Sampling and Respondent Selection
Sunday, May 19, 2019, 9:15am – 10:45am

• Seizing an Appportunity: Exploring App-based Survey Recruitment though Instagram and Facebook Ads
  • Yasamin Miller (YMG) et al.

• Do Different Respondent Selection Methods Mean Different Survey Estimates? Evidence from 2013 Turkey Demographic and Health Survey
  • Melike Saraç and Ismet Koç (Hacettepe University)

• Respondent Accountability versus Task Complexity: A Comparison of Three Within-Household Selection Instructions for a Web-First Survey
  • Brian Wells (UCLA) et al.

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Respondent accountability versus task complexity: A comparison of three within-household selection instructions for a web-first survey

Brian M. Wells¹, Todd Hughes¹, Royce Park¹, Jonathan Best²

¹ UCLA Center for Health Policy Research ² SSRS

2019 PAPOR Mini-Conference – June 28, 2019
Special thanks

- Funding for this research provided by:
  - Kaiser Permanente
  - California Department of Health Care Services

- Guidance and consultation from the CHIS Redesign Working Group
Within-household selection in self-administered surveys

- Guaranteeing random within-household selection is difficult in self-administered surveys
- Multiple studies examining the accuracy of various methods in mail (e.g., Battaglia et al., 2008; Olson et al., 2014; Stange et al., 2016)
- Few regarding web studies (Olson & Smyth, 2014; Bosa et al., 2017)
- Goal: to explore three within-household selection methods in an ABS push-to-web survey
Next-birthday method

- Common quasi-probability method used in mail and CATI (e.g., Salmon & Nichols, 1983; Gaziano, 2005)
  - Variant currently used by CHIS for CATI (Rizzo et al., 2004)
- Well-examined in the literature for mail surveys (e.g., Battaglia et al., 2008; Olson et al., 2014)
- Serves as our control method
Verification question

- Olson & Smyth (2017)
- Verification question on front cover of a mail questionnaire using the next-birthday method
  - “Are you the adult age 18 or older in your household who will have the next birthday?”
- Serves as “active task” for the respondent
  - Respondent accountability
- Small reduction in response; improvement in accuracy
- Adapted as web screener question
Age-order method

- Bosa, Gagnon, & Caron (2017)
- Used in a push-to-web invitation letter with six possible versions of letter using the age of household members
  - Oldest adult
  - Second-oldest adult
  - Third-oldest adult
  - Youngest adult
  - Second-youngest adult
  - Third-youngest adult
- Avoids issues associated with birthday methods while doing a better job at obtaining younger respondents
- Can be a complex task for households of 3 or more
- Small reduction in response; improvement in accuracy
Research questions

- In an ABS push-to-web survey, how does increasing respondent accountability (i.e., verification question) versus increasing task complexity (i.e., age-order) impact...
  1) response rates?
  2) within-household selection accuracy?
- Which method performs better overall?
California Health Interview Survey

- Population-based health survey of Californians
- 20,000 adult interviews annually
- RDD CATI survey since its inception in 2001
- Two experiments were conducted in 2018 to explore a switch to an ABS mail push-to-web design
CHIS 2018 spring web experiment

- ABS mail push-to-web w/ CATI nonresponse follow-up (NRFU)
- Mid-April 2018 through mid-June 2018
- 3 purposively selected counties: Los Angeles, Santa Clara, and Tulare
- 792 adult completes
- English web instrument
Contact approach

- 3 invitation mailings
  1) Initial mail invitation
     - Invitation letter with URL and secure access code
     - $2 bill pre-incentive
     - Multilingual letter (Spanish, Chinese, Korean, Vietnamese, Tagalog)
  2) Pressure-sealed postcard with secure access code
  3) Final mail invitation
     - Selection instructions included in each mailing
  - If telephone matched, up to 6 call attempts
Within-household selection

- Three within-household selection methods
  - Next-birthday (invitation only)
  - Next-birthday verification question (invitation and web screener)
  - Age-order (invitation only)
- Survey rostered all adults in the household in the middle of the survey
  - Asked for name/initals, birth month and year, gender
Initial mail invitation

Within-household selection instructions

Step 1: Identify who should complete the survey
Please have the adult, age 18 years of age or older, in your household who has the next birthday complete the survey.

If you are not the selected adult, please share this information with the selected adult and ask them to complete the survey by going to the website listed below.

Step 2: Respond now!
www.cahealthsurvey.com
Your secure access code is: 12121212
Next-birthday invitation (/w or w/o verification)

Step 1: Identify who should complete the survey

Please have the adult, age 18 years of age or older, in your household who has the next birthday complete the survey.

