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Democracy Fund + UCLA Nationscape Methodology and Representativeness Assessment

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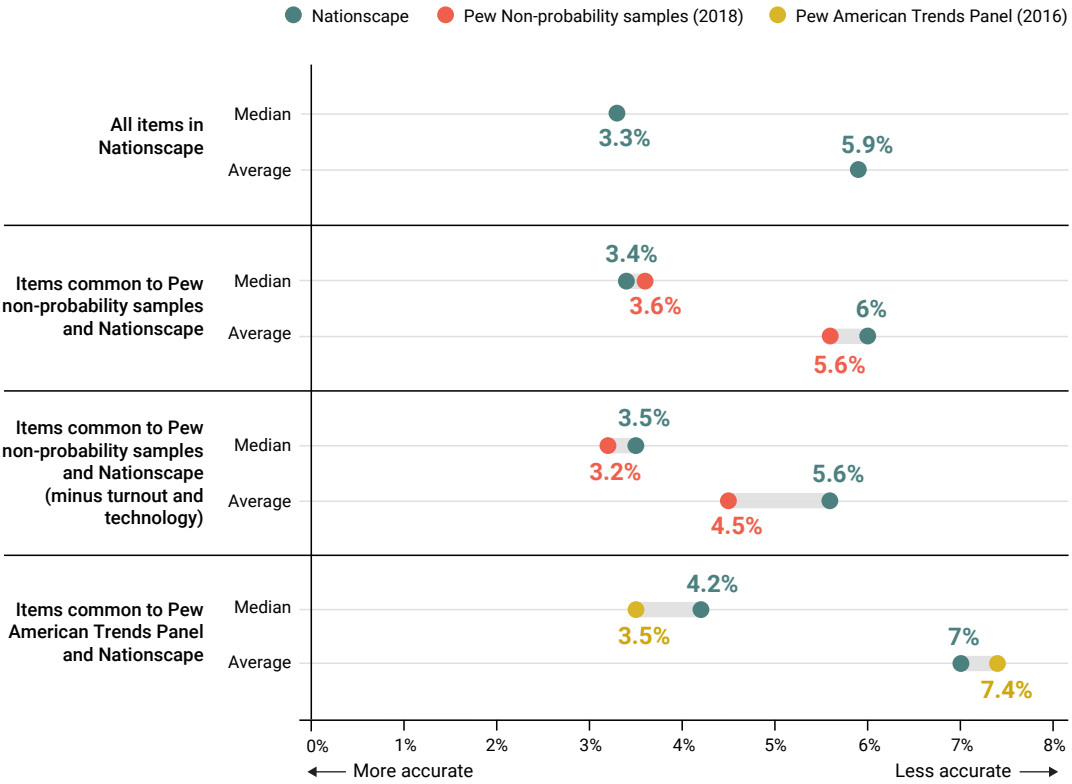
In this report, we explain the methodology of The Democracy Fund + UCLA Nationscape Project and the procedures used to estimate population quantities. We evaluate the representativeness of Nationscape by replicating the process used by the Pew Research Center to evaluate the representativeness of online samples. To do so, we asked respondents a set of questions that are also asked on reliable large-sample government surveys. We produced estimates based on responses to these questions using the same procedures that we use to produce our weekly estimates regarding public opinion and the 2020 election. We compare the differences between our estimates and government survey targets to the differences between the online samples that Pew examined and the same government targets. We find that our procedures for Nationscape return estimates that are as close to the government survey targets as the other online samples tested by the Pew Research Center. The median difference between our estimates and the government survey targets was 3.3 percent while the Pew analysis found a median difference of 3.6 percent.

Figure 1

Representativeness of Nationscape Compared to Government Benchmarks, Pew Samples



Methodology

Nationscape is a survey consisting of over 500,000 interviews between July 2019 and January 2021, covering the final year of Donald Trump's presidency, 2020 U.S. presidential nominating contests, COVID-19 pandemic, Black Lives Matter movement, 2020 presidential campaign, election, and its aftermath, including the insurrection at the U.S. Capitol on January 6th, 2020, and the inauguration of Joe Biden as the 45th president of the United States. The survey began on July 10, 2019, and includes interviews with roughly 6,250 people per week. The sample is weighted to be representative of the U.S. adult population.

Sample for Nationscape is provided by Lucid, a market research platform operating an online exchange for survey respondents. Nationscape samples match a set of demographic quotas on age, gender, race/ethnicity, region, income, and education. Respondents are sent from Lucid directly to survey software operated by the Nationscape team. All respondents take the survey online and must complete an attention check before taking the survey. The survey is conducted in English.[1]

The survey data are weighted to be representative of the U.S. adult population. The weights are generated using a simple raking technique. Like others, we find there is little benefit to more complicated approaches (Mercer et al. 2018). One set of weights is generated for each week's survey. The targets to which Nationscape is weighted are derived from the U.S. adult population of the 2017 American Community Survey (ACS) of the U.S. Census Bureau. The one exception is the 2016 vote, which is derived from the official election results released by the Federal Election Commission (FEC).

We weight on the following factors: gender, the four major census regions, race, Hispanic ethnicity, household income, education, age, language spoken at home, nativity (U.S.- or foreign-born), 2016 presidential vote, and the urban-rural mix of the respondent's ZIP code. We also weight on the following interactions: Hispanic ethnicity by language spoken at home, education by gender, gender by race, race by Hispanic origin, race by education, and Hispanic origin by education.

1 We initially offered the survey in both Spanish and English, allowing respondents to choose which language they'd like to use question by question. Very few people used this option.

