**Methodology Statement**

Firehouse/0ptimus

Likely Voters Survey

March 19-21, 2019

The Firehouse/0ptimus survey was conducted from March 19-21, 2019 and interviewed a total of 1,778 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 (40.4%) and cell phones (19.9%) and peer-to-peer text messaging (39.8%). 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 0ptimus 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 530 likely voters in Michigan, 632 likely voters in Pennsylvania, and 616 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 ± 4.1% in Michigan, ± 3.8% in Pennsylvania, and ± 3.8% in Wisconsin. We calculate the margin of error as:



where *n* is sample size and  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 toplines and as cross-tabulations on our [GitHub repository.](https://github.com/optimus-forecasting-and-polling/Firehouse-0ptimus-Battleground-March-2019)

**Mode Breakdown by State**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Michigan | Pennsylvania | wisconsin | Total |
| Live landline | 226  (43%) | 257  (41%) | 235  (38%) | 718  (40%) |
| Live cell | 117  (22%) | 119  (19%) | 118  (19%) | 353  (20%) |
| Peer-to-Peer | 187  (35%) | 256  (41%) | 264  (43%) | 707  (40%) |
|  |  |  |  |  |
| Total N = | 530 | 632 | 616 | 1778 |

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

**Weighted Data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| michigan | Raw N | unbalanced (%) | Balanced (%) | Population (%) |
| Age Group |  |  |  |  |
| 18-35 | 111 | 20.9 | 19.4 | 19.4 |
| 35-55 | 177 | 33.4 | 30.8 | 30.8 |
| 55+ | 224 | 42.3 | 47.7 | 47.7 |
| Other/Missing | 18 | 3.4 | 2.1 | 2.1 |
| Gender |  |  |  |  |
| male | 263 | 49.6 | 45.5 | 45.5 |
| female | 267 | 50.4 | 54.5 | 54.5 |
| Other | 0 | 0 | 0 | 0 |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| pennsylvania | Raw N | unbalanced (%) | Balanced (%) | Population (%) |
| Age Group |  |  |  |  |
| 18-35 | 164 | 25.9 | 21.0 | 20.8 |
| 35-55 | 192 | 30.4 | 30.0 | 30.0 |
| 55+ | 265 | 41.9 | 47.0 | 47.0 |
| Other/Missing | 11 | 1.7 | 2.0 | 2.1 |
| Gender |  |  |  |  |
| male | 309 | 48.9 | 45.9 | 45.9 |
| female | 320 | 50.6 | 53.7 | 52.9 |
| Other | 3 | 0.5 | 0.4 | 1.2 |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Wisconsin | Raw N | unbalanced (%) | Balanced (%) | Population (%) |
| Age Group |  |  |  |  |
| 18-35 | 49 | 8.0 | 7.0 | 6.4 |
| 35-55 | 172 | 27.9 | 25.5 | 25.2 |
| 55+ | 243 | 39.4 | 45.9 | 45.4 |
| Other/Missing | 152 | 21.7 | 21.7 | 22.9 |
| Gender |  |  |  |  |
| male | 295 | 47.9 | 47.0 | 46.8 |
| female | 316 | 51.3 | 52.3 | 51.8 |
| Other | 5 | 0.8 | 0.7 | 1.4 |
|  |  |  |  |  |

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