

# What Money Can Buy: Examining the effects of prepaid monetary incentives on survey response rates among college students

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This study examined the effects of prepaid monetary incentives on college students' rate of responding to a survey designed to assess beliefs and values. It also assessed the extent to which incentive effectiveness depended on such student characteristics as gender, race, and socioeconomic status. The findings suggest that \$2 incentives enhance response rates over \$0, but that \$5 incentives do not substantially improve response rates over \$2 incentives. Further, although the descriptive findings suggested that the effectiveness of incentives varied across different groups of students, multivariate analyses identified no such differences.

## Introduction

In recent decades, researchers have experienced growing difficulty in attaining adequate response rates to mail surveys (Bradburn, 1992; Krosnick, 1999; Smith, 1995). Today's college students, in particular, respond at significantly lower rates than their predecessors according to reported response rates for nationally based student surveys (Dey, 1997). Low response rates not only lessen the cost effectiveness of surveys, but may also compromise the quality of research that is now increasingly based on just a small percentage of the overall population examined. The current study seeks to assess the impact of prepaid monetary incentives on survey response rates among college juniors in the United States. It also examines the effectiveness of various incentive amounts and the potentially disparate effects of incentives on female

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versus male students and students from different racial and socioeconomic backgrounds. Importantly, while the benefits of prepaid monetary incentives in boosting survey response are well established in the literature (Jobber, Saunders, & Mitchell, 2004; Warriner, Goyder, Gjertsen, Hohner, & McSpurren, 1996), little research has explored their effectiveness among college students. In addition, our understanding of how differential amounts of incentives affect diverse college student populations is even more limited. The purpose of this article is to begin to address these gaps in the literature.

## **Review of the Literature**

Dillman (2000) argued that decisions to complete and return surveys are largely determined by whether the rewards for responding outweigh the costs, namely the time expenditure and the mental energy required to respond. "Rewards" constitute an elusive concept that can include immediate tangible benefits, promises for future benefits, and even the sheer enjoyment of answering interesting survey questions. All in all, Dillman (2000) maintained that successful survey initiatives seek to provide ample rewards, reduce costs, and engender trust on the part of potential respondents. How these goals are achieved in actuality has everything to do with the way a survey is designed and administered. For instance, the experience of participation becomes more rewarding when respondents are treated with respect and positive regard through the use of carefully crafted cover letters and survey items (Dillman, 2000). Furthermore, the cost/reward ratio can be reduced by well-organized surveys that appear short, interesting, and easy to complete (Dillman, 2000). Finally, regarding the potential respondent as an invaluable source of expertise and advice minimizes the appearance of cost because, in becoming an esteemed "expert," the respondent may enjoy an intangible social reward (Blau, 1964; Dillman, 2000) (For a fuller discussion of effective survey design see Dillman, 1991, 2000, and Turley, 1999).

While it is critical for survey researchers to consider the efficacy of various design and administration elements, the primary emphasis in this study is the effectiveness of prepaid monetary incentives imparted to potential student respondents. The use of prepaid incentives in survey administration harnesses the notion of social exchange by providing participants with a token of appreciation for the time and effort they put forth in return. In so doing, the researcher infuses a sense of trust into the relationship with the recipient. Indeed, incentives in the form of gifts or, in particular, money encourage response to surveys, and are remarkably more effective when provided in advance with the mailed survey instrument than as a postpayment for participation (Church, 1993; Dillman, 1991, 2000; Dillman, Eltinge, Groves, & Little, 2002; Hopkins, Hopkins, & Schon, 1988; James & Bolstein, 1992; Kalafatis & Madden, 1995; Mizes, Fleece, & Roos, 1984; Porter & Whitcomb, 2003; Singer, 2002).

The results of meta-analyses point overwhelmingly to the effectiveness of incentives. Jobber et al. (2004) reported that incentives of any amount raise response rates by 15% on average, and by an additional 2% per dollar. Similarly, an earlier meta-analysis suggested that incentives of 25¢ increase response rates by 16%, while

\$1 incentives raise rates of responding by a full 31% on average (Fox, Crask, & Kim, 1988). Although Yammarino, Skinner, and Childers (1991) also recognized monetary incentives as generally enhancing rates of responding, they advised researchers to “consider other variables that may influence individuals’ willingness to respond (e.g., situational factors, personality characteristics)” (p. 627), given that the relationships they identified between response rates and incentives were derived from multiple populations in which other moderator variables may have played a role.

One exception to the general rule of incentive effectiveness appears to be predicated on the mode of survey administration; according to Cook, Heath, and Thompson’s (2000) meta-analysis of response rates to Web- and Internet-based surveys, “the use of incentives in Web surveys actually seems to be associated with more homogeneous and lower response rates” (p. 832). Importantly, however, the authors do not specify the types of incentives used in the studies they reviewed.

The challenge posed by incentives lies in identifying the optimal value that will result in the highest response rate possible. In a sample of construction company owners, prepaid monetary incentives of \$1, \$5, and \$20 tended to improve response rates incrementally such that the higher the incentive level, the better the response rate. Still, somewhat unexpectedly, the \$10 and \$40 incentives they offered actually diminished (or made no difference in) response rates compared to \$5 and \$20, respectively. Thus, the effect of different incentive levels was not entirely linear (James & Bolstein, 1992). In a similar study using considerably smaller incentive values, linear gains in response rates were observed as the incentive amount increased from \$0 to 25¢ and 25¢ to \$1, but not from \$1 to \$2 (James & Bolstein, 1990). In another study of small incentive amounts, \$5 prepaid incentives did not substantially improve response rates over and above incentive amounts of \$1 (Mizes et al., 1984). A meta-analysis of the impact of increasing incentive amounts concurred, “the systematic relationship between the marginal increase in response rate and the size of the incentive indicates that diminishing returns are quickly experienced” (Fox et al., 1988, pp. 485–486). To complicate matters, additional waves of survey administration may negate the effectiveness of incentives provided in the initial mailing (Nederhof, 1983).

