Revisiting Sample Frame and Mode Effects: A Comparison of Point Estimates

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Ruth Igielnik, Scott Keeter, Andrew Mercer, and Kyley McGeeney, Pew Research Center
Benchmarks

• American Community Survey
• Current Population Survey
  Internet Supplement
  Supplement on Volunteering
• National Health Interview Survey
Estimates and Benchmarks: Health Items

- Excellent/Very Good Health
- No Dr due to Costs
- Dr Visits: 2-3
- Never Smoked

Legend:
- ABS:Mail
- Prob:Web
- Non-Prob:Web
- Benchmark
Estimates and Benchmarks: Volunteer, Active Duty, Home Tenure, and Food Insecurity
Internet Use Every Day: Expected Differences; Differences not eliminated by weighting

- Internet Every Day: Total Population
- Internet Every Day: Online Population

Legend:
- ABS: Mail
- Prob: Web
- Non-Prob: Web
- CPS Internet Supplement, 2013
Summary: Point Estimates

• Median Difference between sample and benchmark
  ABS: 5.4 percentage points
  Probability-based Web: 9.1 percentage points
  Non-probability based Web: 6.5 percentage points
Do the samples lead to different predicted probabilities?

- Logistic regression models for each of the samples
- Independent Variables
  - Gender, age, Race, Education, Income, Currently Employed
  - Not necessarily great models, but consistent!
Predicted Probabilities: Illustrative case

Female, 25-34 years of age, white, some college, $40,000-$99,999, employed
Predicted Probabilities—health items

- Ex/VG Health
- No Dr: Costs
- Never Smoked

Legend:
- ABS:Mail
- Prob:Web
- Non-Prob:Web
Conclusions

• Point estimates:
  No one design consistently superior when compared to benchmarks
  Variability we would expect
  The findings suggest that estimates from the ABS differs from both the non-probability and the probability web surveys
  • Coverage and mode confounded

• Multivariate models (not shown) show surprisingly few differences with respect to direction or significance
  Although the size of the coefficients in these models were substantively different—evident in the predicted probabilities
SurveyResearch@SurveyMonkey
Election Polling
Everyone is hard to reach

Contact rate: 90% in 1997, 62% in 2012
Cooperation rate: 43% in 1997, 14% in 2012
Response rate: 36% in 1997, 9% in 2012

SOURCE: Pew Research Center Assessing the Representativeness of Telephone Surveys
# U.S. Senate

## Race

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Udall</th>
<th>Gardner</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>80%</td>
<td>45%</td>
<td>50%</td>
</tr>
<tr>
<td>Black</td>
<td>3%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>13%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Asian</td>
<td>1%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Breaking news ...

Percent who use the Internet at least occasionally


14% 23% 36% 36% 51% 57% 59% 63% 64% 68% 71% 73% 74% 77% 76% 79% 82% 85% 89%

SOURCE: Internet penetration data (percent who at least occasionally use the internet, read or check email, or use the internet on their mobile device) from Pew Research Internet Project
SurveyMonkey by the numbers

500K
Surveys sent out every month

50M
Surveys finished every month

90M
Unique visitors every month
Not just “surveys”

- Performance reviews
- Nonprofit surveys
- Employee satisfaction
- Parent feedback
- Customer feedback
- Forms
- Event planning
- Tests and quizzes
- Product research
- Training
Geographic diversity

SurveyMonkey Monthly Traffic Density

U.S. Population Density
So what now?

Thank you for taking this survey.

Red, blue, or purple?
Help us predict the 2014 elections.

Take the survey

Your responses will remain confidential and are for research purposes only.

Photo by Michael Ostler / UC-Berkeley
2014 Election project overview

• Conducted Oct. 3 to Nov. 6

• 199,699 total interviews; 171,909 completes

• 34,405 “already voted,” including 13,828 before Election Day

• Click-thru rate of 7 to 14 percent across geographies

• 8,296 completes with teens under 18
What was worrisome
### SurveyMonkey Vs. Pollster

