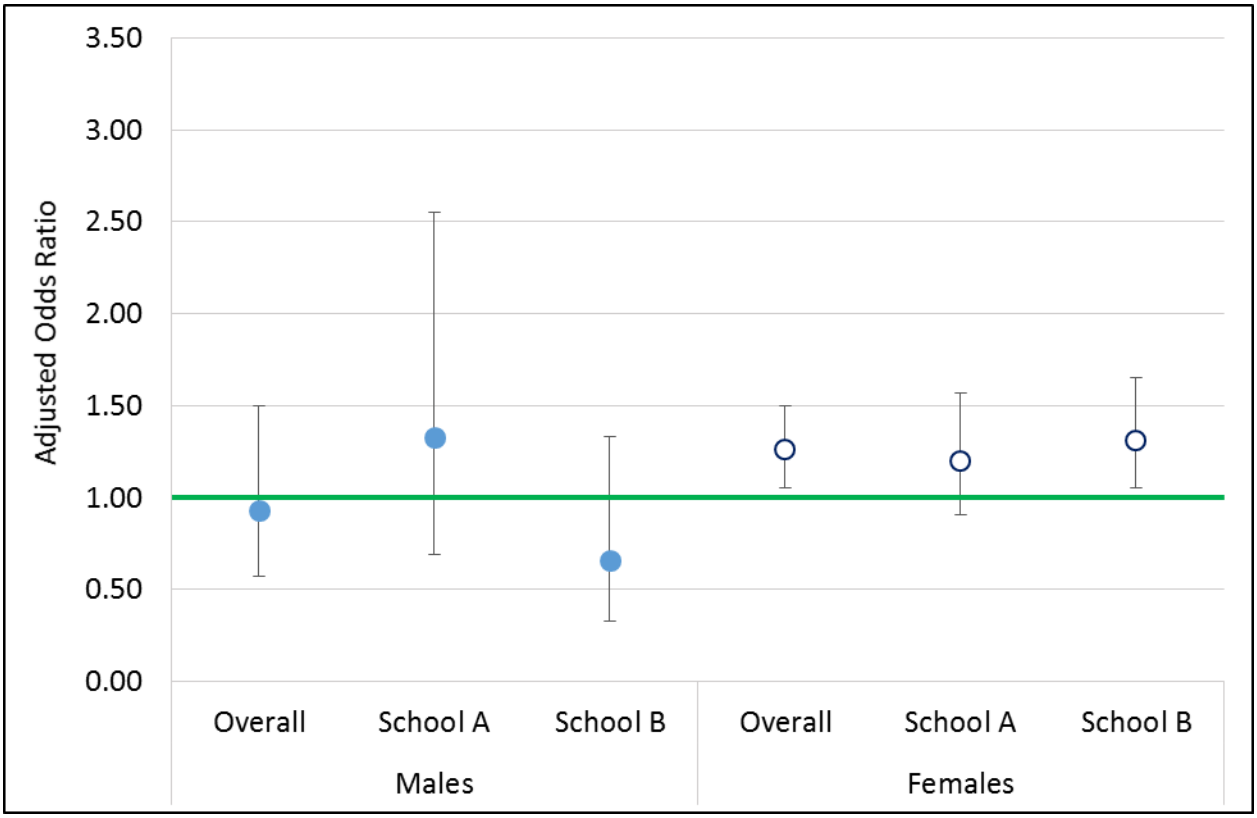
Victimization Models

For the victimization models, the odds of experiencing sexual assault for the different incentive amounts were assessed, controlling for characteristics of the students. For Experiment 1 ($25 vs. $10), the models controlled for each student's year of study, race/ethnicity, gender identity, sexual orientation, age, full- or part-time status, and school attended. For Experiment 2 ($25 vs. $40), the models controlled for each student's year of study, race/ethnicity, gender identity, sexual orientation, age, and school attended. The school-by-greeting interaction was also included to allow for different results between schools. As with the participation graphic, the $25 incentive is the reference group and the odds of identifying as experiencing sexual assault for the alternative incentives ($10 or $40) relative to the $25 incentive are shown. Odds ratios of more than one indicate that more students indicated that they experienced sexual assault in the alternative incentive group, whereas odds ratios of less than one indicate that more students identified as experiencing sexual assault with the $25 incentive group.

