

2011

PUBLIC AFFAIRS PULSE

Survey Methodology

A national survey
commissioned by:



PUBLIC
AFFAIRS
COUNCIL

Conducted by Princeton Survey Research Associates International

SUMMARY

The Public Affairs Pulse Survey, sponsored by the Public Affairs Council, obtained telephone interviews with a nationally representative sample of 1,753 adults living in the continental United States. Interviews were conducted via landline ($n_{LL}=1,052$) and cell phone ($n_C=701$, including 313 without a landline phone). The survey was conducted by Princeton Survey Research Associates International. The interviews were conducted in English and Spanish by Princeton Data Source from August 10 to September 8, 2011. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ± 2.8 percentage points.

Details on the design, execution and analysis of the survey are discussed below.

DESIGN AND DATA COLLECTION PROCEDURES

Sample Design

A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in the continental United States who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International LLC (SSI), according to PSRAI specifications.

Numbers for the landline sample were drawn with equal probabilities from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted but was drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

Contact Procedures

Interviews were conducted from August 10 to September 8, 2011. As many as five attempts were made to contact every sampled landline telephone number, and as many as three attempts were made to each sampled cell phone number. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making

contact with potential respondents. Interviewing was spread as evenly as possible across the days in field. Each telephone number was called at least one time during the day in an attempt to complete an interview.

For the landline sample, interviewers asked to speak with the youngest adult male or female currently at home based on a random rotation. If no male/female was available, interviewers asked to speak with the youngest adult of the other gender. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender when combined with cell interviewing.

For the cellular sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult and in a safe place before administering the survey. Cellular respondents were offered a post-paid cash reimbursement for their participation.

WEIGHTING AND ANALYSIS

The first stage of weighting corrected for different probabilities of selection associated with the number of adults in each household and each respondent's telephone usage patterns.¹ This weighting also adjusts for the overlapping landline and cell sample frames and the relative sizes of each frame and each sample.

This first-stage weight for the i^{th} case can be expressed as:

$$WT_i = \frac{1}{\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right)} \text{ if respondent has no cell phone}$$

$$WT_i = \frac{1}{\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right) + R} \text{ if respondent has both kinds of phones}$$

$$WT_i = \frac{1}{R} \text{ if respondent has no landline phone}$$

Where S_{LL} = size of the landline sample

S_{CP} = size of the cell phone sample

AD_i = Number of adults in the household

R = Estimated ratio of the landline sample frame to the cell phone sample frame

The equations can be simplified by plugging in the values for $S_{LL} = 1,052$ and $S_{CP} = 701$. Additionally, we will estimate the ratio of the size of the landline sample frame to the cell phone sample frame $R = 0.71$.

The second stage of weighting balances sample demographics to population parameters. The sample is balanced by form to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, number of adults in the household and telephone usage. The basic weighting parameters came from a special analysis of the Census Bureau's 2010 Annual Social and Economic Supplement (ASEC) that included all households in the United States. The population density parameter was derived from Census

¹ i.e., whether respondents have only a landline telephone, only a cell phone or both kinds of telephone.

2000 data. The cell phone usage parameter came from an analysis of the July-December 2010 National Health Interview Survey.²

Weighting was accomplished using Sample Balancing, a special iterative sample weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming Algorithm*. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters.

² Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December 2010. National Center for Health Statistics. June 2011.

