



The Future of Traditional Telephone Research

New Data from the Field | April 2016



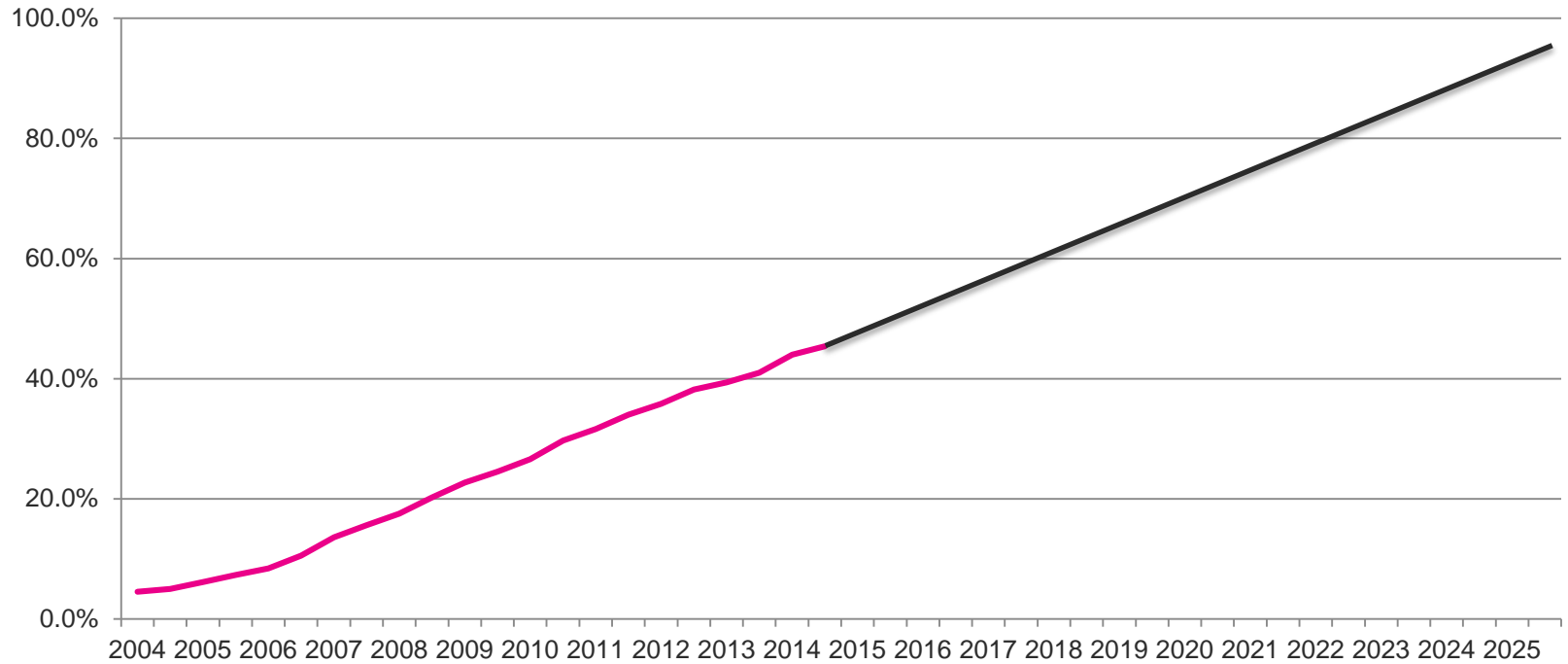
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- A Brief Review of Telephone as a Survey Platform: Past and Present
 - Historical Trends
 - Trends in Telephone Dispositions, 1970s to Present
- Two Metrics: Quality and Cost
 - Quality: Comparisons to Opt-In Panels
 - Quality: Comparison to Present-Day Low Response Rate Telephone vs. High Response Rate Telephone
 - Quality: Data Quality in the Future—Cell Phones
 - Costs: Trend Analysis of Costs in Telephone Surveys
- Conclusions and Q&A

A Brief History of Telephone Survey Research / Past-Present Trends

- The 1980s – 90s: A Golden Age
 - Computerized listing of “white pages” allows survey research firms to develop highly efficient RDD frames of all U.S. households (that own a phone).
 - Computerization allows for auto-dialing capabilities.
- 2000+: The Age of Chaos!!!!
 - Response rates begin to decline in the age of telemarketing as households begin to screen calls via caller ID and Lose That Loving Feeling.
 - Households slowly/steadily eschew landlines.
 - Internet surveys invented...and by the way they are MUCH cheaper.
 - TCPA + trail lawyers = Firms interpreting/complying.

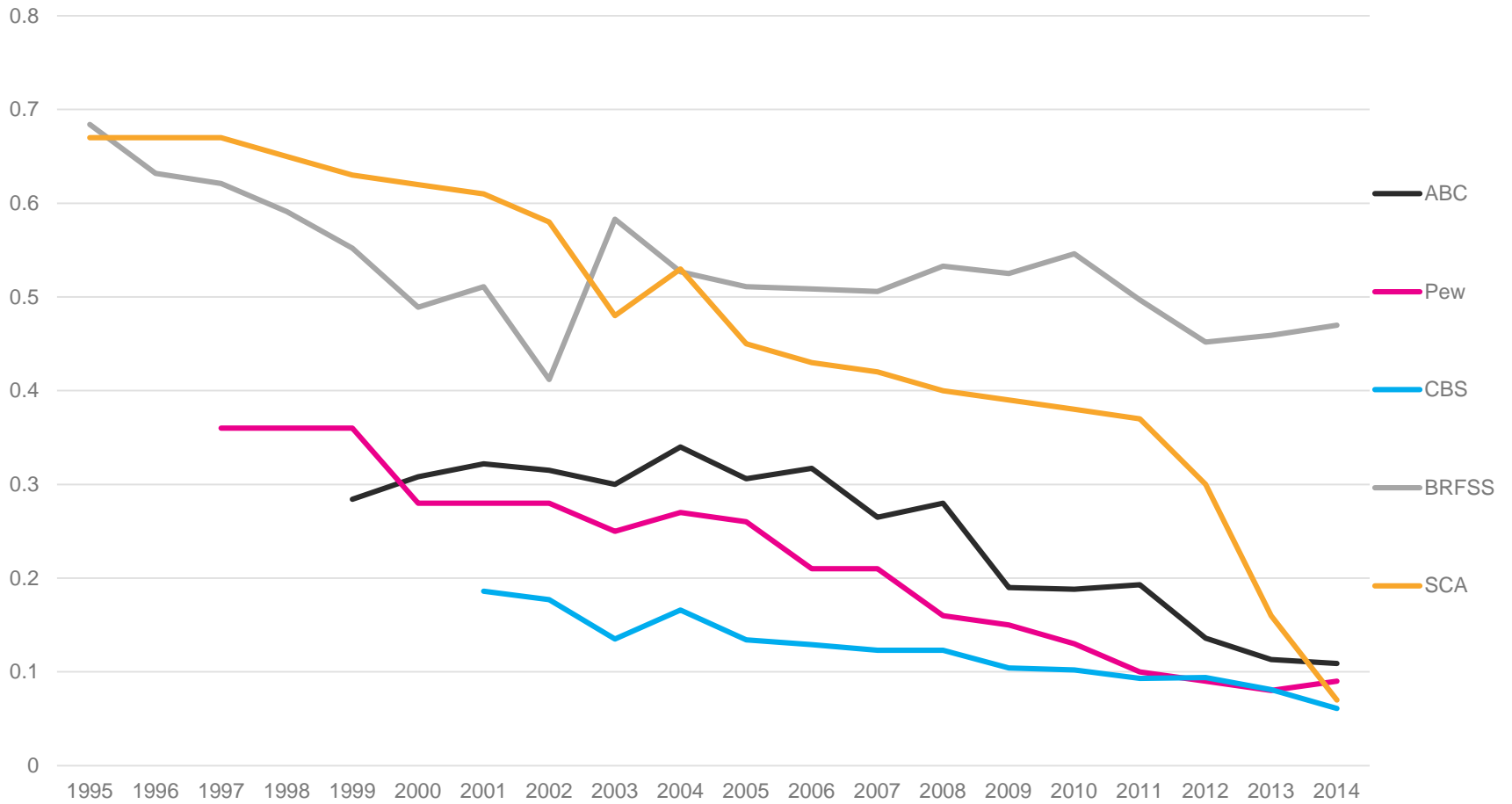
Percent of HH Cell Phone Only



Landline has 5-10 years left.