**Experimental Polls Show Less Bias & Total Error**

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Median</th>
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</thead>
<tbody>
<tr>
<td><strong>Bias</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SurveyMonkey: All</td>
<td>+0.3%D</td>
<td>+0.2%R</td>
</tr>
<tr>
<td>SurveyMonkey: RV</td>
<td>+1.0%R</td>
<td>+1.4%R</td>
</tr>
<tr>
<td>SurveyMonkey: LV</td>
<td>+2.4%R</td>
<td>+1.9%R</td>
</tr>
<tr>
<td>Pollster</td>
<td>+4.2%D</td>
<td>+3.8%D</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Error</strong></td>
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<td></td>
</tr>
<tr>
<td>SurveyMonkey: All</td>
<td>4.2%</td>
<td>3.4%</td>
</tr>
<tr>
<td>SurveyMonkey: RV</td>
<td>4.2%</td>
<td>3.3%</td>
</tr>
<tr>
<td>SurveyMonkey: LV</td>
<td>4.8%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Pollster</td>
<td>5.3%</td>
<td>4.1%</td>
</tr>
</tbody>
</table>
Unique insight / expansive state-level data

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Udall</th>
<th>Gardner</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>76</td>
<td>43</td>
<td>52</td>
</tr>
<tr>
<td>Black</td>
<td>4</td>
<td>64</td>
<td>25</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>16</td>
<td>58</td>
<td>39</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>66</td>
<td>33</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>42</td>
<td>49</td>
</tr>
</tbody>
</table>
UK – May 2015

Which way will you swing in May?
Share your thoughts ahead of the general election.

Take the survey

Your responses will remain confidential and are for research purposes only.

Powerful surveys & analysis
20+ million customers worldwide
Trusted by 99% of the Fortune 500

Create Your Own Survey

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British election project overview

• Conducted April 30 to May 6
• Reported on interviews with 18,131 voters
• Average click-thru rate of 16 percent
• Compelling campaign storyline
  - Unpopular PM, economy as No. 1, SNP
• Conservatives +6 over Labour
SurveyMonkey Was The Other Winner Of The U.K. Election

By CARL BIALIK
Impact Of Images On Survey Participation, Respondents, And Online Panel Recruitment

Mingnan Liu
Experiment

• U.K. SurveyMonkey end page
• March 12-24, 2015
• Views = 218,846
• Completes = 13,354
Experimental condition 1 - Downing Street
Experimental condition 2 – Voting map

Which way will you swing in May?

Share your thoughts ahead of the general election.

Take the survey

Your responses will remain confidential and are for research purposes only.
Experimental condition 3 - Rosettes
Findings – Click rate

- Downing St: n=72,474, Click rate = 5.9%
- Map: n=72,963, Click rate = 9.3%
- Rosettes: n=73,459, Click rate = 8.2%
Findings – Completion rate

- Downing St: 89.94% (n=3641)
- Map: 89.85% (n=5909)
- Rosettes: 90.86% (n=5250)
Findings – Political questions

\[ X^2 = 36.4, \ p = 0.006 \]  

\[ X^2 = 39.9, \ p = 0.002 \]
Findings – Media questions

\[ \chi^2 = 33.0, p < .001 \]

Social media: Several times a day
- Downing St: 41.7%
- Map: 48.4%
- Rosettes: 46.9%

\[ \chi^2 = 7.4, p < .05 \]

Watch TV: Several times a day
- Downing St: 18.0%
- Map: 15.6%
- Rosettes: 16.5%
Non-probability surveys online: Does “empanelment” affect results?

Sarah Cho
Survey Thanks Page - Recruitment into One Survey

Red, blue, or purple?
Help us predict the 2014 elections.

Your responses will remain confidential and are for research purposes only.

Where do you stand on current events?
Share your opinion.

Your responses will remain confidential and are for research purposes only.
Methods

• Conducted same survey on SurveyMonkey “survey thanks” page and SurveyMonkey Audience (panel)

• Thanks page survey
  – Conducted October 10-November 2, 2014
  – 90,932 completes throughout the US, oversamples in competitive races

• Audience survey
  – Conducted October 27-November 10, 2014
  – 3,393 completes in US, oversamples in HI, CA, NY
### Opinions on Issues Similar, Party ID Different

#### Weighted results

<table>
<thead>
<tr>
<th></th>
<th>Thanks Page</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right direction</td>
<td>28%</td>
<td>32%</td>
</tr>
<tr>
<td>Wrong track</td>
<td>70</td>
<td>66</td>
</tr>
</tbody>
</table>

