


Cellular Telephone Methodology: Present and Future

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SSRS Webinar Overview AAPOR

Part 1: Cell Phone Response and Data Quality: A Synopsis of Dutwin/Buskirk and other findings at AAPOR 2016

1. Trends in Cell Phone Ownership
2. Trends in Cell Phone Response
3. Trends in Cell Phone Data Quality
4. Trends in Cell Phone Costs

Part 2: Cell Phone for Sampling the U.S. Population: A Synopsis of the Dutwin 2014 Webinar



1. Rate Centers: Efficacy, Incidence and Coverage
2. Recent Activity Flags
3. Prepaid Flags
4. Billing Zip Codes

Part 2A: Cell Phone for Sampling the U.S. Population: A Synopsis of the Dutwin 2014 Webinar

1. Listed Call Sample: The New Normal
2. Cell Phone Mobility

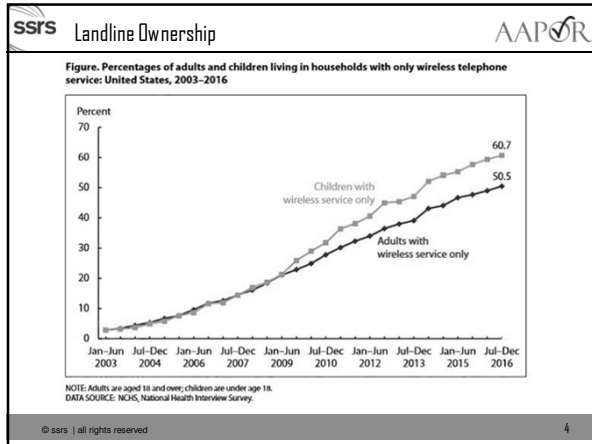
Q & A

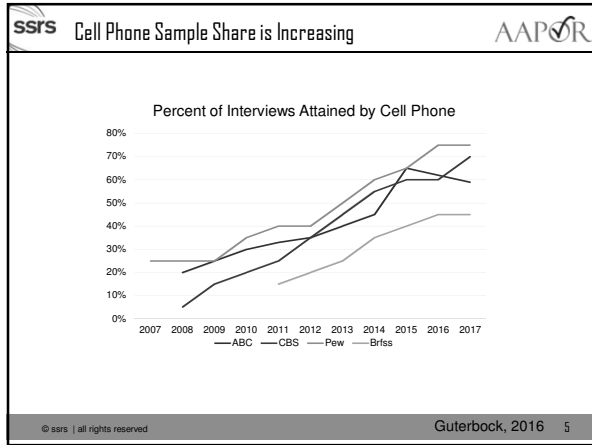
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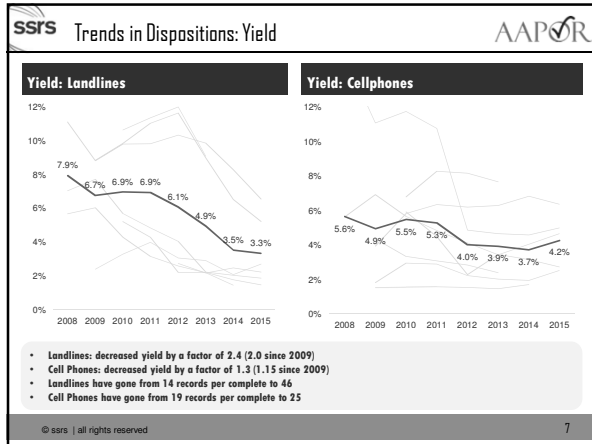
Part 1: Cell Phone Response & Data Quality:
A Synopsis of Dutwin/Buskirk & Other Findings at AAPOR 2016

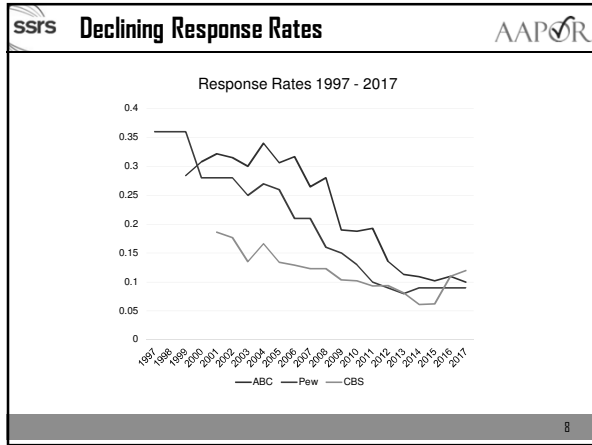
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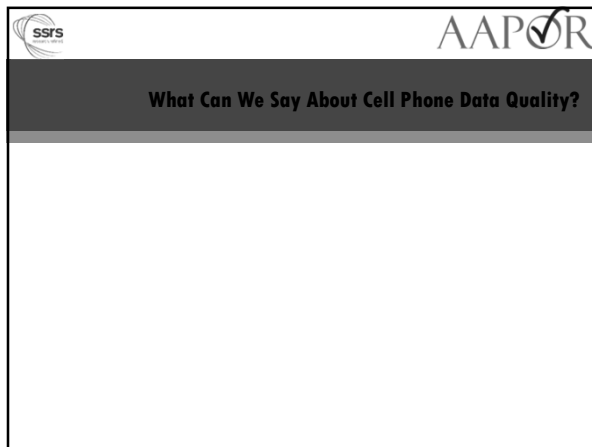


