Multi-Mode Political Surveys
An Exploratory Study

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Abstract
Despite the fact that recent polling in the US has performed no worse than in the past on average, significant misses in some races have pollsters and poll watchers concerned about the future of political polling. Of primary concern is the potential biases created by increasing cellphone-only households, declining response rates, and the relationship between non-coverage, nonresponse and voting. The increasing costs required to conduct methodologically sound pre-election polling is another concern. All of these concerns are forcing pollsters to adopt new methodologies, one of which is the use of multi-mode surveys. Multi-mode surveys are used to combine the strengths of multiple methodologies in order to achieve higher response rates, more representative samples, and better response quality. There is also evidence that using a multi-mode design reduces the cost and increases the efficiency of a survey. This paper explores the feasibility of using a multi-mode design (web and telephone) to conduct voter surveys by presenting a comparison of survey efficiency, response rates, sample representativeness, and survey estimates produced by using telephone and web-based data collection strategies. The data used is from surveys conducted using list-based samples of registered Pennsylvania voters during the months of June (n=599), August (n=691), and October (n=677) 2015.

Key Words: Representativeness, multi-mode methodology, R-indicator

1. Introduction and Background

Data collection methodologies and sample designs for public opinion research have changed rapidly over the past ten years due primarily to the increased use of cellphones and the internet. From 2004 to 2014, the percent of American adults who are cellphone-only (do not have a landline) has increased from five percent in 2004 to forty-four percent in 2014.[1] Cellphone and internet users tend to look much different demographically, behaviorally, and attitudinally from respondents that can be reached by landline telephone, and from the general public. African American and Hispanic racial groups, as well as young adults, are demographic groups that are predominantly cellphone-only.[2] Race and age also differ for internet surveys - as of 2010, only 71% of the U.S. population had internet service at home, and there are significant demographic differences between the percent of the population with access and those without. Due to these potential representativity issues, a multi-mode approach may be a better technique than using web or phone alone. Multi-mode surveys combine the positive aspects of each methodology in order to achieve higher response rates and increase representativity

among the population of interest. Multi-mode designs can use combinations of cellphone-only samples, traditional random digit-dialing (RDD) (landlines), list samples, address-based samples (ABS), and internet samples.

Telephone interviewing has historically produced accurate and reliable pre-election polls, but the cost of conducting phone surveys has increased significantly in recent years, causing researchers to seek alternative modes of data collection. [12] Internet surveys are low-cost compared to phone surveys, with cost benefits of web lying in time-saving and lack of need for interviewer-associated costs.[3] Other advantages such as: the ability to test alternate research elements such as audio, videos, and images; increased convenience for the respondent; less social-desirability bias as a result of interviewer-administered surveys; the ability to ask respondents to answer longer open-ended questions, without relying on the interviewer to accurately transcribe the response; a potential for lower item nonresponse (which could be enforced by requiring respondents to answer certain questions in order to proceed through the survey); as well as faster project turnaround time.[4] Add to this the evidence that using a multi-mode design reduces the cost and increases the efficiency of a survey and it seems likely that multi-mode designs will be more frequently used.[5]

The potential to improve sample representativity through multi-mode design is tempered by the fact that using a multi-mode approach could lead to differences in data depending on the survey method used. A comparison of data collected from a multi-mode design using web and phone surveys by Chang and Krosnick (2009) indeed found differences in their data, specifically that "telephone data manifested more random measurement error, more survey satisficing, and more social desirability response bias than did the Internet data."[4] A Pew Research study of over 3,000 respondents randomly assigned to either phone or web found that web respondents more frequently expressed negative views of politicians than phone respondents. They also found that respondents interviewed on the phone were more likely to say they were satisfied and happy with their social life and family than web respondents.[6]

2. Methodology

During June, August, and October 2015 samples of registered voters in Pennsylvania were obtained from Labels & Lists and the multi-mode design was offered to a subsample of 25% of registered voters each month. Voters in the subsample with listed phone numbers received pre-notification letters, informing them that they would be receiving a call to participate in the survey and offering the option to complete the survey online. Letters were also sent to registered voters in the subsample who did not have a listed phone number, inviting them to participate in the survey online or over the phone. Interviews were completed over the phone and online depending on each respondent's preference. The remaining sample of registered voters with listed phone numbers were contacted using traditional telephone-only methodology. Responses from each month were combined and analyzed in the aggregate.

3. Findings

3.1 Efficiency

Efficiency is measured using the number of interviewing hours required to obtain one completed interview or hours per complete (HPC). Hours per complete captures response in relation to labor: the efficiency of a survey increases as the HPC decreases. Declining sample efficiency for our RDD surveys over the past decade drove a switch to listed samples.