Table 1: Sample Demographics

	<u>Parameter</u>	<u>Unweighted</u>	<u>Weighted</u>
	<u>Gender</u>		<u>Form 1</u> <u>Total</u>
	Male	48.5%	45.8% 48.7%
	Female	51.5%	54.2% 51.3%
	<u>Age</u>		
	18-24	12.8%	9.4% 12.4%
	25-34	17.9%	11.3% 16.8%
	35-44	17.7%	11.9% 17.3%
	45-54	19.4%	20.7% 19.5%
	55-64	15.4%	21.6% 15.6%
	65+	16.8%	23.4% 17.0%
	<u>Education</u>		
	Less than HS Graduate	13.7%	6.9% 12.1%
	HS Graduate	35.1%	28.3% 34.6%
	Some College	23.9%	26.6% 24.6%
	College Graduate	27.3%	37.9% 28.5%
	<u>Race/Ethnicity</u>		
	White/not Hispanic	68.3%	75.8% 68.5%
	Black/not Hispanic	11.5%	10.5% 11.0%
	Hispanic	14.0%	7.9% 12.6%
	Other/not Hispanic	6.2%	4.0% 6.1%
	<u>Region</u>		
	Northeast	18.5%	17.4% 18.5%
	Midwest	21.9%	26.5% 22.2%
	South	36.9%	35.3% 37.0%
	West	22.6%	20.8% 22.3%
	<u>County Pop. Density</u>		
	1 - Lowest	20.1%	23.0% 20.6%
	2	20.0%	24.6% 20.6%
	3	20.1%	23.6% 20.6%
	4	20.2%	16.6% 19.7%
	5 - Highest	19.6%	12.1% 18.5%
	<u>Household Phone Use</u>		
	LLO	9.3%	9.0% 9.0%
	Dual	60.2%	72.9% 61.3%
	CPO	30.5%	18.1% 29.7%
	<u>Number of adults in HH</u>		
	One	16.6%	23.9% 17.3%
	Two	53.6%	52.3% 54.0%
	Three +	29.8%	23.7% 28.8%

EFFECTS OF SAMPLE DESIGN ON STATISTICAL INFERENCE

Post-data-collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from systematic non-response. The total sample design effect for this survey is 1.41.

PSRAI calculates the composite design effect for a sample of size n , with each case having a weight, w_i , as:

$$deff = \frac{n \sum_{i=1}^n w_i^2}{\left(\sum_{i=1}^n w_i \right)^2} \quad \text{formula 1}$$

In a wide range of situations, the adjusted *standard error* of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (\sqrt{deff}). Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(\sqrt{deff} \times 1.96 \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \right) \quad \text{formula 2}$$

where \hat{p} is the sample estimate and n is the unweighted number of sample cases in the group being considered.

The survey's *margin of error* is the largest 95% confidence interval for any estimated proportion based on the total sample — the one around 50%. For example, the margin of error for the entire sample is ± 2.8 percentage points. This means that in 95 out of every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 2.8 percentage points away from their true values in the population. The margin of error for estimates based on form 1 or form 2 respondents is ± 3.9 percentage points. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

RESPONSE RATE

Table 2 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible respondents in the sample that were ultimately interviewed. At PSRAI, it is calculated by taking the product of three component rates:³

- Contact rate — the proportion of working numbers where a request for interview was made⁴
- Cooperation rate — the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
- Completion rate — the proportion of initially cooperating and eligible interviews that were completed

Thus, the response rate for the landline sample was 10 percent. The response rate for the cellular sample was 8 percent.

³ PSRAI's disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.

⁴ PSRAI assumes that 75 percent of cases that result in a constant disposition of "No answer" or "Busy" are actually not working numbers.

Table 2: Sample Disposition

<u>Landline</u>	<u>Cell</u>	
30809	26500	T Total Numbers Dialed
1323	397	OF Non-residential
1437	49	OF Computer/Fax
9		OF Cell phone
14993	9765	OF Other not working
1709	344	UH Additional projected not working
11338	15946	Working numbers
36.8%	60.2%	Working Rate
570	115	UH No Answer / Busy
2923	6193	UO_{NC} Voice Mail
68	14	UO_{NC} Other Non-Contact
7777	9624	Contacted numbers
68.6%	60.4%	Contact Rate
619	1839	UO_R Callback
5978	6519	UO_R Refusal
1180	1266	Cooperating numbers
15.2%	13.2%	Cooperation Rate
56	50	IN1 Language Barrier
	503	IN2 Child's cell phone
1124	713	Eligible numbers
95.3%	56.3%	Eligibility Rate
72	12	R Break-off
1052	701	I Completes
93.6%	98.3%	Completion Rate
9.7%	7.8%	Response Rate