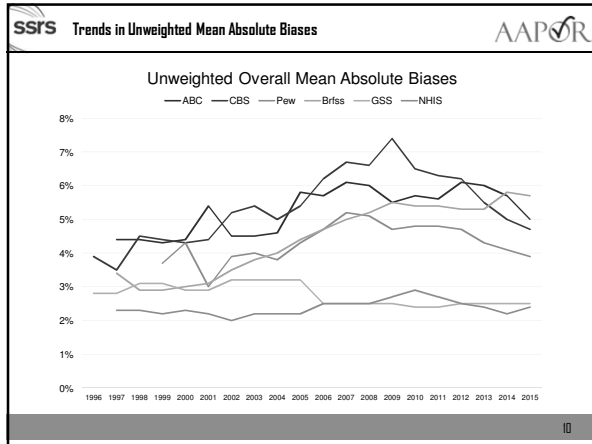


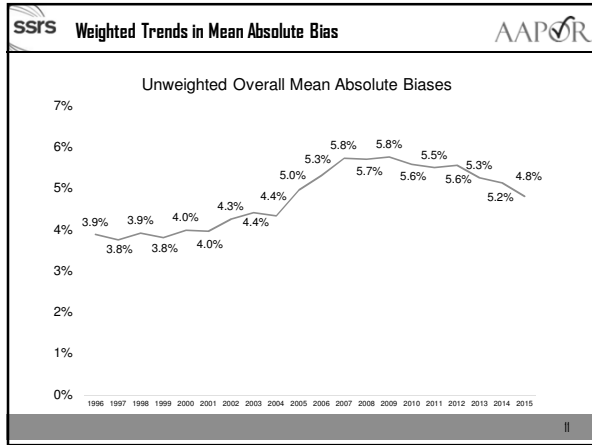


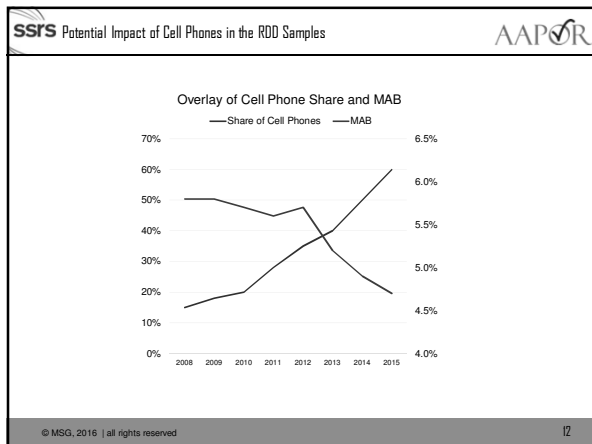


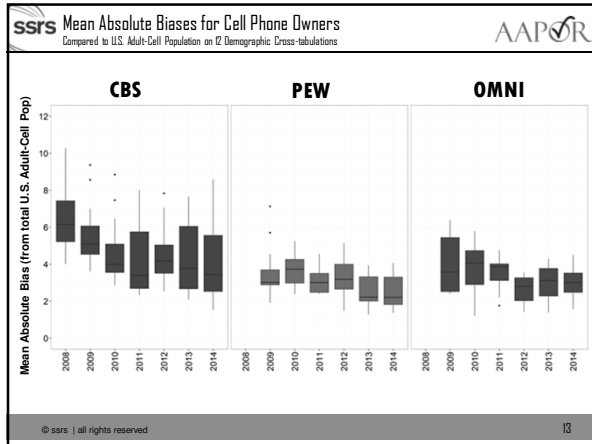


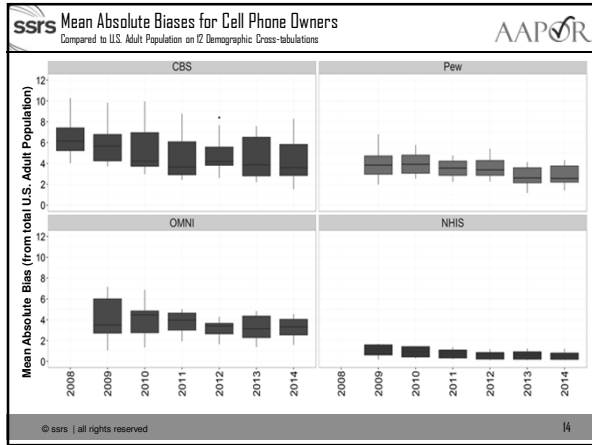


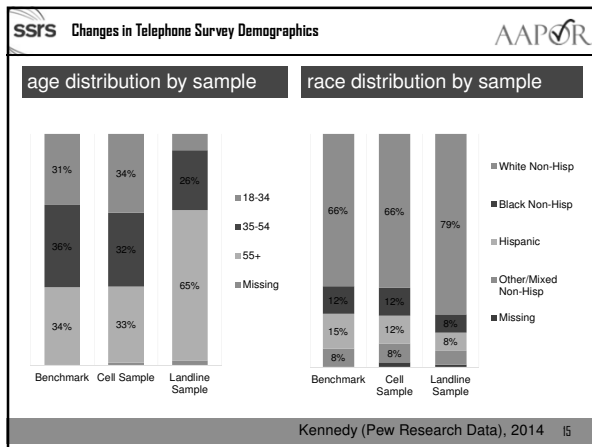


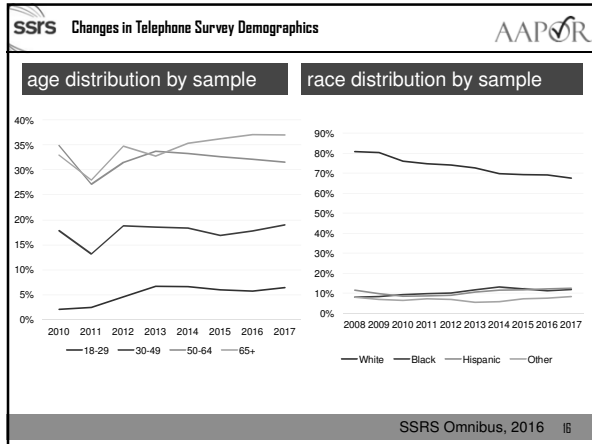


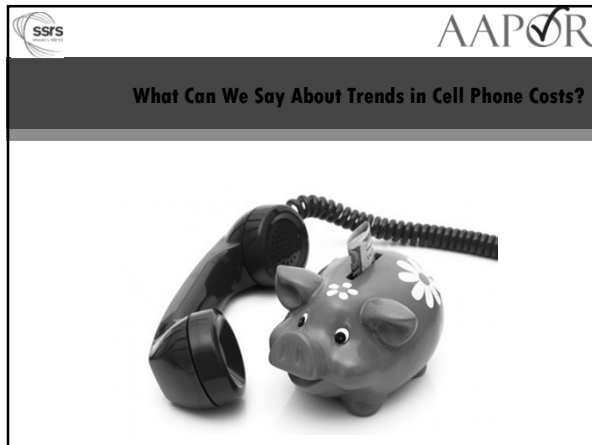


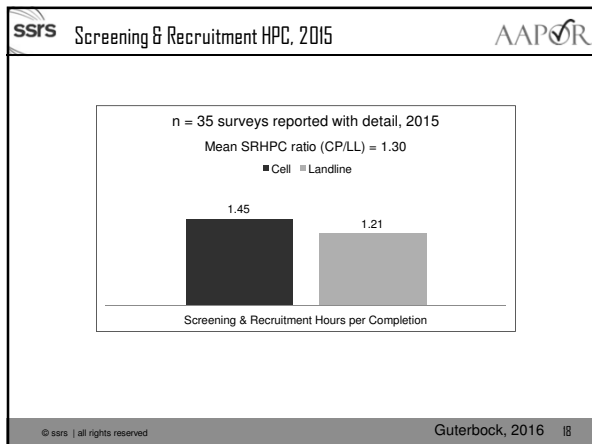


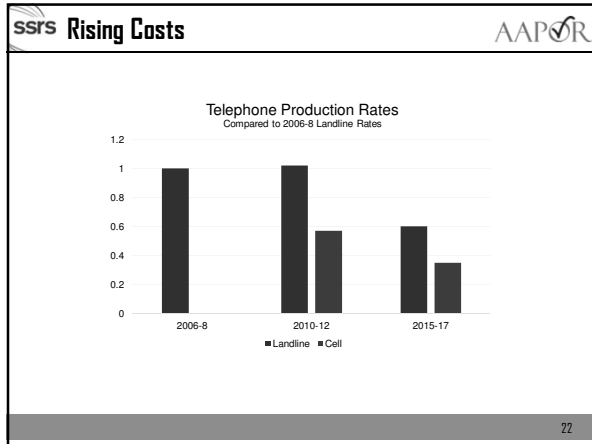













- ssrs Conclusions** AAPOR
- Cell response rates have flattened
 - Cell costs have flattened
 - Costs have flattened and in increasing frequency, less expensive than landlines
 - Still, combo of nonresponse and TCPA have doubled costs
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Part 2: Cell Phone for Sampling the U.S. Population:
A Synopsis of Past Webinars and Recent Updates