To help isolate the effect of a multi-mode methodology, HPC was compared for statewide political polls conducted in June, August, and October from 2006 through 2015. Overall, hours per complete is significantly ($F(.2,22)=10.122$, $p = .001$, $\eta 2p = .479$) affected by survey methodology (Figure 3.1). Post hoc comparisons using Tukey HSD test indicated that the mean score for RDD methodology ($M = 1.243$, $SD = .049$) is significantly higher than both listed methodology ($M = .906$, $SD = .065$) and multi-mode methodology ($M = .917$, $SD=.106$), but there is not a significance difference between HPC for listed and multi-mode methodology.

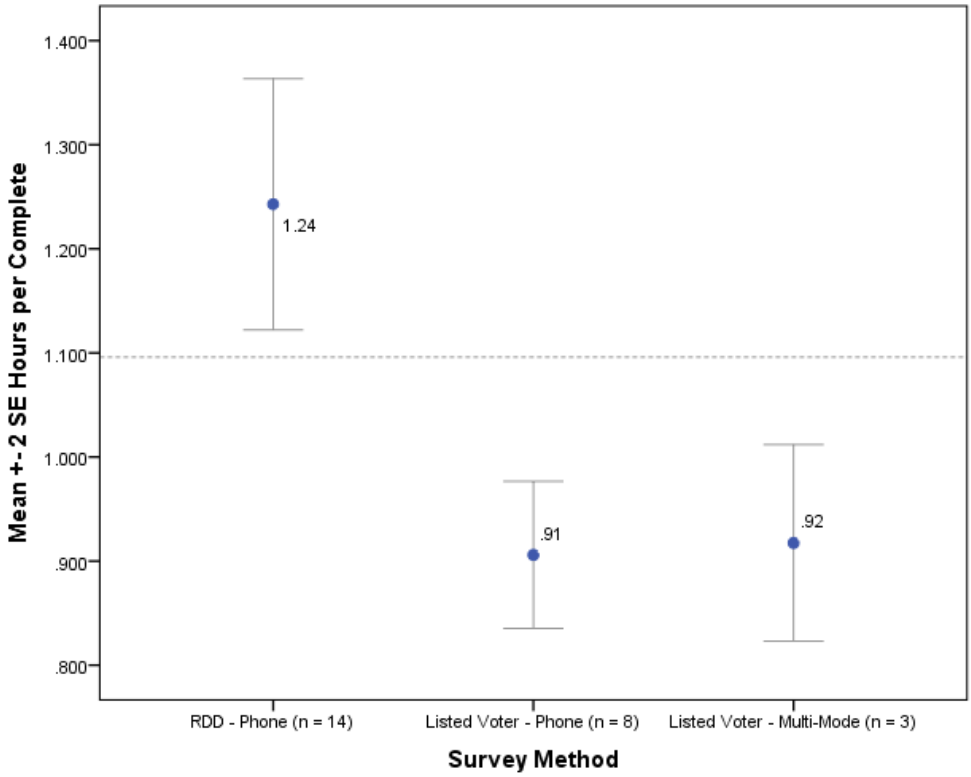

Figure 3.1. Efficiency – Hours per Complete by Survey Sample and Mode

3.2 Survey Estimates

This multi-mode experiment produced few differences in response patterns by mode. In terms of demographics, web respondents were more likely than phone respondents to be under 55 and were less likely to be retired. Web respondents were also less likely to be registered Democrats (see Figure 3.2). Respondents, whether responding by telephone or online, rated the performance of political figures similarly (Figure 3.3).

