

Research Note

Effects of Incentives on Survey Response Rates in Two Rural Counties

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Abstract

Surveys of a general population have been a mainstay of leisure and recreation research methods. This study assesses the impact of two different pre-incentives on eliciting a survey response. Two counties with large federal prairie restoration projects and active municipal and county park districts were the study sites. Results show that residents whose pre-incentive was two \$1 bills had a significantly higher response rate than residents with a pre-incentive of one \$2 bill. With park operations being responsive to needs and preferences of residents, the most accurate representation of the general population of constituents is an important goal in any research effort. Given that pre-incentives have become a standard and sizeable portion of a survey's budget, maximizing the effectiveness of the pre-incentive investment is a small, yet critical, part of connecting research to practice.

Keywords

Survey research, methods, non-response bias, financial incentive, pre-incentive

Introduction

Community-based surveys have been a tradition of park and recreation research methods. In his comprehensive portrayal of leisure research methods as a unique field of academic inquiry, Veal (2018) states that surveys "are arguably the most commonly used technique in leisure and tourism research" (p. 310) due to their strengths in describing characteristics of a population. With survey research playing an important role in park and recreation decision-making, the purpose of this research is to improve the ability of survey results to represent their population by assessing the impact of two different pre-incentives on response rates.

A strength of survey methods is the ability to generalize from a sample to a population to evaluate and support programs and policies. For a survey to be generalizable, the sampling design and data collection process should result in a database that represents the characteristics of the population, also known as external validity (Sapsford,

2011; Shadish et al., 2001). One of the biggest threats to generalizability is that of non-response bias (Coon et al., 2019; Duerden et al., 2019). When survey response rates are low, the risk of the characteristics of non-respondents being different from respondents threatens the ability for findings from the sample to be generalized to the target population (Wolf et al., 2016). For a survey sample to reflect the characteristics of its population, well-defined protocol has been developed to enhance the capacity of the sample to represent the population (Dillman et al., 2014) and has been an area of longstanding interest to leisure research (Sirikaya-Turk & Uysal, 2017).

Online methods share some similar problems as mailback techniques (Fielding et al., 2017). Over the past few decades, response rates of general population surveys have been on a sharp decline in North America (Stedman et al., 2019), and have been a growing concern for park and recreation researchers. In their review of research methods 30 years ago, Brown et al. (1989) reviewed 38 recreation-related survey-based studies and found an average response rate of 72%, ranging from 42% to 90%. A decade later, Crompton and Cole (1999) found an average response rate of 68% with a range from 52% to 89% in 13 recreation-related studies. Part of the decrease in response rates could be due to the over-use of surveys in the internet era (Olson, 2014); however, findings from European countries have shown fairly stable and strong response rates across the years (Stoop et al., 2010). For a North American context, creative use of incentives could be seen as a way to overcome falling response rates (Coon et al., 2019).

Use of Monetary Incentives

Monetary incentives have been framed as a way to increase response rates. A source of debate is related to the most effective strategy to implement monetary incentives (Mercer et al., 2015). Survey methodologists have focused attention on the timing of providing monetary incentive as well as the amount of incentive to provide (Butler et al., 2016; Dillman et al., 2014; Szelényi et al., 2005). Up to this point, little research has examined how the type of currency utilized affects response rates.

Returning a completed survey is a form of mutual compensation between two willing parties. Survey respondents are thought to perceive a benefit to themselves in their acts of completing a survey, and of course, researchers and decision-makers perceive a benefit from securing completed surveys (Stafford, 2008). Using social exchange theory as a guide, Dillman et al. (2014) characterized the response decision as one of compliance only if an individual feels the reward of completing the survey is greater than the cost. When researchers employ a monetary pre-incentive, they anticipate a reciprocal exchange. Although benefits are often framed by researchers as intangible—such as providing one's viewpoint to improve a community's quality of life or evaluating a public process for the betterment of residents—they are increasingly of financial connotations and related to chances of winning a raffle, gift cards, or money (Singer, 2011). Particularly, with the use of money, there is a limit to the amount of money exchanged. While the amount of money may not be substantial, researchers make the reward feel special through handwritten letters, conversations with survey respondents, and using consistent messaging (Dillman et al., 2014). With completion and return of the survey being the hoped-for exchange, researchers often provide incentives to bolster the possibility that the sampled party will perceive a fair compensation.

