Ipsos Poll Conducted for Reuters

Marijuana 03.02.2015

These are findings from an Ipsos poll conducted for Thomson Reuters February 27-March 2, 2015. For the survey, a sample of 1,906 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 2.6 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. To see more information on this and other Reuters/Ipsos polls, please visit http://polling.reuters.com/.

MARIJUANA

Q1. Do you favor or oppose making the use of marijuana legal?

Favor	44%
Oppose	35%
Unsure	21%

Q2. Do you support or oppose the law allowing Washington, DC residents to be in possession of small quantities of marijuana for recreational purposes?

Support	43%
Oppose	36%
Unsure	21%

Q3. Should either of the following be able to intervene to prevent marijuana possession from becoming legal in Washington, DC?

	Yes	No	Not sure
Congress	31%	46%	24%
Federal Authorities	34%	44%	22%

Q4. How many times, if at all, have you engaged in the following behaviors? If the question is not applicable to you, please choose 'Not applicable'.

	Never	Once	Twice	3-4 Times	5 or more times	Not applicable/ Refused
Smoked marijuana	45%	6%	4%	6%	23%	17%
Purchased marijuana for personal use legally	71%	2%	1%	1%	4%	22%
Purchased marijuana for personal use illegally	59%	2%	1%	3%	15%	20%

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 π(θ/y). 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 y=*n/2*. 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.*