If you are not the selected adult, please share this information with the selected adult and ask them to complete the survey by going to the website listed below.
### Age-order invitation

- **Example: oldest/third-oldest invitation letter**

---

**Step 1: Identify who should complete the survey**

How many adults, 18 years of age or older, are in your household?

- **One adult:** You should complete the survey.
- **Two adults:** The **older adult** should complete the survey.
- **Three or more adults:** List the three oldest adults in order from **oldest to youngest**. The **third person on the list** should complete the survey.

1. ____________  
2. ____________  
3. ____________

If you are not the **selected adult**, please share this information with the selected adult and ask them to complete the survey by going to the website listed below.
Screener verification question

- Followed address verification and number of adults in the household

Are you the adult 18 or older in your household who will have the next birthday?

- Yes
- No
Spring test response rates

- No statistical differences in completions across the three selection methods

<table>
<thead>
<tr>
<th>Within-household selection method</th>
<th>Sample</th>
<th>Web</th>
<th>Total Completes</th>
<th>Completion Rate</th>
<th>Weighted RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next-birthday</td>
<td>3,000</td>
<td>200</td>
<td>252</td>
<td>8.4%</td>
<td>13.9%</td>
</tr>
<tr>
<td>Verification question</td>
<td>3,000</td>
<td>227</td>
<td>268</td>
<td>8.9%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Age order</td>
<td>3,000</td>
<td>221</td>
<td>268</td>
<td>8.9%</td>
<td>13.6%</td>
</tr>
</tbody>
</table>
Measuring selection inaccuracy

- Cannot assess accuracy when respondent refused to provide adult information
  - Overall, 12.6% refused to provide adult roster info
- Without full birth date, we cannot determine the accuracy of selection for some cases
  - Overall, 11.4% classified as “unsure”
  - 16.4% for next birthday methods (combined)
    - At least two HH members have the same birth month
    - At least one HH member’s birth month is interview month
  - 1.8% for age order method
    - At least two HH members have same birth month and year
Spring test selection accuracy

- Verification question had a significantly smaller inaccuracy rate compared to alternatives ($p < 0.0001$)
- No statistical difference between next-birthday and age-order methods

<table>
<thead>
<tr>
<th>Next-birthday method</th>
<th>Verification question</th>
<th>Age-order method</th>
</tr>
</thead>
<tbody>
<tr>
<td># of adults in HH</td>
<td>Inaccuracy rate</td>
<td># of adults in HH</td>
</tr>
<tr>
<td></td>
<td></td>
<td># of adults in HH</td>
</tr>
<tr>
<td>1</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>40%</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>50%</td>
<td>3</td>
</tr>
<tr>
<td>4+</td>
<td>79%</td>
<td>4+</td>
</tr>
<tr>
<td>Total</td>
<td>29%</td>
<td>Total</td>
</tr>
<tr>
<td>2+</td>
<td>47%</td>
<td>2+</td>
</tr>
</tbody>
</table>

Note. Completes excludes roster refusals and households where selection accuracy cannot be determined.
Spring inaccuracy rates by household size

- 2: 40% Next birthday, 12% Verification question, 25% Age order, 62% Expectation
- 3: 50% Next birthday, 50% Verification question, 62% Age order, 66% Expectation
- 4+: 79% Next birthday, 53% Verification question, 29% Age order, 75% Expectation
- Total (2+ HH): 47% Next birthday, 15% Verification question, 62% Age order, 55% Expectation
Spring test conclusions

- Verification question significantly increased accuracy of selection with no impact on response rates
- Age-order method shows some potential improvement in accuracy over next-birthday method with no impact on response rates
  - Operationally burdensome
  - Variability in accuracy across 6 letters (21% to 50% inaccuracy rate for 2+ person households)
CHIS 2018 fall web experiment

- Same sampling and data collection design as 2018 spring test
- Mid-October 2018 through mid-December 2018
- Statewide pilot achieving 2,467 adult interviews
- English and Spanish web instruments
- Opted to replicate the two next-birthday selection methods
  - With and without the verification question
Fall test response rates

- Unlike the spring test, the verification question resulted in significantly less Adult completes compared to without the question (p < 0.05)

<table>
<thead>
<tr>
<th>Within-household selection method</th>
<th>Sample</th>
<th>Web</th>
<th>Total Completes</th>
<th>Completion Rate</th>
<th>Weighted RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next-birthday</td>
<td>14,000</td>
<td>1,076</td>
<td>1,293</td>
<td>9.2%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Verification question</td>
<td>14,000</td>
<td>966</td>
<td>1,174</td>
<td>8.4%</td>
<td>13.8%</td>
</tr>
</tbody>
</table>
Fall test selection accuracy