Dillman (2000) reasoned that potential respondents to surveys “differ in what they perceive as rewards and costs” (p. 22). Although Dillman’s (2000) argument was directed at differences in personal preferences and distinctions between early and late responders to a survey (the latter of which require significantly more coaxing to elicit response), it is possible that differences across certain subpopulations make some individuals more responsive to the rewards (i.e., monetary incentives) associated with survey completion than others. Indeed, when we consider the empirical evidence, one study based on a non-college sample identified women as more responsive to incentives than men (Moore & Tarnai, 2002). Similarly, Singer (2002) concluded, “although monetary incentives are effective with all respondents, less money is required to recruit and retain low-income (and minority) groups than those whose income is higher” (p. 170). However, much of the literature Singer synthesized was based on interviewer-mediated studies rather than studies using mailed surveys. It

follows that prepaid monetary incentives might have differential effects on the decision to respond among men and women and members of diverse racial and socioeconomic groups.

Beyond highlighting the impact of incentives, the literature is replete with evidence about the types of individual characteristics and personal tendencies that predict response to surveys. Gender has been linked to response likelihood, with women tending to respond at higher rates than men (Bradburn, 1992; Dey, 1997; Hutchison, Tollefson, & Wigington, 1987; Krosnick, 1999; Sax, Gilmartin, & Bryant, 2003; Underwood, Kim, & Matier, 2000). Likewise, race and ethnicity play a role, as persons of color are often underrepresented among survey respondents (Dey, 1997; Underwood et al., 2000). Place of residence (i.e., urban or rural) and socioeconomic status have also been identified as predictors of response, although the observed relationships differ depending on the study (Bradburn, 1992; Krosnick, 1999). Among college students, high achievers respond at higher rates to surveys (Dey, 1997; Hutchison et al., 1987; Sax et al., 2003), while students engaged in hedonistic behaviors (i.e., partying, drinking alcohol, etc.) and those concerned with status and the material benefits of college respond at lower rates (Dey, 1997; Sax et al., 2003). Further, across populations, civically engaged individuals are more likely to participate in surveys, as are those who are confident that they can make a difference in the world (Dillman et al., 2002; Krosnick, 1999; Sax et al., 2003). Finally, according to Dillman (1991), Groves, Presser, and Dipko (2004), and Pearl and Fairley (1985), topic salience, or the extent to which individuals are interested in the survey material, tends to facilitate responding (although Jobber (1984) provided somewhat disconfirming evidence on this point).

Clearly, individual characteristics and their implications for response are not within the realm of researcher control. Rather, it is the responsibility of survey researchers to understand the design and administration features that encourage response, and the ways in which such elements impact the decision to respond across different groups and types of individuals.

## **Objectives**

While existing research points to the success of prepaid monetary incentives in improving response rates, few studies have examined their effects on college students and the impact of different amounts of money enclosed with mailed surveys for this population. Similarly, even less is known about whether prepaid incentives for mailed surveys have different effects on individuals from diverse backgrounds. Certainly this information is relevant to higher education researchers who, in addition to conducting large-scale research studies, often design surveys aimed at specific student populations and seek to be cognizant of the student characteristics that promote propensity to respond. Although the issue of survey response can be examined on both institutional and individual levels of analysis, the scope of this study is limited to the individual student, as student behavior is directly tied to rates of responding. In light of the limitations in the literature to date, we sought to answer the following questions:

- How do varying levels of small, prepaid monetary incentives (\$0, \$2, and \$5) affect college students' rates of responding to a mailed survey? What additional factors (gender, topic salience, etc.) are associated with survey response?
- Does the effectiveness of prepaid monetary incentives depend on gender, race/ethnicity, or socioeconomic status?

Based on our review of the literature, we hypothesized that prepaid incentives would improve response rates compared to the no-incentive control group (Church, 1993; Dillman, 1991, 2000; Dillman et al., 2002; Hopkins et al., 1988; James & Bolstein, 1992; Kalafatis & Madden, 1995; Mizes et al., 1984; Porter & Whitcomb, 2003; Singer, 2002), but that the \$5 incentive would not provide substantial gains over the \$2 incentive (James & Bolstein, 1990, 1992; Mizes et al., 1984). We also expected to find women and White students responding at higher rates than men and students of color (Bradburn, 1992; Dey, 1997; Hutchison et al., 1987; Krosnick, 1999; Sax et al., 2003; Underwood et al., 2000) and students with different personality orientations ("Scholars," "Status Strivers," etc.) responding at dissimilar rates (Dey, 1997; Sax et al., 2003). Because our survey is intended to document trends and development in spirituality, we anticipated that, because of topical salience (Dillman, 1991; Pearl & Fairley, 1985), students with stronger religious and/or spiritual leanings would be more likely to respond. Finally, we expected to observe differential effects of incentives on the response rates of men and women, and students of various racial/ethnic and socioeconomic groups (Moore & Tarnai, 2002; Singer, 2002).

