Modeling the effect of diverse communication strategies on decennial census test response

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Outline

1. 2015 Census Test Background
2. Experimental Design
3. Preliminary Model Results
4. Concluding Thoughts

Background

2015 Census Test - Savannah

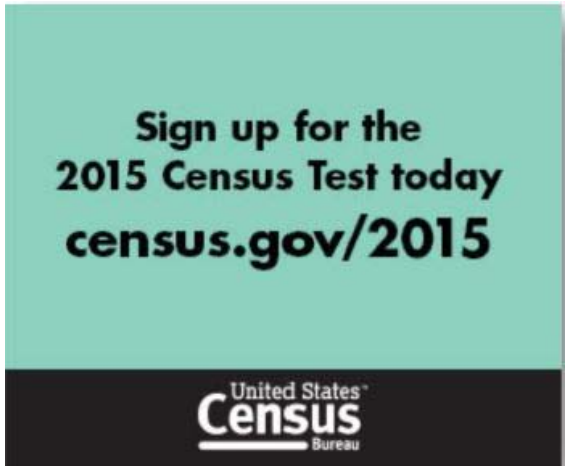
- **Mission:** Implement a comprehensive and integrated communications program in the Savannah media market for the 2015 Census Test.
- **Objective:** Answer communications research questions about the use and impact of microtargeted digital advertising on response rates.

Savannah DMA Test Site

Source: dishuser.org/TV Markets. Map current as of 2006-2007.

- Savannah designated market area
  - 439,918 MAF IDs (but fewer occupied housing units)
  - 20 counties
  - 106 ZIP codes
- Replicated key decennial census communication campaign elements
  - Paid advertising, earned media, and partnership activities across entire DMA.
  - Original mailing (90,000)
  - Late postcard (30,000)
  - Telephone calls (60,000)
  - Digital advertising and social media (4 panels & 1 control)
- No nonresponse follow-up

Digital Advertising



- Digital advertising included static and dynamic display ads on:
  - Website display (banner ads)
  - Search engines
  - Facebook
  - Twitter
- 30- and 15-second video ads on:
  - YouTube
  - YuMe video network