- Similar accuracy patterns in fall test compared to spring
  - Next-birthday performed better than spring test
  - Verification question performed worse than spring test
- Verification question still resulted in significantly improved accuracy of selection ($p < 0.0001$)

<table>
<thead>
<tr>
<th># of adults in HH</th>
<th>Inaccuracy rate (Fall)</th>
<th>Inaccuracy rate (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>32%</td>
<td>40%</td>
</tr>
<tr>
<td>3</td>
<td>51%</td>
<td>50%</td>
</tr>
<tr>
<td>4+</td>
<td>64%</td>
<td>79%</td>
</tr>
<tr>
<td>Total</td>
<td>29%</td>
<td>29%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># of adults in HH</th>
<th>Inaccuracy rate (Fall)</th>
<th>Inaccuracy rate (Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>19%</td>
<td>12%</td>
</tr>
<tr>
<td>3</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>4+</td>
<td>49%</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td>16%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Note. Completes excludes roster refusals and households where selection accuracy cannot be determined.
Fall inaccuracy rates by household size

![Bar chart showing inaccuracy rates for different household sizes and verification methods.]

- **Household size 2**: 32% (Next birthday), 19% (Verification question), 50% (Expectation)
- **Household size 3**: 51% (Next birthday), 27% (Verification question), 66% (Expectation)
- **Household size 4+**: 64% (Next birthday), 49% (Verification question), 75% (Expectation)
- **Total (2+ HH)**: 39% (Next birthday), 23% (Verification question), 55% (Expectation)
Discussion and conclusions

- Found no significant differences in sociodemographic or health-related indicators across selection methods
- Verification question at the beginning of the web screener was effective at reducing selection error, but can reduce response
- Age-order method not as robust as verification question, but shows some potential for improvement over next-birthday alone
Thank you!

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References

- Stange, M., Smyth, J.D., & Olson, K. (2016). Using a calendar and explanatory instructions to aid within-household selection in mail surveys. *Field Methods, 28*(1), 64-78.
Disclaimer:
Summary and review of these other study’s findings are not the views expressed by the authors nor the organizations they represent.
Seizing an Appportunity: Exploring App-based Survey Recruitment though Instagram and Facebook Ads

Yasamin Miller, YMG
Trent Buskirk, Bowling Green State University
Ingrid Oakley-Girvan, PHI
Juan Lavista, Independent
Jeff Hancock, Stanford University
Lorene Nelson, Stanford University
Background

• Falling participation rates, rising costs, poor coverage, and inadequate sampling frames
• Methods for data collection using mobile web and smartphone apps are emerging as potential alternatives for population health surveillance
• Conduct an experiment to compare ABS versus social media recruitment (via Facebook and Instagram) to identify eligible individuals, download a survey app, and complete a survey
Research design

• Funded by the Council of State and Territorial Epidemiologists (CSTE)
• Santa Clara County, California (Summer 2018)
• Facebook and Instagram ads
• Experimental use of
  • Stanford name and logo
  • Different pictures
• Concurrent ABS mail recruitment
• 4 week app development and testing
Results

• More consistent recruitment with online ads versus ABS over the duration of the field period

• Bumps in social media recruitment after intro of Stanford logo, increase incentive offer

• Social media sample was younger, more female

• Ad with woman doing yoga most effective at recruitment
Complete a health survey and get $5
Do Different Respondent Selection Methods Mean Different Survey Estimates?

Evidence from 2013 Turkey Demographic and Health Survey

Melike Saraç and İsmet Koç
Hacettepe University, Ankara, Turkey

AAPOR 74th Annual Conference
Sampling and Respondent Selection

Toronto Canada
May 19, 2019
## Demographic Surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1968</td>
<td>Turkey Family Structure and Population Problems Survey</td>
</tr>
<tr>
<td>1973</td>
<td>Turkey Population Structure and Population Problems Survey</td>
</tr>
<tr>
<td>1978</td>
<td>Turkey Fertility Survey</td>
</tr>
<tr>
<td>1983</td>
<td>Turkey Fertility and Family Health Survey</td>
</tr>
<tr>
<td>1988</td>
<td>Turkey Fertility and Health Survey</td>
</tr>
<tr>
<td>1993</td>
<td>Turkey Demographic and Health Survey</td>
</tr>
<tr>
<td>1998</td>
<td>Turkey Demographic and Health Survey</td>
</tr>
<tr>
<td>2003</td>
<td>Turkey Demographic and Health Survey</td>
</tr>
<tr>
<td>2008</td>
<td>Turkey Demographic and Health Survey</td>
</tr>
<tr>
<td>2013</td>
<td>Turkey Demographic and Health Survey</td>
</tr>
<tr>
<td>2018</td>
<td>Turkey Demographic and Health Survey</td>
</tr>
</tbody>
</table>
Turkey Demographic and Health Surveys (TDHSs)

