

## Methodology: 2018 Hoosier Survey

Prepared by Issues & Answers Network, Inc.

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### **SUMMARY**

The 2018 Hoosier Survey, sponsored by Ball State University, obtained telephone interviews with a representative sample of 604 adults living in Indiana. Telephone interviews were conducted by landline (316) and cell phone (288, including 184 with adults with no landline phone). The survey was conducted by Issues & Answers Network, Inc. (I&A). Interviews were done in English from October 2-20, 2018. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is  $\pm 5.1$  percentage points.

Details on the design, execution and analysis of the survey are discussed below.

### **DESIGN AND DATA COLLECTION PROCEDURES**

#### **Sample Design**

A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in Indiana who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International, LLC (SSI) according to I&A specifications.

Numbers for the landline sample were drawn with equal probabilities from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted, but was drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

## **Contact Procedures**

Interviews were conducted from October 2-20, 2018. As many as seven attempts were made to contact every sampled landline telephone number. For cellular telephone numbers, as many as seven attempts were made. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Each phone number received at least one daytime call when necessary.

For the landline sample, interviewers asked to speak with the youngest adult male or female currently at home based on a random rotation. If no male/female was available, interviewers asked to speak with the youngest adult of the other gender. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender when combined with cell interviewing. The interviewers also confirmed the respondent was a current resident of Indiana.

For the cellular sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult currently residing in Indiana and in a safe place before administering the survey.

## WEIGHTING AND ANALYSIS

Weighting is generally used in survey analysis to compensate for sample designs and patterns of non-response that might bias results. The sample was weighted to match adult general population parameters for Indiana. A two-stage weighting procedure was used to weight this dual-frame sample.

The first stage of weighting corrected for different probabilities of selection associated with the number of adults in each household and each respondent's telephone usage patterns. The weighting adjusts for the overlapping landline and cell sample frames and the relative sizes of each frame and each sample.

The second stage of weighting balanced sample demographics to population parameters.

The sample is balanced to match parameters for sex, age, education, race, Hispanic origin, region<sup>1</sup>, population density, number of adults in the household, and telephone usage. The basic weighting parameters came from the US Census Bureau's 2016 American Community Survey data that included all households in Indiana. The population density parameter we derived from 2010 Census data at the county level. The telephone usage parameter came from an analysis of state-level estimates released by NHIS.<sup>2</sup>

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<sup>1</sup> Region was broken into three groups using the FIPS county codes. The groups were "Northern", "Central", and "Southern" Indiana.

<sup>2</sup> NCHS, National Health Interview Survey, 2011–2015; U.S. Census Bureau, American Community Survey, 2010-2016.

<b>Table 1</b>	Parameter	Unweighted	Weight
<u>Gender</u>			
Male	48.7	46.9	48.8
Female	51.3	53.1	51.2
<u>Age</u>			
18-24	13.3	7.1	13.4
25-34	16.9	8.8	16.1
35-44	16.4	9.6	16.3
45-54	17.8	14.1	17.7
55-64	16.8	18.2	17.0
65+	18.8	42.2	19.5
<u>Education</u>			
HS Grad or Less	46.2	36.8	44.9
Some College/Associate's Degree	29.2	31.6	30.1
College Graduate	24.6	31.6	25.0
<u>Race/Ethnicity</u>			
White/not-Hispanic	84.0	88.7	84.4
Black/not-Hispanic	9.5	6.1	9.3
Hispanic/Other	6.5	5.1	6.4
<u>Region</u>			
Northern	33.3	33.4	33.2
Central	42.9	43.7	43.8
Southern	23.7	22.8	23.0
<u>County Population Density</u>			
1 - Lowest	19.6	21.4	19.6
2	25.1	28.0	25.7
3	33.8	28.6	33.1
4	7.3	7.9	7.1
5 - Highest	14.3	14.1	14.5
<u>Household Phone Use</u>			
Landline Only	8.5	4.5	7.5
Dual	38.5	64.6	39.5
Cell Phone Only	53.1	31.0	52.9
<u># of Adults in HH</u>			
One	19.6	27.3	19.5
Two	54.8	51.0	54.9
Three +	25.6	21.7	25.5

## **Effects of Sample Design on Statistical Inference**

The total sample design effect for this survey is 1.63. The margin of error for the entire sample is  $\pm 5.1$  percentage points.

## **RESPONSE RATE**

Table 2 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible sample that was ultimately interviewed. Response rates are computed according to American Association for Public Opinion Research standards.<sup>3</sup> Thus the response rate for the landline samples was 9 percent. The response rate for the cellular samples was 10 percent.

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<sup>3</sup> American Association for Public Opinion Research. 2016. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. AAPOR.

**Table 2. Sample Disposition**

	LL	Cell
<b>Total sample used</b>	16,873	21,385
<b>SUMMARY DISPOSITIONS</b>		
I=Complete Interviews (1.1)	288	316
P=Partial Interviews (1.2)	0	0
R=Refusal and break off with eligible case (2.1)	50	20
NC=Non-contact with eligible case (2.2)	70	246
O=Other non-interview with eligible case (2.0, 2.3)	28	90
UH=Unknown if residential (3.0, 3.1)	9,476	10,803
UO=Unknown other (3.2, 3.9) (residential, unknown if eligible)	1,597	1,770
INNRR = Ineligible: Not residential (4.0,4.1,4.2,4.3,4.4,4.5,4.8,4.9)	5,139	7,521
INR=Ineligible: Residential but ineligible for survey (4.7)	225	619
Total	16,873	21,385
<b>ADDRESSING CASES WITH UNDETERMINED ELIGIBILITY</b>		
e1 = the % of known-residential cases estimated to have eligible R	66.0%	52.1%
e2 = the % of unknown-if-residential cases that are estimated to be residential	30.5%	28.9%
<b>Response Rate</b>		
$I / (I+P+R+NC+O+UH+UO)$	2.5%	2.4%
$K_{LL}$ = the % of the total number of completed interviews coming from the landline frame		47.7%
<b>Combined Response Rate</b> $(RR_{LL} * K_{LL}) + (RR_{CP} * (1 - K_{LL}))$		2.4%
<b>Cooperation Rate</b>		
$(I+INR)/(I+INR+R+(e2*(O+UO)))$	23.4%	33.2%
<b>Refusal Rate</b>		
$R/(I+P+R+NC+O+UH +UO)$	14.3%	13.5%
<b>Contact Rate</b>		
$(I+P+R+O) / (I+P+R+O+NC)$	18.0%	17.4%