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What are Rate Centers?



ssrs Rate Centers in the U.S. AAPOR



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ssrs Rate Center Statistics AAPOR

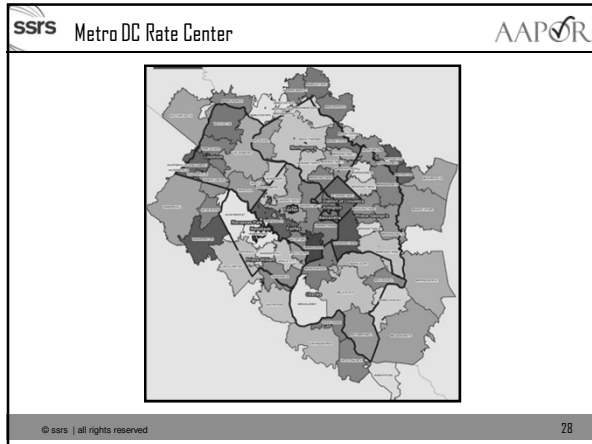
18,107 Rate Centers, Compared To:

1. ~81,000 landline telephone exchanges
2. ~43,000 zip codes
3. 3,143 counties

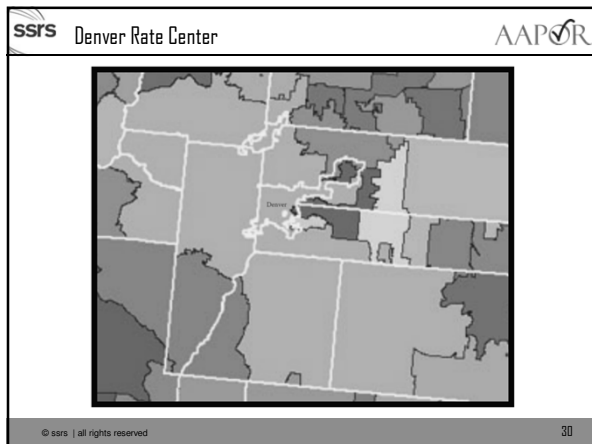
Rate Centers Vs. Counties:

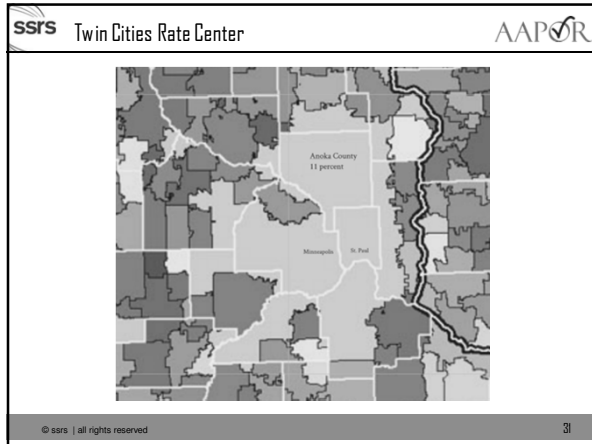
1. 39% of rate centers touch at least 2 counties
2. 15% of rate centers touch at least 3+ counties
3. On average a rate center covers 70% of any one county
4. Only 6% of counties overlay precisely with a rate center

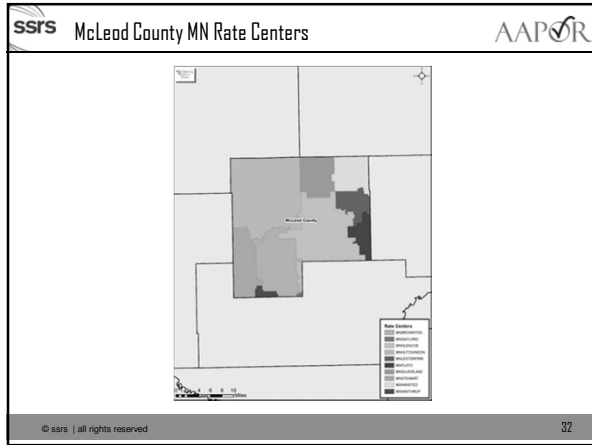
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SSRS The Largest Rate Centers AAPOR

Rate Center	Population	Rate Center	Square Miles
AZ PHOENIX	3,947,421	NV WINNEMUCCA	12723
MN TWINCITIES	2,629,569	OR ND HARNEY	9450
CO DENVER	2,392,232	AZ FLAGSTAFF	7822
NV LAS VEGAS	1,910,335	OR JORDAN VLY	7757
TX HOUSTON	1,771,593	NV ALAMO	7396
FL MIAMI	1,758,236		
TX SAN ANTONIO	1,733,954		
NV NWVRCYZNDG	1,703,937		
TX DALLAS	1,680,883		
NV NWVRCYZNDI	1,577,408		
GA ATLANTA NE	1,395,042		
TX AUSTIN	1,260,232		