## **Methods**

### *Data Source*

The data for this study were drawn from two national surveys conducted by the Higher Education Research Institute at the University of California, Los Angeles. As entering college students, study participants completed the 2000 Cooperative Institutional Research Program (CIRP) Freshman Survey, administered to a nationally representative sample of entering college students (see Sax, Lindholm, Astin, Korn, & Mahoney, 2001). The four-page 2000 CIRP Freshman Survey consists of 224 items that assess a wide range of constructs related to students' behaviors, interests, attitudes, values, self-assessments, and expectations upon entry to college. In Spring 2003, a subset of 3rd-year undergraduate students at 47 colleges and universities that had participated in the 2000 CIRP administration also took part in a new survey designed by the Higher Education Research Institute—the College Students' Beliefs and Values Survey (CSBV). The four-page, 234-item CSBV Survey addresses students' perspectives on issues of meaning, purpose, and spirituality and queries their college experiences.<sup>1</sup>

A random sample of approximately 250 third-year students who responded to the 2000 CIRP at each of the 47 institutions (and who were still enrolled at the same institution they entered as 1st-year students) was asked to complete the CSBV in

Spring 2003. Students received an advance notification postcard introducing the survey in March 2003, followed 2 weeks later by a mailed survey. To explore the impact of differential monetary incentives, institutions were categorized by type (4-year college versus university),<sup>2</sup> control (public versus private), religious affiliation (Catholic college versus other religiously affiliated college), and selectivity (based on the average composite SAT score of the entering class). Within each category, schools were randomly assigned to one of three incentive groups (\$0, \$2, or \$5). These monetary incentives were included with the initial survey packet. Two weeks after the first wave of surveys was mailed to students, a subset of students received an email reminder. Subsequently, a second wave of surveys (without monetary incentives) was sent to nonrespondents. In total, 11,547 students constituted the sample pool of CIRP respondents who received the CSBV 3 years later. Of these, 3,680 students responded to the CSBV.<sup>3</sup>

### *Analytical Framework and Variables*

As the goal of this study was to better understand the impact of incentives and a variety of other student characteristics on individual decisions to respond (or not respond) to the CSBV survey, we relied on data derived from the 2000 CIRP Freshman Survey, as all of the students in our sample pool had completed this form. The availability of information on both respondents and nonrespondents, a critical aspect of our study, was a unique feature of the analysis.

Crosstabulations were calculated to compare the percentage of students responding by incentive amount, incentive amount and gender, incentive amount and race/ethnicity, and incentive amount and income level. These descriptive analyses provided insight into the possible presence of interaction effects. That is, we were curious to learn whether the impact of incentives on responding depended on such factors as gender, race/ethnicity, and income (an indicator of socioeconomic status).

Logistic regression was the multivariate method of choice for this study, given that our dependent variable—response versus nonresponse—was dichotomous and skewed in the direction of nonresponse since the overall response rate was 32% (DesJardins, 2001; Menard, 1995; Pampel, 2000). Analyses involved entering independent variables (selected on the basis of their salience in previous studies) into the logistic regression model in three blocks. The first block consisted of a number of demographic characteristics, including gender (female versus male), race/ethnicity (“White” was the reference group), religious preference (“None” was the reference group), socioeconomic status (a composite of parental income and educational levels), whether parents were together or separated, and region of the country (“West” was the reference group). Spiritual self-perceptions and religious behaviors were included to assess the relationship between student interest in religious/spiritual matters and their willingness to respond to a survey devoted to issues of a spiritual nature. Six empirically developed student typologies described by Astin (1993) were included in the first block as well: Scholar, Social Activist, Leader, Artist, Status Striver, and Hedonist. These six variables were factor scales comprised of various



items from the CIRP. Their validity for our sample was assessed through a series of confirmatory factor analyses.<sup>4</sup> Added to these were student propensities to volunteer, hold certain political views, and believe that individuals can change society. The final set of variables in block one—all institutional characteristics—included religious affiliation (“public” served as the reference group) and institutional type (university versus 4-year college). The second block was comprised of two monetary incentive variables. The first compared no incentive to the \$2 incentive, while the second compared the \$2 incentive to the \$5 incentive. These were both added in their own block so as to control first for the effects of all other variables before considering the impact of monetary incentives on survey response.

To test the theory that incentive effectiveness varies across subpopulations, we created a series of interaction terms entered in a final third block. For the gender interaction terms, we created a variable labeled “female” (female = 1; male = -1) and multiplied it by the two incentive variables for a total of two gender\*incentive interaction terms. Six racial/ethnic categories were created via simple coding and five of these race variables (excluding “White,” which was the comparison group) were each multiplied by the two incentive variables, for a total of ten race\*incentive interaction terms. Finally, socioeconomic status (SES) was coded into two variables: low income versus medium and medium income versus high. The SES variables were then multiplied by the two incentive variables, for a total of four SES\*incentive interaction terms. In total, two regression analyses were run: The first included all three blocks, whereas the second included blocks one and two without the interaction terms (see the Appendix for variable descriptions and coding schemes).

## Results

### *Descriptive Findings*

Overall, 32% of the college juniors surveyed responded to the CSBV questionnaire. The availability of prepaid monetary incentives was an important factor contributing to our success in attaining this rate of response. In fact, it is likely that in the absence of incentives, only around 23% of the target student sample would have returned their surveys, reflected in the response rate of students in the \$0 incentive group (see Table 1). By contrast, a considerably higher proportion (36%) of students receiving a \$2 incentive responded. Interestingly, the inclusion of a \$5 incentive resulted in a

Table 1. Response rate by incentive group

Incentive Group	Response Rate
\$0 ( $N = 4,914$ )	23%
\$2 ( $N = 3,567$ )	36%
\$5 ( $N = 3,066$ )	41%

relatively small increase in response rate over the rate achieved by \$2: 41% of juniors receiving \$5 returned their surveys. This finding indicates a nonlinear relationship between increases in incentive amounts and their effectiveness in bolstering response rates. In other words, it appears that each unit increase in incentive amount will not result in an equal unit increase in response rate.