For males, the adjusted odds ratio overall and for both schools in Incentive Experiment 1 are very close to one, and the 95 percent confidence intervals include one. The odds ratios were 0.93 (95 percent CI of 0.57 to 1.50), 1.33 (95 percent CI of 0.69 to 2.55), and 0.66 (95 percent CI of 0.33 to 1.33) for overall, School A, and School B, respectively (see **Figure 3**). This indicates no significant difference in sexual assault victimization rates between the $25 and $10 conditions when controlling for student characteristics. However, for females the overall and school-level estimates are more than one, indicating that students in the $10 incentive group were more likely to identify as

experiencing sexual assault than students in the $25 incentive group. The odds ratios were 1.26 (95 percent CI of 1.05 to 1.50), 1.20 (95 percent CI of 0.91 to 1.57), and 1.31 (95 percent CI of 1.05 to 1.65) for overall, School A, and School B, respectively.

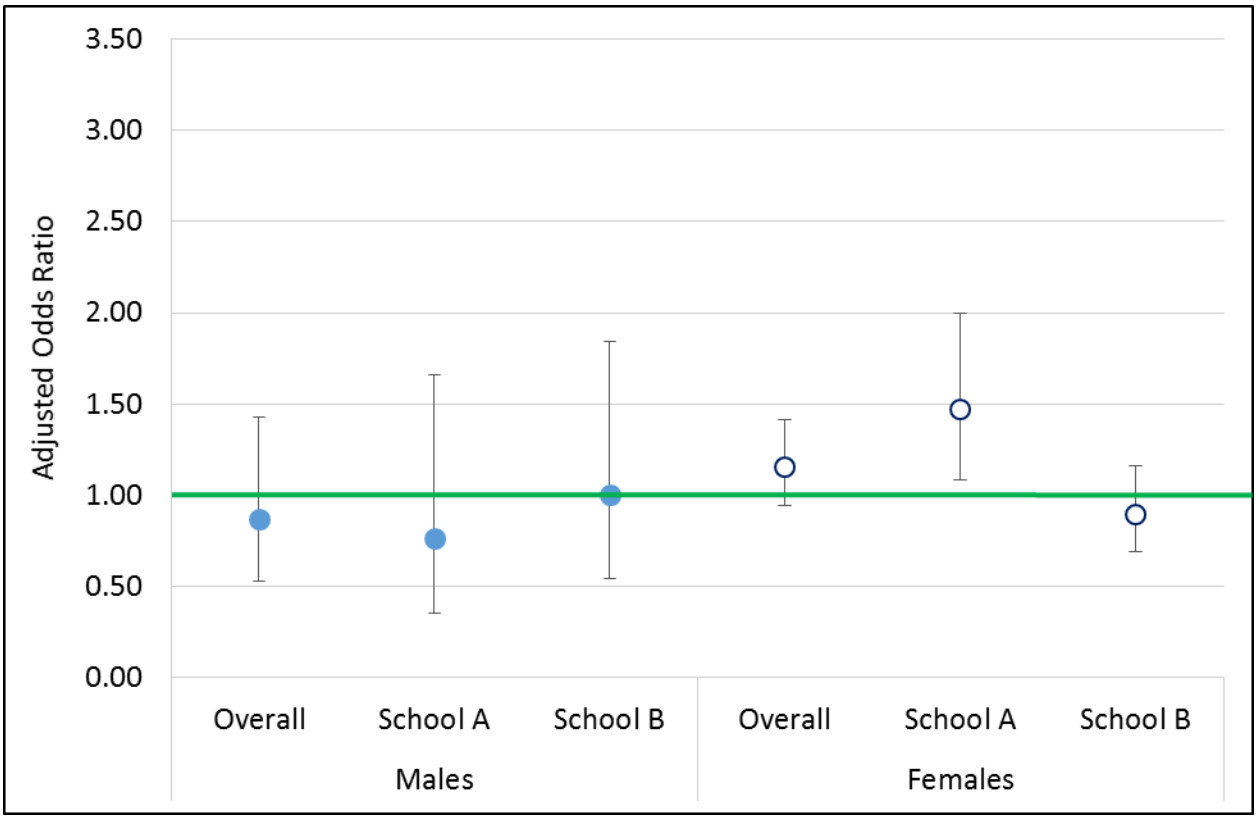
Figure 3. Adjusted odds ratio of sexual assault rates for Incentive Experiment 1 ($25 vs. $10), by sex and school, 2014–2015 academic year