- The similarity in sampling and questionnaire designs
- Questionnaires
  - Household Questionnaire
  - Women’s Questionnaire
- Collect information from ever-married women/all women on
  - Reproductive health, mother and child health
  - Fertility and early age mortality
  - Marriage and migration
- TDHS-1998, TDHS-2013 and TDHS-2018 collect information from all women in reproductive age (15-49)
- The weighted, multi-stage, stratified cluster sampling design
Respondent Selection in TDHS 2013

- Households and all women (who are usual resident or slept last night before the interview day) in reproductive age (15-49) were accepted as eligible respondents.

- In other words, any particular respondent selection procedure was not employed and as a result, all eligible women were interviewed in TDHS-2013.
Percentage distribution of eligible respondents within interviewed households

- None: 31.5%
- 1 eligible woman: 51.1%
- 2 eligible women: 13.0%
- 3 or more eligible women: 4.4%
Percentage distribution of households where women interviews were conducted by same or different interviewers

At least two women interviews were conducted with same interviewer: 61.4%

Women interviews conducted with different interviewers: 38.6%
Objectives

• More cost (interview length, money, respondent and interviewer burden)
• The presence of interviewed women during another women interview in the same household may result in biased answers (mother-in-law, mother, and other females)
  - Third person effect
• Risk of homogeneity between answers of women from same household
• In this sense, outcomes originated from interviewing all eligible women may produce additional measurement and nonresponse errors and increase total survey error in TDHS-2013
Objectives

• This study discusses widely-known respondents selection procedures in household surveys for TDHS-2013

• Comparison of TDHS-2013 survey results based on interviewing all eligible women and results obtained from only one among those using different respondent selection techniques
What Literature Says?

• Few studies which examine nature of respondent selection methods to gain methodological insight

• Reasons behind comparison of respondent selection procedures:
  - Reducing cost, namely time and financial sources
  - Decreasing interview and respondent burden in a same household
  - Avoiding selection bias
  - Achieving higher cooperation rates
  - Taking precaution in sensitive surveys (violence etc.)
What Literature Says?

• Selecting a respondent among household members following probabilistic selection procedures with the aim of getting representative samples
• Most widely used selection methods:
  - Kish method
  - Last and next birthday methods
  - Full enumeration method
  - Oldest and youngest individual method
  - TCB method
  - Arbitrary convenience method
Studies from Literature

• Alternative respondent selection methods were assessed compared with Kish method, which is widely used probabilistic method.

• Refusal rates with last birthday procedure are lower compared to Kish method, and only minor differences on demographics (Oldendick et al., 1988).

• Higher dropout rates in Kish and last birthday methods compared to next birthday method, interviewer effect on Kish selection (Binson et al., 2000).

• Developing a new method which is a combination of Kish and recent birthday method (Rizzo et al, 2004).

• Developing of Kish grid modification and its effectiveness (Nemeth, 2002).
Data and Methods

• The data for undertaking the research question is from nation-wide demographic survey in Turkey: TDHS-2013
• Applying eight different selection procedures to select a respondent in a same household
• Descriptive analyses on
  1- the characteristics of eligible women based on their numbers in a same household
  2- number of methods which select same respondent in a household
  3- a comparison between TDHS-2013 survey estimates and estimates which come from each different selection methods
Respondent Selection Methods

All eligible women in TDHS-2013: 9746

Probabilistic methods:
- Kish method
- Full enumeration method

Non-probabilistic methods:
- Oldest women method
- Youngest women method
- TCB method
- Arbitrary convenience method
- Next birthday method
- Last birthday method

Quasi probabilistic methods:
- Arbitrary convenience method
<table>
<thead>
<tr>
<th>Respondent Selection Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quasi probabilistic methods</strong></td>
</tr>
</tbody>
</table>
| Last birthday method | Selecting woman whose birthday is more close to survey date based on the comparison of survey month and birth month.  
-For the same birth month of eligible women, looking at household line number |
| Next birthday method | Selecting woman whose birthday is more close to survey date based on the comparison of survey month and birth month.  
-For the same birth month of eligible women, looking at household line number |
| **Probabilistic methods** |
| Kish method | Ranking ages of eligible women from oldest to youngest and numbering them, after that using Kish table (crossing of household number and number of eligible women) |
| Full enumeration method | Generating random numbers based on number of eligible women in a household, ranking eligible women recorded in household list, and selecting women based on this random number and corresponding household list number |
| **Non-probabilistic methods** |
| Oldest women method | Ranking ages of eligible women from oldest to youngest and selecting oldest one. |
| Youngest women method | Ranking ages of eligible women from youngest to oldest and selecting youngest one. |
| TCB method | Using a special table originated from number of household members and number of eligible women |
| Arbitrary convenience method | If an eligible woman is a household interview respondent, selecting this woman |
### Characteristics of women by number of eligible women in a household, TDHS-2013

