Ipsos Poll
$10 Bill 06.30.2015

These are findings from an Ipsos poll conducted June 26-28, 2015. For the survey, a sample of 1,011 adults, ages 18+ were interviewed online. The precision of the Ipsos online polls is measured using a credibility interval. In this case, the poll has a credibility interval of plus or minus 3.5 percentage points for all adults. 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.

Person on the $10

Q1. Who should be on the new $10 bill?

	Total
ELEANOR ROOSEVELT: A woman raised as privileged and aristocratic worked ceaselessly for equality and justice for the disenfranchised; she overcame unhappiness and personal betrayals to live a full, worthwhile life. As the most visible woman in the country she showed all women how to create an independent life of integrity--redefining the role of First Lady in the process.	33%
SUSAN B. ANTHONY: Women's suffrage leader and Rochester New York's most accomplished resident.	17%
HELEN KELLER: Ms. Keller exemplifies courage, determination, and an example for kids that major obstacles in life can be defeated.	13%
SOJOURNER TRUTH: As a force for abolition and women's rights, Sojourner Truth was without peer in leading this nation closer to its founding principles.	11%
ABIGAIL ADAMS: As a "Founding Mother," she demonstrated profound wit and wisdom in her exchange of more than 5,000 letters with John Adams on topics ranging from American independence, domestic and foreign policy, to "remember the ladies."	10%
NELLIE TAYLOE ROSS: Ross was the first female governor in the United States, the first female director of the US Mint and she established the Franklin Half Dollar – fitting accomplishments that deserve a place on currency!	5%
ALICE PAUL: was an American suffragist, feminist, and women's rights activist, and the main leader and strategist of the 1910s campaign for the Nineteenth Amendment to the U.S. Constitution which prohibits sex discrimination in the right to vote.	4%
HENRIETTA LACKS: the poor African-American woman whose cells were used without her permission only to become the go-to source for scientific molecular research, to both demonstrate the power of one non-elite person to make a substantial difference and to partially rectify the initial 1950s injustice.	4%
JEANETTE RANKIN: The first woman elected to Congress. Congresswoman Rankin not only hailed from the great state of Montana -- but she was able to cast her first vote in Congress before women in the United States could vote and was the only woman who ever voted to give women the right to vote.	3%
MARTHA ROUNTREE: Pioneering journalist and creator of "Meet the Press." Established the Sunday show genre; brought accountability to politics and political journalism to television. She was once described as “a diesel engine under a lace handkerchief." The first (and only) female moderator of Meet the Press as well as accomplished creator/producer/reporter.	1%

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.*