Video 6 of 21: Random-Digit Dialing
Mitofsky-Waksberg method

Sampling
Mitofsky-Waksberg method

- Mitofsky-Waksberg method improves efficiency of “pure” RDD (Mitofsky, 1970; Waksberg, 1978)
- Take advantage of the non-random assignment of phone numbers to users
  - Gains in efficiency depends on how phone numbers are assigned to users (clustered instead of haphazard)
- Selects the RDD in two stages:
Mitofsky-Waksberg method: 1st stage

- In the first stage select RDD element sample of primaries
  - Interviewers dial the primary numbers and determine residential status
    - If residential, define a cluster of 100 consecutive numbers (100-bank)
    - (AAA)PPP-SS00 – (AAA)PPP-SS99
    - Example: Primary number (999)555-0012 is dialed and confirmed residential
    - Define 100-bank: (999)555-0000 – (999)555-0099
Mitofsky-Waksberg method: 2\textsuperscript{nd} stage

- In the second stage subsample of $b$ numbers at random from within the “working clusters”
  - Interviewer dials these "secondaries" and determines residential status
  - If the number is not residential, discard and replace with new number from same cluster
  - If residential, interview attempted
  - Second stage process continues replacing numbers
  - Stop when $b$ residential numbers obtained (not $b$ interviews)
Sampling properties

- Probability sampling method with \( f = \frac{a \times M_\alpha}{\sum M_\alpha} \times \frac{b}{M_\alpha} \)

- \( M_\alpha = \) residential numbers in \( \alpha \)-th "100-bank"
- \( a = \) "first stage" numbers
- \( b = \) desired number of residential numbers in 100-bank
- Measure of size is unknown at the time of selection, even after selection completed
<table>
<thead>
<tr>
<th>Primaries</th>
<th>Residential</th>
<th>(999)555-32XX: (999)555-3200 … (999)555-3299</th>
</tr>
</thead>
<tbody>
<tr>
<td>(999)555-3223</td>
<td>Residential</td>
<td></td>
</tr>
<tr>
<td>(999)777-4817</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(999)888-4410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>…</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondaries</td>
<td>Residential, interviewed</td>
<td></td>
</tr>
<tr>
<td>999/555-3211</td>
<td>Residential, interviewed</td>
<td></td>
</tr>
<tr>
<td>999/555-3258</td>
<td>Residential, interviewed</td>
<td></td>
</tr>
<tr>
<td>999/555-3269</td>
<td>Nonresidential: Replace</td>
<td></td>
</tr>
<tr>
<td>999/555-3272</td>
<td>Replaced: residential, refused</td>
<td></td>
</tr>
<tr>
<td>999/555-3236</td>
<td>Residential, interviewed</td>
<td></td>
</tr>
<tr>
<td>999/555-3244</td>
<td>Business: Replace</td>
<td></td>
</tr>
<tr>
<td>999/555-3291</td>
<td>Replaced: residential, refused</td>
<td></td>
</tr>
</tbody>
</table>
Sample Design

Completed interviews desired 100
   (Response rate: 0.70)
Households to be contacted (100/0.70) 143
   (Secondary working rate: 0.55)
Secondaries to dial (143/0.55) 260
   (Cluster size: \( b = 5 \))
Working primaries needed (143/5) 29
   (Primary working rate: 0.13)
Primaries to screen (29/0.13) 223
Problems with Mitofsky-Waksberg method

- Exhausted clusters
  - \( b \) residential numbers not obtained, even after all 100 numbers have been called
  - Non-epsem design
  - Weighting is required
  - Limit \( b \leq 15 \)

- Replacement of secondaries late in study period
  - Replacements not dialed as often
  - End of study dominated by dialing numbers
END OF VIDEO 6