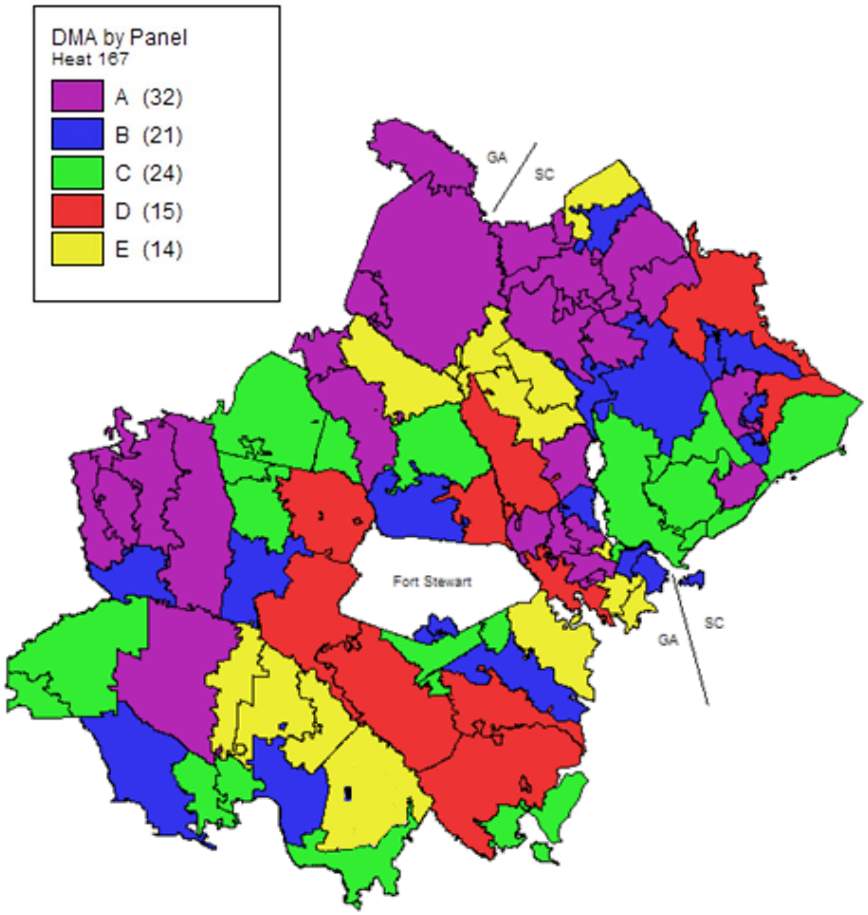
Experimental Design

Original Mail, Late Postcard, and Telephone Call Panels

Panels	Sample Size
Original Mailing	
Pre-registration	30,000
Non-ID	30,000
ID	30,000
Late Postcard	30,000
Telephone	
Mayor	20,000
TV Newscaster	20,000
Voice-Over Actor	20,000

- Three original mail panels:
  - Excluded 2015 ACS sample
  - Sampled proportional to size of national households in 9 stratums (FCC internet connectivity and Census Bureau low response score)
- Late postcard panel:
  - Sampled from non-respondents proportional to size of digital ad panels
- Three "influencer" telephone call panels:
  - Sample drawn proportional to size of five digital ad panels.
  - Called up to 3 matched telephone numbers
  - First call attempted March 30-April 2; second May 15-17

Digital Advertising Panels

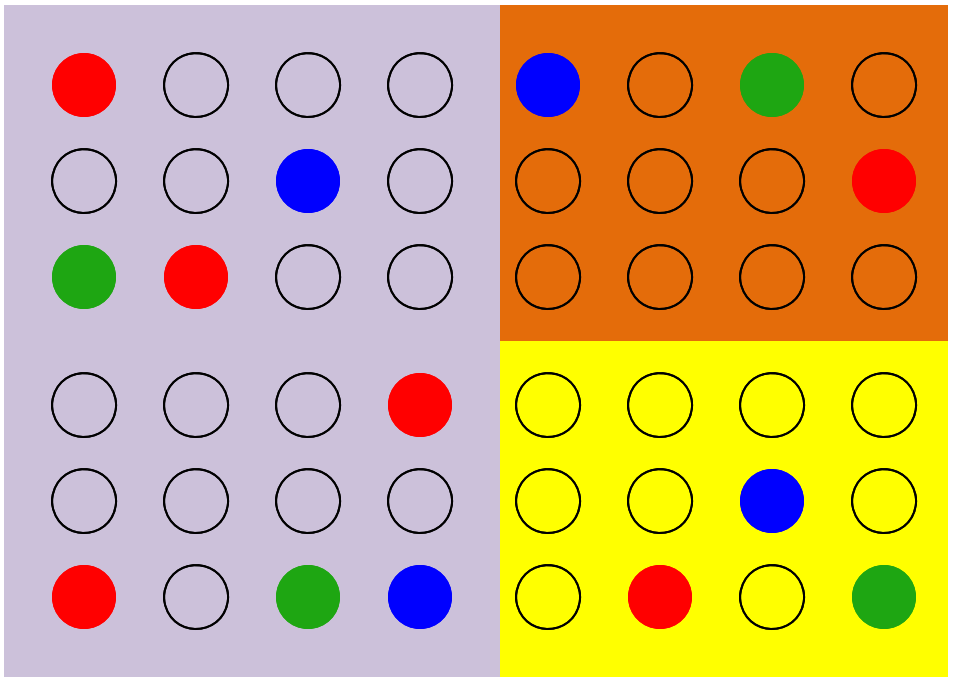


	Targeted	Nontargeted
High per household spend level	Panel A ($2.39/HH)	Panel B ($2.39/HH)
Low per households spend level	Panel C ($1.23/HH)	Panel D ($1.21/HH)
No spend	Panel E – Control ($0.00/HH)	
Dollar amounts are average digital advertising budget.		

Experimental Design Example

Digital Panel A
High Spend,
Targeted

Digital Panel B
High Spend,
Non-Targeted



Digital Panel E
Control

= Late Postcard

= Original Mailing

= Telephone Call

= Housing Unit

Results

Digital Advertising Panel Response Rates

Caveats:

1. Mailed rate varied across panels
2. Digital advertising panels not a random sample but overlaid on geographies with wide range of vacancy rates, hard-to-count populations, etc.