Table 1

Weighting Targets (%)

Gender			
Male	48.3	Female	51.7
Census region			
Midwest	20.9	Northeast	17.6
South	37.8	West	23.7
Hispanic ethnicity			
Not Hispanic	83.9	Mexican	9.7
Other	6.4		
Race			
White	74.2	Asian/Pacific	6.8
Black	12.0	Other	7.0
Age			
18–23	9.5	24–29	10.9
30–39	17.4	40–49	16.4
50–59	17.4	60–69	15.0
70+	13.3		
Household language			
English only	78.3	Spanish	12.9
Other	8.8		
Country of birth			
United States	82.2	Other	17.8
Household income			
<$20k	10.7	$20–35k	11.6
$35–50k	11.8	$50–65k	11.3
$65–80k	9.8	$80–100k	11.0
$100–125k	10.5	$125–200k	14.6
≥$200k	8.7		
Metropolitan status			
Pure rural	0.9	Rural metro	23.2
Suburban	24.2	Urb.-suburb.	42.2
Pure urban	9.5		
2016 vote			
Trump	27.2	Clinton	28.4
Other	3.3	No vote	41.0

Voting

Voting rates for 2016 are adjusted to reflect the inclusion of younger respondents who were not eligible to vote in 2016 and because some survey respondents report voting even though they did not. A -2.7 percentage point adjustment is made for young respondents and a 6.0 percentage point adjustment is made for over-reporting, yielding a target turnout rate of 55.7 – 2.7 + 6.0 = 59.0 percent.[2]

2 Our estimate for vote overreporting comes from Jackman and Spahn (2019), who use the American National Election Studies.

Income

Nationscape respondents may choose not to provide household income. Targets for response categories are based on American Community Survey responses multiplied by the proportion who chose to answer the Nationscape income question. The target for nonresponse is constructed as the proportion of Nationscape respondents who did not provide an answer. In effect, this means non-respondents are not weighted for income.

Metropolitan Status

Metropolitan status is derived by cross-walking Nationscape respondents' ZIP codes to the Census Bureau's Public Use Microdata Areas (PUMAs) using the 2012 MABLE Geocorr. The crosswalk is based on population percentages. PUMAs are assigned a metropolitan status based on the average status of American Community Survey respondents within them (see Table 2 below). Nationscape respondents' PUMA-level metropolitan statuses are weighted to American Community Survey respondents' PUMA-level metropolitan statuses.

Table 2

Metropolitan Status Translations

	PUMA Average	Individual Code Assigned
Pure rural	0.0–0.8	0
Rural metro	0.8–1.6	1
Suburban	1.6–2.4	2
Urban-suburban	2.4–3.2	3
Pure urban	3.2–4.0	4

Representativeness Assessment

Nationscape is not built from a random sample of the population. It uses a convenience sample selected on a set of demographic criteria. As Kennedy and Deane (2019) note, nearly all contemporary surveys lack the properties of random selection, even those that derive from random sampling procedures, due to low response rates in the population. Previous evaluations of samples constructed with Lucid respondents have been done (Coppock and Green 2016, Coppock and McClellan 2019). While the conclusions of those comparisons are encouraging, they are not evaluations of the specific procedures used to generate Nationscape samples.[3]

The purpose of this report is to present an evaluation of Nationscape data in terms of its representativeness of the U.S. adult population.[4] We do so by estimating arbitrary population quantities based on previous work of this nature done by the Pew Research Center.

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3 Lucid provides an automated service through its Lucid Theorem product offering. That is *not* how Nationscape was produced. The Nationscape team worked closely with the special services unit at Lucid to manage the flow of sample into the survey to ensure quota targets were satisfied and in balance throughout the field period.

4 For assessments of Nationscape based on other criteria, such as cooperation rates and response quality, see Vavreck and Tausanovitch (2021).

Strategy

Our strategy for assessing the representativeness of the data closely follows the Pew Research Center's evaluations of online non-probability samples in 2016 and 2018. In particular, Pew compares the estimates generated by several online vendors to estimates of the same quantities in census data and other high-quality sources, primarily the ACS and supplements to the Current Population Study (CPS). Pew's 2016 report assessed the quality of these samples (Kennedy et al. 2016) and its 2018 report assessed how various choices impact quality (Mercer et al. 2018).

Our assessment compares Nationscape results to the results featured in the 2018 Pew report. For a smaller number of items, we also compare Nationscape results to the results from Pew's American Trends Panel, which was recruited using probability sampling. This comparison uses data from the 2016 report. Following Pew, we calculate the difference between the targets and the estimates across all of our items to assess the survey's representativeness. Our expectation is to have the same amount of error as Pew, on average. In a survey conducted from July 11 to 17, 2019, we asked all of the questions from the 2018 Pew report, with the exception of a question asking respondents whether they were a U.S. citizen.[5]

We also asked 12 additional questions that were not used in the Pew report but can be compared to census sources.

Types of Questions

This exercise involves three types of survey questions. Some ask respondents to report attitudes, such as whether they trust their neighbors. Other questions are about reported behaviors, such as voter turnout, which depend on respondents' recall. A final type of question asks people to report facts about their lives, such as how many children they have or whether they own their home. In each case, we compare Nationscape results to the results from large government surveys, due to the lack of a verifiable benchmark, such as an administrative file of voters or vehicle registrations.

Naturally, any divergence between Nationscape results and government surveys may depend on the type of question. Prior to fielding the assessment, we suspected there would be two categories of questions for which survey estimates might be further from census estimates than were the surveys analyzed by the Pew Research Center: voting in prior elections and the use of technology. The surveys analyzed by Pew were conducted immediately following the election about which they asked — thereby reducing memory errors relative to the fielding of our survey that occurred months, and in one case years, from the elections about which we asked.