Declining Response Rates

Response Rates, 1995 - 2013



Trends in Telephone Dispositions in the Age of Cell Phones

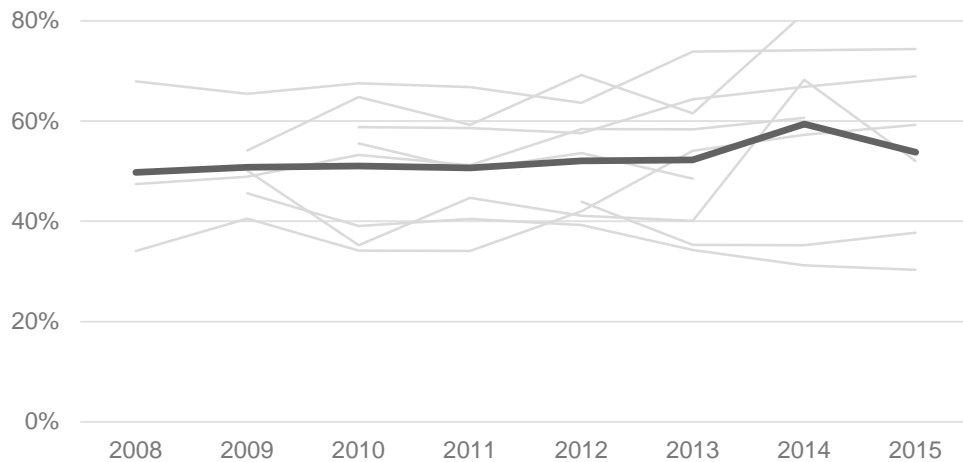
- AAPOR Task Force on the Future of Telephone Interviewing
 - Call to firms to provide outcome dispositions for all call attempts on general population studies, dual-frame, trackers, 2008 – present.

Data	Study	Scrub LL	Scrub Cell	First year	Last year	LL Sample	Cell Sample
ABC	ABC Polls	Biz Purge 2010-2015	None	2008	2015	259,677	188,177
Gallup	Gallup Daily Tracking Surveys	None	None	2009	2015	18,490,017	14,465,292
GfK	AP Polls	Aug 2012 to present	None	2009	2014	434,405	100,586
NBC	NBC Polls			2012	2015	125,382	140,384
PSRAI	Pew Omnibus	Biz Purge	None	2010	2015	285,708	165,711
Pew	Pew Internet & American Life Polls	Biz Purge	None	2007	2015	369,301	185,385
RTI	Survey of Consumer Attitudes	None	None	2010	2013	197,878	432,149
SRBI	Confidential	Biz Purge	Inactive 2014+	2007	2014	280,880	85,329
SSRS	SSRS Omnibus	MSG ID+	None	2009	2015	696,688	622,684



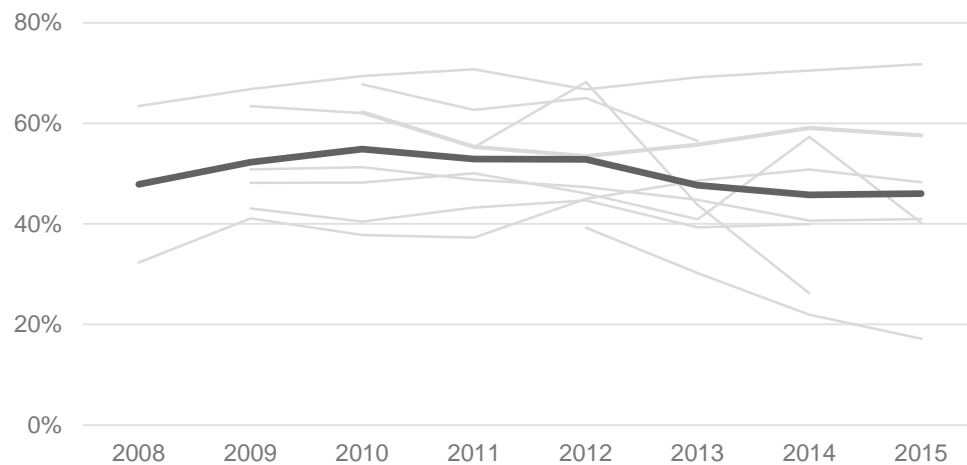
Trends in Dispositions: Refusals and Callbacks

Refusal Rate: Landlines



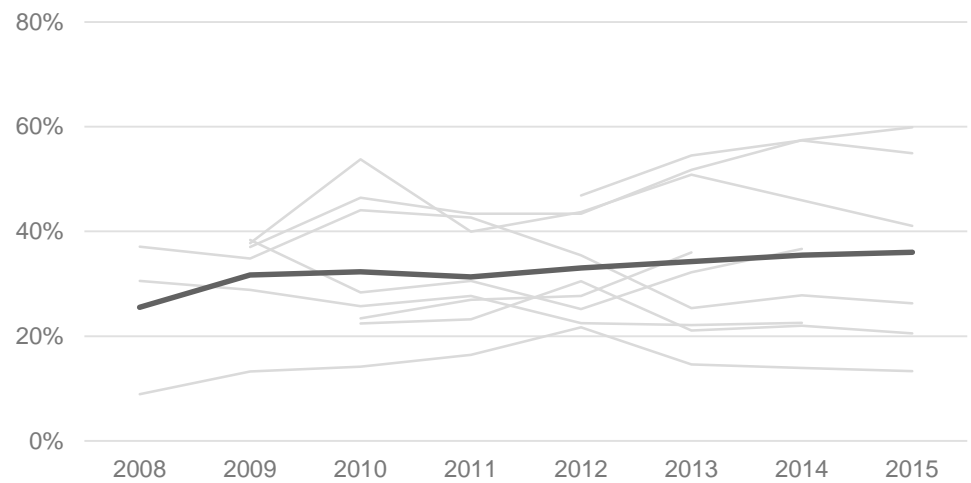
Landlines: 4% increase

Refusal Rate: Cellphones



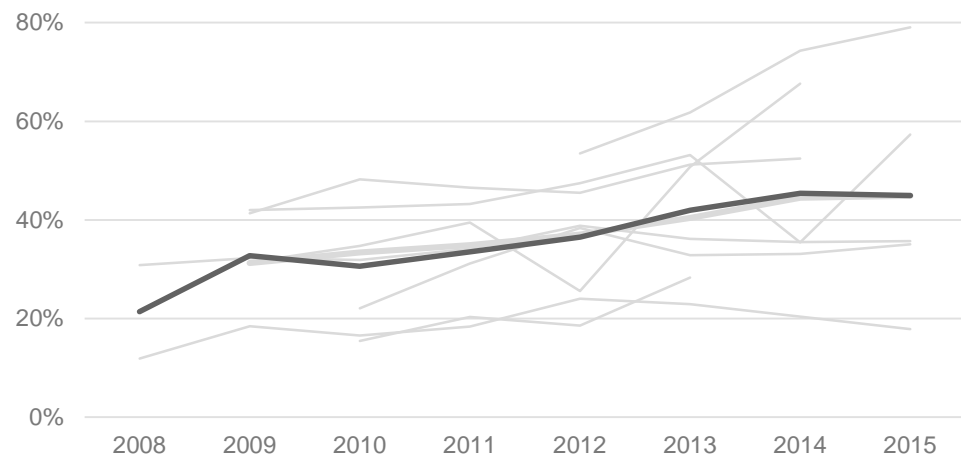
Cell Phones: 2% decrease

NA/AM Rate: Landlines



Landlines: 10% increase
(4% since 2009)

