

2018 Federal Committee on Statistical Methodology

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Cost Effective Mail Survey Design

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What Does it Mean to be Cost Effective?

- Lowest survey cost
 - Based on optimistic assumptions or goals (e.g., declining RR environment)
- Including efforts to maximize response (at the lowest survey cost)
 - Incentives?
 - Large upfront cost
 - Focus on response - well known effectiveness
 - Lesser focus on return on investment (ROI) - research limited on reductions in effort
- Lowest fixed cost + maximizing response + improving representativeness
 - Incentives generally bring in more of the same
 - Is this a bad thing?

Hypotheses & Research Questions

- Incentives & special mail delivery
 - H1: Incentives are more effective (higher RR) than special mail delivery methods
 - H2: Incentives and special mail delivery is more effective than either alone
 - What effects will these have on:
 - Sample compositions, key outcomes, and attitude measures and perceptions
- Costs (main focus)
 - H3: Incentives are more cost effective than without
 - H4: Special mail delivery methods are less cost effective than incentives
 - How do we measure cost
 - Base cost - does not account for yield
 - Cost per complete - accounts for yield
 - Cost to achieve equivalent yields - what would the cost have been to reach same goals

Background: American Crime Victimization Survey (ACVS)

Companion to the National Crime Victimization Survey (NCVS)

- American Crime Victimization Survey (ACVS)
 - Companion survey to parallel the National Crime Victimization Survey (NCVS)
 - Sponsored by the Bureau of Justice Statistics
- Purpose
 - Lower-cost approach for producing local-area estimates of victimization and community measures
 - Designed for use by local jurisdictions
- Other Differences
 - ACVS is an equal-probability addressed-base sample (ABS), NCVS is area-probability
 - ACVS a 2-year repeated cross-section, NCVS a rotating panel
 - ACVS self-administered by mail, NCVS interviewer-administered by Census
 - ACVS limited in content compared to NCVS

Data Collection Methodology of ACVS Field Test

- Sample selected within the 40 largest metropolitan areas
 - Allocated across 6 incentive-by-mail treatment groups
 - Experiments in year 2 of field test: 3 incentive levels X 2 delivery methods
 - General data collection methodology
 - Survey mailing packet #1 (first-class postage)
Incentive level varied (\$0, \$1, \$2)
 - Postcard thank you/reminder
 - Survey mailing packet #2 (first-class postage)
 - Survey mailing packet #3
Mail delivery method varied (1st class USPS / FedEx)
 - All Survey packets included:
 - cover letter, survey, return envelope
- | | <u>Timing</u> |
|--|---|
| | <i>Initial Mailing</i> |
| | <i>10 days after initial mailing</i> |
| | <i>6 weeks after initial mailing</i> |
| | <i>9-10 weeks after initial mailing</i> |

Treatment Groups

- Incentive and Mail delivery treatments: (3 incentive * 2 mail conditions)

Treatment Group	Incentive in Survey Mailing 1	Delivery Mode in Survey Mailing 3
0U	\$0	USPS
1U	\$1	USPS
2U	\$2	USPS
0F	\$0	Federal Express
1F	\$1	Federal Express
2F	\$2	Federal Express

