Ipsos Public Affairs

REUTERS

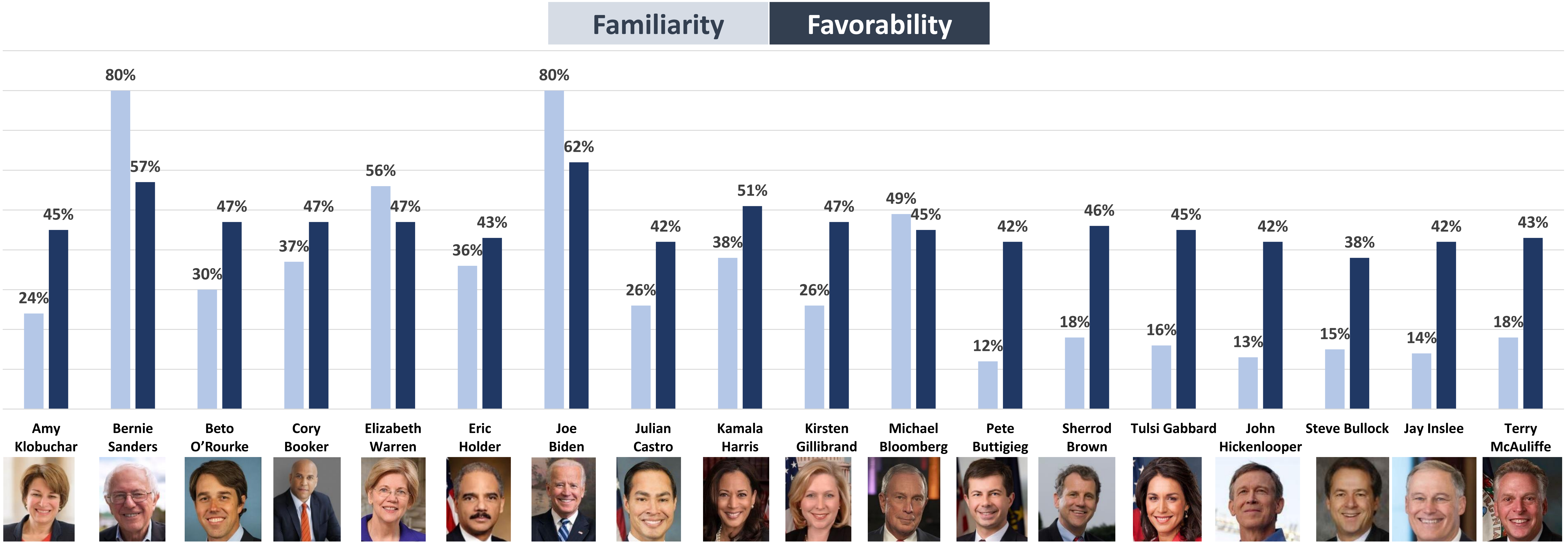
Ipsos Poll Conducted for Reuters

2020 Presidential Candidates

02.27.2019

FAMILIARITY & FAVORABILITY AMONG ALL AMERICANS

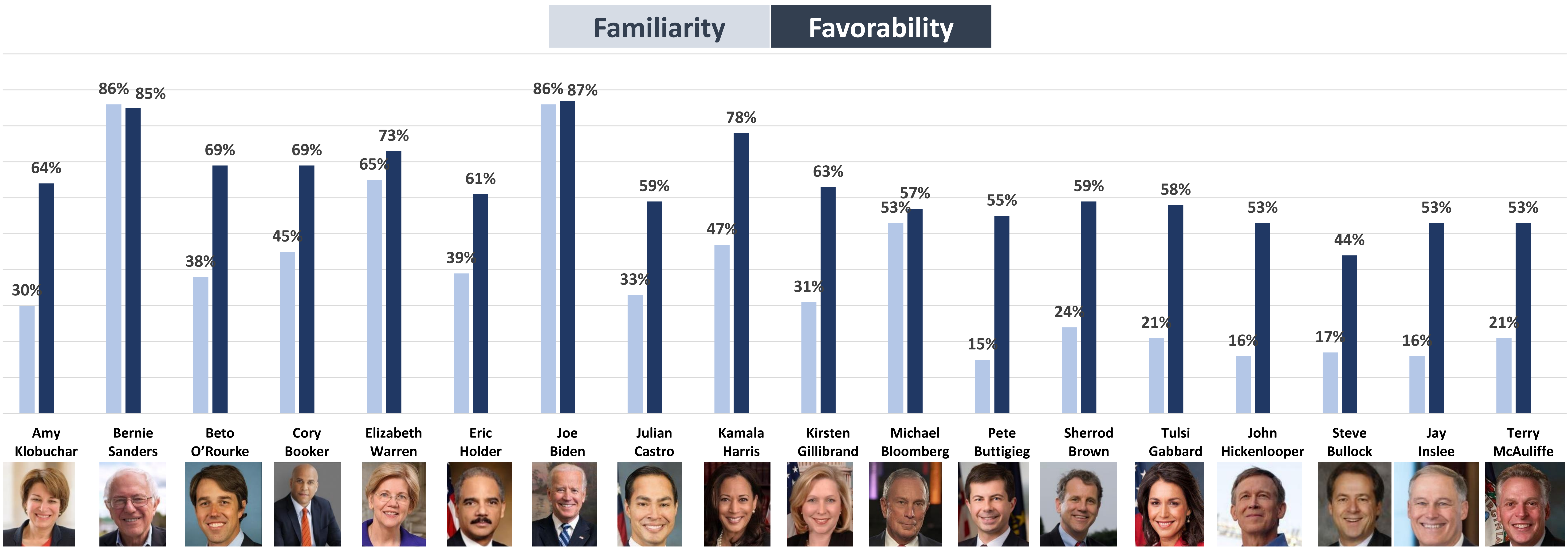
2020 Democratic Presidential Candidates



Q. How familiar are you with the following public figures, taking into account all the ways you may have heard about them?

Q. Would you say you are generally favorable or unfavorable towards these public figures? (Asked only of those aware of the individual people in the previous question)

2020 Democratic Presidential Candidates



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Methodology

These are findings from Ipsos polls conducted February 4-10, 2019, February 12-18, 2019, and February 19-25, 2019 on behalf of Thomson Reuters. For each survey adults age 18+ from the continental U.S., Alaska and Hawaii were interviewed online in English.

Date of poll	All Americans	Credibility Interval	Democrats and Democratic leaning Independents	Credibility Interval
February 4-10, 2019	2,291	+/- 2.3 points	911	+/- 3.7 points
February 12-18, 2019	3,156	+/- 2.0 points	1,258	+/- 3.2 points
February 19-25, 2019	3,534	+/- 1.9 points	1,421	+/- 3.0 points

The sample for this study was randomly drawn from Ipsos's online panel (see link below for more info on "Access Panels and Recruitment"), partner online panel sources, and "river" sampling (see link below for more info on the Ipsos "Ampario Overview" sample method) and does not rely on a population frame in the traditional sense. Ipsos uses fixed sample targets, unique to each study, in drawing sample. After a sample has been obtained from the Ipsos panel, Ipsos calibrates respondent characteristics to be representative of the U.S. Population using standard procedures such as raking-ratio adjustments. The source of these population targets is U.S. Census 2016 American Community Survey data. The sample drawn for this study reflects fixed sample targets on demographics. Post-hoc weights were made to the population characteristics on gender, age, region, race/ethnicity and income.

