Methodology

Massachusetts U.S. Senate Poll

Prepared by Princeton Survey Research Associates International

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Results for the Massachusetts U.S. Senate Poll are based on telephone interviews with a random sample of 956 Massachusetts registered voters. Telephone interviews were conducted by landline (601) and cell phone (355, including 105 without a landline phone). The survey was conducted by Princeton Survey Research Associates International (PSRAI). Interviews were done in English by Princeton Data Source from October 31-November 3, 2012. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ±3.7 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 Massachusetts 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 October 31-November 3, 2012. As many as five attempts were made to contact every sampled telephone number. Sample was released for interviewing in replicates, which are representa   p

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 a disproportionate sample design and systematic non-response. The total sample design effect for this survey is 1.38.

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

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

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 (*deff*). Thus, the formula for computing the 95% confidence interval around a percentage is:

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 of registered voters is ±3.7 percentage points. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 3.7 percentage points away from their true values in the population. 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 sample that was ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:[3]

- o Contact rate – the proportion of working numbers where a request for interview was made[4]
- o Cooperation rate – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
- o Completion rate – the proportion of initially cooperating and eligible interviews that were completed

Thus the response rate for the land line samples was 10 percent. The response rate for the cellular samples was 14 percent.

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[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 an

Table 2:Sample Disposition

Landline	Cell		
19362	11245	**T**	Total Numbers Dialed
708	109	**OF**	Non-residential
720	73	**OF**	Computer/Fax
1		**OF**	Cell phone
9507	5580	**OF**	Other not working
1079	107	**UH**	Additional projected not working
7348	5376		Working numbers
37.9%	47.8%		Working Rate
360	36	**UH**	No Answer / Busy
3406	1475	**UO**$_{NC}$	Voice Mail
23	78	**UO**$_{NC}$	Other Non-Contact
3559	3787		Contacted numbers
48.4%	70.4%		