NA/AM Rate: Cellphones

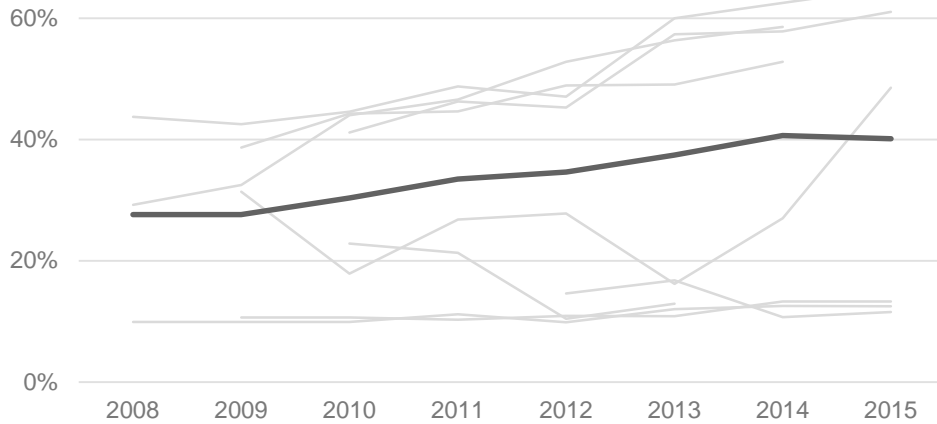


Cell Phones: 24% increase
(14% since 2010)



Trends in Dispositions: Non-Working

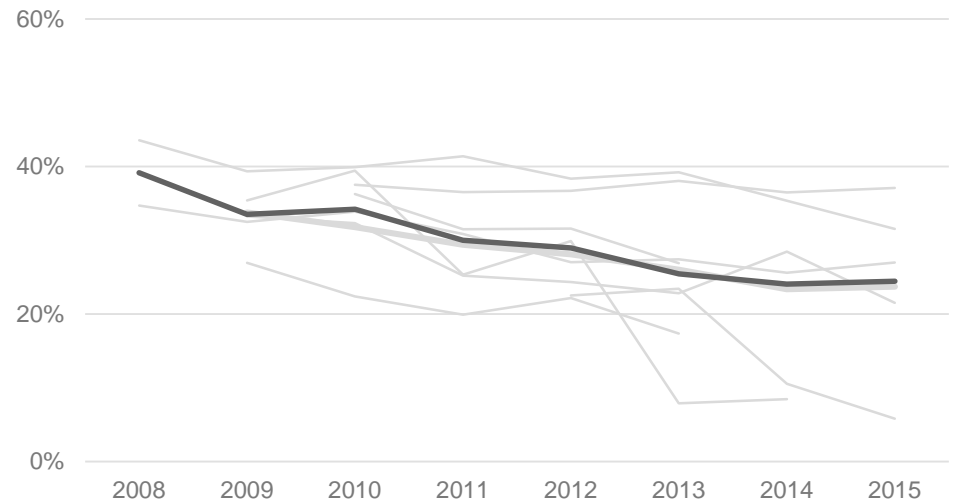
NW Rate: Landlines



Landlines: 12% increase

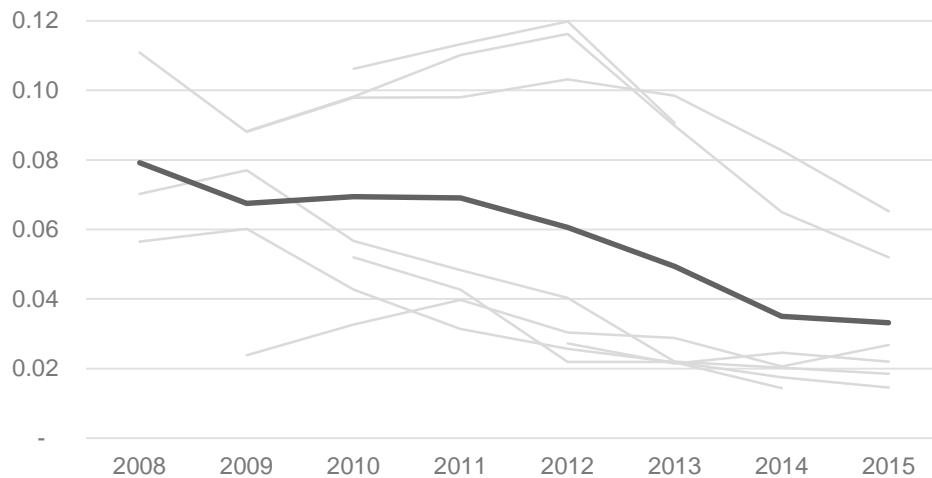
Cell Phones: 15% decrease
(10% since 2009)

