

National Neighborhood Data Archive (NaNDA): Voter Registration, Turnout, and Partisanship by County, United States, 2004-2022



Overview and Data Dictionary

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Dataset Overview

Description

This dataset contains counts of voter registration and voter turnout for all counties in the United States for the years 2004-2022. It also contains measures of each county's Democratic and Republican partisanship, including six-year longitudinal partisan indices for 2006-2022.

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Data Sources

Data on voter registration and turnout was taken from the Election Administration and Voting Survey (EAVS) datasets (United States Election Assistance Commission, 2004-2022). The EAVS is conducted every two years following a federal election by the United States Election Assistance Commission (USEAC). Information on voting, voter registration, and election administration is collected from local election officials at the state and county levels (U.S. Election Assistance Commission, 2020).

Citizen voting age population (CVAP), which is used to calculate voter turnout, was taken from United States Census Bureau data sources, specifically the 2000 decennial census and the 2012, 2017, and 2022 American Community Survey five-year estimates. (More information about how we selected CVAP for each year is available in the methodology section of this codebook.)

Partisanship indices are constructed from county-level presidential and senate election results. All presidential race data comes from the MIT Election Data and Science Lab (2021). Senate race data for 2000-2018 comes from the Harvard Election Data Archive (Ansolabehere et al., 2014, Ansolabehere et al., 2018). Senate race data from 2020-2022 comes from the MIT Election Data and Science Lab (2022, 2023).

Coverage

The dataset contains one observation per election (even) year per county in the United States, including Hawaii. Alaska is excluded, as are the U.S. Island territories.

Methodology

Our research team created this dataset to explore the relationship between voter engagement (as expressed through registration and turnout rates), partisan political leanings, community health, and public policy.

Voter turnout is a contextual predictor of social trust, which contributes to the health and happiness of a neighborhood's residents (Kawachi et al., 1997; Rahn et al., 2009). Prior research has found that voter turnout is low in disadvantaged neighborhoods with high levels of immigration (Levine et al., 2018) and that voter turnout is lower in neighborhoods with certain design features such as car-oriented development (Hopkins & Williamson, 2012). Rates of voter participation, as well as partisan leanings, are correlated with self-rated health (Pacheco & Fletcher, 2015) and affect attitudes toward

health care and policy (Bye et al., 2016). The COVID-19 pandemic in particular has shown that partisanship affects health behavior such as mask wearing (Pew Research Center, 2020; Kushner Gadarian et al., 2020), which has the potential to affect health outcomes as well.

Voter Registration and Turnout

To construct measures of voter registration and turnout, we began by calculating three figures for each county in the United States.

Registered voters: the total number of people registered to vote in the county. We obtained these values from variable A1a (total registered voters) of the 2004-2022 Election Administration and Voting Survey (U.S. Election Assistance Commission, 2023). (In 2004, this variable was called "Reported Total Registration." In 2006, it was called q022006total.)

Ballots cast: the total number of votes cast in the November general election for each year. The EAVS variable code and description used for this figure varies across years:

- 2004: "Total Ballots Counted" (no code)
- 2006: q34total ("Ballots Counted—Total")
- 2008-2014, 2020-2022: F1a
- 2016-2018: D1a ("Votes Cast: Total")

Note that survey data from the EAVS was not cleaned or imputed in the process of creating these measures. Some data is missing for one of the following reasons.

- Data is available only for even years. Elections do not occur in odd years in most United States jurisdictions.
- Data is missing for all years and counties in Alaska, because elections are not administered at the county level.
- Voter registration counts are zero or missing for most years for the state of North Dakota, which does not require voter registration.
- Responses from some counties may be missing for certain years due to survey nonresponse on the part of local election officials.

Voting population: following McDonald & Popkin (2001) and McDonald (2020b), we evaluated three possible measures for this component.

- Voting age population (VAP), the total number of people age 18+ in the county.
- Citizen voting age population (CVAP), which excludes noncitizens. (Per United States law, non-citizens are not allowed to vote in federal, state, and most local elections [Findlaw.com, 2020].)
- Voting eligible population (VEP), which excludes noncitizens and ineligible felons (where disallowed by state law).

While VEP is the most accurate measure, we were not able to obtain or estimate county-level figures for ineligible felons. We selected CVAP because it is more accurate than VAP and is readily available from the United States Census Bureau.