While there is strong evidence of the effectiveness of monetary incentives, the logistics of executing pre-incentives has been a topic of discussion (Singer & Ye, 2013). Recent research has pointed to pre-incentives, an unconditional gift before survey

completion, as more effective than incentives given upon completion of the survey (Avdeyeva & Matland, 2013). The fact that pre-incentives are effective at securing a reciprocal gift aligns with social exchange theory in that those who want a desired action to take place need to first provide compensation (Wolf et al., 2016). While the effectiveness of pre-incentives has become well-known (Mercer et al., 2015), questions on the amount and forms of pre-incentives still remain unanswered (Szelényi et al., 2005).

Our study assesses the effectiveness of monetary pre-incentives involving the use of unique denominations of currency. Given that novelty promotes feelings of interest and motivates behaviors (Ryan & Deci, 2017), we expected that the use of a rare denomination such as the U.S. \$2 bill would increase response rate compared to the use of two \$1 bills. The \$2 bill is considered novel because the United States Department of Treasury (USDT) does not circulate \$2 bills except under special request by banks, businesses, or individuals (USDT, 2014). Because of this rarity, we hypothesize that the uniqueness of the \$2 bill will elicit a distinguishable increase in responses from those we sample. This study set out to test the effects of a unique currency as a pre-incentive on response rates in the context of two Midwestern counties in the U.S.

Methods

We compared two different pre-incentives sent to residents in Iowa and Illinois. The study was part of a larger project focused on diversifying two rural economies to embrace grassland protection and bison reintroduction as a strategy to raise the visibility of park amenities and enhance tourism development. Identical methods were employed in the two study sites, and included in-person interviews, focus groups, and residential surveys related to residential growth, grassland protection, and landscape change (citation withheld for peer review).

Study Sites

This research was conducted in Jasper County, Iowa, and Will County, Illinois, which are located in the Midwestern U.S. Both study sites share similar characteristics that make them useful as comparison cases. Both contain a federally protected prairie restoration site, a motor speedway, and are on the rural-urban fringe of a growing metropolitan area. As for differences between the two sites, Will County has a considerably larger population, a higher level of racial diversity, and a higher median income compared to Jasper County (Table 1).

Survey Administration

Prospective respondents for this study were selected using address-based sampling techniques secured from the U.S. Postal Service Delivery Sequence files ($n = 3,000$). There were up to five points of contact with each household sampled (Dillman et al., 2014). The first mailing contained an introductory letter that introduces the study sponsor and study purpose. This warm-up letter also serves to encourage participation. The second mailing contained the first “wave” of the survey, including a cover letter, a stamped and self-addressed envelope, and the cash pre-incentive. A randomly selected half of the sampled addresses in each county were given the \$2 bill, and the other half were given the two \$1 bills. The first wave was the only mailing that contained a cash pre-incentive. A “thank you / reminder” postcard was sent to all households sampled the week after the first wave of surveys. Two weeks after the postcard was sent, a second complete package that contains a cover letter, a stamped and self-addressed envelope

Table 1
*Sociodemographic Profile of the Two Study Sites**

	Jasper County, Iowa ¹	Will County, Illinois ²
Population [#]	36,966	692,661
Gender		
Female persons percent	48.9%	50.4%
Race/Ethnicity		
White	95.5%	79.8%
African American	2.2%	12.0%
American Indian	0.4%	0.5%
Asian	0.7%	5.9%
Hispanic or Latino	2.2%	17.5%
Socioeconomic Indicators		
Median Income	\$56,363	\$80,782
Poverty Rate [#]	9.0%	7.0%
Home with Broadband Internet	72.8%	85.7%

¹All data in table were retrieved from (USCB 2019 A and B)

²Poverty Rate is distinct for each county and is calculated based on % of people below the county's poverty threshold for income per number of individuals in household.

was sent to non-respondents. Finally, four weeks after the second complete mailing, a third complete mailing was sent to persistent non-respondents.

A variety of techniques were employed for all perspective respondents to improve response rates. Recognizing that mail-based survey strategies may be biased against certain segments of the population, we used a mixed mode survey design (Millar & Dillman, 2011) that provided an option for participants to respond online via a Qualtrics survey tool (qualtrics.com). In addition, to personalize the introductory letter, each envelope was handwritten with a self-adhesive first-class stamp. Furthermore, the introductory letter was prepared using the letterhead of a local park and conservation organization (cf. Avdeyva & Matland, 2013) to increase credibility of this study. Although the introductory letter was administered by the authors, all subsequent mailings were administered by the Social and Economic Sciences Research Center at Washington State University.

Data Analysis

Response rates were calculated by dividing the number of responses returned by the number of eligible respondents and convert the result into a percentage (Beaman & Vaske, 2008). Eligible respondents were determined by subtracting the number of undeliverable surveys from the total number of surveys distributed. Any questionnaire that was returned with at least one completed item was counted as a returned survey. To test for difference in response rate, the significance of a chi-square test was the indicator.