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 and higher</th>
<th>Total</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of women</td>
<td>33.17</td>
<td>28.49</td>
<td>26.05</td>
<td>24.33</td>
<td>31.04</td>
<td>9746</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>7.69</td>
<td>7.97</td>
<td>7.37</td>
<td>8.23</td>
<td>7.76</td>
<td>9744</td>
</tr>
<tr>
<td>Number of migration</td>
<td>2.61</td>
<td>2.57</td>
<td>2.43</td>
<td>2.38</td>
<td>2.59</td>
<td>4998</td>
</tr>
<tr>
<td>Total number of children</td>
<td>1.87</td>
<td>1.37</td>
<td>1.38</td>
<td>1.12</td>
<td>1.67</td>
<td>9746</td>
</tr>
<tr>
<td>Number of living children</td>
<td>1.80</td>
<td>1.30</td>
<td>1.31</td>
<td>1.08</td>
<td>1.60</td>
<td>9746</td>
</tr>
<tr>
<td>Number of spontaneous abortion</td>
<td>1.46</td>
<td>1.47</td>
<td>1.46</td>
<td>1.53</td>
<td>1.46</td>
<td>1612</td>
</tr>
<tr>
<td>Number of induced abortion</td>
<td>1.47</td>
<td>1.56</td>
<td>1.36</td>
<td>1.55</td>
<td>1.48</td>
<td>960</td>
</tr>
<tr>
<td>Number of stillbirths</td>
<td>1.21</td>
<td>1.25</td>
<td>1.00</td>
<td>1.32</td>
<td>1.21</td>
<td>230</td>
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<tr>
<td>Number of completed pregnancies</td>
<td>2.33</td>
<td>1.70</td>
<td>1.62</td>
<td>1.27</td>
<td>2.07</td>
<td>9746</td>
</tr>
<tr>
<td>Age at first menarche</td>
<td>13.64</td>
<td>13.52</td>
<td>13.68</td>
<td>13.41</td>
<td>13.61</td>
<td>9739</td>
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<tr>
<td>Age at first marriage</td>
<td>20.86</td>
<td>19.30</td>
<td>18.32</td>
<td>18.23</td>
<td>20.43</td>
<td>7063</td>
</tr>
<tr>
<td>Age at first birth</td>
<td>27.77</td>
<td>28.29</td>
<td>28.82</td>
<td>29.09</td>
<td>27.93</td>
<td>6372</td>
</tr>
<tr>
<td>Number of jobs</td>
<td>1.64</td>
<td>1.46</td>
<td>1.40</td>
<td>1.31</td>
<td>1.57</td>
<td>5361</td>
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</table>
Percentage Distribution of Women by Number of Different Selection Methods
<table>
<thead>
<tr>
<th>Variables</th>
<th>Last birthday method</th>
<th>Next birthday method</th>
<th>Kish method</th>
<th>Full enumeration method</th>
<th>Oldest women method</th>
<th>Youngest women method</th>
<th>TCB method</th>
<th>Arbitrary convenience method</th>
<th>TDHS-2013 confidence intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of women</td>
<td>31.56</td>
<td>32.14</td>
<td>32.02</td>
<td>32.95</td>
<td>34.28</td>
<td>30.04</td>
<td>30.46</td>
<td>33.49</td>
<td>31.04 30.84 31.23</td>
</tr>
<tr>
<td>Years of schooling</td>
<td>7.87</td>
<td>7.69</td>
<td>7.73</td>
<td>7.56</td>
<td>7.28</td>
<td>8.12</td>
<td>8.04</td>
<td>7.46</td>
<td>7.76 7.67 7.84</td>
</tr>
<tr>
<td>Number of migration</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.61</td>
<td>2.59</td>
<td>2.59 2.56 2.61</td>
</tr>
<tr>
<td>Total number of children</td>
<td>1.67</td>
<td>1.78</td>
<td>1.75</td>
<td>1.89</td>
<td>2.10</td>
<td>1.48</td>
<td>1.52</td>
<td>2.02</td>
<td>1.67 1.63 1.70</td>
</tr>
<tr>
<td>Number of living children</td>
<td>1.61</td>
<td>1.71</td>
<td>1.69</td>
<td>1.82</td>
<td>2.01</td>
<td>1.42</td>
<td>1.46</td>
<td>1.95</td>
<td>1.60 1.57 1.63</td>
</tr>
<tr>
<td>Number of spontaneous abortion</td>
<td>1.46</td>
<td>1.46</td>
<td>1.47</td>
<td>1.46</td>
<td>1.47</td>
<td>1.46</td>
<td>1.47</td>
<td>1.47</td>
<td>1.46 1.41 1.51</td>
</tr>
<tr>
<td>Number of induced abortion</td>
<td>1.48</td>
<td>1.48</td>
<td>1.49</td>
<td>1.48</td>
<td>1.49</td>
<td>1.46</td>
<td>1.46</td>
<td>1.43</td>
<td>1.48 1.42 1.55</td>
</tr>
<tr>
<td>Number of stillbirths</td>
<td>1.20</td>
<td>1.23</td>
<td>1.19</td>
<td>1.18</td>
<td>1.17</td>
<td>1.27</td>
<td>1.26</td>
<td>1.19</td>
<td>1.21 1.12 1.30</td>
</tr>
<tr>
<td>Number of completed pregnancies</td>
<td>2.08</td>
<td>2.22</td>
<td>2.19</td>
<td>2.35</td>
<td>2.60</td>
<td>1.84</td>
<td>1.90</td>
<td>2.51</td>
<td>2.07 2.02 2.11</td>
</tr>
<tr>
<td>Age at first menarche</td>
<td>13.64</td>
<td>13.61</td>
<td>13.60</td>
<td>13.66</td>
<td>13.68</td>
<td>13.56</td>
<td>13.60</td>
<td>13.64</td>
<td>13.61 13.49 13.73</td>
</tr>
<tr>
<td>Age at first marriage</td>
<td>20.71</td>
<td>20.63</td>
<td>20.65</td>
<td>20.56</td>
<td>20.47</td>
<td>20.82</td>
<td>20.81</td>
<td>20.51</td>
<td>20.43 20.33 20.53</td>
</tr>
<tr>
<td>Age at first birth</td>
<td>27.75</td>
<td>27.89</td>
<td>27.88</td>
<td>27.97</td>
<td>28.08</td>
<td>27.63</td>
<td>27.59</td>
<td>28.10</td>
<td>27.93 27.80 28.05</td>
</tr>
<tr>
<td>Number of jobs</td>
<td>1.60</td>
<td>1.61</td>
<td>1.60</td>
<td>1.61</td>
<td>1.62</td>
<td>1.59</td>
<td>1.60</td>
<td>1.59</td>
<td>1.57 1.55 1.60</td>
</tr>
<tr>
<td>Mean of the deviations</td>
<td>1.005</td>
<td>1.022</td>
<td>1.017</td>
<td>1.035</td>
<td>1.065</td>
<td>0.980</td>
<td>0.985</td>
<td>1.051</td>
<td>1.000</td>
</tr>
<tr>
<td>Number of cases (weighted)</td>
<td>7671</td>
<td>7643</td>
<td>7652</td>
<td>7619</td>
<td>7571</td>
<td>7726</td>
<td>7710</td>
<td>5903</td>
<td>9746</td>
</tr>
</tbody>
</table>
Conclusions