NW Rate: Cellphones



Trends in Dispositions: Yield

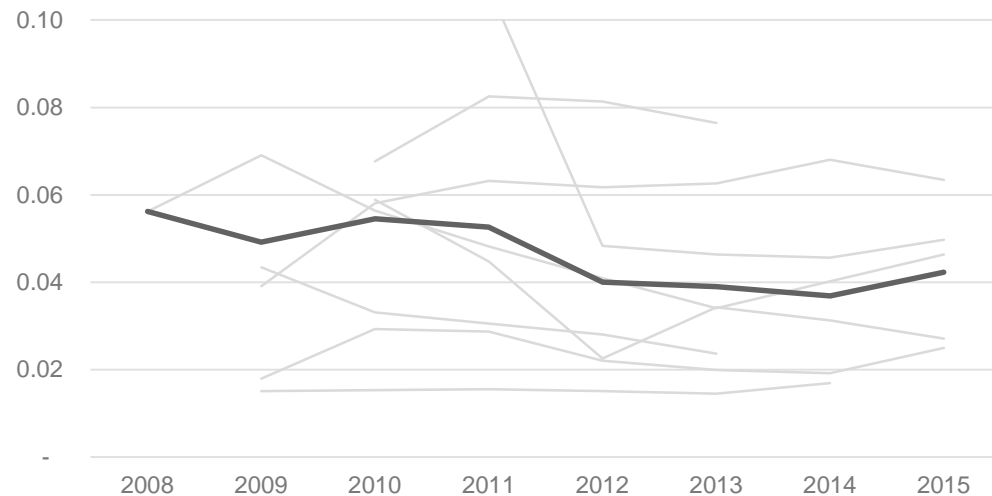
Yield: Landlines



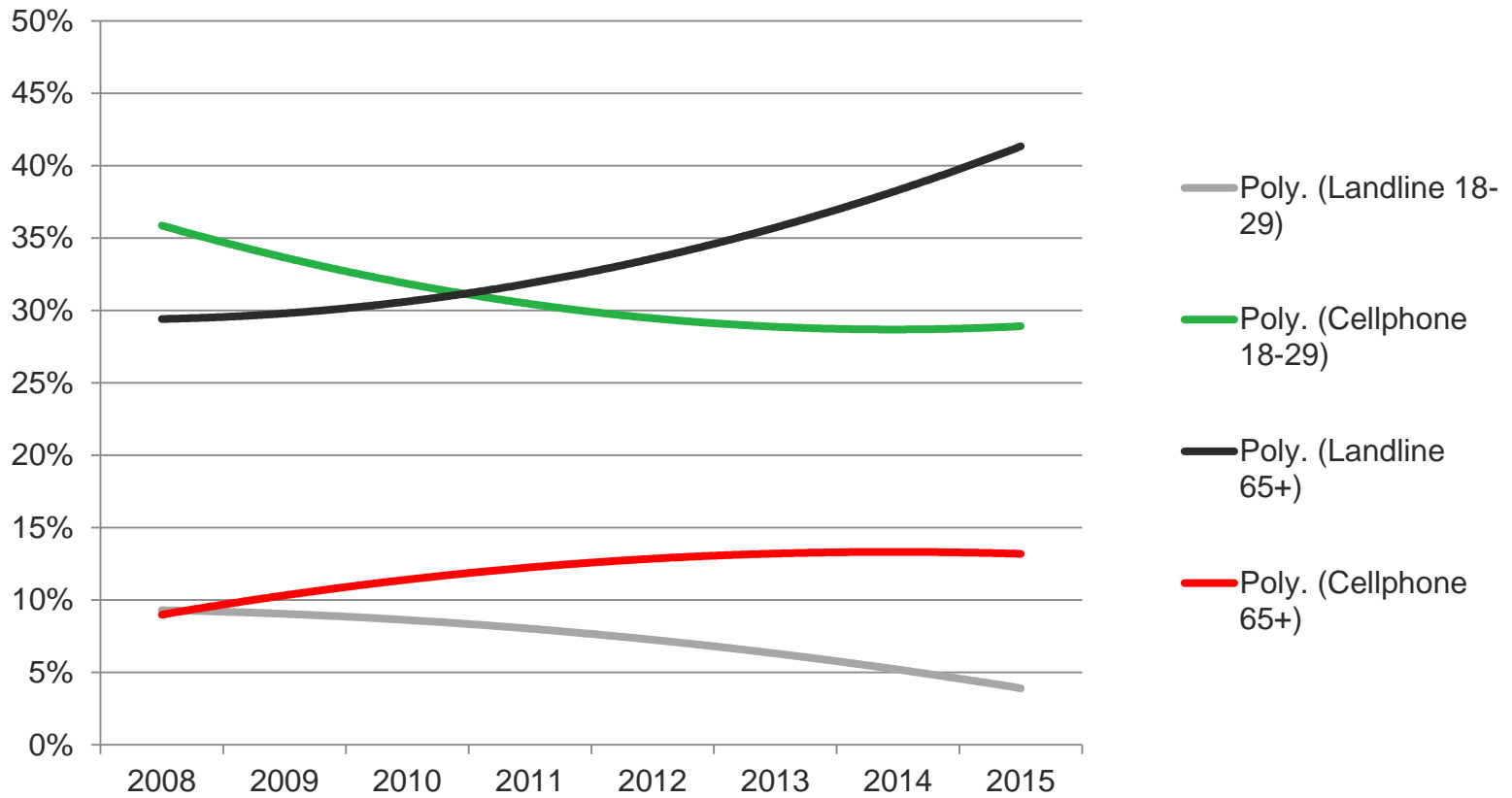
Landlines: decreased yield by a factor of 2.4 (2.0 since 2009)

Cell Phones: decreased yield by a factor of 1.3 (1.15 since 2009)

Yield: Cellphones

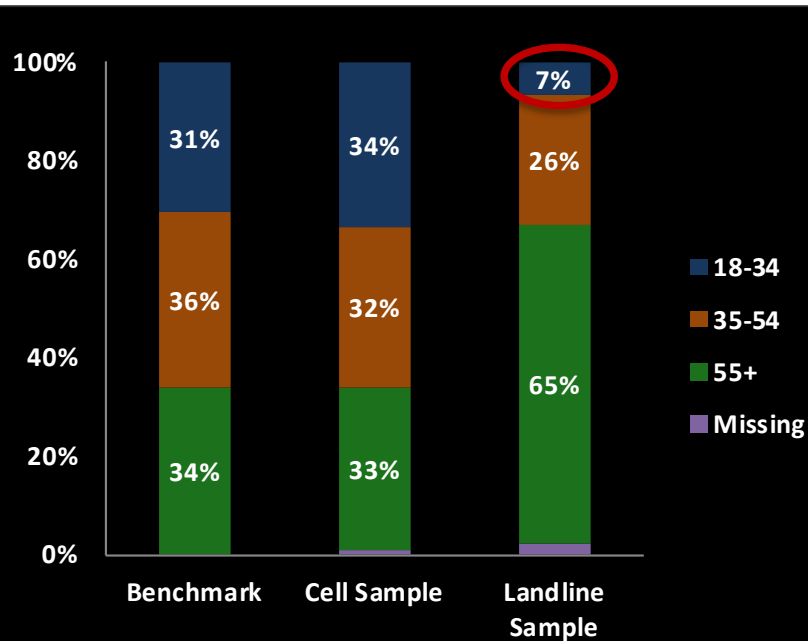


Trends in Respondent Age, 2008-2015

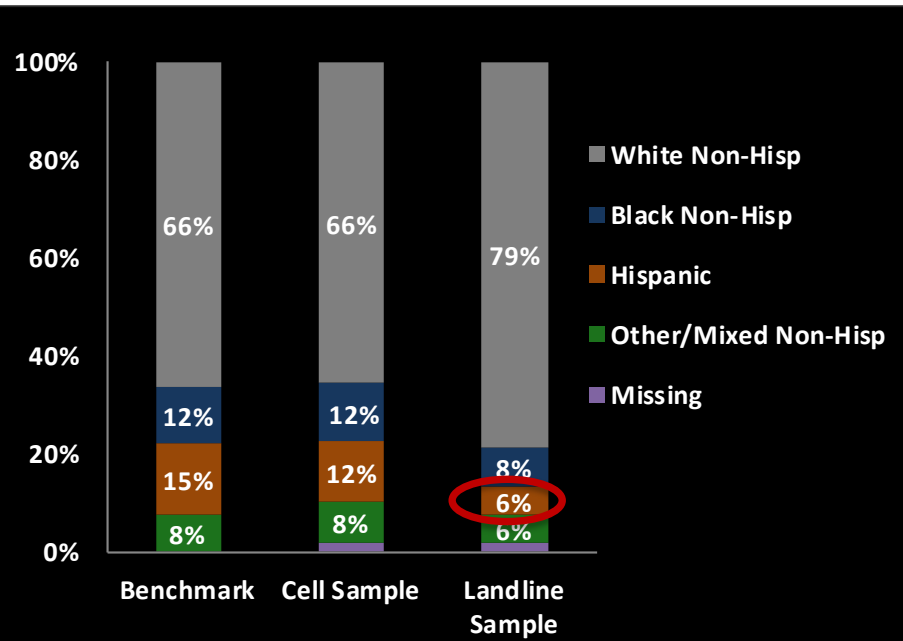


Changes in Telephone Survey Demographics

Age Distribution by Sample



Race Distribution by Sample



Note: Pew Research Center 2014

Data Quality: A Review of Telephone vs. Opt-In

Lets Be Clear Here...

Many claims have been made regarding whether telephone has “lost steps” in data quality, such that opt-in surveys are just as good.

I don't agree or disagree. However....

This is an empirical question, embedded in a logical argument:

1. High response rate telephone is superior in data quality to opt-in.
2. High response rate telephone is a thing of the past.
3. (Research question): Has the loss of response rate resulted in low data quality? How much lower relative to data quality in opt-in?