The overall response rate of 32% also masked differences across the various characteristics of the sample. In addition, the crosstabulations examining the differential effects of monetary incentives for female versus male students and students from different racial groups and household income levels provided preliminary indications regarding the different ways in which monetary incentives influence students from varied backgrounds. With respect to gender, 38% of female as opposed to 24% of male students responded. When compared to no incentive, women were more responsive than men to the \$2 incentive (see Table 2), as the relative increase in the percentage of women responding was 54% (from 28 to 43% in absolute terms), while the corresponding increase for men was 50% (from 18 to 27%). However, the percentage of men responding increased at a higher rate than that of women when they received a \$5 incentive (compared to \$2). Specifically, the percentage of men who responded increased by 19% from the \$2 to the \$5 incentive group (27 to 32%), as opposed to a 9% increase for women (43 to 47%).

Response rates by students' racial background also revealed important differences among certain racial groups, while similarities were more apparent among others. In particular, White (33%), American Indian (32%), and Asian American (32%) students were the most likely to respond, whereas only 29% of African American and 26% of Latina/o students returned their surveys. The effect of the various incentive amounts appeared to depend on students' racial background as well (see Table 3).

Table 2. Response rate by incentive group by gender

Incentive Group	Female ( <i>N</i> = 6,501)	Male ( <i>N</i> = 5,026)
\$0	28%	18%
\$2	43%	27%
\$5	47%	32%

Table 3. Response rate by incentive group by race/ethnicity

Incentive Group	White ( <i>N</i> = 9,439)	African American ( <i>N</i> = 557)	American Indian ( <i>N</i> = 172)	Asian American ( <i>N</i> = 443)	Latina/o ( <i>N</i> = 541)	Other ( <i>N</i> = 273)
\$0	23%	18%	26%	25%	21%	24%
\$2	37%	31%	42%	36%	34%	32%
\$5	42%	37%	29%	41%	35%	31%



While among African American students a \$2 incentive increased the response rate by a substantial 72% (from 18 to 31% in absolute terms), the relative increase for American Indian and Latina/o students was 62% (from 26 to 42% and 21 to 34%, respectively), followed closely by White students at 61% (from 23% at \$0 to 37% at \$2). Incentives of \$2 were the least effective for Asian American students, increasing their relative rate of response by a mere 44% (from 25 to 36%). When a \$5 incentive was enclosed with the survey instrument, 42% of White, 41% of Asian American, 37% of African American, 35% of Latina/o, and 29% of American Indian students returned their surveys.

With regard to parental income, we observed that students from the wealthiest households—with parents earning over \$150,000 a year—were the least likely to respond to the survey (26%). Students from the remaining three income categories—indicating yearly parental incomes of (1) up to \$49,999, (2) between \$50,000 and \$74,999, and (3) between \$75,000 and \$149,000—were strikingly similar in their rates of overall response at 34, 34, and 33%, respectively. Table 4 presents findings on the effects of prepaid monetary incentives on students from different economic backgrounds. The \$2 incentive had the largest effect on students from the lowest parental income group (below \$49,999). From \$0 to \$2, we noted a relative increase of 63% (from 24 to 39%) in the response rate of these students. For the next two income groups (between \$50,000 and \$74,999 and between \$75,000 and \$149,000), we observed an incrementally lesser effect of the \$2 incentive. For the former group, the increase was 52% (from 25 to 38%), whereas for the latter it was 44% (from 25 to 36%). Interestingly, however, the effect of the \$2 incentive for students from the wealthiest households was similar to that reported for students from the lowest income group: From \$0 to \$2, the response rates among these students increased by 58% (from 19 to 30%). Nonetheless, the considerable difference in response rates between the highest and lowest income groups should not be understated. Even with a \$5 incentive, only 35% of students in the highest income category returned their surveys, compared to 43, 42, and 42% of students in the remaining three household income groups. These descriptive results point to the importance of further exploring the differential effects of incentives using interaction terms in multivariate analyses.

Table 4. Response rate by incentive group by household income

Incentive Group	Up to \$49,999 (N = 2,746)	\$50,000 - \$74,999 (N = 2,453)	\$75,000 - \$149,999 (N = 3,409)	\$150,000 and above (N = 1,742)
\$0	24%	25%	25%	19%
\$2	39%	38%	36%	30%
\$5	43%	42%	42%	35%

*Multivariate Results*

The logistic regression analyses assessed the effect of monetary incentives on response rates when other variables affecting students' tendency to respond were held constant. In the initial regression, we used interaction terms to examine whether the effectiveness of the different monetary incentives varied by gender, race, and socioeconomic status. Because none of these interaction terms were statistically significant, results in a tabular format are only presented for the logistic regression analysis that did not include these interactions. Table 5 displays the B coefficients, standard errors, and odds ratios for this analysis. In interpreting these findings, it is important to keep in mind that logistic regression coefficients reflect the change that occurs in the dependent variable when the independent variable changes by one unit. Negative and positive signs, similar to regression coefficients in linear regression, depict the nature of the relationship between independent and dependent variables. Odds ratios indicate whether the odds that an outcome will occur increase or decrease for each one-unit increase in the independent variable. Odds ratios that are greater than 1 signify increased odds, whereas odds ratios that are less than 1 suggest decreased odds. The following discussion focuses on the interpretation of odds ratios, given that they are considerably easier to comprehend than logistic regression coefficients.

