



# Ipsos Poll Conducted for Reuters

## US Oil Production Topline 11.11.2013

These are findings from an Ipsos poll conducted for Thomson Reuters from November 7-11, 2013. For the surveys, a sample of 1,514 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 2.9 percentage points, respectively. 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/>.

## US OIL PRODUCTION

Q1. How much, if anything, would you say you know about American oil production?

|                         |            |
|-------------------------|------------|
| A great deal            | 7%         |
| A fair amount           | 20%        |
| A little bit            | 41%        |
| Nothing at all          | 32%        |
| <b>TOTAL KNOW</b>       | <b>68%</b> |
| <b>TOTAL DON'T KNOW</b> | <b>32%</b> |

Q2. Please indicate whether you agree or disagree with each of the statements below.

|                                                                                                                                                                         | Agree | Disagree | Don't know |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|------------|
| North American oil production is growing to levels that experts say in a few years the United States will no longer have to rely on supplies from outside the continent | 41%   | 19%      | 40%        |
| American companies are currently only allowed to export crude oil to Canada, and no other countries                                                                     | 14%   | 27%      | 60%        |
| The United States is now one of the world's biggest exporters of gasoline                                                                                               | 28%   | 27%      | 45%        |

Q3. There is in fact a 'boom' in oil production in the US, and experts believe that soon the US will no longer have to rely on supplies from outside the continent. Who or what do you believe is responsible for this 'boom' in oil production?

|                           |     |
|---------------------------|-----|
| President George W. Bush  | 6%  |
| President Barack Obama    | 10% |
| Oil companies             | 28% |
| Geologists and scientists | 18% |
| Other                     | 4%  |
| Don't know                | 34% |



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US Oil Production Topline 11.11.13

Q4. The US Department of Energy has stated that by the year 2020, the US will be the world's largest oil producer. What do you think that the United States should do with all the oil we are now producing?

|                                                                                                  |     |
|--------------------------------------------------------------------------------------------------|-----|
| We should sell it to other countries to bolster the US economy                                   | 15% |
| We should keep it for American consumers to lower US gas prices                                  | 69% |
| Don't know                                                                                       | 16% |
|                                                                                                  |     |
| We should sell it to other countries to bolster the US economy                                   | 15% |
| We should keep it for American consumers so that the US never has to rely on foreign oil sources | 68% |
| Don't know                                                                                       | 17% |
|                                                                                                  |     |
| We should sell it to other countries to bolster the US economy                                   | 23% |
| We should keep the oil we are producing and build more refineries to produce more gasoline       | 56% |
| Don't know                                                                                       | 20% |

Q5. At the moment, crude oil exports are limited so that American companies are only allowed to export crude oil to Canada, and no other countries. Please indicate whether you agree or disagree with each of the following statements: *(Each statement asked of roughly half of respondents)*

|                                                                                                                                                                                   | Strongly agree | Tend to agree | Tend to disagree | Strongly disagree | Don't know | TOTAL AGREE | TOTAL DISAGREE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|------------------|-------------------|------------|-------------|----------------|
| US oil producers should be allowed to export crude oil produced in the United States overseas to other countries <i>(n=755)</i>                                                   | 10%            | 31%           | 21%              | 19%               | 20%        | 41%         | 39%            |
| US oil producers should be allowed to export crude oil produced in the United States overseas to other countries, even if it means that gas prices in the US go up <i>(n=760)</i> | 6%             | 12%           | 22%              | 45%               | 16%        | 18%         | 67%            |
| The US government should restrict gasoline exports <i>(n=758)</i>                                                                                                                 | 19%            | 36%           | 16%              | 9%                | 21%        | 54%         | 25%            |
| The US government should restrict gasoline exports to protect gas prices here in America <i>(n=755)</i>                                                                           | 38%            | 35%           | 8%               | 3%                | 16%        | 73%         | 11%            |



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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  $\theta$ , i.e.,  $Y|\theta \sim \text{Bin}(n, \theta)$ , 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  $\theta$ . This model is often called the likelihood function, and it is a standard concept in both the Bayesian and the Classical framework. The Bayesian <sup>1</sup> 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  $\theta$  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 ( $\pi(\theta/y) \sim \beta(y+a, n-y+b)$ ), but with updated hyper-parameters.

Our credibility interval for  $\vartheta$  is based on this posterior distribution. As mentioned above, these intervals represent our belief about which are the most plausible values for  $\vartheta$  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:

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

For this poll, the Bayesian Credibility Interval was adjusted using standard weighting design effect  $1+L=1.3$  to account for complex weighting<sup>2</sup>

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                  |

<sup>1</sup> *Bayesian Data Analysis, Second Edition, Andrew Gelman, John B. Carlin, Hal S. Stern, Donald B. Rubin, Chapman & Hall/CRC | ISBN: 158488388X | 2003*

<sup>2</sup> Kish, L. (1992). *Weighting for unequal Pi*. *Journal of Official, Statistics*, 8, 2, 183200.