Panel	Total	Responses	Response/Total (Response Rate)	Mailed Rate
A – High, Targeted	126,975	18,134	0.143	0.250
B – High, Not targeted	71,246	12,102	0.170	0.279
C – Low, Targeted	117,960	16,567	0.140	0.274
D – Low, Not targeted	60,481	11,180	0.185	0.291
E - Control	58,167	12,052	0.207	0.303

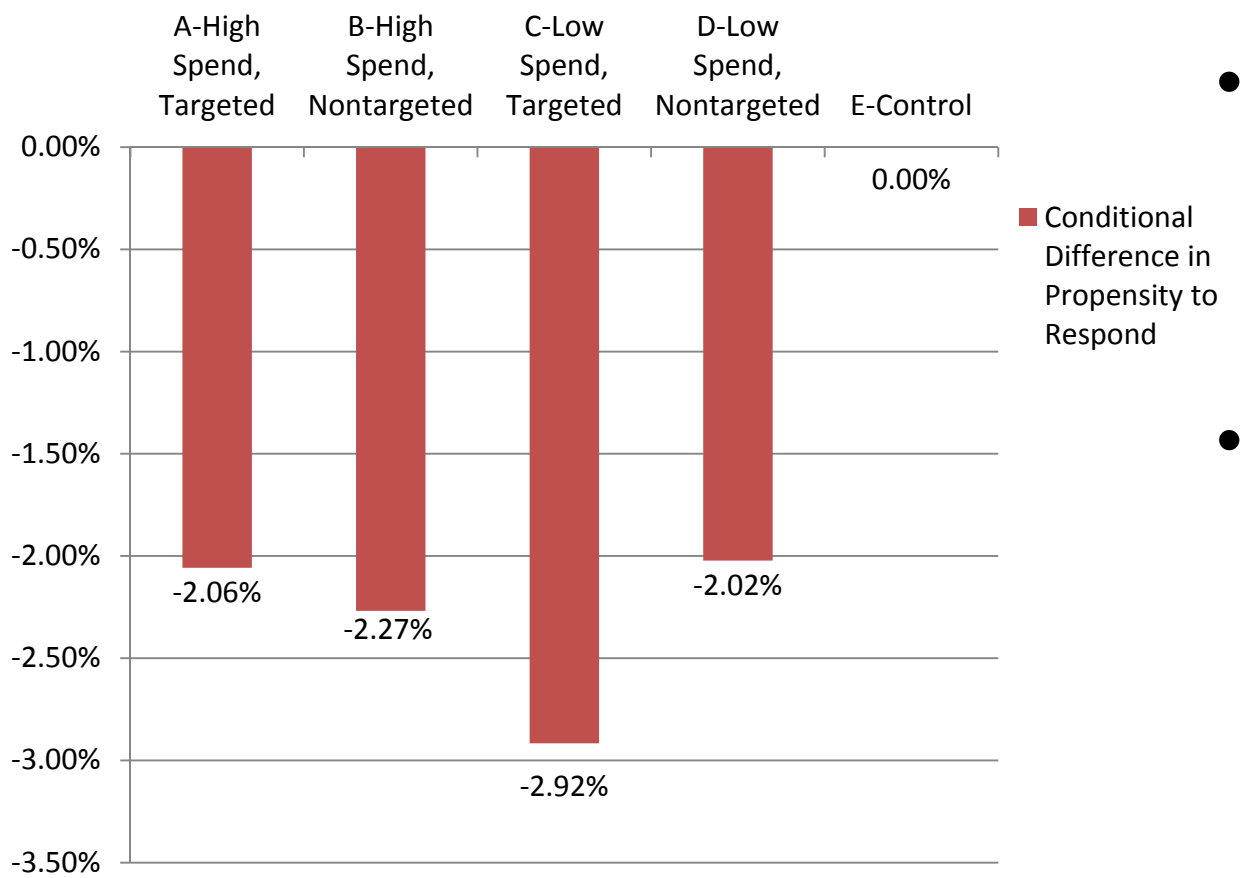
Model Setup

- Mixed effects model (PROC GLIMMIX)
  - 1 random effect: ZIP code
  - 2 main, fixed effects:
    - Digital ad panel (A,B,C,D) or control ad panel
    - Mail panel, postcard panel, telephone panel, or none
  - 1 interaction:
    - Digital panel x mail/postcard/telephone panel
- Limited model to:
  - Cases with assigned ZIP code <u>and</u> digital panel
  - ZIP codes with at least 7 cases in each mail, postcard, and telephone panel