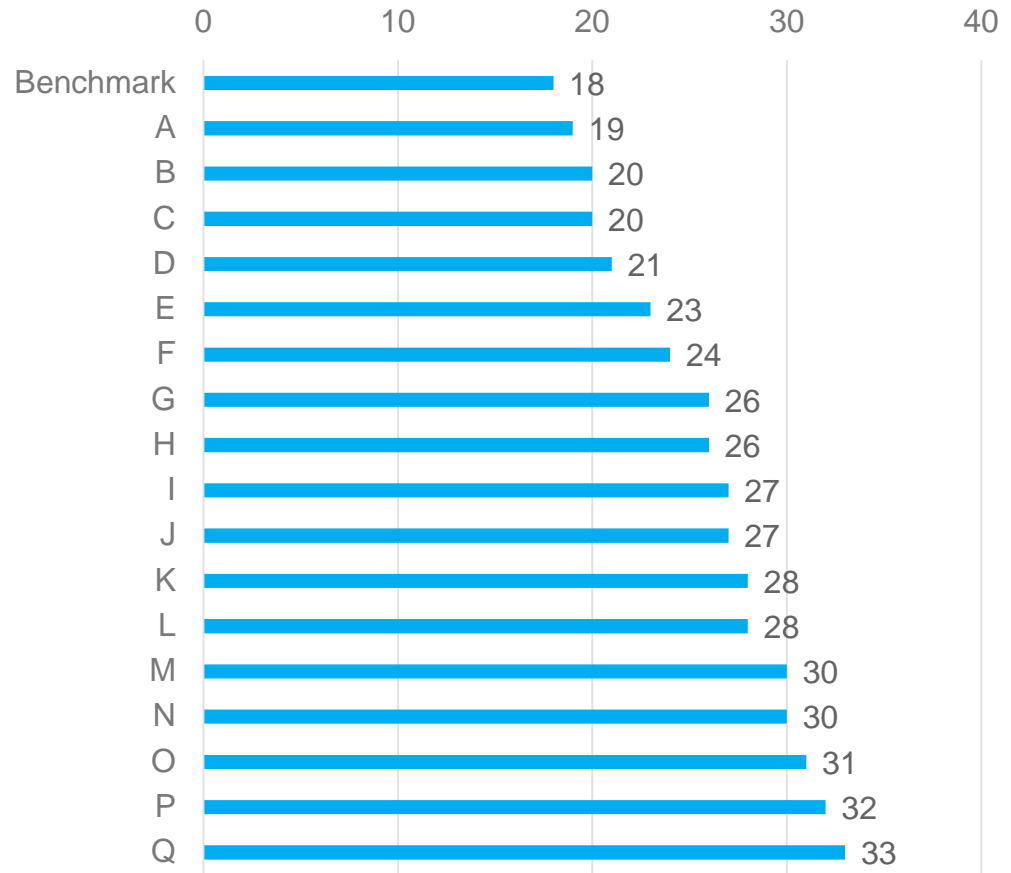
...So lets see what the data says....

How do we compare?

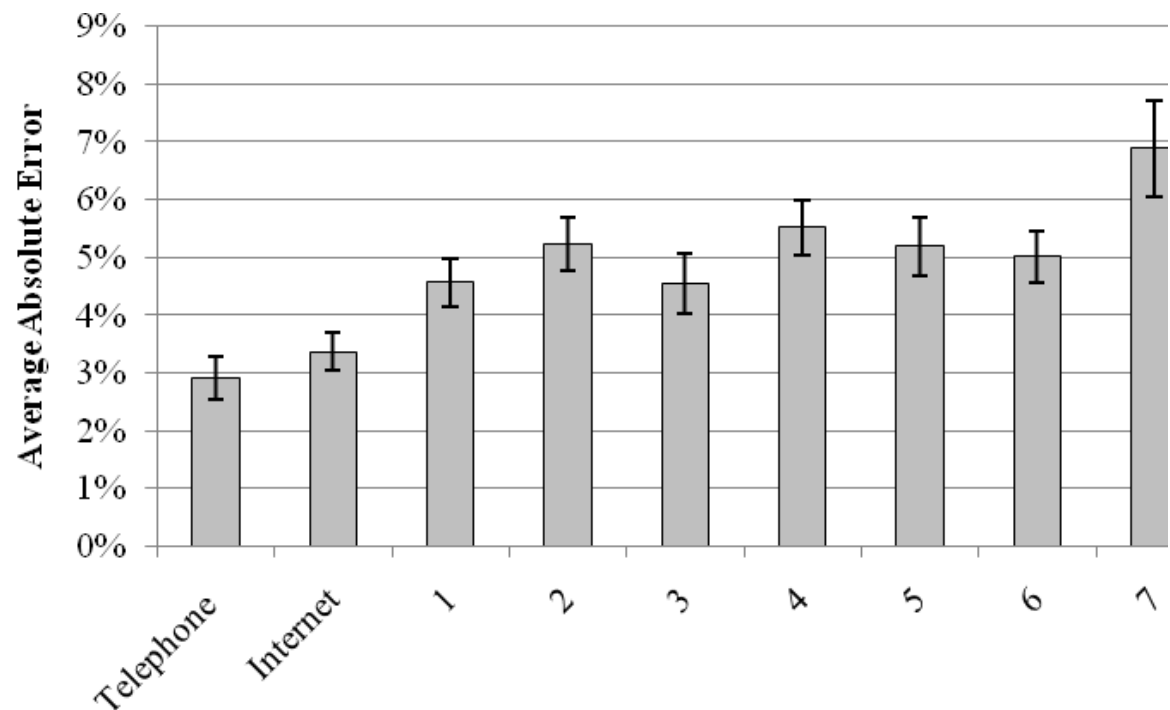
- Direct comparisons
- Mean absolute error
- Largest absolute error
- Number of significant differences
- Standard deviation of the absolute biases
- Weighted cost per interview (cost per effective interview)

- The Advertising Research Foundation (ARF) set up the Online Research Quality Council (ORQC) in August 2007.
- 17 US online panel providers (all using nonprobability samples) a telephone sample panel, and a mail sample panel.
- Factual and behavioral questions were asked with the same question wording as the benchmarks they would be compared against; data weighted.
- Wide variation across panels in the survey estimates.
- Sample tenure effected estimates derived from panels.

Comparison of Smoking Prevalence; Benchmark vs. 17 Opt-In Panels



- Yeager: Data from one Random Digit Dialing (RDD) telephone survey, one Internet survey of a probability sample recruited by RDD, and seven Internet surveys of non-probability samples were compared against benchmarks.
- Mean absolute error based on dozens of metrics from demographics to drinking habits to ownership of a number of products/household features.
- Bias about 40% worse on opt-in; weighting essentially made no difference.
- Similar results found in other Stanford studies including Malhotra et al (2007) and Chiang et al (2009).



Weighting Approaches

- Given a clear tendency toward bias, alternative approaches have been applied to opt-in in the attempt to reduce survey error:
 - Propensity weighting (w/ or w/o webographics)
 - Calibration
 - Sample matching
- Success has been quite mixed.*

Schonlau, Van Soest & Kapteyn, 2015

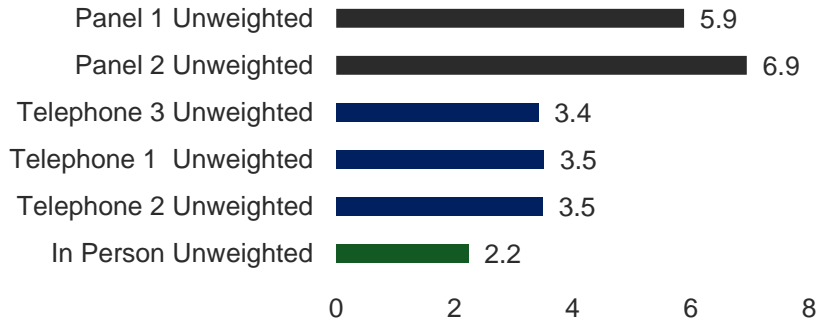
		Phone	Web Raw	Web Raked	Web Raked & Web
Attitudinal Questions	eager to learn	57.1%	60.4%	59.6%	56.9%
	takes chances	53.9%	60.9%	62.1%	52.4%
	often feel alone	54.1%	60.6%	58.4%	53.5%
In the last month have you..	traveled?	29.8%	53.5%	44.2%	32.9%
	participated in sport?	11.7%	25.5%	17.0%	11.7%
	read a book?	63.2%	77.5%	76.7%	71.0%
Violation of Privacy	airport search	28.9%	18.4%	14.5%	23.6%
	cookies	72.1%	71.9%	65.4%	68.4%
	phone calls	70.5%	72.6%	77.0%	74.7%
	aids screening	38.8%	31.6%	25.5%	40.1%
	credit card storage	84.3%	65.3%	71.9%	87.0%
Know anyone who is gay	no	40.4%	19.7%	28.2%	39.4%
	family	19.5%	22.2%	19.5%	16.7%
	closefriend	21.6%	18.5%	13.9%	21.4%
	acquaintance	40.2%	44.2%	35.1%	38.8%
	other	19.3%	25.3%	23.8%	19.3%

* See Dever & Shook-Sa, 2015; DiSogra et al., 2015; Peters, 2015; Rivers, 2009; Schonlau, 2007; ZuWallack, 2015.