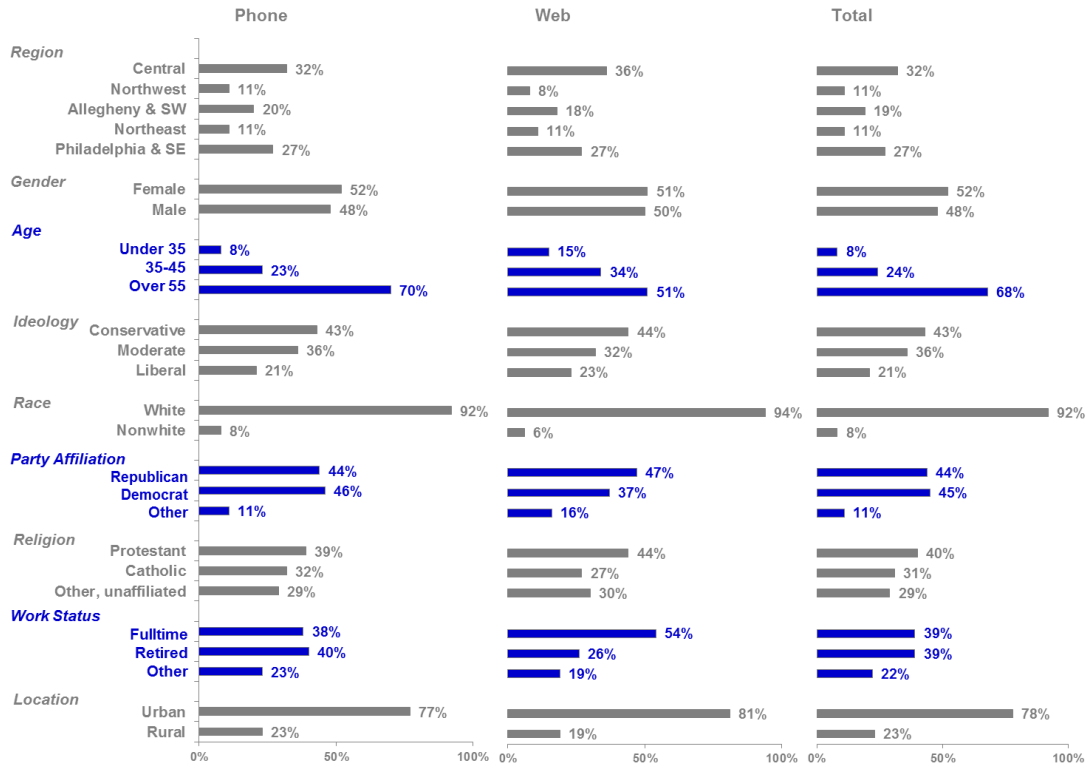

Figure 3.2. Demographic Characteristics by Survey Mode

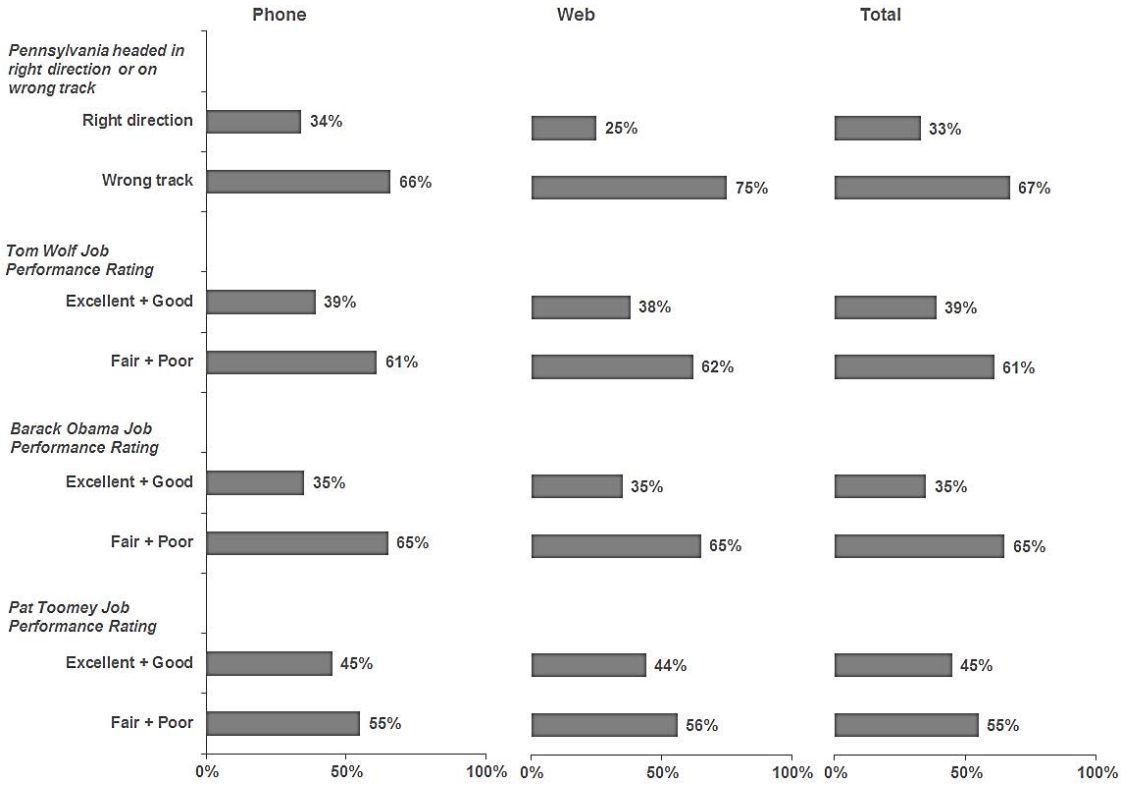

Figure 3.3. Political Ratings by Survey Mode

3.3 Representativity

Probability sampling operates under the assumption that a small sample accurately represents the features of a large, unobserved population. High response rates have traditionally been used as an indicator that a randomly drawn sample provides the necessary foundations for unbiased inference, but two issues highlight the problem of using response rates to assess validity. First, nonresponse rates have been dramatically increasing; the National Research Council (2013) found an increase in both nonresponse and refusal rates in six common household surveys from 1990 to 2009.[i] Second, response rates are no longer considered a good measure of sample respresentativeness. Groves and Couper (1998) first demonstrated that response rates have no direct correlation to survey error. Groves also found no relationship between response rate and absolute relative bias of the survey.

Instead of relying on response rates, researchers are now more likely to reference a survey's representativeness through some type of representativity (R) indicator.[ii] R-indicators provide a tool for assessing survey bias and adjusting for nonresponse by comparing information about respondents and nonrespondents that exists within the original sample file. When the respondents and nonrespondents are identical an R-indicator has a theoretical value of 1; however, a value of 0.7 or higher is accepted as representative (Peress 2010, Schouten et al. 2009). In addition, an R-indicator creates a propensity score, or likelihood of responding, for everyone in the sample.

The overall R-indicator for these studies is .88, which suggests that the respondents are adequately representative of the original sample in terms of the variables for which we have data. The R-indicator for the unmatched respondents (those without a listed telephone) is actually a bit higher, .90, than the overall study value and suggests that including these respondents improves the overall sample representativity.[iii]

The likelihood of a case generating a completed survey is associated with five variables that were included in the listed sample data file. Party registration, having a listed phone number, region of residence, age, and voting history each have an independent effect on the likelihood of completing a survey. The likelihood of completing a survey increases as sampled respondents get older, increases the more frequently a respondent has voted, and is higher for those who live outside of Philadelphia (Table 3.1).