Model Results

- Main effects:
  - Digital panel and influencer telephone call not significant at p=0.05
  - Original mailing and late postcard significant
- Interactions:
  - Original mailing significant
  - Telephone call significant in one panel

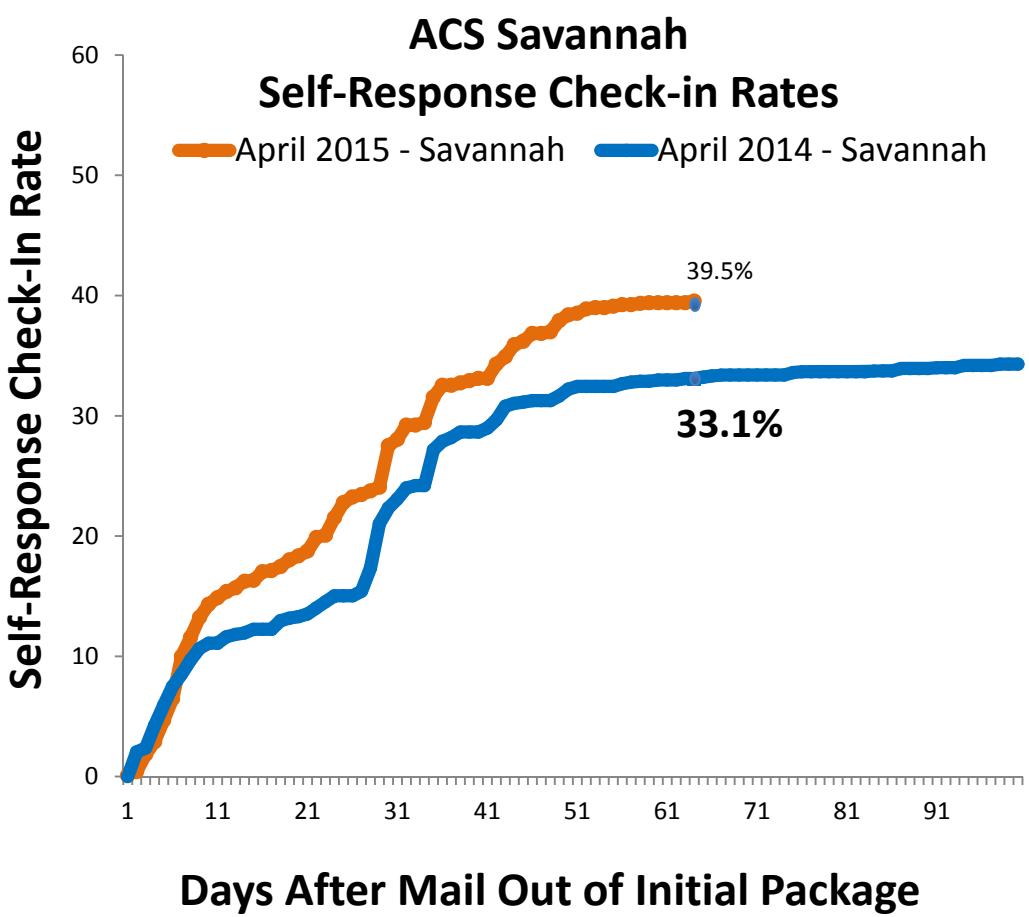
Difference in Propensity to Respond Across Digital Ad Panels Given Received Original Mailing



- Control panel appears to be higher than digital panels.
- Control panel significantly higher than Panel C – Low Spend, Targeted.

Concluding Thoughts

Don't Discount Digital Advertising



1. Test promotion likely boosted ACS response. (Recall ACS cases not eligible for initial mailing and telephone call samples.)
2. 7,708 (11.0%) of respondents came to the web instrument via digital ads.
3. Of these 2,086 (27.1%) were respondents who were sampled into initial mailing or late postcard.

Future Work

- Refine mixed effects model
  - Intent-to-treat versus treat
  - Interaction effects
  - Control for other factors (e.g. vacancy rates)
  - Account for bleed
- Analyze small ZIP codes
  - Exploratory analysis
  - Non-parametric statistics

Questions?

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