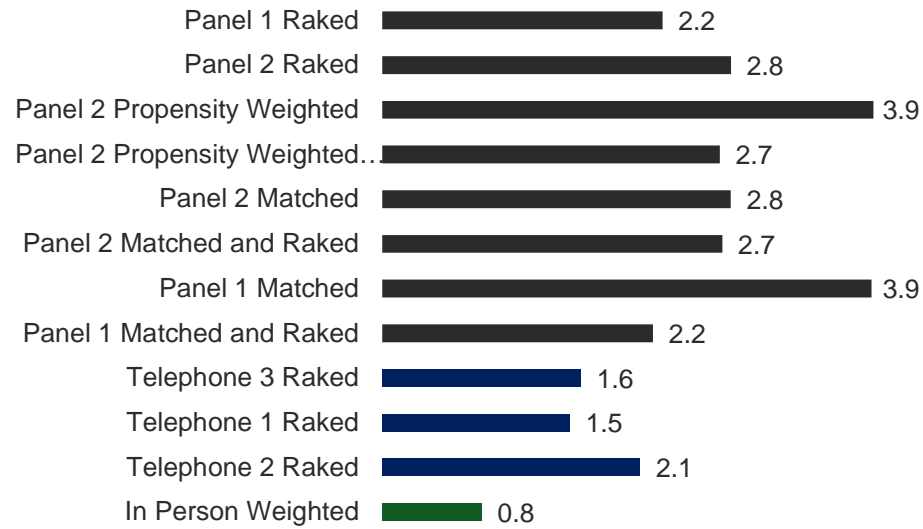
Dutwin/Buskirk

Major comparison of three telephone samples, two opt-in panels, and one in-person sample with a range of weighting applications tested, across key demographic interactions.

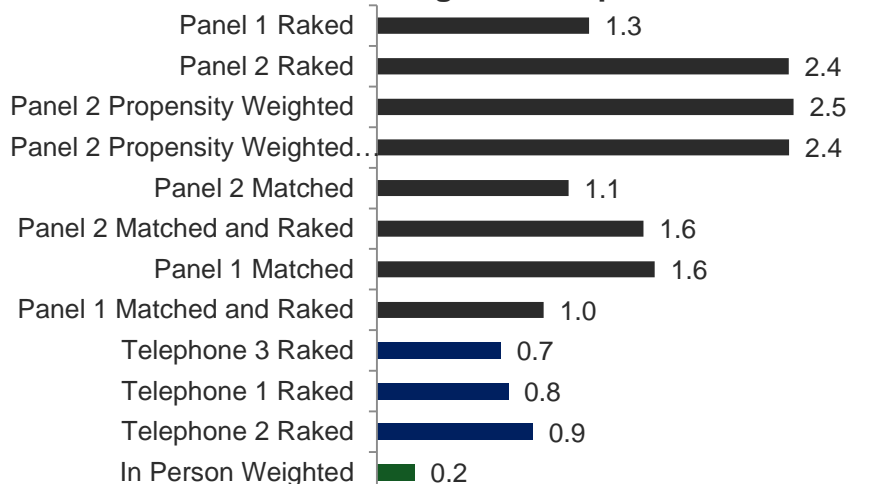
Overall Average Absolute Biases for Row/Column Percentages by Unweighted Samples



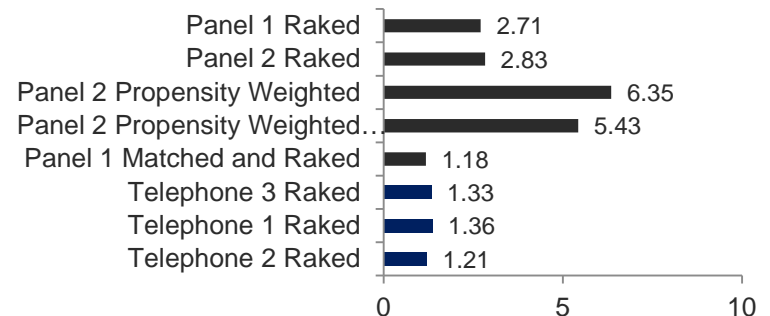
Overall Average Absolute Biases for Row/Column Percentages by Weighted/Matched Samples



Average Standard Deviation of Absolute Biases for Weighted Samples



Unequal Weighting Effects



RESEARCH SYNTHESIS

AAPOR REPORT ON ONLINE PANELS

PREPARED FOR THE AAPOR EXECUTIVE COUNCIL BY A TASK FORCE OPERATING UNDER THE AUSPICES OF THE AAPOR STANDARDS COMMITTEE, WITH MEMBERS INCLUDING:

- Researchers should avoid nonprobability online panels when one of the research objectives is to accurately estimate population values.
- The few studies that have disentangled mode of administration from sample source indicate that nonprobability samples are generally less accurate than probability samples.
- There are times when a nonprobability online panel is an appropriate choice.
- Not all research is intended to produce precise estimates of population values, and so there may be survey purposes and topics where the generally lower cost and unique properties of Web data collection are an acceptable alternative to traditional probability-based methods.

Data Quality: A Review of Telephone Data Quality 1996 - Present

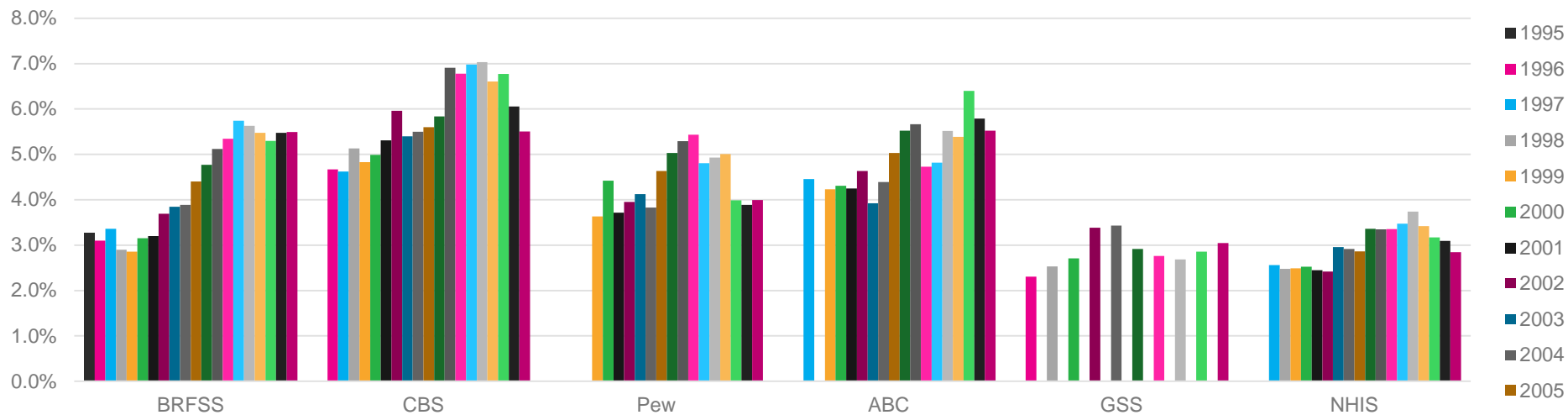
- Telephone response rates have plummeted over the past 20 years.
- Research conducted 15 years ago (Groves 2006; 2008; Keeter, 2000; 2006) found no significant differences between high response rate surveys and low response rate surveys artificially created from the high response rate studies.
- But since then response rates have dropped further still, so a modern analysis is necessary.
- However: if there are no modern high response rate telephone polls then there is no way to replicate the old method; rather, the only option is to analyze changes in bias on studies that strive to be operationally unchanged over time.