The logistic regression results indicate that even after controlling for all other variables in the equation, women were much more likely than men to return their surveys. Specifically, women's odds of responding were nearly twice that of men's. High-achieving "Scholars" and students who engaged in volunteer activities during high school were also significantly more likely to return their surveys. In addition, students attending colleges affiliated with a Protestant denomination other than Evangelical Christian had greater odds of responding than their counterparts at public institutions. This finding suggests that because students attending these institutions may be more exposed to topics of religion and spirituality than students at public colleges and universities, they also show more interest in surveys on such topics. African American and Latina/o students were significantly less likely than White students to return their surveys. In fact, the odds of not responding were approximately 1.4 times that of White students for African Americans and 1.3 times that of Whites for Latina/o students. Other student background characteristics associated with lower rates of response included being Roman Catholic, coming from a high socioeconomic background, attending a college in the eastern or southern regions of the United States, and classifying as a Status Striver, Leader, or Hedonist. Interestingly, students' spiritual self-perceptions and religious behavior—both closely related to the focus of the CSBV survey instrument—did not influence students' odds of responding.

After controlling for variables reflecting student demographics, topic salience, individual traits and propensities, and institutional characteristics, the impact of monetary incentives on response rates remained significant. The corresponding odds ratios indicated that compared to students not receiving an incentive, the odds of

Table 5. Predictors of survey response ( $N=8,788$ )

Variable	B Coefficient	Standard Error	Odds Ratio
Female	0.6355	0.0521***	1.8880
Race: African American	- 0.3349	0.1248**	0.7154
Race: American Indian	- 0.1396	0.1887	0.8697
Race: Asian American	0.0098	0.1217	1.0098
Race: Latina/o	- 0.2490	0.1259*	0.7796
Race: Other	- 0.0279	0.1562	0.9725
Religion: Baptist	- 0.1217	0.1165	0.8854
Religion: Buddhist	- 0.8042	0.5237	0.4475
Religion: Eastern Orthodox	0.5269	0.3275	1.6936
Religion: Episcopalian	0.0480	0.1884	1.0492
Religion: Islamic	- 0.2957	0.3511	0.7440
Religion: Jewish	- 0.2630	0.2404	0.7687
Religion: Mormon	- 0.3347	0.5313	0.7155
Religion: Lutheran	- 0.0810	0.1262	0.9222
Religion: Methodist	- 0.1695	0.1200	0.8441
Religion: Presbyterian	0.0691	0.1344	1.0715
Religion: Quaker	- 0.6422	0.6080	0.5261
Religion: Roman Catholic	- 0.1916	0.0912*	0.8256
Religion: Seventh Day Adventist	0.5089	0.5248	1.6634
Religion: United Church of Christ	- 0.2254	0.2115	0.7982
Religion: Other Christian	- 0.0907	0.1074	0.9133
Religion: Other Religion	- 0.2268	0.1765	0.7971
Socioeconomic status	- 0.0111	0.0052*	0.9889
Parents separated or divorced	- 0.0284	0.0676	0.9720
Region: East	- 0.3301	0.1009**	0.7188
Region: South	- 0.1938	0.0971*	0.8239
Region: Midwest	0.0236	0.0786	1.0239
Spiritual Orientation	0.0095	0.0196	1.0096
Religious Orientation	0.0290	0.0178	1.0294
Student Type: Scholar	0.0639	0.0118***	1.0660
Student Type: Social Activist	- 0.0150	0.0109	0.9851
Student Type: Leader	- 0.0402	0.0092***	0.9606
Student Type: Artist	- 0.0114	0.0099	0.9887
Student Type: Status Striver	- 0.0277	0.0088**	0.9726
Student Type: Hedonist	- 0.0651	0.0093***	0.9370
Performed volunteer work	0.1256	0.0418**	1.1339
Liberal political views	0.0251	0.0342	1.0254
View: An individual can do little to change society	- 0.0293	0.0314	0.9711
Institutional religious affiliation: Catholic	0.0478	0.0762	1.0489
Institutional religious affiliation: Evangelical	0.1450	0.1063	1.1560
Institutional religious affiliation: Other Christian	0.3252	0.1115**	1.3843
Institutional religious affiliation: Nonsectarian	0.0900	0.0853	1.0941
Institutional type: Four-year college	- 0.0542	0.0609	0.9473
Incentive 1 (\$0 vs. \$2)	0.7578	0.0662***	2.1335
Incentive 2 (\$2 vs. \$5)	0.1584	0.0689*	1.1716

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

responding to the CSBV survey were about 2.13 times greater for students who received a \$2 incentive. For students who received \$5 with their survey instrument, the odds of survey response were 1.17 times the odds of response with the \$2 incentive. Both of these findings were statistically significant, although we were able to determine the effect of the increase from \$0 to \$2 ( $p < .001$ ) with more certainty than the influence of \$5 over \$2 ( $p < .05$ ). Interestingly, none of the interaction terms assessing whether monetary incentives had differential effects on women versus men, and students from different racial and socioeconomic backgrounds were significant when other variables in the model were held constant. These findings indicate that the differences in the effect of monetary incentives by gender, race, and socioeconomic status reported in our descriptive findings are explained by other factors.