- Metro areas can have large (square miles) rate centers
- However the largest rate centers are rural (21 of the top 25)
- 11 of the densest 20 rate centers are in the 5 boroughs of NYC

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SSRS Adherence to Rate Center AAPOR

50 percent of cell owners live in their rate center

Percentile	Distance of Mismatches
10	8.3
20	11.9
30	15.5
40	19.5
50	25.4
60	34.5
70	62.1
80	173.8
90	627.2
Mean Distance	193.1
Median Distance	25.4

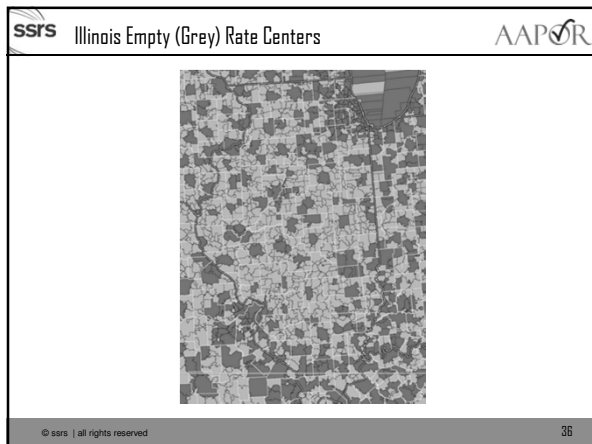
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SSRS The Case of the Missing Rate Centers AAPOR


- **6,960 Loaded**
- **11,147 Empty**
- **43 Counties not touched by at least 1 rate center**

	Empty	Loaded	Empty	Loaded
Population	48,484,306	260,260,271	16%	84%
Households	21,468,880	110,235,499	16%	84%
Square Miles	1,755,021	2,036,818	46%	54%
Hispanic	2,345,110	31,001,592	7%	93%
Black	2,245,825	25,077,840	8%	92%

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ssrs Oklahoma City Rate Centers AAPOR



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A map of Oklahoma City showing various rate centers shaded in different tones of gray. The map is overlaid with a grid. The city center is the darkest, and the shading becomes lighter as it moves outwards.


ssrs Rate Centers: Issues & Implications AAPOR

1. Large rate centers in urban areas, particularly the 'Big 10' mean high coverage but low incidence for studies of center cities.
2. Outlying counties in the 'Big 10' have very low incidence (but high coverage usually).
3. Efficacy of rate center selection expected to drop over time.
4. Empty rate centers make it hard to precisely sample specific geographies.
5. Since half of people do not live in their home rate center, incidence and accuracy is limited.
6. Empty rate centers make it exceedingly difficult to know the true population of a sampled "loaded" rate center, over and above point-of-purchase; stratification base weighting has to be based on phones not households.

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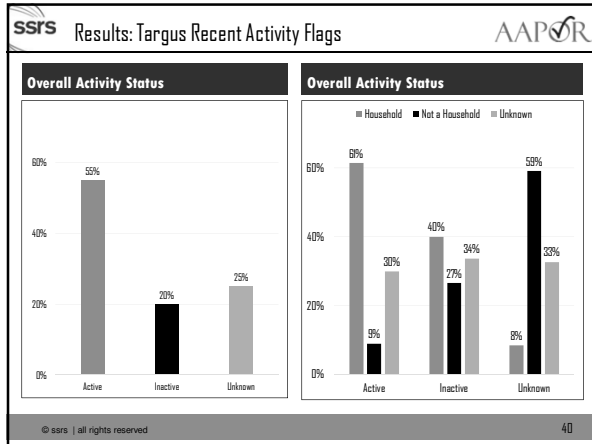
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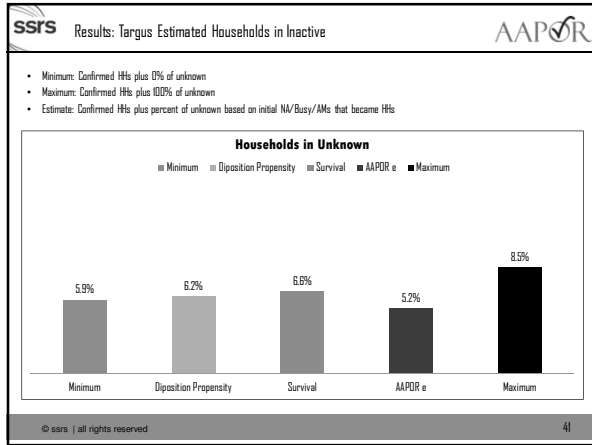
Does Scrubbing Work?