#### Most important issue

<table>
<thead>
<tr>
<th>Issue</th>
<th>Thanks Page</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
<td>45%</td>
<td>48%</td>
</tr>
<tr>
<td>Health care</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>Illegal immigration</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Foreign policy</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Have twitter account</td>
<td>27%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Party</th>
<th>Thanks Page</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democrat</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Independent</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Republican</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

NOTE: No answer not shown
## Differing “Call to Action”

### Thank You Page

<table>
<thead>
<tr>
<th></th>
<th>RV</th>
<th>LV/Already voted</th>
</tr>
</thead>
<tbody>
<tr>
<td>RV</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>LV/Already voted</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>Follow what's going on in government most of the time</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Very interested in midterm election</td>
<td>41%</td>
<td></td>
</tr>
</tbody>
</table>

### Audience

<table>
<thead>
<tr>
<th></th>
<th>RV</th>
<th>LV/Already voted</th>
</tr>
</thead>
<tbody>
<tr>
<td>RV</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td>LV/Already voted</td>
<td>74%</td>
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<tr>
<td>Follow what's going on in government most of the time</td>
<td>41%</td>
<td></td>
</tr>
<tr>
<td>Very interested in midterm election</td>
<td>30%</td>
<td></td>
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</table>

NOTE: No answer not shown
## Potential Additional Weighting Variables

<table>
<thead>
<tr>
<th>Weighted demographics</th>
<th>Thanks Page</th>
<th>Audience</th>
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</thead>
<tbody>
<tr>
<td>Have children under 18 in HH</td>
<td>31%</td>
<td>22%</td>
</tr>
<tr>
<td>Currently married</td>
<td>56%</td>
<td>47%</td>
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<tr>
<td><strong>Religious attendance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than once a week</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>Once a week</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>A few times a month</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>A few times a year</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Never</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>Identify as having no religion</td>
<td>16%</td>
<td>24%</td>
</tr>
</tbody>
</table>

NOTE: No answer not shown
Predictors of Completion Rates in Online Surveys

Noble Kuriakose
Data

25,080 customer surveys

• Administered on SurveyMonkey’s online panel, Contribute
• Conducted between May 2011 and April 2015
• At least 100 respondents per survey
Findings – Start simple

Mean Completion Percentage by Type of Opening Question

- Introductory Text/Image: 84.9, 6,607
- Matrix/Rating Scale: 86.9, 1,072
- Open Ended: 83.5, 1,381
- Simple Multiple Choice: 88.7, 15,950
Findings – As with any survey, limit questions

Mean Completion Percentage by Number of Questions

At least 100 surveys in each category.
Findings – Avoid multiple tough questions

Mean Completion Percentage by Number of Questions

At least 100 surveys in each category.
Findings – What matters most?

OLS Regression, Highest (Absolute) Standardized Beta Coefficients

<table>
<thead>
<tr>
<th>Variable (ref. group)</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Open Ends- 5 or more (1)</td>
<td>-0.19</td>
</tr>
<tr>
<td># of Words in Question Text (continuous)</td>
<td>-0.11</td>
</tr>
<tr>
<td># of Answer Options (continuous)</td>
<td>-0.11</td>
</tr>
<tr>
<td># of Words in Opening Question Text (continuous)</td>
<td>-0.10</td>
</tr>
<tr>
<td># of Open Ends- 3 (1)</td>
<td>-0.09</td>
</tr>
<tr>
<td><strong># of Open Ends- 0 (1)</strong></td>
<td><strong>+0.09</strong></td>
</tr>
<tr>
<td># of Open Ends- 4 (1)</td>
<td>-0.07</td>
</tr>
<tr>
<td># of Matrix Qs- 5 or more (1)</td>
<td>-0.07</td>
</tr>
<tr>
<td><strong># of Matrix Qs- 0 (1)</strong></td>
<td><strong>+0.05</strong></td>
</tr>
</tbody>
</table>

All Coefficients are stat. sig. at <.0001
Conclusions

• Survey meta and para data explain 20% (R²) of the variance in completion percentages—ignoring the type and content of the survey.

• As with all surveys, aim to reduce respondent burden
  • Respondents penalize surveys for making them use their keyboards
  • Avoid blocks of text in the question
Thanks for listening!