## **Discussion and Conclusions**

The results of this study indicate that prepaid monetary incentives have a substantial impact on survey response rates in college student samples. These findings thus extend the results of previous meta-analyses examining the effectiveness of incentives in studies on non-college student populations (Fox et al., 1988; Jobber et al., 2004). Moreover, in line with Singer's review (2002), our descriptive results suggest that incentives may have differential impacts on students with different characteristics, such as gender, race, and household income. However, when all other factors are taken into account, the effectiveness of incentives appears similar for diverse student groups. The findings of this study also confirm those of earlier research regarding the higher response rate of women (Bradburn, 1992; Dey, 1997; Hutchison et al., 1987; Krosnick, 1999; Sax et al., 2003; Underwood et al., 2000) and the underrepresentation of students of color—in the case of this study, African American and Latina/o students—in research samples (Dey, 1997; Underwood et al., 2000). In addition, academically successful students and those engaged in volunteer activities were more likely to respond, while students interested in hedonistic behaviors, leadership, and the attainment of status were less likely to return their surveys (Dey, 1997; Sax et al., 2003).

The success of prepaid monetary incentives is indicated by the increase in response rate from the \$0 to the \$2 incentive group of no less than 13% in absolute terms (from 23 to 36%). Our findings from both the descriptive and logistic regression analyses, however, do not suggest that substantial returns result from increasing the amount of money enclosed from \$2 to \$5. This leveling off in the effectiveness of prepaid monetary incentives appears to confirm Fox et al.'s (1988) findings regarding the diminishing utility of incentives. From the practical perspective of cost-effectiveness in survey administration, it appears more reasonable to provide a small monetary incentive to a greater number of students, rather than use larger incentives across a smaller target sample. It is, however, important to remember that our study only considered two levels of prepaid monetary incentives and it may be that the difference between \$2 and \$5 is negligible. Nevertheless, incentive amounts of over \$5 might raise the cost of survey administration to prohibitive levels. In terms of the future of

survey research, an important caveat seems necessary: Just as survey response rates declined considerably over the past 4 decades due, at least in part, to participants' increased exposure to survey research (Dey, 1997), it is plausible that students may become accustomed to monetary incentives in various surveys, potentially raising the "price" of their response. Therefore it is possible that with time, \$2 incentives will not be able to yield the response rates demonstrated in our study, perhaps necessitating larger incentive amounts.

What reasons lie behind the effectiveness of monetary incentives enclosed with surveys? Based on the results of this study, it appears that the overwhelming impact of prepaid monetary incentives has to do with the mere inclusion of a small token of appreciation (\$2). Beyond doubt, completing the four-page CSBV survey instrument with over 230 items takes more effort and time than what could be reasonably compensated for by two \$1 bills. However, it is true that including a \$2 incentive strongly contributes to survey response. It is thus impossible to rule out the significance of financial considerations. However, our findings appear to suggest that the effectiveness of small monetary incentives in increasing response rates may lie in more than financial factors. In fact, students may perceive incentives as a reflection of the importance researchers assign to their project, as well as the high value attached to each student's views and experiences. Nonfinancial considerations thus appear to play a key role in determining an individual's decision to complete and return the survey. Monetary incentives, in turn, may be influential in strengthening these nonfinancial motives (Dillman, 2000). A small incentive, for example, may boost students' sense of social responsibility and feelings of obligation, thereby promoting survey response. Given the considerable effectiveness of \$2 incentives and the inability of \$5 incentives to substantially boost response rates, money does not appear to be able to directly "buy" students' willingness to respond. What a small amount of money can trigger is a combination of students' increased sense of responsibility, guilt, self-worth, gratitude, trust, helpfulness, as well as time and effort that will, in turn, result in higher response rates.

The salience of nonfinancial considerations in shaping students' decision to respond to the survey was also demonstrated by some of the independent variables included in our logistic regression analysis. In particular, we found that students who scored high on our "Scholar" scale were more likely to respond, perhaps reflecting the degree of commitment these students exhibit toward educational pursuits and, by extension, educational research in a more general sense. Students who had engaged in volunteer activities in high school were also more likely to return their surveys. This finding may be explained by the relationship between volunteerism and an individual's sense of social responsibility.

In conjunction with the predictors of response, we identified a number of detractors as well. Why is it, for example, that students who classified as "Hedonists" and "Status Strivers" were less likely to respond? A possible explanation may be that Hedonists and Status Strivers are more likely to value activities with a self-centered orientation—partying and drinking alcohol in the case of Hedonists and an emphasis on values such as becoming an authority in one's field and obtaining recognition in

the case of Status Strivers. It is understandable why responding to a survey providing few personal benefits might evade the interests of students who score high on these more individually focused dimensions. Similar reasons might lie behind the lower response rates of “Leaders,” especially given that our definition of leadership does not emphasize the role of leaders in promoting the public good. This orientation of the “Leader” factor is reflected in the individual variables of self-rated social self-confidence, public speaking ability, and popularity.

The absence of significant effects associated with the spiritual and religious orientation factors is a key consideration from the perspective of our study. Importantly, we expected these variables to significantly and positively predict survey response, given the high occurrence of spirituality and religion-related questions on the CSBV survey. However, the fact that similar percentages of students with varying levels of interest in these matters responded indicates that the sample we attained was not skewed in the direction of students with higher levels of religious and/or spiritual interests. These findings contradict those of earlier studies by Dillman (1991) and Pearl and Fairley (1985), who suggested that individuals’ interest in survey topics is an important factor determining survey response.

Our descriptive findings from the crosstabulations showed that incentives vary in their impact across different groups of students. However, these results were not confirmed by our multivariate analyses, as none of the interaction terms assessing whether the effects of incentives depended on gender, race, and socioeconomic background were statistically significant. These findings demonstrate that when all other characteristics of the student sample in our study were controlled, the effect of incentives was similar for women compared to men, as well as across different racial and socioeconomic backgrounds.

