Ipsos Poll Conducted for Reuters

Boston Marathon Bombings 4.17.13

These are findings from an Ipsos poll conducted for Thomson Reuters from April 16 - 17 2013. For the survey, a sample of 520 Americans ages 18+ were interviewed online. The precision of the Reuters/Ipsos online polls is measured using a credibility interval. In this case, the poll has a credibility interval of plus or minus 4.9 percentage points. For more information about credibility intervals, please see the appendix.

The data were weighted to the U.S. current population data by gender, age, education, and ethnicity. Statistical margins of error are not applicable to online polls. All sample surveys and polls may be subject to other sources of error, including, but not limited to coverage error and measurement error. Figures marked by an asterisk (*) indicate a percentage value of greater than zero but less than one half of one per cent. Where figures do not sum to 100, this is due to the effects of rounding.

BOSTON MARATHON BOMBINGS

Q1. Do you approve or disapprove of the way each of the below is handling the Boston Marathon bombings?

	Strongly approve	Somewhat approve	Lean towards approve	Lean towards disapprove	Somewhat disapprove	Strongly disapprove	Don't know	*Total approve*	*Total disapprove*
President Barack Obama	36%	20%	12%	7%	2%	8%	15%	*68%*	*18%*
Massachusetts Governor Deval Patrick	38%	20%	13%	5%	*%	4%	19%	*71%*	*10%*
Local authorities in Boston	50%	19%	9%	4%	4%	*%	15%	*77%*	*7%*
Federal authorities	42%	21%	12%	4%	*%	4%	16%	*75%*	*9%*

Q2. How concerned, if at all, are you about your safety in each of the following situations?

	Very Concerned	Somewhat concerned	Not too concerned	Not at all concerned	Unsure	Not applicable	*Total concerned*	*Total unconcerned*
Attending a stadium sporting event (e.g. a baseball or basketball event)	16%	29%	24%	17%	4%	10%	*45%*	*41%*
Attending a public rally	15%	29%	23%	13%	4%	16%	*44%*	*36%*
Festivals or films	13%	26%	26%	21%	5%	9%	*39%*	*47%*
Attending a concert	13%	24%	27%	20%	4%	12%	*38%*	*47%*
Attending or running in a marathon	14%	22%	18%	16%	4%	25%	*37%*	*34%*
Going to a movie or film	11%	21%	28%	25%	5%	10%	*32%*	*53%*
Bars, restaurants or clubs	9%	19%	29%	27%	4%	12%	*27%*	*56%*
Going to your place of worship for a religious event	12%	14%	25%	33%	4%	12%	*26%*	*58%*

Q3. In your view, which of the following pose the biggest threat to the safety of average Americans?

Foreign terrorism (committed by non-Americans on American soil)	32%
Politically or religiously-motivated domestic terrorism (committed by Americans on American soil)	13%
Random acts of violence such as mass shootings (committed by Americans on American soil)	56%

Q4. Please indicate the extent to which you agree or disagree with each of the following statements:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Unsure	*Total agree*	*Total disagree*
An incident like the Boston Marathon bombings could happen near me	33%	33%	20%	7%	4%	4%	*65%*	*10%*
There should be more police and law enforcement at large public events	31%	32%	23%	5%	3%	4%	*64%*	*9%*
I worry that Americans' civil rights may be infringed upon in the aftermath of incidents like the Boston Marathon bombings	27%	28%	19%	10%	11%	6%	*55%*	*20%*
I worry about the increased cost to taxpayers if public events require more police and law enforcement officials	21%	25%	25%	15%	11%	4%	*46%*	*26%*
The Boston Marathon bombings have made me more fearful for my safety and the safety of my family	19%	23%	27%	12%	15%	4%	*42%*	*27%*

How to Calculate Bayesian Credibility Intervals

The calculation of credibility intervals assumes that Y has a binomial distribution conditioned on the parameter θ\, i.e., Y|θ~Bin(n,θ), where n is the size of our sample. In this setting, Y counts the number of "yes", or "1", observed in the sample, so that the sample mean ($\bar{y}$) is a natural estimate of the true population proportion θ. This model is often called the likelihood function, and it is a standard concept in both the Bayesian and the Classical framework. The Bayesian [1] statistics combines both the prior distribution and the likelihood function to create a posterior distribution. The posterior distribution represents our opinion about which are the plausible values for θ adjusted after observing the sample data. In reality, the posterior distribution is one's knowledge base updated using the latest survey information. For the prior and likelihood functions specified here, the posterior distribution is also a beta distribution (π(θ/y)~β(y+a,n-y+b)), but with updated hyper-parameters.

Our credibility interval for ϑ is based on this posterior distribution. As mentioned above, these intervals represent our belief about which are the most plausible values for ϑ given our updated knowledge base. There are different ways to calculate these intervals based on . Since we want only one measure of precision for all variables in the survey, analogous to what is done within the Classical framework, we will compute the largest possible credibility interval for any observed sample. The worst case occurs when we assume that a=1 and b=1 and . Using a simple approximation of the posterior by the normal distribution, the 95% credibility interval is given by, approximately:

$$\bar{y} \mp \frac{1}{\sqrt{n}}$$

For this poll, the Bayesian Credibility Interval was adjusted using standard weighting design effect 1+L=1.3 to account for complex weighting[2]

Examples of credibility intervals for different base sizes are below. Ipsos does not publish data for base sizes (sample sizes) below 100.

Sample size	Credibility intervals
2,000	2.5
1,500	2.9
1,000	3.5
750	4.1
500	5.0
350	6.0
200	7.9
100	11.2

[1] *Bayesian Data Analysis, Second Edition, Andrew Gelman, John B. Carlin, Hal S. Stern, Donald B. Rubin, Chapman & Hall/CRC | ISBN: 158488388X | 2003*

[2] *Kish, L. (1992). Weighting for unequal Pi . Journal of Official, Statistics, 8, 2, 183200.*