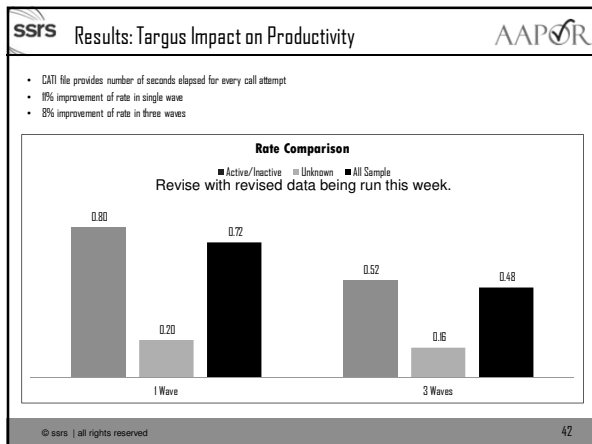


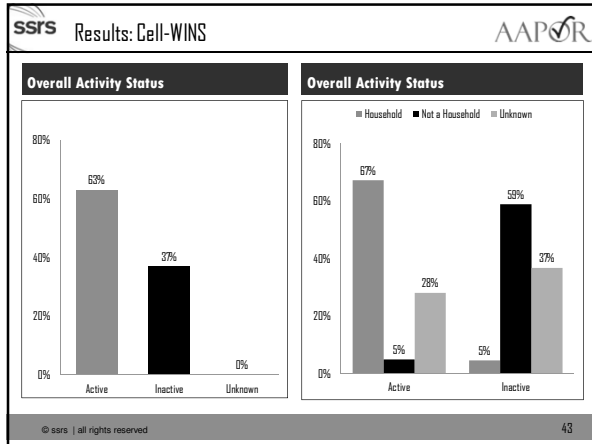
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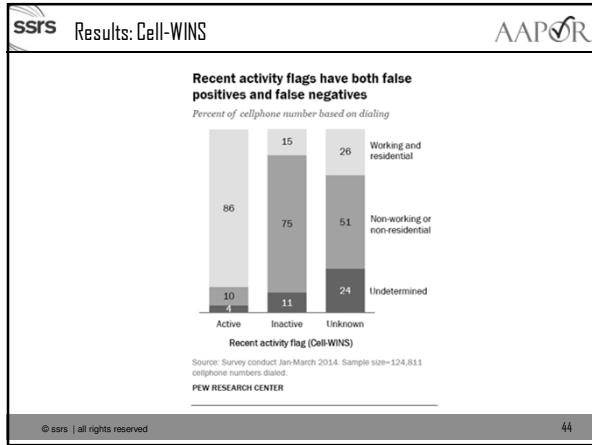
A black and white photograph of a dog, possibly a Weimaraner, sitting and resting its head on its hand. The dog has a white coat with dark patches and is looking towards the camera.