Nevertheless, before drawing definitive conclusions about the effect of incentives on diverse student populations based on the logistic regression analyses, it remains critical to consider the implications of our findings at the descriptive level. In fact, the study’s multivariate findings show effects when all other variables in the equation (gender, race, etc.) are held constant. In reality, however, surveys are rarely administered to samples under such artificially controlled conditions. The survey administration method yielding the highest possible response rate will thus be a function of a variety of characteristics in each group of respondents. For instance, the pronounced effect of \$2 incentives (as opposed to \$0) on African American students may be a result of other characteristics of the African American student population. Drawing on this argument, our descriptive findings offer useful information as to the ways in which students from varied demographic and socioeconomic backgrounds respond to prepaid monetary incentives.

What practical implications do these findings have for the higher education research community? Should researchers include different amounts of incentives with surveys based on their knowledge of the responsiveness of students with certain characteristics to monetary incentives? Undoubtedly, if the effectiveness of incentives did not show variation across diverse student groups—as our findings suggest in artificially controlled situations—researchers would not be facing this dilemma. In fact, it might



be extremely difficult to enclose different amounts of incentives with surveys sent to students from various demographic and socioeconomic backgrounds. This is true especially in cases where researchers are unaware of these demographic characteristics prior to distributing surveys. Knowledge of the differential effects of incentives may thus be difficult to translate into practice. In addition, enclosing different amounts of incentives also raises ethical questions for survey administration. It seems likely that campus Institutional Review Boards would take issue with the distribution of various incentive amounts on a systematically—rather than randomly—predetermined basis given that such practices would advantage certain populations, while disadvantaging others. Still, there are certain situations in which differential incentive amounts could be used in a nondiscriminatory manner. This might be the case in research environments where some of the demographic characteristics are naturally controlled, as in women's or men's colleges or institutions serving overwhelmingly low- or high-SES populations. At a women's college, for example, researchers could conceivably raise response rates substantially by including cost-effective \$2 incentives.

In closing, we point to the limitations of this study and discuss areas of research to overcome those limitations. One limitation involves the inclusion of only three levels of incentives, preventing us from examining the potentially differential effects of additional amounts of prepaid monetary incentives. Future research should therefore include incentives of \$2, \$5, as well as greater amounts, such as \$7 and \$10. Studies of this nature should also perform careful cost-effectiveness analyses weighing the costs involved in survey administration against the benefits achieved in terms of higher response rates. While prior research has examined the effectiveness of different levels of monetary incentives (e.g., James & Bolstein, 1992), no such studies have been conducted with samples of college students. Further, the CSBV survey did not include questions directly addressing issues of survey response. Thus, future research ought to specifically measure students' attitudes toward completing and returning surveys. Ideally included after more content-specific questions on the survey instrument, items directly addressing students' motivation to complete surveys (e.g., interest in topic, sense of social responsibility, trust that responses will not be linked to individual participants) and their perceptions of the role of monetary incentives would be instructive.

## NOTES

1. The CSBV survey was developed as part of a multiyear national study of undergraduate students' values and beliefs that is funded by the John Templeton Foundation. The study's Co-Principal Investigators are Alexander W. Astin and Helen S. Astin. The opinions expressed in this article are those of the authors and do not necessarily reflect the views of the John Templeton Foundation. The authors thank Helen S. Astin and Alexander W. Astin for their roles in conceptualizing the larger project, as well as Linda J. Sax and the anonymous reviewers for their helpful comments and suggestions.
2. "University" is defined as an institution of higher education conferring a certain minimal number of earned doctoral degrees. If an institution with a postbaccalaureate program does not offer the minimal number of earned doctoral degrees, it is considered a 4-year college.

3. One institution with an extremely low response rate was dropped from the sample, bringing the total number of institutions to 46.
4. Although the items in the factor scales did not directly parallel those used by Astin (1993) due to differences in item availability, the majority of the items we used corresponded to those in Astin's original factor scales.

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## APPENDIX

## Variable Definitions and Coding Schemes

<i>Dependent Variable</i>	
Survey response	Dichotomous variable: 1 = no, 2 = yes
<i>Independent Variables</i>	
<i>Block 1</i>	
Sex	Dichotomous variable: – 1 = male, 1 = female
Race: African American	Simple-coded variable: – 1/6 = no, 5/6 = yes
Race: American Indian	Simple-coded variable: – 1/6 = no, 5/6 = yes
Race: Asian American	Simple-coded variable: – 1/6 = no, 5/6 = yes
Race: Latino/a	Simple-coded variable: – 1/6 = no, 5/6 = yes
Race: Other	Simple-coded variable: – 1/6 = no, 5/6 = yes
(Race: White is reference group)	
Religion: Baptist	Dichotomous variable: 1 = no, 2 = yes
Religion: Buddhist	Dichotomous variable: 1 = no, 2 = yes
Religion: Eastern Orthodox	Dichotomous variable: 1 = no, 2 = yes
Religion: Episcopalian	Dichotomous variable: 1 = no, 2 = yes
Religion: Islamic	Dichotomous variable: 1 = no, 2 = yes
Religion: Jewish	Dichotomous variable: 1 = no, 2 = yes
Religion: Mormon	Dichotomous variable: 1 = no, 2 = yes
Religion: Lutheran	Dichotomous variable: 1 = no, 2 = yes
Religion: Methodist	Dichotomous variable: 1 = no, 2 = yes
Religion: Presbyterian	Dichotomous variable: 1 = no, 2 = yes
Religion: Quaker	Dichotomous variable: 1 = no, 2 = yes
Religion: Roman Catholic	Dichotomous variable: 1 = no, 2 = yes
Religion: Seventh Day Adventist	Dichotomous variable: 1 = no, 2 = yes
Religion: United Church of Christ	Dichotomous variable: 1 = no, 2 = yes
Religion: Other Christian	Dichotomous variable: 1 = no, 2 = yes
Religion: Other Religion	Dichotomous variable: 1 = no, 2 = yes
(Religion: None is reference group)	
SES 1 (Low vs. Medium)	Backwards-difference coded variable: – 2/3 = low, 1/3 = medium, 1/3 = high
SES 2 (Medium vs. High)	Backwards-difference coded variable: – 1/3 = low, – 1/3 = medium, 2/3 = high
Parents separated or divorced	Dichotomous variable: 1 = no, 2 = yes
Region: East	Dichotomous variable: 1 = no, 2 = yes
Region: South	Dichotomous variable: 1 = no, 2 = yes
Region: Midwest	Dichotomous variable: 1 = no, 2 = yes
(Region: West is reference group)	
Spiritual Orientation	Two-item factor scale <sup>1</sup> ( $\alpha = .74$ )
Religious Orientation	Three-item factor scale <sup>2</sup> ( $\alpha = .65$ )
Student Type: Scholar	Four-item factor scale <sup>3</sup> ( $\alpha = .68$ )
Student Type: Social Activist	Five-item factor scale <sup>4</sup> ( $\alpha = .71$ )

