Ipsos Poll Conducted for Reuters
Climate Change 02.24.15

These are findings from an Ipsos poll conducted for Thomson Reuters from February 13-24, 2015. For the survey, a sample of 2,412 Americans 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 2.3 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.

CLIMATE CHANGE

Q1. From the list below, please choose the topics or issues you have heard or read anything about in the past few days.

Pope Francis voicing his views on global warming	21%

Q2. When you think about the planet and global warming, which of the following comes closest to your personal opinion? The planet has been getting warmer because of…

Natural patterns in the earth's environment	15%
Mostly natural patterns but some impact from human activity	23%
Mostly human activity but some natural patterns in the earth's environment	30%
Human activity such as burning fossil fuels	17%
Unsure	14%

Q3. Do you believe global warming is happening?

Yes	64%
No	20%
Unsure	16%

Q4. Would you say your opinion is favorable or unfavorable towards each of the following people?

	Very Favorable	Somewhat favorable	Lean towards favorable	Lean towards unfavorable	Somewhat unfavorable	Very Unfavorable	*Total Favorable*	*Total Unfavorable*
Pope Francis	29%	22%	26%	12%	3%	8%	*77%*	*23%*
The Dalai Lama	22%	21%	31%	15%	3%	7%	*75%*	*25%*
British Prime Minister David Cameron	9%	21%	43%	16%	4%	7%	*73%*	*27%*
German Chancellor Angela Merkel	8%	18%	39%	22%	5%	8%	*65%*	*35%*
French President François Hollande	5%	13%	39%	28%	6%	8%	*58%*	*42%*
Secretary-General of the United Nations, Ban Ki-moon	6%	11%	39%	26%	8%	10%	*55%*	*45%*
Russian President Vladimir Putin	4%	6%	15%	25%	17%	33%	*24%*	*76%*

Q5. In your opinion, should religious leaders speak out on the following issues?

	Yes	No
Political issues	51%	49%
Climate Change	54%	46%

Q6. Which of the following people, if any, do you think can speak with authority about global warming?

UN scientists	43%
Bill Nye (the Science Guy)	31%
Al Gore	18%
President Obama	18%
Neil deGrasse Tyson	13%
Pope Francis	10%
Democratic leaders in Congress	10%
Republican leaders in Congress	9%
Senator James Inhofe	4%
None of these	31%

Q7. Are world leaders morally obligated to reduce CO_2 emissions?

Yes	66%
No	34%

Q8. Are you personally morally obligated to do what you can to reduce CO_2 emissions?

Yes	72%
No	28%

Q9. As you may have heard, Pope Francis has recently made his views on global warming public. To what extent do you agree each of his views below?

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree	Not sure	*Total Agree*	*Total Disagree*
Climate change involving a rise in global temperatures is real.	41%	27%	9%	7%	16%	*68%*	*16%*
Human activities - notably burning fossil fuels - are responsible for most of the increase in carbon dioxide emissions in the atmosphere.	33%	30%	12%	9%	16%	*63%*	*21%*
Climate change poses a moral question because it is having, and will have in the future, a disproportionately negative impact on the poor.	28%	28%	13%	11%	21%	*56%*	*23%*

Q10. Has the Pope's views on climate change impacted you in any of the following ways?

	Yes	No
The Pope's views have not had an impact on my own views about climate change.	53%	47%
I now believe that climate change is real.	45%	55%
I am now less skeptical of the scientific arguments about the existence of climate change.	30%	70%
I am now less skeptical of the scientific arguments about the causes of climate change.	28%	72%

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.