Results

The results indicate that, contrary to expectations, the two \$1 bills had a significantly higher response rate compared to the one \$2 bill for both counties (Table 2). In Jasper County, prospective respondents who received two \$1 bills responded at a rate of 42.2% and prospective respondents who received one \$2 bill had a response rate of

32.4% ($\chi^2 = 14.067, p < .001$). Likewise, in Will County, prospective respondents who received two \$1 bills had a response rate of 34.1% where prospective respondents who received a \$2 bill responded at a rate of 26.5% ($\chi^2 = 6.995, p = 0.008$). A post hoc power analysis was conducted using GPower software by setting the alpha level to 0.05. The analysis found acceptable levels of power in both counties, with a power of 0.76 for Will County and a power of 0.96 for Jasper County, respectively (cf. Rosenthal & Rosnow, 2008).

Table 2
Use of Pre-Incentives Across Two Study Sites: Response Rates by Treatment

Pre-incentive used	Jasper County, Iowa ¹			Will County, Illinois ²		
	2X\$1	\$2		2X\$1	\$2	
Mailed (N)	1500	750	750	1500	750	750
Bad addresses (n)	82	36	46	61	32	29
Received survey (n)	1418	714	704	1439	718	721
Response rate (%)	37.2%	42.0%	32.4%	29.8%	33.0%	26.6%

¹Jasper County $\chi^2 = 14.067, p < 0.001$; ²Will County $\chi^2 = 6.995, p = 0.008$

Further analysis explored the quality of responses across gender and age. Response quality was examined by associating the pre-incentive type with the amount of missing data per survey. Using three categories of missing data (none, one item with missing data, more than one item of missing data), we found no significant differences across the two study sites (see Table 3). We also examined the possibility that gender differences may be associated with differential response patterns to the two pre-incentives. When controlling for gender, we found significant differences in Jasper County but not in Will County (Jasper County $\chi^2 = 8.419, p = 0.015$; Will County $\chi^2 = 4.383, p = 0.112$). While the relationship was not significant in both study sites it appeared that in certain instances women were more likely to respond to the pre-incentive of two \$1 bills than males. In terms of age, we found a relatively even distribution of responses across incentive types in both counties.

Table 3
Missing Data by Incentive Type

	Jasper County, Iowa ¹		Will County, IL ²	
	2x\$1	\$2	2x\$1	\$2
No Missing Data	62%	57%	66%	68%
1 missing data point	12%	13%	12%	11%
More than 1 missing data point	26%	31%	22%	21%
Total	(100%) 300	(100%) 228	(100%) 244	(100%) 192

¹Jasper County $\chi^2 = 1.601, p = 0.449$; ²Will County $\chi^2 = .290, p = 0.865$

Discussion and Conclusion

Although there has been an impressive build-up of research underscoring the importance of monetary pre-incentives to boost response rates, research to assess the denomination of currency has not been explored (Mercer et al., 2015). We found the denomination of currency had a significant impact on response rates. That is, the use of the widely circulated bills was significantly more likely to trigger a response than the use of the novel or unique denomination. Across two study populations the use of two \$1 bills had a differential effect of 6% to 10% compared to the use of one \$2 bill. This differential is substantial considering that pre-incentives have been shown to improve response rates by 13% (Butler et al., 2016). These results could be explained in at least two different ways. Firstly, two bills were perceived as being a greater value than one bill simply because there are more of them, even though the denomination indicates the monetary worth should be equally valued (Hoorens & Bruckmuller, 2015). Secondly, a \$2 bill is so novel that people were confused by it, and were not sure if it could be used as a legal tender. Di Domenico and Ryan (2017) found that moderate novelty can be a motivator, while excessive novelty can produce anxiety or uncertainty. Some people may not have had first-hand experience in using a \$2 bill and thus may undervalue its utility (Coskuner-Balli & Sandikci, 2014; O'Brien, 2019).

Interestingly, in certain instances men were found to be more likely to respond to the \$2 bill compared to women. Applying the logic of social exchange theory (Wolf et al., 2016), men were more likely than women to perceive the \$2 bill as warranting a counter gift. A consistent finding in psychological research is that men scored higher than women on novelty seeking behavior (Cross et al., 2013). It could be that a \$2 bill was differentially perceived between men and women in terms of its novelty. For women, a \$2 bill was not worthy of being considered as a reciprocal counter-gift when compared to two \$1 bills due to factors related to its novelty (Arenas & Manzanedo, 2016).