Sample Name	Mode of Data Collection	Cumulative Sample Size	Response Rate Formula	Notes
The BRFSS	Telephone	6,118,156	BRFSS CASRO	Weighted by age by gender, race/ethnicity, education, marital status, tenure, gender by race/ethnicity, age by race/ethnicity, region, and phone ownership (where applicable)
CBS Polls	Telephone	61,112	RR1	No data available for 2004, and 2005; Response rates reported are AAPOR RR1. Weighted by age, sex, race, education, region, and phone status (where applicable).
ABC Polls	Telephone	130,099	RR3	No data available for 1995, 1996, and 1998; Screened out cellphone respondents not cell phone only; Weighted by age, race/ethnicity, sex, education, and phone status (where applicable).
Pew Polls	Telephone	98,535	RR3	No data available until 1999. Weighted by gender by age, gender by education, age by education, region, race/ethnicity, population density, and phone use (where applicable).
The GSS	In-Person	32,749	RR3	Occurs only every other year; No post-stratification weighting
The NHIS	In-Person	1,244,070	RR3	No data available 1995 and 1996; Oversamples Hispanics, thus bias with race more pronounced: Weighted by age by sex by race.

Dutwin and Buskirk on Telephone Data Quality

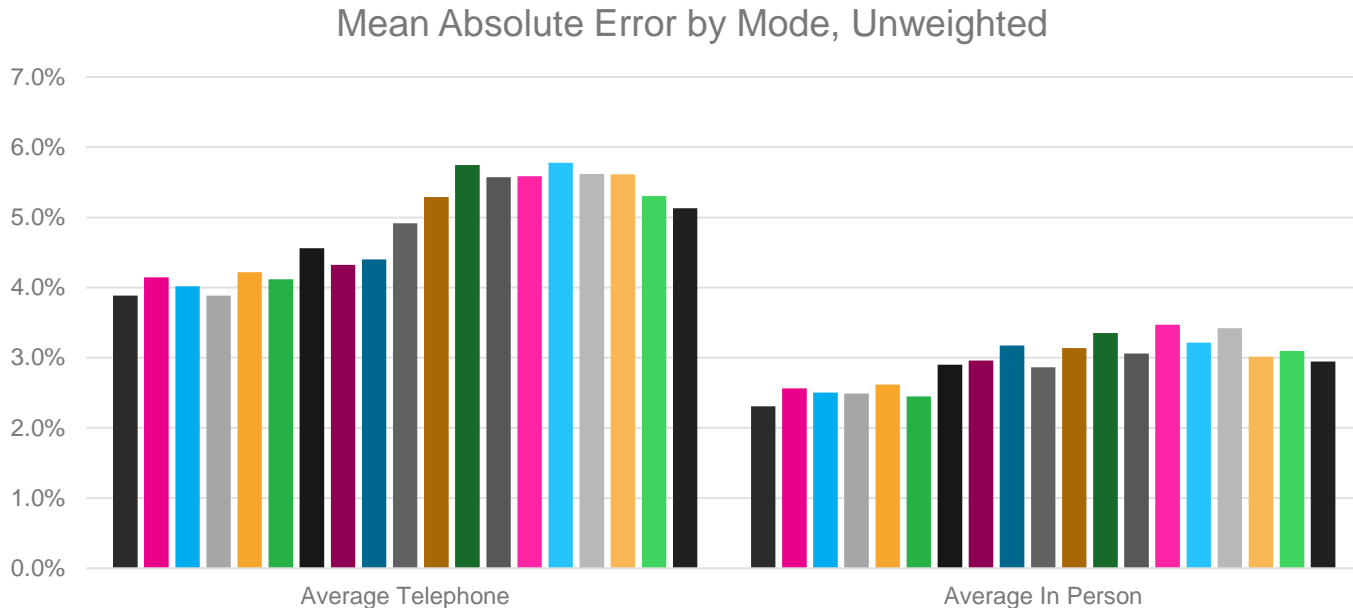
- Same interaction analysis of demographics used in Dutwin and Buskirk, 2016.

Mean Absolute Error by Dataset, Unweighted



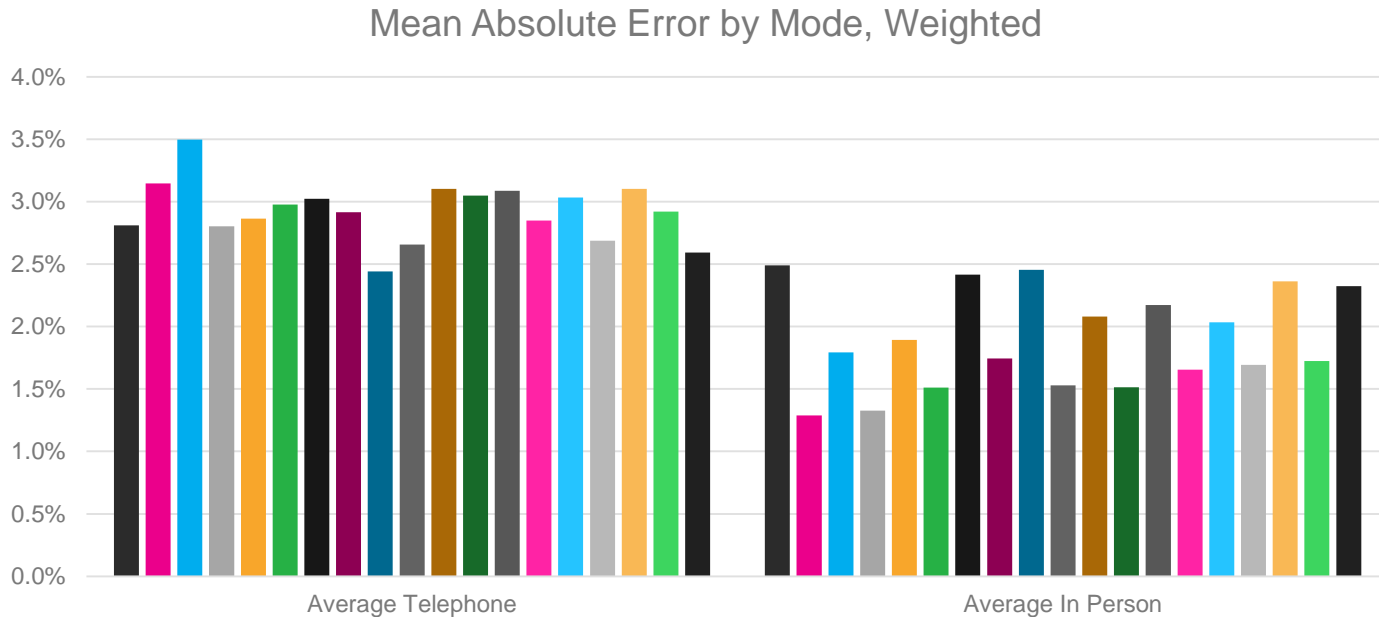
Dutwin and Buskirk on Telephone Data Quality

- Two statistically significant trends:
 - 2005 – 2007 increase in telephone bias
 - 2010 – 2015 decrease in telephone bias
 - No significant changes in in-person



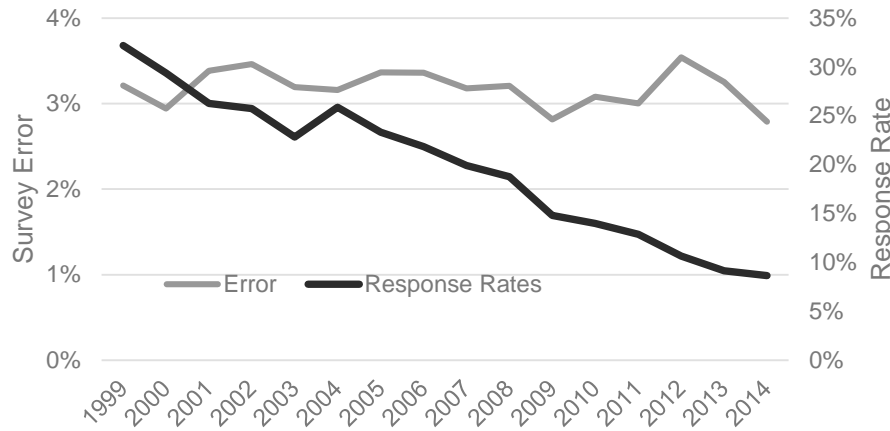
Dutwin and Buskirk on Telephone Data Quality