To maintain consistency with data sources that are commonly used in other NaNDA datasets, we used the following Census Bureau sources to calculate CVAP:

- 2004-2008: CVAP for each year is interpolated based on the 2000 decennial census and the 2012 ACS 5-year estimate.
- 2010-2012: CVAP is taken from the 2012 ACS five-year estimate (covering the period 2008-2012) with no interpolation.
- 2014-2016: CVAP is taken from the 2017 ACS five-year estimate (covering 2013-2017).
- 2018-2022: CVAP is taken from the 2022 ACS five-year estimate (covering 2018-2022).

For more information on why NaNDA uses these data sources and on interpolation methods, see the codebook for [National Neighborhood Data Archive \(NaNDA\): Socioeconomic Status and Demographic Characteristics of Census Tracts and ZIP Code Tabulation Areas, United States, 2000-2020](#) (Clarke et al., 2022).

We then calculated three ratios using these components:

- Voter registration: registered voters / voting population.
- Voter turnout: ballots cast / voting population.
- Registered voter turnout: ballots cast / registered voters.

In some counties, we found that the number of registered voters is higher than CVAP. In fewer counties, the total number of ballots cast also exceeds CVAP. One possible cause for this is “deadwood” in voter registration rolls: voters who have moved or died but not yet been removed from voter rolls in their former county by local election administrators (Shaw et al., 2015; Waldman & Levitt, 2007). Another is that CVAP is survey-based rather than based on a true enumeration of population (Nyhan et al., 2017). A third is that the EAVS, the source for our registered voters and ballot count data, is a survey and is subject to responder error. To account for these issues, we have top-coded all three ratios at .98 (98% voter registration and turnout).

Partisanship

For the years 2006-2022, we calculated Democratic and Republican partisanship indices for each county based on its voting history in presidential and senate races over the current and three prior elections. We built this index based on votes for president and senator because these races occur consistently in even years in all fifty U.S. states.

We extracted votes for Democratic and Republican presidential candidates from county-level data on presidential election outcomes for the years 2000-2022. For senate races, we summarized 2000-2022 precinct-level votes for Democratic and Republican candidates to the county level, then joined them with the presidential election vote counts. This resulted in four figures per county per year:

- `pres_dem_votes`: Votes for Democratic presidential candidates
- `pres_rep_votes`: Votes for Republican presidential candidates
- `sen_dem_votes`: Votes for Democratic senate candidates
- `sen_rep_votes`: Votes for Republican senate candidates

For each county and year, we created four ratios:

- `pres_dem_ratio`: $\text{pres_dem_votes} / (\text{pres_dem_votes} + \text{pres_rep_votes})$
- `pres_rep_ratio`: $\text{pres_rep_votes} / (\text{pres_dem_votes} + \text{pres_rep_votes})$
- `sen_dem_ratio`: $\text{sen_dem_votes} / (\text{sen_dem_votes} + \text{sen_rep_votes})$
- `sen_rep_ratio`: $\text{sen_rep_votes} / (\text{sen_dem_votes} + \text{sen_rep_votes})$

Note that votes for third party and independent candidates are not included in the denominator of these ratios.

We then calculated annual Democratic and Republican partisanship indices and six-year aggregate Democratic and Republican partisanship indices for each county for 2006 through 2022. The Democratic index is the average of the presidential and senate Democratic vote ratios over the current and previous four elections. The Republican index is calculated using Republican vote ratios in the same manner. The two indices add up to one for each county and year.

A chart illustrating a hypothetical example of how these indices are calculated is available in Appendix B: Partisanship Index Calculation.

The partisanship index and its source data components are missing in some circumstances.

- Data is available only for even years. Presidential and senate elections do not occur in odd years.
- Partisanship indices are not calculated for 2000-2004 because six years of voting data are required to calculate them. (Although voter turnout data is not available for 2000 and 2002, we have included the presidential and senate vote counts and ratios so that users may replicate our partisanship ratio calculations.)
- The District of Columbia does not vote for senators, so we did not construct partisan indices for its one county.
- Data is expected to be missing for presidential races in all states in 2002, 2006, 2010, 2014, 2018, and 2022 because presidential elections do not occur in those years.