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5 This survey was fielded as the president tried to add a citizenship question to the U.S. Census and the U.S. Supreme Court denied his request to do so. Asking a citizenship question at this time was a political decision that could have compromised survey quality and potentially lead people to drop out of the survey.

Similarly, the technologies the census asks about, such as e-readers and tablet devices, are changing rapidly. Although we use the most recent census data available, these sources are usually a year old or more, in one case coming from as early as 2013; as such, we may find that fewer people are using e-readers than during earlier periods, but that may not be reflective of error.

The Appendix provides the full list of sources and description of questions used.

Findings

For every question, we compared the estimates from the online samples analyzed by Pew with the estimates from the government source Pew used for comparison. We computed the absolute value of the difference between those numbers. Then we did the same thing for the Nationscape estimates, comparing them to the most recent estimates provided by the same government sources used by Pew.

We begin by reporting the average and median differences across all the response categories for every question. Note that this procedure gives equal weight to all response categories, so questions with many categories play a greater role in the average or median.

For the samples analyzed by Pew, the median absolute difference from government survey benchmarks was 3.6 percent, and the average was 5.6 percent (see Table 3). For this same set of survey questions, the median absolute difference between Nationscape and government survey benchmarks was slightly lower (3.4 percent) and the mean absolute difference was slightly higher (6.0 percent).

If we exclude questions about past voter turnout and technology use, the median and average differences from government survey benchmarks are slightly lower, both in the online samples analyzed by Pew and in Nationscape. The online samples analyzed by Pew and Nationscape perform equally well.

Table 3

2018 Comparison Summary Findings

	Pew Bias	Nationscape Bias
All common items (median)	3.6%	3.4%
All common items (average)	5.6%	6.0%
Minus vote & tech (median)	3.2%	3.5%
Minus vote & tech (average)	4.5%	5.6%
All items (median)	NA	3.3%
All items (average)	NA	5.9%

Finally, we computed the average and mean differences between the Nationscape estimates and the government sources for all the questions asked, including those not asked by Pew in its assessments. The absolute differences here are similar (a median of 3.3 percent and an average of 5.9 percent).

We also compared Nationscape performance to the Pew American Trends Panel which, as noted earlier, was recruited using probability sampling rather than the non-probability sampling used in many online surveys and in Nationscape. For the items common to both surveys, the American Trends Panel and Nationscape had similar absolute differences from the government survey benchmarks (Table 4).[6] The median absolute difference was slightly lower in the American Trends Panel (3.5 percent vs. 4.2 percent in Nationscape) but the average difference was slightly higher (7.4 percent vs. 7.0 percent).

Table 4

Representativeness of Pew American Trends Panel and Nationscape Compared to Government Benchmarks

	Pew ATP Bias	Nationscape Bias
Common items (median)	3.5%	4.2%
Common items (average)	7.4%	7.0%

The Appendix lists all the estimates for every survey question and all response categories in the online samples analyzed by Pew, the American Trends Panel, and Nationscape. For each response category, we report the government benchmark ("baseline"), the survey result, and the difference between the two. These results show that the Nationscape sample appears to be more civically engaged than the samples analyzed by Pew, relative to government benchmarks. And as we anticipated, the Nationscape data is particularly different from a 2017 government benchmark on the use of tablets or streaming audio.

On some other metrics, such as financial status, Nationscape is closer to these benchmarks — e.g., a difference of 7.8 percent on full-time employment (vs. 14.5 percent in the samples analyzed by Pew) and a difference of 6.1 percent in the number of people collecting food assistance (vs. 12.9 percent in the other samples). Nationscape is similarly close to benchmarks on questions such as the number of cars that people own, the percentage of the population with a driver's license, and the percentage with various disabilities.

Conclusion

The methodology employed in Nationscape generates estimates of general population characteristics that are as closely aligned with government survey benchmarks, with other online non-probability samples, and with an online probability sample. Nationscape estimates are no more or less representative of the U.S. adult population than the estimates from many commercial non-probability samples, including those from vendors used regularly in political polling.

6 The median and average differences in Tables 3 and 4 are different for the Nationscape data because a smaller set of questions was available for comparison with the American Trends Panel estimates.

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Appendix A: Complete results by question

CIVIC ENGAGEMENT

talk_neighbors

Source: Current Population Survey September 2017
https://cps.ipums.org/cps-action/variables/CESOCIALIZE#description_section

During a typical month in the past year, how often did you talk with any of your neighbors?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
A few times a week or more	39.0	51.0	**12.0**				34.2	49.2	**15.0**
Basically every day				12.8	15.7	**2.9**	10.6	13.2	**2.6**
A few times a week				30.6	32.7	**2.1**	23.5	36.1	**12.6**
A few times a month				22.9	23.1	**0.2**	20.2	24.5	**4.3**
Once or less than once a month				20.7	12.1	**-8.6**	22.0	16.1	**-5.9**
Not at all				13.0	16.2	**3.2**	23.6	10.2	**-13.4**

trust_neighbors

Source: Current Population Survey November 2013
https://cps.ipums.org/cps-action/variables/CENEIGHCONF#description_section

How much do you trust the people in your neighborhood? In general, do you trust...