- Methodological assessment on respondent selection techniques
- Understanding the random nature of selection methods
- An effort on
  - avoiding similar answers originated from shared experiences and having similar attitudes
  - decreasing interviewer and respondent burden as well as interview length and finances
  - avoiding third person (another eligible women) effect
  - decreasing measurement and non-response error
Conclusions

- For mean type variables, last birthday method with least deviations from TDHS-2013 survey estimates compared to other selection methods
- Kish and TCB methods have small deviations from TDHS-2013 survey statistics
- As literature says, certain non-probabilistic methods produce estimates which approximate general population although there is a lack of randomness
References


Who works here?

Rostering school staff with vendor-assisted lists

Maura Spiegelman
National Center for Education Statistics

Aniekan Okon, Teresa Thomas, Steven Borunda Escoto
U.S. Census Bureau

American Association for Public Opinion Research

May 19, 2019
This presentation is intended to promote ideas. The views expressed are part of ongoing research and do not necessarily reflect the position of the U.S. Department of Education or the U.S. Census Bureau.
Overview

- Overview of National Teacher and Principal Survey (NTPS)
- 2014-15 NTPS pilot test
- 2015-16 NTPS: supplemental vendor data
- 2017-18 NTPS: supplemental vendor data and dependent listing/pre-populated lists
- Plans for 2020-21 NTPS
National Teacher and Principal Survey (NTPS)

- Redesign of Schools and Staffing Survey (SASS)
  - Final year of SASS in 2011-12
  - NTPS pilot test in 2014-15
  - NTPS in 2015-16, 2017-18, planned for 2020-21