Source: Campus Climate Survey Validation Study (CCSVS), 2015
Note: $25 incentive is the reference group; no mapping between school numbers and school letters is implied.

For the second incentive experiment ($25 vs. $40), there are no detectable differences in the sexual assault victimization rates for males when controlling for characteristics of the students (see **Figure 4**). The odds ratios were 0.87 (95 percent CI of 0.53 to 1.43), 0.76 (95 percent CI of 0.35 to 1.66), and 1.00 (95 percent CI of 0.54 to 1.84) for overall, School A, and School B, respectively. For females, after controlling for student characteristics, the overall effect is no longer significant (odds ratio of 1.15 with 95 percent CI of 0.94 to 1.41), but it is still significant for one of the schools. For School A, sexual assault victimization rates are higher in the $40 group than the $25 group (odds ratio of 1.47 with a 95 percent CI of 1.08 to 2.00).

Figure 4. **Adjusted odds ratio of sexual assault rates for Incentive Experiment 2 ($25 vs. $40), by sex and school, 2014–2015 academic year**



Source: Campus Climate Survey Validation Study (CCSVS), 2015
Note: $25 incentive is the reference group; no mapping between school numbers and school letters is implied.

Discussion

Overall, the incentive experiments showed that survey participation rates are significantly higher for both males and females when a $25 incentive is offered rather than a $10 incentive. When comparing a $25 and a $40 incentive, the results are less clear. For males, no significant differences were found in survey participation rates. However, for females, participation rates were significantly different, but the direction of the effect differed between the two schools in the experiment.

Not only does the incentive amount affect the rate of survey participation, but it also appears to affect the composition of the sample regarding the key survey outcome (sexual assault victimization prevalence). For females, the $10 incentive group had a higher prevalence of sexual assault than the $25 group, even when controlling for student characteristics in a modeling context. This provides some evidence that sexual assault victims may have been more likely to participate in the CCSVS Pilot Test even when a lower incentive amount was offered, and that the higher incentive amount brought in more non-victims. Again, the results of the $25 vs. $40 experiment were less clear. Although the overall difference in sexual assault victimization prevalence rates for females was no longer significant when controlling for student characteristics in a modeling context, there was a significant difference at one school, with students who received the $40 incentive having a significantly higher rate of sexual assault victimization than students who received the $25 incentive. It is unclear why the higher incentive amount, at least in some schools, would lead to lower survey participation, or be more likely to attract sampled members who were victims of sexual assault.

The selection of the appropriate incentive amount for future studies similar in scope must consider the impact on both survey participation rates and sexual assault victimization rates. It is clear that the $25 incentive provides survey participation gains over the $10 incentive, and likely results in a significantly larger and more representative

sample. It is less clear, however, whether moving to a $40 incentive offers any advantage. Thus, it is recommended that incentives be in the $20 to $30 range for future studies of this kind.

Disclaimer: *This document was prepared using Federal funds provided by the U.S. Department of Justice under Cooperative Agreement number 2011-NV-CX-K068. Any opinions and conclusions expressed herein are those of the author(s) and do not necessarily represent the views of the Bureau of Justice Statistics and the U.S. Department of Justice.*

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