	Pew ATP 2016			Pew 2018			Nationscape		
All or most of the people in your neighborhood	51.0	52.0	**1.0**				56.2	58.8	**2.6**
All of the people in your neighborhood				14.8	13.0	**-1.8**	15.6	11.8	**-3.8**
Most of the people in your neighborhood				40.2	43.6	**3.4**	40.6	47.0	**6.4**
Some of the people in your neighborhood				35.8	33.0	**-2.8**	35.0	32.4	**-2.6**
None of the people in your neighborhood				9.3	10.0	**0.7**	8.8	8.8	**0.0**

comm_assoc

Source: Current Population Survey November 2013
https://cps.ipums.org/cps-action/variables/CEORGCOM#description_section

In the last 12 months, that is since July 2018, have you participated in a school group, neighborhood, or community association such as PTA or neighborhood watch group?

	Pew ATP 2016			Pew 2018			Nationscape		
No				85.7	79.1	**-6.6**	86.0	75.9	**-10.1**
Yes	13.0	22.0	**9.0**	14.3	20.5	**6.2**	14.0	24.1	**10.1**

volunteer

Source: Current Population Survey September 2017
https://cps.ipums.org/cps-action/variables/VLSTATUS#description_section

In the last 12 months, that is since July 2018, have you done any volunteer activities through or for an organization?

	Pew ATP 2016			Pew 2018			Nationscape		
No				75.0	52.4	**-22.5**	71.9	48.7	**-23.2**
Yes	25.0	58.0	**33.0**	24.8	47.2	**22.5**	28.1	51.3	**23.2**

Note: The variable used to produce this estimate is a recode of two questions from the CPS. The second question clarifies the definition of 'volunteer activities' and is asked if respondents skipped or answered no to the first question.

FINANCIAL

employ_status

Source: General Social Survey 2018
https://gssdataexplorer.norc.org/variables/3/vshow

Last week, were you working full time, part time, going to school, keeping house, or what?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
In school				3.3	4.2	**0.9**	4.8	3.2	**-1.6**
Keeping house				10.6	12.9	**2.3**	10.8	12.4	**1.6**
Retired				17.5	23.0	**5.5**	15.6	21.6	**6.0**
Unemployed, laid off, looking for work				4.3	10.9	**6.6**	3.6	7.1	**3.5**
With a job, but not at work because of temporary illness, vacation, or strike				2.0	2.1	**0.1**	2.5	2.5	**0.0**
Working full time				48.7	34.2	**-14.5**	49.7	41.9	**-7.8**
Working part time				13.6	12.4	**-1.2**	11.2	11.3	**0.1**

housing

Source: American Community Survey 2017
https://usa.ipums.org/usa-action/variables/OWNERSHP#description_section

Is your house, apartment, or mobile home…

	Pew ATP 2016			Pew 2018			Nationscape		
Occupied without payment or rent				1.6	3.1	**1.4**	1.5	1.8	**0.3**
Owned by you or someone in your household free and clear				22.6	22.7	**0.1**	23.2	22.1	**-1.1**
Owned by you or someone in your household with a mortgage or loan				43.8	39.2	**-4.6**	44.1	46.3	**2.2**
Rented				31.9	34.6	**2.7**	31.1	29.8	**-1.3**

food_stamp

Source: Current Population Survey Annual Social and Economic Supplement 2018
https://cps.ipums.org/cps-action/variables/FOODSTMP#description_section

Did anyone in your household get food stamps or use a food stamp benefit card at any time during 2018?

	Pew ATP 2016			Pew 2018			Nationscape		
No				89.4	76.0	**-13.4**	91.3	85.2	**-6.1**
Yes				10.6	23.5	**12.9**	8.7	14.8	**6.1**

insured

Source: Current Population Survey Annual Social and Economic Supplement 2018
https://cps.ipums.org/cps-action/variables/ANYCOVNW#description_section

Are you covered by any kind of health insurance or some other kind of health care plan? This includes health insurance obtained through employment or purchased directly as well as government programs like Medicare and Medicaid that provide medical care or help pay medical bills.

	Pew ATP 2016			Pew 2018			Nationscape		
No				10.4	14.1	**3.7**	10.5	14.0	**3.5**
Yes	86.0	84.0	**-2.0**	89.0	85.3	**-3.7**	89.5	86.0	**-3.5**

FAMILY

marital_status

Source: Current Population Survey May 2019
https://cps.ipums.org/cps-action/variables/MARST#description_section

What is your marital status?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
Divorced				11.5	12.7	**1.2**	10.6	10.0	**-0.6**
Never married/single	30.0	25.0	**-5.0**	30.0	31.1	**1.2**	28.9	25.7	**-3.2**
Now married				50.5	48.1	**-2.4**	52.3	57.5	**5.2**
Separated				2.1	2.3	**0.2**	2.0	2.5	**0.5**
Widowed				5.9	5.4	**-0.5**	6.1	4.3	**-1.8**

children_household

Source: American Community Survey 2017
Constructed from https://usa.ipums.org/usa-action/variables/SERIAL#description_section and https://usa.ipums.org/usa-action/variables/AGE#description_section

How many children, younger than 18 years of age, live in your household?

	Pew ATP 2016			Pew 2018			Nationscape		
No children / NA				65.0	65.2	**0.2**	66.2	61.4	**-4.8**
One or more	35.0	27.0	**-8.0**	35.0	33.9	**-1.1**	33.8	38.6	**4.8**

Note: This figure is calculated by counting the number of children under 18 in each ACS household.

family_size

Source: Current Population Survey May 2019
https://cps.ipums.org/cps-action/variables/FAMSIZE#description_section

How many family members, including yourself, live in your household? Family members include anyone related to you by blood, marriage, or adoption.