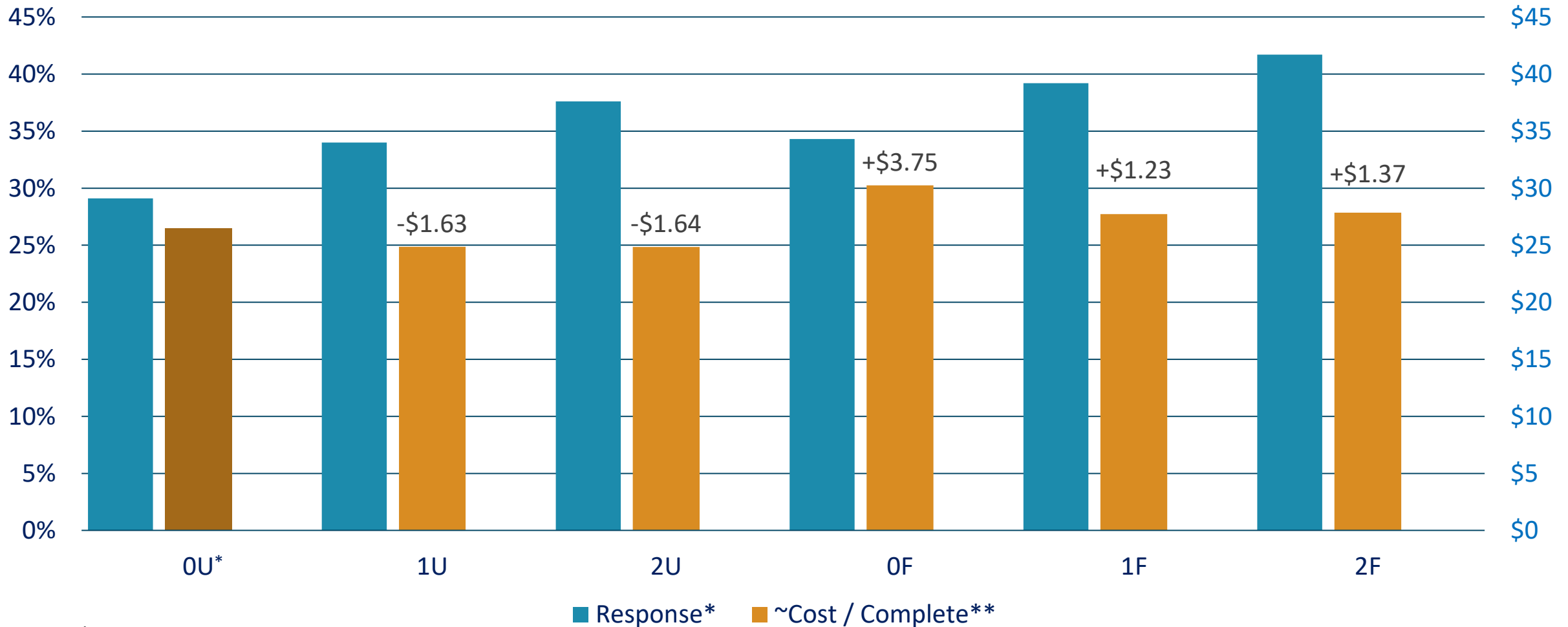
Response

- Final response after all mailings (after 17 week field period)



*Comparison group

Response & Cost per Complete



*Comparison group

Sample Composition

- Identified compositions correlated with experiencing victimization
 - Presence of anyone age 18-24
 - Presence of a male age 18-24
 - African-American in household
 - Hispanic in household
 - High mobility—household moved in last year
- Did incentive/delivery alternatives change achieved compositions?
- Impact: Increase in groups correlated with victimization can affect estimates of victimization

Sample Composition - Results

- Observed changes in some compositions, but not all
 - Presence of anyone 18-24 & Presence of a male 18-24: no changes across conditions
 - Largest difference: presence of anyone 18-24 (0.5% between base and \$2+FedEx)
 - African-American in household
 - Incentive conditions increased proportions - no differences in FedEx.
 - Larger increase from \$2 vs \$1
 - Hispanic in household
 - Incentive + FedEx conditions increased proportions
 - Incentive levels roughly equivalent (within FedEx group).
 - HH moved within past year
 - Incentive conditions increased proportions - FedEx: small but positive additional increase
 - No difference between incentive groups.