- Senate vote counts are missing in years in which senate races do not occur.
(Every state elects two senators to six-year terms, usually in different years.)
- Precinct-level senate returns are unavailable for the following states and years.
(Note that this list has not been checked to confirm whether a senate race would have occurred in all years.)
 - Arizona 2000 and 2010
 - California 2000 and 2012
 - Colorado 2000 and 2002
 - Delaware 2000
 - Florida 2000-2008 and 2012
 - Georgia 2000 and 2010
 - Hawaii 2000 and 2002
 - Illinois 2000-2012
 - Indiana 2000-2012 and 2020
 - Kentucky 2000-2006
 - Maryland 2002
 - Massachusetts 2000-2002
 - Michigan 2012
 - Missouri 2000 and 2012
 - Mississippi 2000-2002
 - Nebraska 2000-2002, 2006, and 2010
 - New Jersey 2010-2012
 - New Mexico 2002, 2006, 2010
 - Nevada 2000-2008, 2012
 - New York 2000-2006, 2012, and 2018
 - North Dakota 2000
 - Ohio 2000-2002, 2012
 - Oklahoma 2000-2006
 - Oregon 2000-2006, 2012
 - South Carolina 2000-2002
 - South Dakota 2000-2002
 - Tennessee 2000
 - Utah 2000-2006 and 2010-2012
 - Virginia 2000-2004
 - Washington 2000-2006
 - West Virginia 2000-2010
 - Wisconsin 2000 and 2012
- Whenever possible, we summarized precinct-level senate returns with county-level data by FIPS code, or if FIPS code was not available, on a combination of state and county name. Precinct-level source files that do not identify a county in one of these two ways cannot be summarized to the county level. Because of this, senate vote data and partisanship ratios are missing in 2000-2012 for the following states: Connecticut, Delaware, Hawaii, Maryland, Massachusetts, Minnesota, Rhode Island, and Utah.

Usage Notes

A number of factors besides voter engagement and motivation can affect rates of voter registration and turnout. For example, the requirement to register tends to lower turnout (Ansolabehere & Konisky, 2006). Some states permit Election Day voter registration, which has been shown to increase turnout (Neiheisel & Burden, 2012). In some states, voters are automatically registered to vote when they interact with certain state agencies (often those issuing driver's licenses), which increases registration rates without necessarily increasing turnout (Rakich, 2019). Turnout is consistently higher in presidential election years (McDonald, 2020b). In addition, demographic factors that affect an individual's propensity to vote (such as education) may have a cumulative effect at the neighborhood level (Sondheimer & Green, 2010).

The measures available in this dataset may be useful to exploring these trends. However, we caution users against comparing registration and turnout rates across states and over time without considering the effects of these other factors.

Variables

Variable	Label
stcofips20	County FIPS code
year	Year
reg_voters	# registered voters
ballots_cast	Ballots cast in general election, all races
cvap	Citizen voting age population
reg_voters_pct	% eligible voters registered (reg_voters / cvap), top coded
voter_turnout_pct	% eligible voters casting ballots (ballots_cast / cvap), top coded
reg_voter_turnout_pct	% registered voters casting ballots (ballots_cast / reg_voters), top coded
pres_dem_votes	# votes for Democratic presidential candidate
pres_rep_votes	# votes for Republican presidential candidate
sen_dem_votes	# votes for Democratic senate candidate
sen_rep_votes	# votes for Republican senate candidate
pres_dem_ratio	% votes for Democratic presidential candidate
pres_rep_ratio	% votes for Republican presidential candidate
sen_dem_ratio	% votes for Democratic senate candidate
sen_rep_ratio	% votes for Republican senate candidate
partisan_index_dem	Democratic partisanship index (% votes cast, past 6 years)
partisan_index_rep	Republican partisanship index (% votes cast, past 6 years)