	Pew ATP 2016			Pew 2018			Nationscape		
Only me							19.1	20.1	**1.0**
2							33.4	32.8	**-0.6**
3							17.2	18.1	**0.9**
4							16.4	16.9	**0.5**
5 or more							14.0	12.0	**-2.0**

total_household

Source: American Community Survey 2017
Constructed from https://usa.ipums.org/usa-action/variables/SERIAL#description_section and https://usa.ipums.org/usa-action/variables/AGE#description_section

How many adults, ages 18 and older, including yourself, live in your household? AND, how many children, younger than 18 years of age, live in your household?

	Pew ATP 2016			Pew 2018			Nationscape		
1				15.2	21.1	**5.9**	16.4	13.2	**-3.2**
2				32.9	32.7	**-0.2**	32.6	34.5	**1.9**
3 or more				51.9	45.0	**-6.9**	51.0	52.3	**1.3**

Note: This figure is calculated by adding the number of adults in each ACS household to the number of children under 18 in each ACS household.

PERSONAL

active_duty

Source: Current Population Survey May 2019
https://cps.ipums.org/cps-action/variables/UH_VETEVR_1#description_section

Have you ever served on active duty in the U.S. Armed Forces, Reserves, or National Guard?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
Have been on active duty				8.0	11.2	**3.2**	7.2	9.6	**2.4**
Have never been on active duty				92.0	88.4	**-3.6**	92.8	90.4	**-2.4**

Note: The variable used to produce this estimate is a recode that collapses people who are currently on active duty and people who were on active duty in the past, and does not consider Reserves or National Guard as active duty.

gun_ownership

Source: General Social Survey 2018
https://gssdataexplorer.norc.org/variables/679/vshow

Do you happen to have in your home or garage any guns or revolvers?

	Pew ATP 2016			Pew 2018			Nationscape		
No				67.4	69.8	**2.4**	64.6	68.3	**3.7**
Yes				32.6	29.4	**-3.2**	35.4	31.7	**-3.7**

food_allergy

Source: National Health and Nutrition Examination Survey 2010
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4623408/

Do you have any food allergies?

	Pew ATP 2016			Pew 2018			Nationscape		
No				89.8	86.1	**-3.7**	87.0	85.5	**-1.5**
Yes				10.0	13.7	**3.6**	13.0	14.5	**1.5**

smoked1

Source: National Health Interview Survey 2018
https://www.cdc.gov/nchs/nhis/nhis_2018_data_release.htm

Have you smoked at least 100 cigarettes in your entire life?

	Pew ATP 2016			Pew 2018			Nationscape		
Never smoked				62.8	53.9	**-8.9**	64.0	59.5	**-4.5**
No longer smoke				21.8	20.4	**-1.3**	22.0	20.3	**-1.7**
Smoke every day	13.0	15.0	**2.0**	11.4	18.8	**7.4**	10.2	15.5	**5.3**
Smoke some days				3.7	6.5	**2.8**	3.5	4.7	**1.2**

Note: The variable used to produce this estimate collapses two questions from the NHIS.

lived_home_1year

Source: Current Population Survey Annual Social and Economic Supplement 2018
https://cps.ipums.org/cps-action/variables/MIGRATE1#description_section

Did you live in your house or apartment one year ago?

	Pew ATP 2016			Pew 2018			Nationscape		
Different house or apartment	15.0	17.0	**2.0**				9.8	11.6	**1.8**
Different house or apartment in the United States				13.6	10.3	**-3.3**	9.5	10.3	**0.8**
Different house or apartment outside of the United States				0.7	1.6	**0.9**	0.4	1.3	**0.9**
Same house or apartment				85.7	87.5	**1.8**	90.2	88.4	**-1.8**

POLITICAL

contacted_official

Source: Current Population Survey September 2017
https://cps.ipums.org/cps-action/variables/CEPUBOFF#description_section

In the last 12 months, that is since July 2018, have you contacted or visited a public official — at any level of government — to express your opinion?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
No				88.4	80.1	**-8.3**	87.8	80.2	**-7.6**
Yes				11.6	19.4	**7.8**	12.2	19.8	**7.6**

voted_2016

Source: Current Population Survey Voting and Registration Supplement 2016
https://cps.ipums.org/cps-action/variables/VOTED#description_section

In the 2016 presidential election between Donald Trump and Hillary Clinton, did things come up that kept you from voting, or did you happen to vote?

	Pew ATP 2016			Pew 2018			Nationscape		
Did not vote				49.8	40.8	**-9.1**	44.0	40.7	**-3.3**
Voted				50.2	58.8	**8.6**	56.0	59.3	**3.3**

Note: NS did not make the same Pew or CPS adjustments noted here https://assets.pewresearch.org/wp-content/uploads/sites/12/2018/01/24160939/Appendix-D.pdf

voted_2018

Source: Current Population Survey Voting and Registration Supplement 2018
https://cps.ipums.org/cps-action/variables/VOTED#description_section

In the 2018 midterm election, did things come up that kept you from voting, or did you happen to vote?

	Pew ATP 2016			Pew 2018			Nationscape		
Did not vote				67.3	48.1	**-19.1**	46.6	43.7	**-2.9**
Voted				32.7	51.1	**18.4**	53.4	56.3	**2.9**

TECHNOLOGY

social_networking

Source: Current Population Survey Computer and Internet Supplement November 2017
https://thedataweb.rm.census.gov/ftp/cps_ftp.html
https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf

What about social networks, such as Facebook, Twitter, or Instagram? Do you use social networks?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
No				32.5	22.1	**-10.4**	11.6	14.7	**3.1**
Yes				67.5	77.5	**10.0**	88.4	85.3	**-3.1**

tablet

Source: Current Population Survey Computer and Internet Supplement November 2017
https://thedataweb.rm.census.gov/ftp/cps_ftp.html
https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf

Do you use a tablet or e-book reader?

