Ipsos Poll Conducted for Reuters

Gun Survey 12.17.12

These are findings from an Ipsos poll conducted for Thomson Reuters from Dec. 11-13, 2012 (Pre-Sandy Hook shooting), and Dec. 14-17, 2012 (Post-Sandy Hook shooting). For the survey, samples of 1,395 and 1,198 Americans ages 18+ were interviewed online, respectively. The precision of the Reuters/Ipsos online polls is measured using a credibility interval. In this case, the pre-shooting poll has a credibility interval of plus or minus 3.0 percentage points; the post-shooting poll has a credibility interval of plus or minus 3.2 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.

GUN REGULATIONS

Q1. How much, if anything, have you heard about the recent shooting at Sandy Hook Elementary School in Connecticut? *(Post-shooting only, n=1,198)*

A great deal	58%
A fair amount	26%
A little bit	12%
Nothing at all	5%

Q2. When thinking about gun ownership rights and gun laws, which of the following comes closest to your personal opinion? *(Post-shooting asked of those who had heard at least a little bit about the Sandy Hook shooting; n=1,161)*

	Pre-shooting	Post-shooting
Gun ownership should have strong regulations or restrictions	42%	50%
Gun ownership should have moderate regulations or restrictions	17%	19%
Gun ownership should have basic regulations or restrictions	26%	22%
Gun ownership should have no or very few restrictions	6%	6%
Unsure	8%	3%

Q3. Do you support or oppose the following laws or regulations*? (Post-shooting asked of those who had heard at least a little bit about the Sandy Hook shooting; n=1,161)*

	Pre-shooting	Post-shooting
Laws allowing law-abiding citizens to get a permit to carry a concealed weapon		
Strongly support	50%	49%
Somewhat support	24%	24%
Somewhat oppose	10%	10%
Strongly oppose	10%	11%
Unsure	6%	7%
Total support (net)	*74%*	*72%*
Total oppose (net)	*20%*	*20%*
Laws allowing citizens to use deadly force to protect themselves from danger in their own home		
Strongly support	64%	63%
Somewhat support	22%	23%
Somewhat oppose	5%	4%
Strongly oppose	2%	3%
Unsure	6%	6%
Total support (net)	*86%*	*86%*
Total oppose (net)	*7%*	*8%*

Q3. Do you support or oppose the following laws or regulations? *(Post-shooting asked of those who had heard at least a little bit about the Sandy Hook shooting; n=1,161)*

	Pre-shooting	Post-shooting
Laws allowing citizens to use deadly force to protect themselves from danger in public places	32%	33%
Strongly support	36%	33%
Somewhat support	15%	15%
Somewhat oppose	9%	9%
Strongly oppose	9%	10%
Unsure	68%	67%
Total support (net)	*24%*	*23%*
Total oppose (net)	*32%*	*33%*
Laws limiting the sale of automatic weapons (i.e. machine guns)		
Strongly support	54%	60%
Somewhat support	19%	17%
Somewhat oppose	9%	7%
Strongly oppose	11%	10%
Unsure	7%	6%
Total support (net)	*73%*	*76%*
Total oppose (net)	*20%*	*17%*
Laws allowing law-abiding citizen to bring a firearm into a church, workplace or retail establishment		
Strongly support	16%	19%
Somewhat support	17%	19%
Somewhat oppose	16%	16%
Strongly oppose	43%	38%
Unsure	9%	9%
Total support (net)	*33%*	*37%*
Total oppose (net)	*58%*	*54%*
Laws allowing citizens to use deadly force to protect themselves from danger in their own home		
Strongly support	64%	63%
Somewhat support	22%	23%
Somewhat oppose	5%	4%
Strongly oppose	2%	3%
Unsure	6%	6%
Total support (net)	*86%*	*86%*
Total oppose (net)	*7%*	*8%*
Laws requiring background checks before allowing the sale of a firearm		
Strongly support	77%	84%
Somewhat support	11%	7%
Somewhat oppose	4%	2%
Strongly oppose	2%	2%
Unsure	6%	5%
Total support (net)	*88%*	*91%*
Total oppose (net)	*6%*	*4%*
Laws limiting the number of guns one person can purchase in a particular time frame		
Strongly support	51%	54%
Somewhat support	16%	15%
Somewhat oppose	11%	9%
Strongly oppose	14%	15%
Unsure	8%	7%
Total support (net)	*67%*	*70%*
Total oppose (net)	*25%*	*24%*

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.