Ipsos Public Affairs

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Interview dates: Sept 21-25, 2012
Base: 1,340 registered voters (RV)
Base for Voting Intention: 1,122 Likely Voters (LV)

Ipsos Poll conducted for Reuters
DAILY ELECTION TRACKING 09.25.12

These are findings from an Ipsos poll conducted for Thomson Reuters from Sept 21-25, 2012. For the survey, a sample of 1,340 American registered voters (age 18 and over) was 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 3.1 percentage points for Registered Voters and 3.5 for Likely Voters. 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 a per cent. Where figures do not sum to 100, this is due to the effects of rounding.

DAILY ELECTION TRACKER

Q1. If the 2012 Presidential Election were being held today and the candidates were [ROTATE] Barack Obama for president and Joe Biden for vice president, the Democrats, and Mitt Romney for president and Paul Ryan for vice president, the Republicans [END ROTATE], for whom would you vote?

	All LIKELY Voters (LV)	All Registered Voters (RV)	Democrats (RV)	Republicans (RV)	Independents (RV)
Barack Obama for president and Joe Biden for vice president, the Democrats	49%	48%	86%	12%	33%
Mitt Romney for president and Paul Ryan for vice president, the Republicans	42%	39%	7%	81%	38%
Wouldn't vote	1%	3%	3%	2%	4%
None / Other	3%	4%	1%	2%	11%
Don't know / Refused	4%	6%	3%	3%	13%

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	All Registered Voters (RV)
Strong Democrat	17%
Moderate Democrat	20%
Lean Democrat	8%
Lean Republican	7%
Moderate Republican	16%
Strong Republican	14%
Independent	12%
None of these	3%
DK	3%

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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 $\pi(\theta/y)$. 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:

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

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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.

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.*