	Pew ATP 2016			Pew 2018			Nationscape		
No				62.6	47.9	**-14.7**	68.7	41.7	**-27.0**
Yes				37.4	51.5	**14.1**	31.3	58.3	**27.0**

texting

Source: Current Population Survey Computer and Internet Supplement November 2017
https://thedataweb.rm.census.gov/ftp/cps_ftp.html
https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf

What about texting or instant messaging? Do you text or use instant messaging?

	Pew ATP 2016			Pew 2018			Nationscape		
No				17.6	22.5	**5.0**	4.6	7.4	**2.8**
Yes				82.4	77.1	**-5.3**	95.4	92.6	**-2.8**

streaming_video

Source: Current Population Survey Computer and Internet Supplement November 2017
https://thedataweb.rm.census.gov/ftp/cps_ftp.html
https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf

What about streaming or watching videos? Do you watch videos over the internet? Examples include YouTube and Netflix.

	Pew ATP 2016			Pew 2018			Nationscape		
No							14.0	13.1	**-0.9**
Yes							86.0	86.9	**0.9**

streaming_audio

Source: Current Population Survey Computer and Internet Supplement November 2017
https://thedataweb.rm.census.gov/ftp/cps_ftp.html
https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf

What about streaming or downloading music, radio programs, or podcasts? Do you stream or download music, radio programs, or podcasts?

	Pew ATP 2016			Pew 2018			Nationscape		
No							21.3	37.4	**16.1**
Yes							78.7	62.6	**-16.1**

financial_services

Source: Current Population Survey Computer and Internet Supplement November 2017
https://thedataweb.rm.census.gov/ftp/cps_ftp.html
https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf

What about financial services such as banking, investing, or paying bills online? Do you use the Internet for financial services such as banking, investing, or paying bills online?

	Pew ATP 2016			Pew 2018			Nationscape		
No							13.5	15.9	**2.4**
Yes							86.5	84.1	**-2.4**

internet_access

Source: American Community Survey 2016
https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-39.pdf

Do you or any member of your household have access to the Internet using a...

	Pew ATP 2016			Pew 2018			Nationscape		
Broadband (high speed) internet service such as cable, fiber optic, or DSL service installed in your household							82.2	86.6	**4.4**
Cellular data plan for a smartphone or other mobile device							83.3	90.8	**7.5**
Satellite internet service installed in your household							7.7	23.2	**15.5**
Dial-up internet service installed in your household							2.8	9.4	**6.6**

VEHICLES

vehicles

Source: American Community Survey 2017
https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B08201&prodType=table 2017

How many automobiles, vans, and trucks of one-ton capacity or less are kept at home for use by members of your household?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
None							8.9	10.5	**1.6**
One							33.2	31.2	**-2.0**
Two							37.3	39.5	**2.2**
Three							14.2	12.6	**-1.6**
Four or more							6.4	6.2	**-0.2**

DISABILITY

deaf

Source: Current Population Survey May 2019
https://cps.ipums.org/cps-action/variables/DIFFHEAR#description_section

Are you deaf or do you have serious difficulty hearing?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
No							96.5	93.8	**-2.7**
Yes							3.5	6.2	**2.7**

mobility

Source: Current Population Survey May 2019
https://cps.ipums.org/cps-action/variables/DIFFPHYS#description_section

Do you have serious difficulty walking or climbing stairs?

	Pew ATP 2016			Pew 2018			Nationscape		
No							92.9	88.3	**-4.6**
Yes							7.1	11.7	**4.6**

ARTS

arts

Source: National Endowment of the Arts Survey of Public Participation in the Arts 2017
https://www.arts.gov/sites/default/files/2017-sppapreviewREV-sept2018.pdf

In the last 12 months, have you done any of the following?

		Pew ATP 2016			Pew 2018			Nationscape		
		Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
Go out to the movies or go see any films	No							41.4	30.8	**-10.6**
	Yes							58.6	69.2	**10.6**
Read any books of any type	No							47.3	25.4	**-21.9**
	Yes							52.7	74.6	**21.9**
Visit an art museum or gallery	Yes							23.7	34.4	**10.7**
	No							76.3	65.7	**-10.7**
Visit a historic park or monument or tour a building/neighborhood for historic design	Yes							28.3	49.5	**21.2**
	No							71.7	50.5	**-21.2**
Visit a crafts fair or visual arts festival	No							76.2	61.1	**-15.1**
	Yes							23.8	38.9	**15.1**

MISCELLANEOUS

license

Source: American Community Survey 2016/Current Population Survey 2017
https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/

Do you currently have a valid driver's license, or not?

	Pew ATP 2016			Pew 2018			Nationscape		
	Baseline	Result	Difference	Baseline	Result	Difference	Baseline	Result	Difference
Yes	86.0	86.0	**0.0**				88.0	87.2	**-0.8**
No							12.0	12.8	**0.8**

sleep

Source: American Community Survey 2016/Current Population Survey 2017
https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/

On average, how many hours of sleep do you get in a 24-hour period?

	Pew ATP 2016			Pew 2018			Nationscape		
Less than 7 or more than 9 hours							36.0	48.6	**12.6**
7 to 9 hours							64.0	51.4	**-12.6**

yoga

Source: American Community Survey 2016/Current Population Survey 2017
https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/

During the past 12 months, did you practice Yoga for yourself?