Key Outcomes - Results

- Measures: proportions of households experiencing different types of victimization (e.g., touched by crime or victimization prevalence)
- No change across all outcome measures
 - Household reports serious violent crime
 - Household reports violent crime
 - Household reports property crime
- Overall, some differences in compositions, but no effect on victimization prevalence
 - Differences may lie in number of victimizations experienced (victimization rate) - unable to examine with these instruments

Attitude Measures and Perceptions

- Collect perceptions of community safety and attitudes toward police
 - Subset of selected items
 - On the whole, how much of the time is the community where you live safe?
 - Overall, how much of the time is the place where you work safe?
 - How would you rate the local police on treating people respectfully?
 - How consistent are the local police in applying the laws in the same way to everyone?
 - Taking everything into account, how would you rate the job the local police are doing?
- No differences in reports by treatment groups
 - Suggesting attitudes and perceptions not affected by incentive

Variable Costs

- Assumed cost: cost a hypothetical local area/jurisdiction would face
 - Printing
 - English and Spanish
 - Outgoing Postage
 - USPS Presorted First Class
 - Federal Express
 - Incentives: \$0, \$1, or \$2 (depending on treatment group)
 - Incoming Postage (survey return)
- Metrics:
 - Initial cost; cost per completed survey; cost for same realized goal

Cost Results

- Detailed results: production and costs across metrics
 - Total cost and cost per complete

	Completes	Ineligibles	Nonresponse	AAPOR RR2	Total cost	Estimated Cost per complete
0U	9,615	3,200	23,392	29.1%	\$ 254,694	\$ 26.49
1U	11,249	3,103	21,857	34.0%	\$ 279,670	\$ 24.86
2U	12,456	3,040	20,712	37.6%	\$ 309,520	\$ 24.85
0F	11,449	2,856	21,903	34.3%	\$ 346,197	\$ 30.24
1F	13,077	2,826	20,306	39.2%	\$ 362,441	\$ 27.72
2F	13,957	2,753	19,499	41.7%	\$ 388,823	\$ 27.86

Cost to Reach Same Goal

- Base condition \$0/USPS: What change in cost to reach same goal of treatment groups?
 - Base cost per complete (\$26.49); 8% ineligible; base RR 29.1%
 - Original sample size per treatment group: ~36,207

	Complete Goal (target group)	Add'l Sample Needed	% Increase	New Total Sample	Change in Total Cost	% Cost Change	Treatment Group Cost	New Base Cost (0U)
0U to 1U	11,249	5,768	15.9%	41,975	\$18,316	6.1%	\$279,670	\$297,986
0U to 2U	12,456	10,271	28.4%	46,478	\$20,439	6.2%	\$309,520	\$329,959
0U to 0F	11,449	6,514	18.0%	42,721	-\$42,913	-14.1%	\$346,197	\$303,284
0U to 1F	13,077	12,589	34.8%	48,796	-\$16,031	-4.6%	\$362,441	\$346,410
0U to 2F	13,957	15,872	43.8%	52,079	-\$19,102	-5.2%	\$388,823	\$369,721

Summary

- Further confirmation of incentive effects
 - Incentives increased RR and were just as effective as FedEx delivery
 - Combining both = larger increase in RR (increase declined with greater incentive)
 - Future research: given the high cost of FedEx, would larger incentive be better?
 - Modest and mixed differences in key compositions; no changes in key outcome
 - Some different groups brought in, but not consistent with any single treatment
- Focus on cost effectiveness of more expensive approaches
 - Overall cost - not effective as does not account for return “bang for your buck”
 - Cost per complete: a small incentive has positive return - more cost effective
 - Future research: inflection point; interventions to bring in different groups
 - FedEx: Just as effective as \$1, but at higher cost

Summary

- Comparing cost to achieve number of completes for incentive/mail conditions under base group assumptions
 - Incentive cheaper than additional sample
 - Greater analytic power at lower total cost
 - Additional sample cheaper than FedEx
 - FedEx showed modest differences in proportion of movers (especially when paired with incentive)
 - Additional sample unlikely to change compositions vs incentive (i.e., more of the same)
 - For some compositions (% African American), incentive increased proportion



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Thank you!

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