(continued)

Student Type: Leader	Five-item factor scale <sup>5</sup> ( $\alpha = .74$ )
Student Type: Artist	Four-item factor scale <sup>6</sup> ( $\alpha = .69$ )
Student Type: Status Striver	Five-item factor scale <sup>7</sup> ( $\alpha = .73$ )
Student Type: Hedonist	Four-item factor scale <sup>8</sup> ( $\alpha = .64$ )
Performed volunteer work	3-point scale: 1 = <i>not at all</i> , to 3 = <i>frequently</i>
Political orientation	5-point scale: 1 = <i>far right</i> , to 5 = <i>far left</i>
View: An individual can do little to change society	4-point scale: 1 = <i>strongly disagree</i> , to 4 = <i>strongly agree</i>
Institutional religious affiliation: Catholic	Dichotomous variable: 1 = <i>no</i> , 2 = <i>yes</i>
Institutional religious affiliation: Evangelical	Dichotomous variable: 1 = <i>no</i> , 2 = <i>yes</i>
Institutional religious affiliation: Other Christian	Dichotomous variable: 1 = <i>no</i> , 2 = <i>yes</i>
Institutional religious affiliation: Nonsectarian	Dichotomous variable: 1 = <i>no</i> , 2 = <i>yes</i>
(Institutional religious affiliation: Public is reference group)	
Institutional type: Four-year college	Dichotomous variable: 1 = <i>no</i> , 2 = <i>yes</i>
(Institutional type: University is reference group)	
<i>Block 2</i>	
Incentive 1 (\$0 vs. \$2)	Backwards-difference coded variable: -2/3 = \$0, 1/3 = \$2, 1/3 = \$5
Incentive 2 (\$2 vs. \$5)	Backwards-difference coded variable: -1/3 = \$0, -1/3 = \$2, 2/3 = \$5
<i>Block 3</i>	
Sex * Incentive 1	Interaction Term
Sex * Incentive 2	Interaction Term
Race: Black * Incentive 1	Interaction Term
Race: American Indian * Incentive 1	Interaction Term
Race: Asian American * Incentive 1	Interaction Term
Race: Latino/a * Incentive 1	Interaction Term
Race: Other * Incentive 1	Interaction Term
Race: Black * Incentive 2	Interaction Term
Race: American Indian * Incentive 2	Interaction Term
Race: Asian American * Incentive 2	Interaction Term
Race: Latino/a * Incentive 2	Interaction Term
Race: Other * Incentive 2	Interaction Term
SES 1 * Incentive 1	Interaction Term
SES 2 * Incentive 1	Interaction Term
SES 1 * Incentive 2	Interaction Term
SES 2 * Incentive 2	Interaction Term

Note: In the analysis without interaction terms (Block 3), sex was coded 1 = *male*, 2 = *female*; each race variable was coded 1 = *no*, 2 = *yes*; and SES was continuous (income + mother's educational level + father's educational level;  $\alpha = .67$ ).

<sup>1</sup> Factor includes: Self-rated spirituality and the goal to integrate spirituality into life.

<sup>2</sup> Factor includes: Attended religious services, discussed religion, and prayed/meditated.

<sup>3</sup> Factor includes: Self-rated academic ability, expectation to graduate college with honors, self-rated mathematical ability, and self-rated intellectual confidence.

<sup>4</sup> Factor includes: Expectation to participate in volunteer/community service work; and the goals to take part in a community action program, influence social values, help others in difficulty, and influence the political structure.

<sup>5</sup> Factor includes: Self-rated leadership ability, self-rated social confidence, self-rated public speaking ability, self-rated popularity, and the expectation to participate in student government.

<sup>6</sup> Factor includes: Self-rated artistic ability; and the goals to create artistic work, write original works, and achieve in a performing art.

<sup>7</sup> Factor includes: The goals to become an authority in one's field, obtain recognition from colleagues, have administrative responsibility for the work of others, be well-off financially, and be successful in one's own business.

<sup>8</sup> Factor includes: Drank beer, hours per week spent partying, smoked cigarettes, and the attitude that marijuana should be legalized.