	Pew ATP 2016			Pew 2018			Nationscape		
No							86.0	79.7	**-6.3**
Yes							14.0	20.3	**6.3**

high_bp

Source: American Community Survey 2016/Current Population Survey 2017
https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/

Have you ever been told by a doctor or other health professional that you had hypertension, also called high blood pressure?

	Pew ATP 2016			Pew 2018			Nationscape		
No							69.0	64.5	**-4.5**
Yes							31.0	35.5	**4.5**

Appendix B: Full Questions and Sources

CIVIC ENGAGEMENT

Variables	Question	Responses	Source	Note	Link
talk_neighbors	During a typical month in the past year, how often did you talk with any of your neighbors?	(1) Basically every day (2) A few times a week (3) A few times a month (4) Once or less than once a month (5) Not at all	CPS Sept. 2017		https://cps.ipums.org/cps-action/variables/CESOCIALIZE
trust_neighbors	How much do you trust the people in your neighborhood? In general, do you trust…	(1) All of the people in your neighborhood (2) Most of the people in your neighborhood (3) Some of the people in your neighborhood (4) None of the people in your neighborhood	CPS Nov. 2013		https://cps.ipums.org/cps-action/variables/CENEIGHCONF
comm_assoc	In the last 12 months, that is since July 2018, have you participated in a school group, neighborhood, or community association such as PTA or neighborhood watch group?	(1) Yes (2) No	CPS Nov. 2013		https://cps.ipums.org/cps-action/variables/CEORGCOM
volunteer	In the last 12 months, that is since July 2018, have you done any volunteer activities through or for an organization?	(1) Yes (2) No	CPS Sept. 2017	The variable used to produce this estimate is a recode of two questions from the CPS. The second question clarifies the definition of "volunteer activities" and is asked if respondents skipped or answered no to the first question.	https://cps.ipums.org/cps-action/variables/VLSTATUS

FINANCIAL

Variables	Question	Responses	Source	Note	Link
employ_status	Last week, were you working full time, part time, going to school, keeping house, or what?	(1) Working full time (2) Working part time (3) With a job, but not at work because of temporary illness, vacation, or strike (4) Unemployed, laid off, looking for work (5) Retired (6) In school (7) Keeping house	GSS 2018		https://gssdataexplorer.norc.org/variables/3/vshow

housing	Is your house, apartment, or mobile home…	(1) Owned by you or someone in your household with a mortgage or loan (2) Owned by you or someone in your household free and clear (3) Rented (4) Occupied without payment or rent	ACS 2017		https://usa.ipums.org/usa-action/variables/OWNERSHPhttps://www.socialexplorer.com/tables/ACS2017_5yr/R12207910
food_stamp	Did anyone in your household get food stamps or use a food stamp benefit card at any time during 2018?	(1) Yes (2) No	CPS ASES 2018		https://cps.ipums.org/cps-action/variables/FOODSTMP
insured	Are you covered by any kind of health insurance or some other kind of health care plan? This includes health insurance obtained through employment or purchased directly as well as government programs like Medicare and Medicaid that provide medical care or help pay medical bills.	(1) Yes (2) No	CPS ASES 2018		https://cps.ipums.org/cps-action/variables/HICOVNOW

FAMILY

Variables	Question	Responses	Source	Note	Link
marital_status	What is your marital status?	(1) Married (2) Separated (3) Divorced (4) Widowed (5) Never married/single	CPS May 2019		https://cps.ipums.org/cps-action/variables/MARST
children_household	How many children, younger than 18 years of age live in your household?	(1) None / NA (2) 1 (3) 2 (4) 3 or more	ACS 2017	This figure is calculated by counting the number of children under 18 in each ACS household.	https://usa.ipums.org/usa/
family_size	How many family members, including yourself, live in your household? Family members include anyone related to you by blood, marriage, or adoption.	(1) Only me (2) 2 (3) 3 (4) 4 (5) 5 or more	CPS May 2019		https://cps.ipums.org/cps-action/variables/FAMSIZE
total_household	How many adults, ages 18 and older, including yourself, live in your household? AND How many children, younger than 18 years of age live in your household?	(1) 1 (2) 2 (3) 3 (4) More than 3	ACS 2017	This figure is calculated by adding the number of adults in each ACS household to the number of children under 18 in each ACS household.	https://usa.ipums.org/usa/

PERSONAL

Variables	Question	Responses	Source	Note	Link
lived_ home_1year	Did you live in your house or apartment one year ago?	(1) Same house or apartment (2) Different house or apartment in the United States (3) Different house or apartment outside of the United States	CPS ASES 2018		https://cps.ipums.org/cps-action/variables/MIGRATE1
active_duty	Have you ever served on active duty in the U.S. Armed Forces, Reserves, or National Guard?	(1) Have been on active duty (2) Have never been on active duty	CPS May 2019	The variable used to produce this estimate is a recode that collapses people who are currently on active duty and people who were on active duty in the past, and does not consider Reserves or National Guard as active duty.	https://cps.ipums.org/cps-action/variables/UH_VETEVR_1
citizen	Are you a citizen of the United States?	(1) Yes, a U.S. citizen (2) No, not a U.S. citizen	CPS May 2019		https://cps.ipums.org/cps-action/variables/CITIZEN
gun_ownership	Do you happen to have in your home or garage any guns or revolvers?	(1) Yes (2) No	GSS 2018		https://gssdataexplorer.norc.org/variables/679/vshow
smoked1	Have you smoked at least 100 cigarettes in your entire life?	(1) Yes (2) No	National Health Interview Survey 2018	The variable used to produce this estimate collapses two questions from the NHIS.	https://www.cdc.gov/nchs/nhis/nhis_2018_data_release.htm
food_allergy	Do you have any food allergies?	(1) Yes (2) No	National Health and Nutrition Examination Survey 2010		https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4623408/