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Appendices

Appendix A: Regular State Senate Races by Year

State	2000	2002	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022
Alabama		✓	✓		✓	✓		✓	✓		✓	✓
Alaska		✓	✓		✓	✓		✓	✓		✓	✓
Arizona	✓		✓	✓		✓	✓		✓	✓		✓
Arkansas		✓	✓		✓	✓		✓	✓		✓	✓
California	✓		✓	✓		✓	✓		✓	✓		✓
Colorado		✓	✓		✓	✓		✓	✓		✓	✓
Connecticut	✓		✓	✓		✓	✓		✓	✓		✓
Delaware	✓	✓		✓	✓		✓	✓		✓	✓	
Florida	✓		✓	✓		✓	✓		✓	✓		✓
Georgia		✓	✓		✓	✓		✓	✓		✓	✓
Hawaii	✓	✓	✓	✓		✓	✓		✓	✓		✓
Idaho		✓	✓		✓	✓		✓	✓		✓	✓
Illinois		✓	✓		✓	✓		✓	✓		✓	✓
Indiana	✓		✓	✓		✓	✓		✓	✓		✓
Iowa		✓	✓		✓	✓		✓	✓		✓	✓
Kansas		✓	✓		✓	✓		✓	✓		✓	✓
Kentucky		✓	✓		✓	✓		✓	✓		✓	✓
Louisiana		✓	✓		✓	✓		✓	✓		✓	✓
Maine	✓	✓		✓	✓		✓	✓		✓	✓	
Maryland	✓		✓	✓		✓	✓		✓	✓		✓
Massachusetts	✓	✓		✓	✓		✓	✓		✓	✓	
Michigan	✓	✓		✓	✓		✓	✓		✓	✓	
Minnesota	✓	✓		✓	✓		✓	✓		✓	✓	
Mississippi	✓	✓		✓	✓		✓	✓		✓	✓	
Missouri	✓		✓	✓		✓	✓		✓	✓		✓
Montana	✓	✓		✓	✓		✓	✓		✓	✓	
Nebraska	✓	✓		✓	✓		✓	✓		✓	✓	
Nevada	✓		✓	✓		✓	✓		✓	✓		✓
New Hampshire		✓	✓		✓	✓		✓	✓		✓	✓
New Jersey	✓	✓		✓	✓		✓	✓		✓	✓	
New Mexico	✓	✓		✓	✓		✓	✓		✓	✓	
New York	✓		✓	✓		✓	✓		✓	✓		✓
North Carolina		✓	✓		✓			✓	✓		✓	✓
North Dakota	✓		✓	✓		✓	✓		✓	✓		✓
Ohio	✓		✓	✓		✓	✓		✓	✓		✓
Oklahoma		✓	✓		✓	✓		✓	✓		✓	✓
Oregon		✓	✓		✓	✓		✓	✓		✓	✓

National Neighborhood Data Archive (NaNDA): Voter Registration, Turnout, and Partisanship by County,
United States, 2004-2022

Pennsylvania	✓		✓	✓		✓	✓		✓	✓		✓
Rhode Island	✓	✓		✓	✓		✓	✓		✓	✓	
South Carolina		✓	✓		✓	✓		✓	✓		✓	
South Dakota		✓	✓		✓	✓		✓	✓		✓	✓
Tennessee	✓	✓		✓	✓		✓	✓		✓	✓	
Texas	✓	✓		✓	✓		✓	✓		✓	✓	
Utah	✓		✓	✓		✓	✓		✓	✓		✓
Vermont	✓		✓	✓		✓	✓		✓	✓		✓
Virginia	✓	✓		✓	✓		✓	✓		✓	✓	
Washington	✓		✓	✓		✓	✓		✓	✓		✓
West Virginia	✓	✓		✓	✓		✓	✓		✓	✓	
Wisconsin	✓		✓	✓		✓	✓		✓	✓		✓
Wyoming	✓	✓		✓	✓		✓	✓		✓	✓	

Appendix B: Partisanship Index Calculation

This chart shows the calculation of a hypothetical example of the Democratic and Republican partisanship indices.

Year	pres_dem_votes	pres_rep_votes	sen_dem_votes	sen_rep_votes	pres_dem_ratio	pres_rep_ratio	sen_dem_ratio	sen_rep_ratio	Annual average, Democratic ratios	Annual average, Republican ratios	partisan_index_dem	partisan_index_rep
2010			300	100			.75	.25	.75	.25		
2012	900	600	800	200	.6	.4	.8	.2	.7	.3		
2014												
2016	800	800	600	400	.5	.5	.6	.4	.55	.45	.67	.33

To calculate these indices:

Calculate ratios for the presidential and senate votes (pres_dem_ratio, pres_rep_ratio, sen_dem_ratio, sen_rep_ratio) for each year and race that votes are present (highlighted in blue).

Calculate the average ratio for each year (annual average of Democratic ratios, annual average of Republican ratios) that races are present (highlighted in orange). Note that these variables are calculated in the process of creating partisan_index_dem and partisan_index_rep but are not included in the dataset.

Calculate the average of all ratios across all four years (highlighted in green). These are the partisanship index values for 2016.