- Surveys of schools, principals, teachers
  - Primary sampling unit is schools
  - Teachers sampled from school-completed Teacher Listing Form (TLF)
2014-15 Pilot Study: Procedures

Vendor provided
• NCES school ID
• Teacher name
• Teacher e-mail
• Subject area

Vendor unable to provide
• Full-time/part-time status
• Years of experience

Sampled schools were mailed paper TLF to complete
2014-15 Pilot Study: Match Rates across Schools
## 2014-15 Pilot Study: Match Rates between Traditional TLF and Vendor

<table>
<thead>
<tr>
<th>Experience and work-status of teachers</th>
<th>N</th>
<th>TLF – Vendor match rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>All teachers</td>
<td>108,860</td>
<td>72%</td>
</tr>
<tr>
<td>Teacher experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>6,440</td>
<td>7%</td>
</tr>
<tr>
<td>2-3 years experience</td>
<td>10,800</td>
<td>58%</td>
</tr>
<tr>
<td>4-19 years experience</td>
<td>62,760</td>
<td>77%</td>
</tr>
<tr>
<td>20+ years experience</td>
<td>23,060</td>
<td>83%</td>
</tr>
<tr>
<td>Missing</td>
<td>5,780</td>
<td>71%</td>
</tr>
<tr>
<td>Teacher Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>99,420</td>
<td>74%</td>
</tr>
<tr>
<td>Part-time</td>
<td>6,320</td>
<td>46%</td>
</tr>
<tr>
<td>Unavailable</td>
<td>3,130</td>
<td>74%</td>
</tr>
</tbody>
</table>
# 2014-15 Pilot Study: Resolving Differences between Traditional TLF and Vendor

<table>
<thead>
<tr>
<th>Teacher list source</th>
<th>Percent of all observations</th>
<th>Percent correct</th>
<th>Percent of incorrect teachers who used to teach at school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both Sources</td>
<td>44%</td>
<td>98%</td>
<td>68%</td>
</tr>
<tr>
<td>TLF Only</td>
<td>28%</td>
<td>89%</td>
<td>59%</td>
</tr>
<tr>
<td>Vendor Only</td>
<td>28%</td>
<td>40%</td>
<td>76%</td>
</tr>
<tr>
<td>N Schools</td>
<td>132</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TLF Procedures for 2015-16 NTPS

- Completed by school (paper or online)
- Vendor list
- Clerical research
## 2015-16 NTPS: Teacher Questionnaire Completion

<table>
<thead>
<tr>
<th>Response rate type</th>
<th>TLF respondents only</th>
<th>All TLF completion methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLF response rate</td>
<td>62%</td>
<td>84%</td>
</tr>
<tr>
<td>Teacher response rate (conditional on TLF)</td>
<td>78%</td>
<td>68%</td>
</tr>
<tr>
<td>Teacher response rate (overall)</td>
<td>49%</td>
<td>57%</td>
</tr>
</tbody>
</table>
TLF Procedures for 2017-18 NTPS

- Completed by school (paper or online)
- Vendor list
- Clerical research

- NEW: Pre-populated TLFs
- NEW: Private schools
<table>
<thead>
<tr>
<th>Line Number</th>
<th>Teacher's Name</th>
<th>Teacher's E-mail Address</th>
<th>Subject Matter Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Andrew Michael Schaffer</td>
<td><a href="mailto:amshaffer@place.com">amshaffer@place.com</a></td>
<td>5-ELA</td>
</tr>
<tr>
<td></td>
<td>Elizabeth Marie Smith</td>
<td><a href="mailto:ems@place.com">ems@place.com</a></td>
<td>2-GE</td>
</tr>
<tr>
<td></td>
<td>Jessica Lynn Jones</td>
<td><a href="mailto:jlj@place.com">jlj@place.com</a></td>
<td></td>
</tr>
</tbody>
</table>

Is this person currently a teacher at this school?
Public School TLF Collection by Priority Status

**Priority schools**
- Pre-populated TLF from field rep (blank if N/A)
- Self-complete online
- Pre-populated TLF by mail (blank if N/A)
- Sampled from vendor data/clerical lookup

**Non-priority schools**
- Self-complete online
- Pre-populated TLF by mail (blank if N/A)
- Pre-populated TLF from field rep (blank if N/A)
- Sampled from vendor data/clerical lookup
### Percent of Schools that made Changes to Pre-populated TLFs by Completion Mode and Priority Status