POLITICAL

Variables	Question	Responses	Source	Note	Link
voted_2016	In the 2016 presidential election between Donald Trump and Hillary Clinton, did things come up that kept you from voting, or did you happen to vote?	(1) Yes (2) No	CPS Voting and Registration Supplement 2016	NS did not make the same Pew or CPS adjustments noted here: https://assets.pewresearch.org/wp-content/uploads/sites/12/2018/01/24160939/Appendix-D.pdf	https://www.census.gov/data/tables/time-series/demo/voting-and-registration/p20-580.html
voted_2018	In the 2018 midterm election, did things come up that kept you from voting, or did you happen to vote?	(1) Yes (2) No	CPS Voting and Registration Supplement 2018		https://editions.lib.umn.edu/electionacademy/2019/04/24/census-bureau-releases-data-from-2018-registration-and-voting-survey/
contacted_ official	In the last 12 months, that is since July 2018, have you contacted or visited a public official — at any level of government — to express your opinion?	(1) Yes (2) No	CPS Sept. 2017		https://cps.ipums.org/cps-action/variables/CEPUBOFF

TECHNOLOGY

Variables	Question	Responses	Source	Note	Link
tablet	Do you use a tablet or e-book reader?	(1) Yes (2) No	CPS Computer and Internet Supplement November 2017		https://thedataweb.rm.census.gov/ftp/cps_ftp.html https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf
texting	What about texting or instant messaging? Do you text or use instant messaging?	(1) Yes (2) No	CPS Computer and Internet Supplement November 2017		https://thedataweb.rm.census.gov/ftp/cps_ftp.html https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf
social_networking	What about social networks, such as Facebook, Twitter, or Instagram? Do you use social networks?	(1) Yes (2) No	CPS Computer and Internet Supplement November 2017		https://thedataweb.rm.census.gov/ftp/cps_ftp.html https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf
streaming_video	What about streaming or watching videos? Do you watch videos over the internet? Examples include YouTube and Netflix.	(1) Yes (2) No	CPS Computer and Internet Supplement November 2017		https://thedataweb.rm.census.gov/ftp/cps_ftp.html https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf
streaming_audio	What about streaming or downloading music, radio programs, or podcasts? Do you stream or download music, radio programs, or podcasts?	(1) Yes (2) No	CPS Computer and Internet Supplement November 2017		https://thedataweb.rm.census.gov/ftp/cps_ftp.html https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf
financial_services	What about financial services such as banking, investing, or paying bills online? Do you use the Internet for financial services such as banking, investing, or paying bills online?	(1) Yes (2) No	CPS Computer and Internet Supplement November 2017		https://thedataweb.rm.census.gov/ftp/cps_ftp.html https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov17.pdf
internet_access	Do you or any member of your household have access to the Internet using a…	(1) Broadband (high speed) internet service such as cable, fiber optic, or DSL service install in your household (2) Cellular data plan for a smartphone or other mobile device (3) Satellite internet service installed in your household (4) Dial-up internet service installed in your household	ACS 2016		https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-39.pdf

VEHICLES

Variables	Question	Responses	Source	Note	Link
vehicles	How many automobiles, vans, and trucks of one-ton capacity or less are kept at home for use by members of your household?	(1) None (2) One (3) Two (4) Three (5) Four or more	ACS 2017		https://api.census.gov/data/2017/acs/acs5/pums?get=WGTP,VEH

DISABILITY

Variables	Question	Responses	Source	Note	Link
deaf	Are you deaf or do you have serious difficulty hearing?	(1) Yes (2) No	CPS May 2019		https://cps.ipums.org/cps-action/variables/DIFFHEAR
mobility	Do you have serious difficulty walking or climbing stairs?	(1) Yes (2) No	CPS May 2019		https://cps.ipums.org/cps-action/variables/DIFFPHYS

ARTS

Variables	Question	Responses	Source	Note	Link
arts	In the last 12 months, have you done any of the following?	(1) Go out to the movies or go see any films (2) Read any books of any type (3) Visit an art museum or gallery (4) Visit a historic park or monument or tour a building/ neighborhood for historic design (5) Visit a crafts fair or visual arts festival	National Endowment of the Arts Survey of Public Participation in the Arts 2017		https://www.arts.gov/sites/default/files/2017-sppapreviewREV-sept2018.pdf

MISCELLANEOUS

Variables	Question	Responses	Source	Note	Link
license	Do you currently have a valid driver's license, or not?	(1) Yes (2) No	ACS 2016/ CPS 2017		https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/
sleep	On average, how many hours of sleep do you get in a 24-hour period?	(1) 9 or more hours (2) 7 to 9 hours (3) 5 to 6 hours (4) 4 or fewer hours	ACS 2016/ CPS 2017		https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/
yoga	During the past 12 months, did you practice yoga for yourself?	(1) Yes (2) No	ACS 2016/ CPS 2017		https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/
high_bp	Have you ever been told by a doctor or other health professional that you had hypertension, also called high blood pressure?	(1) Yes (2) No	ACS 2016/ CPS 2017		https://www.pewresearch.org/methods/2018/10/09/rbs-and-rdd-surveys-show-similar-levels-of-accuracy-when-compared-with-population-benchmarks/