Extending concerns for perceptions of the pre-incentive, the intangible context of the survey may also be an important part of evaluating “the gift” Wolf et al. (2016) indicate that appeals to respond to surveys are linked to two broad categories—egoistic based on self-interest, or altruistic based on social relationships within a global society. If the quality of tangible pre-incentive makes a difference, it is likely that the quality of the intangible pre-incentive makes a difference too. With research in park and recreation being tied to both personal and societal benefits, it could be that a succinct combination of these messages would have the strongest appeal. The consistent message associated with this study was an appeal to the sampled residents that asked “... how would you like to see your community grow in the future?” Future research could investigate the quality of the message for variability in its appeal as being a factor in response decisions.

With Internet-based surveys becoming more common, mechanisms besides a cash pre-incentive need exploration. Mailback research provides an immediate physical gift, yet with internet-based survey designs, such a pre-incentive is not immediate and its effect may not be as strong. Our study supports the use of pre-incentives as making a difference on response rates and that the quality of pre-incentive matters. For Internet-based survey research, there is a need to explore different strategies for delivery of pre-incentives.

Ultimately, securing robust survey response rates generally leads to results that are generalizable to the populations of interest. Studies that have generalizable results provide platform for efficient and equitable decisions in the distribution of leisure pro-

gramming and facilities (Crompton & Cole; 1999; Veal, 2018). Use of survey results to inform decision-making continues to be a popular strategy to assess leisure needs, preferences, and characteristics of a given set of users and members of recreation-related communities (Veal, 2018). Public park and recreation agencies often develop strategies for assessment of residents' preferences, with survey research as a popular technique of doing so (Duerden et al., 2019). To increase the representativeness of findings, pre-incentives have become a standard and often sizeable portion of a budget in park and recreation research. Thus, maximizing the investment in pre-incentives is an important aspect of bolstering response rates. The denomination of the currency used in the pre-incentive might seem like a minor issue, however, our study supports that denomination used had a significant impact on response rates from two different populations, which in turn, holds potential to impact the generalizability of the research. The findings from this study provided insights on monetary pre-incentives to improve response rates, and ultimately to enhance the effectiveness of park and recreation policies to serve their members and fulfill leisure needs.

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References

- Arenas M. C., & Manzanedo C. (2016). Novelty seeking. In V. Zeigler-Hill & T. Shackelford (Eds.), *Encyclopedia of personality and individual differences* (pp. 1–4). Springer.
- Avdeyeva, O. A., & Matland, R. E. (2013). An experimental test of mail surveys as a tool for social inquiry in Russia. *International Journal of Public Opinion Research*, 25(2), 173–194.
- Beaman, J., & Vaske, J. J. (2008). Structuring survey data to facilitate analysis and interpretation. *Human Dimensions of Wildlife*, 13(5), 361–379.
- Brown, T. L., Decker, D. J., & Connelly, N. A. (1989). Response to mail surveys on resource-based recreation topics: A behavioral model and an empirical analysis. *Leisure Sciences*, 11(2), 99–110.
- Butler, B. J., Hewes, J. H., Tyrrell, M. L., & Butler, S. M. (2016). Methods for increasing cooperation rates for surveys of family forest owners. *Small-Scale Forestry*, 16, 169–177. <https://doi.org/10.1007/s11842-016-9349-7>
- Coon, J. J., van Riper, C. J., Morton, L. W., & Miller, J. R. (2019). Evaluating nonresponse bias in survey research conducted in the rural Midwest. *Society & Natural Resources*, 33(8), 968–986. <https://doi.org/10.1080/08941920.2019.1705950>
- Coskuner-Balli, G., & Sandikci, O. (2014). The aura of new gods: How consumers mediate newness. *Journal of Consumer Behavior*, 13, 122–130. <https://doi.org/10.1002/cb.1470>
- Crompton, J. L., & Tian-Cole, S. (1999). What response rate can be expected from questionnaire surveys that address park and recreation issues? *Journal of Park and Recreation Administration*, 17(1), 60–72.
- Cross, C., Cyrenne, D., & Brown, G. (2013). Sex differences in sensation-seeking: A meta-analysis. *Scientific Reports*, 3, 2486. <https://doi.org/10.1038/srep02486>
- Di Domenico, S. I., & Ryan, R. M. (2017). The emerging neuroscience of intrinsic motivation: A new frontier in self-determination research. *Frontiers in Human Neuroscience*, 11, 1–14. <https://doi.org/10.3389/fnhum.2017.00145>

- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys the tailored design method* (4th ed.). Wiley.
- Duerden, M., Layland, E., Lacanienta, A., Hodge, C., Goates, M., & Edwards, M. (2019). Reporting quantitative methods and findings: Best practices fidelity in the leisure science literature. *Leisure Sciences*. <https://doi.org/10.1080/01490400.2019.1571969>
- Fielding, N., Lee, R., & Blank, G. (2017). *The SAGE handbook of online research methods*. Sage.
- Gitelson, R., Kerstetter, D., & Guadagnolo, F. (1993). Research note: The impact of incentives and three forms of postage on mail survey response rates. *Leisure Sciences*, 15(4), 321–327.
- Hoorens, V., & Bruckmuller, S. (2015). Less is more? Think again! A cognitive fluency-based more-less asymmetry in comparative communications. *Journal of Personality and Social Psychology*, 109(5), 753–766. <https://doi.org/10.1037/pspa0000032>
- Mercer, A., Caporaso, A., Cantor, D., & Townsend, R. (2015). How much gets you how much? Monetary incentives and response rates in household surveys. *Public Opinion Quarterly*, 79(1), 105–129. <https://doi.org/10.1093/poq/nfu059>
- Millar, M. M., & Dillman, D. A. (2011). Improving response to web and mixed-mode surveys. *Public Opinion Quarterly*, 75(2), 249–269.
- O'Brien, E. (2019). Enjoy it again: Repeat experiences are less repetitive than people think. *Journal of Personality and Social Psychology*, 116(4), 519–540. <https://doi.org/10.1037/pspa0000147>
- Olson, C. A. (2014). Survey burden, response rates, and the tragedy of the commons. *Journal of Continuing Education in the Health Professions*, 34(2), 93–95. <https://doi.org/10.1002/chp.21238>
- Rosenthal, R., & Rosnow, R. L. (2008). *Essentials of behavioral research: Methods and data analysis* (3rd ed.). McGraw Hill.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation development and wellness*. Guilford Press.
- Sapsford, R. (2011). *Survey research*. Sage Publication.
- Shadish, W., Cook, T., & Campbell, D. (2001). *Experimental and quasi-experimental designs for causal inference*. Houghton Mifflin
- Singer, E. (2011). Toward a benefit-cost theory of survey participation: Evidence, further tests, and implications. *Journal of Official Statistics*, 27(2), 379–392.
- Singer, E., & Ye, C. (2013). The use and effects of incentives in surveys. *Annals of the American Academy of Political and Social Science*, 645(1), 112–141. <https://doi.org/10.1177/0002716212458082>
- Sirikaya-Turk, E., & Uysal, M. (2017). Survey research: Sampling and questionnaire design. In E. Sirakaya-Turk, M. Uysal, W. Hammitt, & J. Vaske (Eds.), *Research methods for leisure, recreation and tourism* (2nd ed., pp. 122–146). CAB International.
- Stafford, L. (2008). Social exchange theories. In L. A. Baster and D. O. Braithwaite (Eds.), *Engaging theories in interpersonal communication: Multiple perspectives* (pp. 377–389). Sage.
- Stedman, R. C., Connelly, N. A., Heberlein, T. A., Decker, D. J., & Allred, S. B. (2019). The end of the (research) world as we know it? Understanding and coping with declining response rates to mail surveys. *Society & Natural Resources*, 32(10), 1139–1154. <https://doi.org/10.1080/08941920.2019.1587127>

- Stoop, I., Billiet, J., Koch, A., & Fitzgerald, R. (2010). *Improving survey response: Lessons learned from the European social survey*. John Wiley & Sons.
- Szelényi, K., Byrant, A. B., & Lindholm, J. A. (2005). What money can buy: Examining the effects of prepaid monetary incentives on survey response rates among college students. *Educational Research and Evaluation, 4*, 384–404.
- United States Census Bureau (USCB). (2019a, January 25). *Quick facts*. United States Census Bureau. <https://www.census.gov/quickfacts/jaspercountyiowa>
- United States Census Bureau (USCB). (2019b, January 25). *Quick facts*. United States Census Bureau. <https://www.census.gov/quickfacts/willcountyillinois>
- United States Department of the Treasury (USDT). (2014, December 13). *Resource center: Denominations*. United States Department of Treasury. <https://www.treasury.gov/resource-center/faqs/Currency/Pages/denominations.aspx>
- Wolf, C., Joye, D., Smith, T., & Fu, Y. (2016). *The SAGE handbook of survey methodology*. Sage.
- Veal, A. J. (2018). *Research methods for leisure and tourism* (5th ed.). Pearson.

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