



Methodology Statement

Firehouse/Optimus
Likely Voter Survey
June 11-13, 2019

The Firehouse/Optimus survey was conducted from June 11-13, 2019 and interviewed a total of 1,687 likely 2020 general election voters in the battleground states of Michigan, Pennsylvania, and Wisconsin. Interviews were conducted using a combination of live interviews via landline (43.4%) and cell phones (21.8%) and peer-to-peer text messaging (34.9%). Telephone interviews were conducted by Dynata and text messages were sent by Opn Sesame.

The sample frame covers likely 2020 general election voters with reported landline or cellphone numbers from each state's voter file. Likely voters were identified as those who voted in either the 2016 or 2018 general elections plus additional voters who are expected to vote in the 2020 election as determined by Optimus turnout modeling. The probability sample was selected using registration-based sampling (RBS) stratified by age group, gender, and party for each early primary state.

The full sample included 587 likely voters in Michigan, 565 likely voters in Pennsylvania, and 535 likely voters in Wisconsin. While the margins of error vary slightly across questions due to item non-response and the base rate, the margins of errors based on Q1 are reported as $\pm 4.0\%$ in Michigan, $\pm 3.3\%$ in Pennsylvania, and $\pm 4.0\%$ in Wisconsin. We calculate the margin of error as:

$$1.96 * \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}$$

where n is sample size and \hat{p} is the response proportion.

Post-stratification weighting was used to correct for non-response across age group, gender, and party cohorts to allow the sample composition to match the sample frame composition. Further details are shown below.

Survey items can be found reported as topline and as cross-tabulations on our [GitHub repository](#).



Mode Breakdown by State

	MICHIGAN	PENNSYLVANIA	WISCONSIN	TOTAL
LIVE	252	238	242	732
LANDLINE	(43%)	(42%)	(45%)	(43%)
LIVE CELL	135	121	111	367
	(23%)	(21%)	(21%)	(22%)
PEER-TO-PEER	200	206	182	588
	(34%)	(36%)	(34%)	(35%)
TOTAL N =	587	565	535	1687

Note: Column percentages may not add to 100% due to rounding.

Weighted Data

MICHIGAN	RAW N	UNBALANCED (%)	BALANCED (%)	POPULATION (%)
AGE GROUP				
18-35	117	19.9	19.4	19.4
35-55	204	34.8	30.8	30.8
55+	251	42.8	47.7	47.7
OTHER/MISSING	15	2.6	2.1	2.1
GENDER				
MALE	285	48.6	45.5	45.5
FEMALE	302	51.4	54.5	54.5
OTHER	0	0	0	0

PENNSYLVANIA	RAW N	UNBALANCED (%)	BALANCED (%)	POPULATION (%)
AGE GROUP				
18-35	123	21.8	20.9	20.8
35-55	170	30.1	30.0	30.0
55+	248	43.9	47.1	47.0
OTHER/MISSING	24	4.2	2.0	2.1
GENDER				
MALE	295	52.2	46.0	45.9
FEMALE	270	47.8	54.0	52.9
OTHER	0	0	0	1.2



WISCONSIN AGE GROUP	RAW N	UNBALANCED (%)	BALANCED (%)	POPULATION (%)
18-35	30	5.6	6.7	6.4
35-55	139	26.0	25.4	25.2
55+	209	39.1	45.9	45.4
OTHER/MISSING	157	29.3	21.9	22.9
GENDER				
MALE	259	48.4	46.8	46.8
FEMALE	269	50.3	52.2	51.8
OTHER	7	1.3	1.0	1.4

Note: Column percentages may not add to 100% due to rounding.