[i] Rising nonresponse rates have been documented by Brick and Williams (2013)[7], Groves and Peytcheva (2008)[8], Groves and Couper (1998)[9], Groves (2006)[10], and Kreuter (2013)[11].

[ii] Response rate is significantly impacted by survey methodology, in this study, with higher response rates for the multi-mode design, $X^2 = 114.357$, $p < .001$.

[iii] Including unmatched respondents via the web increased the overall response rate by about one percentage point for this study.

Table 3.1. Logistic Regression on Completing a Survey

	Estimate	Std. Error	t value	Pr(>|t|)
Male	0.003	0.003	0.931	0.352
Registered Other	0.022	0.006	3.739	0.000
Registered Republican	0.001	0.004	0.375	0.708
No Telephone Listed	-0.025	0.005	-4.622	0.000
No Pre-Notification Sent	-0.059	0.005	-11.170	0.000
Central PA	0.031	0.006	4.913	0.000
Northeast PA	0.010	0.007	1.342	0.180
Northwest PA	0.024	0.008	3.056	0.002
Philadelphia	-0.009	0.007	-1.294	0.196
Southeast PA	0.004	0.006	0.611	0.541
Southwest PA	0.012	0.008	1.506	0.132
25-34	-0.022	0.009	-2.559	0.011
35-44	-0.027	0.009	-3.138	0.002
45-54	-0.015	0.008	-1.775	0.076
55-64	0.004	0.008	0.494	0.621
65 and over	0.031	0.008	3.772	0.000
General Election Votes Cast	0.020	0.001	19.780	0.000
(Intercept)	0.064	0.010	6.351	0.000

3. Conclusions

This study provides evidence that the use of multi-mode surveys can be a useful strategy for gathering information from registered voters. The approach allowed respondents to choose the most favorable method of response and allowed us to develop a sample that was more representative by including more young respondents and fewer retirees in our final sample, but also failed to significantly impact other key demographic categories. Contrary to expectations, the study also revealed that political ratings did not differ significantly by survey mode, with web and telephone respondents providing similar ratings of elected officials. In this study, survey efficiency, measured in HPC, is significantly impacted by sampling method, but not by the use of multi-mode data collection methodology.

This study is a preliminary exploration of the feasibility of using a multi-mode methodology for election surveys and, as such, there are significant limitations associated with our findings. The primary limitation comes from our study design: only a small sample of respondents was offered the multi-mode option in each survey while our analyses pooled the results from all respondents. This undoubtedly limits and likely understates the size of the estimates on efficiency, nonresponse, and representativity. Our design may also limit our ability to detect differences in the demographic and attitudinal comparisons between web and phone respondents. Still, we believe the positive findings suggested by this study warrant further testing on a larger scale.

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