Using Email to Solicit Response in an Establishment Survey

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Office of Survey Methods Research
Federal Committee on Statistical Methodology
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Disclaimer

The opinions expressed in this presentation reflect the views of the authors, and not necessarily those of the Bureau of Labor Statistics.
Outline

- Experiment Overview
- Results
  - Response Rates
  - Mode Choice
  - Survival Analysis
  - Cost Analysis
- Discussion
- Next Steps
Experiment Overview

- Conducted during the November 2016 panel of the Occupational Employment Statistics (OES) survey
  - OES produces employment and wage estimates for a variety of occupations
- Federal – State cooperative
  - Individual states collect data

OES produces employment and wage estimates for a variety of occupations.
Experiment Overview

- Email vs paper mail for survey invitation

- Commissioner’s order 1-16: Cannot use email unless on record
  - No Google searching, no looking through webpages
Experiment Overview

- Pre-notification letter used
  - Informs respondent about upcoming survey request
  - Respondents to pre-notification letter provide contact info

- Three options to respond
  - Fax
  - Email
  - Phone
Experiment Overview

Return Response Date for Updated Contract Rate

Dear Employer,

Soon, the Michigan Department of Technology will request for occupational employment information with the U.S. Department of Labor. We need your cooperation to provide the information requested. Establishments like yours are the only source of data for the Occupational Employment Statistics program. Please provide us with the information below:

- If you supply your email address, we may request data electronically rather than through the mail.

Please include the following information:

Contact Person: __________________________________________________________

Mailing Address: _________________________________________________________

Phone #: _______________________________________________________________

(Ext.)

E-mail Address: __________________________________________________________

FAX Number, if applicable: ______________________________________________

If you supply your email address, we may request data electronically rather than through the mail.

Please include the following information:

Contact Person: __________________________________________________________

Mailing Address: _________________________________________________________

Phone #: _______________________________________________________________

(Ext.)

E-mail Address: __________________________________________________________

FAX Number, if applicable: ______________________________________________

Your prompt response saves taxpayer dollars. Please have your schedule ready and include it with any responses. This is noted on the third line at the top of the page.
Experiment Overview

- Pre-notification letter
  - 36,360 sent
  - 6,649 returned with email address
    - 17.27% response rate

- Study currently underway to investigate establishment characteristics of units that respond to pre-notification letters
## Experiment Overview

<table>
<thead>
<tr>
<th>Date</th>
<th>Intervention</th>
<th>Group</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 3-7</td>
<td>Pre-notification mailing</td>
<td>All</td>
<td>$0.74</td>
</tr>
<tr>
<td>November 7-10</td>
<td>Initial mailing</td>
<td>Control</td>
<td>$0.74 or $1.44</td>
</tr>
<tr>
<td>November 15</td>
<td>Initial Email</td>
<td>Test</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**Test Ends - standard data collection procedures**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>December 5-9</td>
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</tr>
<tr>
<td>January 17</td>
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<td>All</td>
<td>$0.00</td>
</tr>
<tr>
<td>February 1-3</td>
<td>Third follow-up mailing</td>
<td>All</td>
<td>$1.44</td>
</tr>
<tr>
<td>February 14</td>
<td>Second follow-up Email</td>
<td>All</td>
<td>$0.00</td>
</tr>
<tr>
<td>March 14</td>
<td>Third follow-up Email</td>
<td>All</td>
<td>$0.00</td>
</tr>
</tbody>
</table>
Results – Response Rates

[Graph showing unweighted response rates with dates and labels for Test and Control groups]
### Results – Response Rates

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Email vs paper mail invite</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Size Class</td>
<td>Size of an establishment based on frame employment data (9 classes)</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>MSA Size</td>
<td>Size of the MSA an establishment is located in based on CPS population</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAICS2</td>
<td>Two digit NAICS code</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>State in which the establishment is located</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- No model found Group to be a significant predictor of response
### Results – Mode Choice

<table>
<thead>
<tr>
<th>Collection Mode</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
</tr>
<tr>
<td>Survey Form</td>
<td>37.62%</td>
</tr>
<tr>
<td>Web Instrument</td>
<td>47.91%</td>
</tr>
<tr>
<td>Hard Copy Printout</td>
<td>0.08%</td>
</tr>
<tr>
<td>Phone Call</td>
<td>2.66%</td>
</tr>
<tr>
<td>Email</td>
<td>7.29%</td>
</tr>
<tr>
<td>Fax</td>
<td>4.44%</td>
</tr>
</tbody>
</table>

- All models found Group to be a significant, positive predictor of response by web instrument.
Results – Survival Analysis

Product-Limit Survival Estimates
With 95% Hall-Weiner Bands

Survival Probability

days

0.0 0.2 0.4 0.6 0.8 1.0

0 50 100 150 200

group control test

Censored
# Results – Survival Analysis

- All models found Group to be a significant negative predictor of time until failure.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model S1</th>
<th>Model S2</th>
<th>Model S3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard</td>
<td>Hazard</td>
<td>Hazard</td>
</tr>
<tr>
<td>Group</td>
<td>0.809 **</td>
<td>0.795 **</td>
<td>0.802 **</td>
</tr>
<tr>
<td>Size Class 2</td>
<td>0.906 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 3</td>
<td>0.904 *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 4</td>
<td>0.823 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 5</td>
<td>0.603 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 6</td>
<td>0.609 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 7</td>
<td>0.556 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 8</td>
<td>0.561 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Class 9</td>
<td>0.576 **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSA Size 2</td>
<td></td>
<td>0.973</td>
<td></td>
</tr>
<tr>
<td>MSA Size 3</td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>MSA Size 4</td>
<td></td>
<td>0.916</td>
<td></td>
</tr>
<tr>
<td>MSA Size 5</td>
<td></td>
<td>0.763 **</td>
<td></td>
</tr>
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*p < 0.05  **p < 0.01

1 Reference is the Control Group
## Results – Cost Analysis

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Results – Cost Analysis

- Units with less than 50 employees on frame data were sent a web invite letter and a hard copy of the survey packet.
- Units with 50 or more employees just received a letter.
  - Exception in Minnesota where the cutoff is 25 employees.
  - Survey packet mailing cost is $1.44 (print and postage).
  - Letter cost is $0.74 (print and postage).
Results – Cost Analysis

- Units that did not respond with web instrument were charged $0.64 for processing
  - Print-out, facsimile, survey packet, phone, email
  - All require human data entry
Results – Cost Analysis

- When web is charged a $0.00 processing fee
  - Control: $3.97 per response
  - Test: $2.92 per response
  - Reduction of 26% in cost

- When web is charged a $0.64 processing fee
  - Control: $4.28 per response
  - Test: $3.40 per response
  - Reduction of 21% in cost
Discussion - Summary

- Test units achieved an overall response rate equivalent to the Control units
- Test units were more likely to respond via the web instrument
- Test units responded at a slower pace
- Test units were cheaper to collect per response
Next Steps – Optimal Mode Sequence

- OES is currently fielding an experiment to determine the optimal sequence of modes for non-response follow up
  - Through a non-production sample so results will be ‘cleaner’
Next Steps – Pre-notification Analysis

Are certain businesses more or less likely to respond to the prenotification letter?

- This will guide future efforts to increase response to the prenotification letter
- May lead to a tailored data collection approach
Contact Information

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