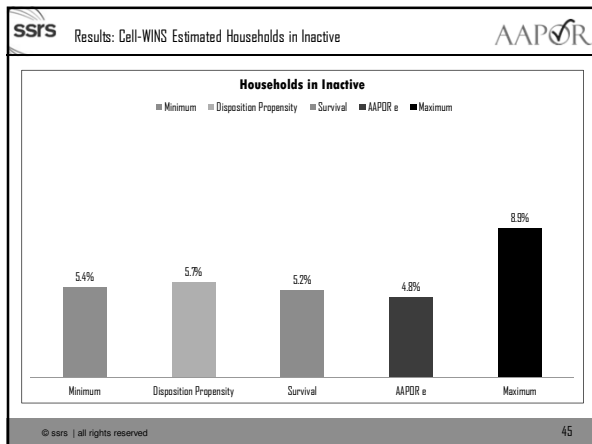


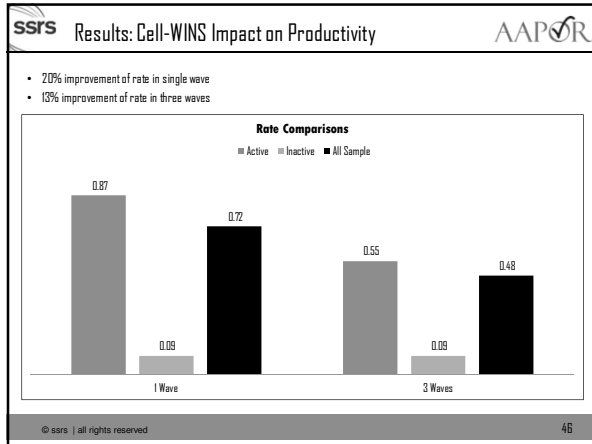










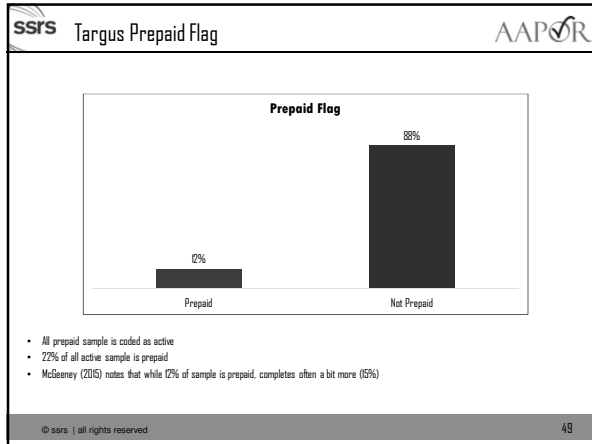


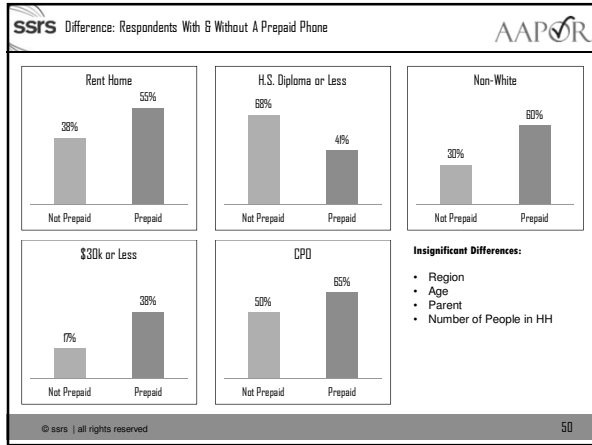
SSRS Conclusions: Activity Flags AAPOR

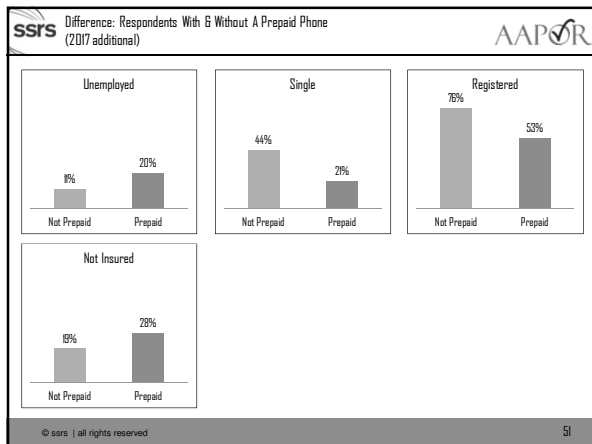
- Some bias but in mostly insignificant results: near negligible in a dual frame survey
- Loss in coverage is 5 - 8%
- Flags are a slightly moving target
- Cell phones version of scrubbing or +/- listing for the future

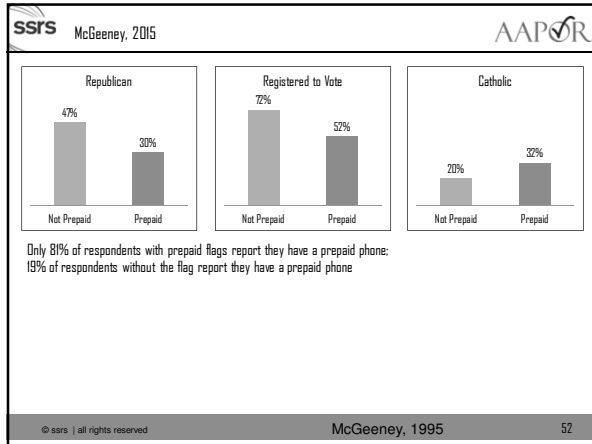
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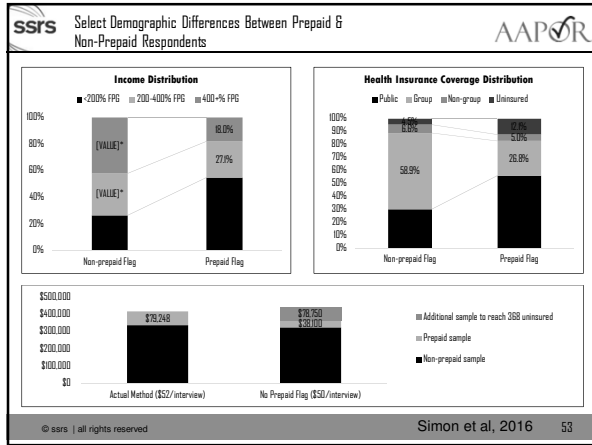