<table>
<thead>
<tr>
<th>Priority collection status and collection mode</th>
<th>Schools</th>
<th>Percent any confirmations</th>
<th>Percent any additions</th>
<th>Percent any deletions</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>2,826</td>
<td>97%</td>
<td>89%</td>
<td>95%</td>
</tr>
<tr>
<td>Priority (field)</td>
<td>602</td>
<td>98%</td>
<td>92%</td>
<td>97%</td>
</tr>
<tr>
<td>Priority (mail)</td>
<td>27</td>
<td>100%</td>
<td>81%</td>
<td>96%</td>
</tr>
<tr>
<td>Non-priority (field)</td>
<td>1,246</td>
<td>96%</td>
<td>89%</td>
<td>94%</td>
</tr>
<tr>
<td>Non-priority (mail)</td>
<td>951</td>
<td>97%</td>
<td>87%</td>
<td>95%</td>
</tr>
</tbody>
</table>
### Percent of Teachers Confirmed, Added, or Deleted from Pre-populated TLFs by Completion Mode and Priority Status

<table>
<thead>
<tr>
<th>Priority collection status and collection mode</th>
<th>Schools</th>
<th>Percent confirmed per school</th>
<th>Percent added per school</th>
<th>Percent deleted per school</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>2,826</td>
<td>76%</td>
<td>24%</td>
<td>29%</td>
</tr>
<tr>
<td>Priority (field)</td>
<td>602</td>
<td>75%</td>
<td>25%</td>
<td>32%</td>
</tr>
<tr>
<td>Priority (mail)</td>
<td>27</td>
<td>75%</td>
<td>25%</td>
<td>31%</td>
</tr>
<tr>
<td>Non-priority (field)</td>
<td>1,246</td>
<td>75%</td>
<td>25%</td>
<td>31%</td>
</tr>
<tr>
<td>Non-priority (mail)</td>
<td>951</td>
<td>78%</td>
<td>22%</td>
<td>26%</td>
</tr>
<tr>
<td>Public district and school type</td>
<td>Any TLF method</td>
<td>Blank TLF</td>
<td>Pre-populated TLF</td>
<td>Vendor data</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>-------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>All</td>
<td>43.2</td>
<td>39.4</td>
<td>43.5</td>
<td>50.6</td>
</tr>
<tr>
<td>Special districts</td>
<td>48.1</td>
<td>46.2</td>
<td>46.0</td>
<td>52.9</td>
</tr>
<tr>
<td>Charter schools</td>
<td>34.6</td>
<td>34.4</td>
<td>34.3</td>
<td>38.2</td>
</tr>
<tr>
<td>City schools</td>
<td>44.7</td>
<td>42.8</td>
<td>43.9</td>
<td>49.7</td>
</tr>
<tr>
<td>School enrollment</td>
<td>Any TLF method</td>
<td>Blank TLF</td>
<td>Pre-populated TLF</td>
<td>Vendor data</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>--------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>&lt;100 students</td>
<td>10.2</td>
<td>9.2</td>
<td>11.8</td>
<td>10.4</td>
</tr>
<tr>
<td>100-299</td>
<td>19.7</td>
<td>19.6</td>
<td>19.9</td>
<td>19.3</td>
</tr>
<tr>
<td>300-499</td>
<td>29.2</td>
<td>29.3</td>
<td>28.8</td>
<td>30.1</td>
</tr>
<tr>
<td>500-749</td>
<td>40.2</td>
<td>39.9</td>
<td>39.9</td>
<td>41.0</td>
</tr>
<tr>
<td>750-999</td>
<td>54.1</td>
<td>54.9</td>
<td>51.6</td>
<td>56.4</td>
</tr>
<tr>
<td>1000+</td>
<td>91.3</td>
<td>90.3</td>
<td>85.9</td>
<td>99.7</td>
</tr>
</tbody>
</table>
## TLF Completion Method and Teacher Questionnaire Response Rates

<table>
<thead>
<tr>
<th>Responding school type</th>
<th>Listing form type</th>
<th>Percent completed</th>
<th>Teacher Questionnaire Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority schools</td>
<td>Pre-populated TLF</td>
<td>60%</td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>Blank TLF</td>
<td>10%</td>
<td>73%</td>
</tr>
<tr>
<td></td>
<td>Vendor data or clerical look-up</td>
<td>30%</td>
<td>57%</td>
</tr>
<tr>
<td>Non-priority schools</td>
<td>Blank TLF</td>
<td>47%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Pre-populated TLF</td>
<td>29%</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td>Vendor data or clerical look-up</td>
<td>25%</td>
<td>59%</td>
</tr>
</tbody>
</table>
TLF Procedures Planned for 2020-21

• Expand use of pre-populated TLFs
  – Paper and online completion
  – Prioritize schools for which vendor data are unavailable
  – Private schools

• Continue last-resort vendor sampling
Maura.Spiegelman@ed.gov