- Weighting eliminates all bias trends by year in both telephone and in-person samples



Dutwin and Buskirk on Telephone Data Quality

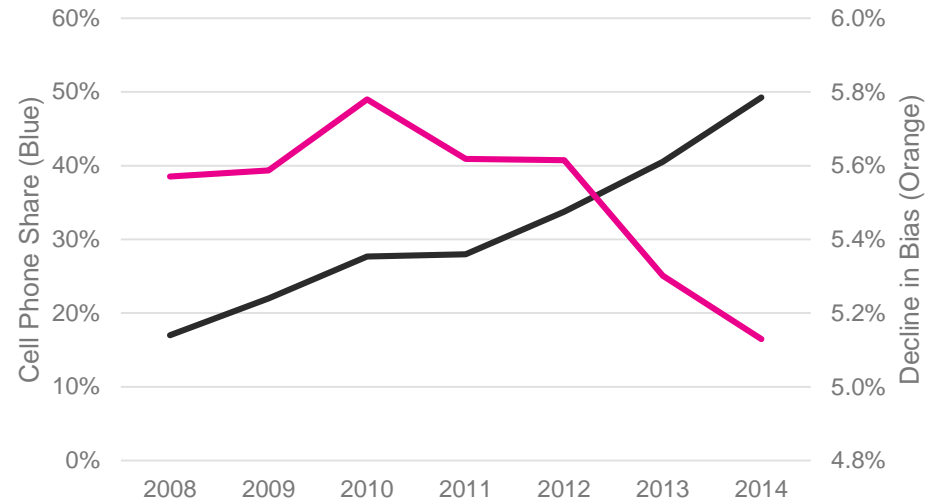
Error in CBS/NYT/ABC/WP/Pew Polls, Response Rate Overlaid, 1999-2014



- There is no overall relationship between response rates and weighted survey error over time.

- The share of cell phone interviewed conducted in a given study explains over 40% of the variance in survey error since 2008.

Cell Phone Share vs. Decline in Bias



Telephone Survey Costs

- Telephone survey providers polled about the costs of telephonic research.
- Study completed in 2010, repeated in 2013 and again in 2016.
- Factors in variables that impact costs, such as use of dialers, dialer settings, sample scrubbing, etc.
- Key metrics:
 - Interviewer Hours per Completion = HPC = hours/completes
 - $HPC = 1/CPH$
 - Screening and Recruiting Hours per Completion = SRHPC
 - $HPC = SRHPC + \text{interview length}$

Guterbock 2010 Study

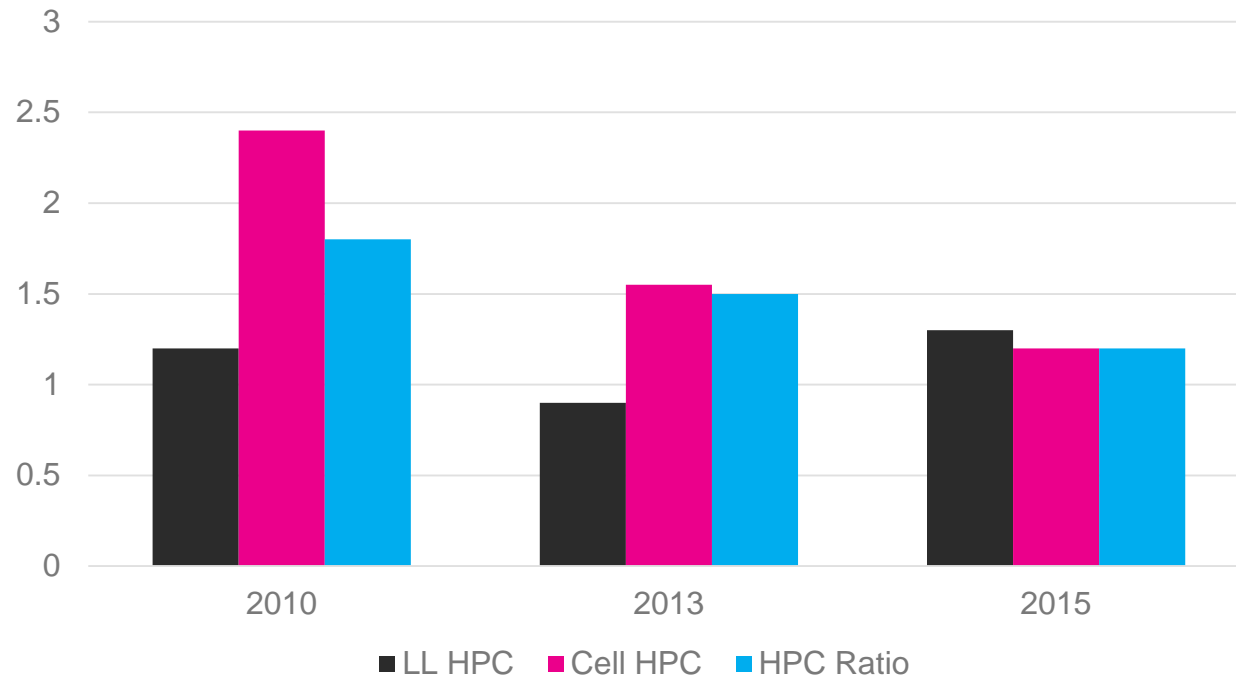
Productivity Statistics and Cost Ratios for Dual Frame RDD Surveys			
	Screening and Recruiting Hours per Completion	Hours per Completion	Overall Cost per Interview
Ratio (cell/landline)	SRHPC Ratio	HPC Ratio	Cost Ratio
Mean	2.53	2.00	2.05
Minimum	1.21	1.17	1.35
Maximum	5.37	3.47	3.97
N	26	26	20
Std. deviation	1.02	.63	.77

Guterbock 2013 Study

Productivity Statistics for Dual Frame RDD Surveys				
	Screening and Recruiting Hours per Completion		Hours per Completion	
Ratio (cell/landline)	SRHPC Ratio		HPC Ratio	
	2010	2013	2010	2013
Mean	2.5	1.7**	2.0	1.5**
Minimum	1.2	.77	1.2	.85
Maximum	5.3	3.7	3.5	2.9
N	26	36	26	37
Std. deviation	1.0	.71*	.63	.51*

Guterbock Cost Trends

Analysis of Hours per Completion and Frame Ratio



Costs: Opt-In versus Telephone

- Based on a typical 15 minute political opinion poll requiring some project management, programming, incentives, weighting and estimation (no analysis and reporting which is constant between frames).

	Opt-In	Telephone	Cost Ratio
CPI	\$15	\$60	4:1
Design Effect	2.0	1.3	
Effective N on 1,000	500	770	
CPEI	\$30	\$78	2.6:1

Costs:

- Landline costs are up, cell phone costs are down, but cell phone surveys are still more expensive than landline.
- Given that cell phones are the future of telephone surveying, it is encouraging however that costs are still going down.
- That said, even with effective sample sizes factored in, opt-in surveys are, and surely always will be significantly less expensive/

Quality:

- Telephone errors increased in the early 2000s, but have been in decline since then, likely due to the discarding of landlines.
- Telephone errors minimally two times less than opt-in.
- Variance of errors substantially greater in opt-in surveys compared to telephone.

What does this mean?

- Groves noted the importance of “fit for purpose” in research; never has it been more true! In so far that telephone costs now remain stable, and the quality assessments do as well, AND there are no major improvements on opt-in, then there will be a role for telephone research well into the future.
- That said, a change in any of the three variables will impact the future of telephone research.



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with any questions



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