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. Where figures do not sum to 100, this is due to the effects of rounding. The precision of Ipsos online polls is measured using a credibility interval(see link below for more info on Ipsos online polling "Credibility Intervals").

For more information about Ipsos online polling methodology, please go here.

APPENDIX

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 π(θ/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:

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

APPENDIX

How to Calculate Bayesian Credibility Intervals

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:

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

Ipsos does not publish data for base sizes (sample sizes) below 100.

[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.*

ABOUT IPSOS

Ipsos ranks third in the global research industry. With a strong presence in 89 countries, Ipsos employs more than 16,000 people and has the ability to conduct research programs in more than 100 countries. Founded in France in 1975, Ipsos is controlled and managed by research professionals. They have built a solid Group around a multi-specialist positioning – Media and advertising research; Marketing research; Client and employee relationship management; Opinion & social research; Mobile, Online, Offline data collection and delivery.

Ipsos is listed on Eurolist – NYSE – Euronext. The company is part of the SBF 120 and the Mid-60 index and is eligible for the Deferred Settlement Service (SRD).

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GAME CHANGERS

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Through specialization, we offer our clients a unique depth of knowledge and expertise. Learning from different experiences gives us perspective and inspires us to boldly call things into question, to be creative.

By nurturing a culture of collaboration and curiosity, we attract the highest caliber of people who have the ability and desire to influence and shape the future.

“GAME CHANGERS” – our tagline – summarizes our ambition.