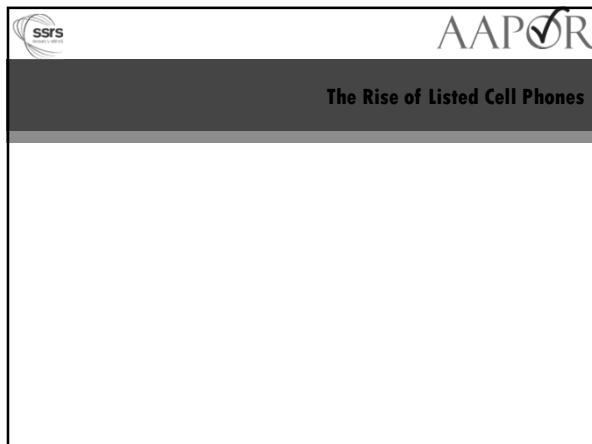












SSRS Zipcode appending **AAPOR**

Type	Smart Cell	Consumer Cell
1-Per	--	67,037,104
All	265,950,255	117,774,835
Zip Accuracy: Landline	75%	80%
Zip Accuracy: Cell Phones	51%	30%
% Scrubbed Sample with Zip: Landline	99%	99%
% Scrubbed Sample with Zip: Cell	56%	44%
Percent of Cell Completes with a Zip	64%	53%
Percent of Cell Owners in Cell Database	--%	53%

One wave omnibus test in May, 2017, N = 1,010 (sample = 72,428)

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SSRS Differences of Respondents With & Without Zip **AAPOR**

Hispanic

Age 18-29

Own Home

Registered to Vote

No College

Black = No Zip Available

Insignificant Differences:

- Metro Status
- Region
- Marital Status
- Employment
- # Adults
- Political Affiliation

• Also: Age 18-29 33% v 24%

One wave omnibus test in May, 2017, N = 1,010 (sample = 72,428)

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SSRS Accuracy (Incidence attained) of Appends (Smart Cell) **AAPOR**


Metric	Landline	Cell
Age (4 ranges)		
18-24	48%	33%
25-44	47%	47%
45-54	52%	32%
55-64	50%	42%
65 +	54%	49%
Income (6 breaks)		
Less than 20,000	41%	11%
20,000-50,000	24%	39%
50,000- 75,000	12%	33%
75,000-100,000	7%	23%
100,000-200,000	7%	41%
Over 200,000	29%	0%

One wave omnibus test in May, 2017, N = 1,010 (sample = 72,428)

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Rate Center Accuracy



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Top 50 DMA Coverage (n=450 min)

- Mean DMA inclusion rate = 80% (N = 100/county or more)
- 79% of cell owners live in the DMA of their cell phone number

Percent of Cell Owners Living in Their DMA

City	Percentage
NY	91%
Detroit	90%
Cleveland	90%
Chicago	90%
Indy	89%
Milwaukee	88%
LA	88%
Philly	87%
Cincy	87%
Houston	87%
Little Rock	87%
Salt Lake	87%
Pitt	86%
Harbor	86%
Twin Cities	86%
Buffalo	85%
G Rapids	85%
Harrisburg	85%
Ashville	85%
Memphis	85%
Sea Tac	85%
Boston	84%
Miami	84%
Louisville	84%
Dallas	84%

Percent of Cell Owners Living in Their DMA

City	Percentage
Albuquerque	84%
SF	84%
Atlanta	83%
St. Louis	83%
Kansas City	83%
OKC	83%
Denver	83%
NOLA	82%
San Antonio	81%
Phoenix	81%
Portland	81%
Columbus	80%
Nashville	80%
Balt	79%
Charlotte	79%
Norfolk	79%
Orlando	78%
Tampa	78%
Jacksonville	78%
DC	77%
Raleigh/D	77%
SD	76%
Vegas	75%
Sacto	72%
Austin	70%

2015 SSRS omnibus survey 62

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Top 50 Counties Coverage (n=20 min)

- Mean county inclusion rate = 63% (N = 100/county or more)
- 58% of adults live the county of their cell phone
- .15** Pearson R between county size and % in-county
- Given empty rate centers, I am not sure what these numbers really mean!

Percent of Cell Owners Living in Their County

County	Percentage
Indy	89%
Nashville	88%
Minneapolis	85%
Houston	83%
Minneapolis	83%
Chicago	82%
Bkxar TX	82%
LA	81%
Miami	81%
Phoenix	80%
Erie NY	79%
Cleveland	78%
Salt Lake	78%
Cincinnati	77%
SD	76%
Orange CA	76%
Las Vegas	76%
Sacramento	76%
Detroit	75%
Pittsburgh	75%
Suffolk NY	75%
Tucson	75%
Palm Beach FL	74%
Dallas	73%

Percent of Cell Owners Living in Their County

County	Percentage
Fl. Lauderdale	73%
Duval FL	72%
Honolulu	73%
Santa Clara	72%
Tampa	72%
Norfolk NY	72%
S Bernadino	71%
NW Detroit	71%
Austin	70%
Alameda	69%
Riverside CA	67%
Pinalaz FL	67%
Philly	64%
Wake NC	61%
Marionette WA	61%
Macon NC	60%
Orange FL	57%
Atlanta	51%
Manchester	47%
Middlesex MA	43%
Bronx	31%
Queens	31%
Fairfax VA	28%

2015 SSRS omnibus survey 63



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research refined.

contact me
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