# Appendix A: Construction of ANES variables and Summary Statistics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **ANES-2016 variable name** | **Construction** | **Obs.** | **Mean** | **Std. Dev.** | **Min** | **Max** |
| **Fairness of Vote Count (ANES)** | v162219 reversed | ‘Votes are counted fairly’ -Votes Never Fair (1) to Votes Always Fair (5) | 3632 | 3.73 | 1.00 | 1 | 5 |
| **Conspiracy (9/11)** | v162254 | ‘U.S. government knew about 9/11’ - Definitely did not know (1) to Definitely knew (4) (Note: this was reverse coded from original ANES variable) | 3597 | 2.22 | 0.89 | 1 | 4 |
| **Populism scale**  | Sum v162260 (Do not care), v162265 (Care Rich), v162275 (Corrupt), v162261 (Not trustworthy), v166262 (Problem), v162264 (People decide) | Standardized scale from low (25) to high (99)Component variables:‘most politicians do not care about people’; ‘most politicians only care about the interests of rich and powerful’; ‘How widespread is corruption among politicians in the U.S.’; ‘Most politicians are trustworthy’; ‘Politicians are the main problem in the U.S.’; ‘People not politicians should make most important policy decisions’ | 3578 | 69.39 | 13.53 | 26.4 | 99 |
| **Expert perceptions** | N/A | Mean PEI-US 2016 expert assessment of ‘Votes are counted fairly’ – Strongly disagree (1) to Strongly agree (5), aggregated to state | 3649 | 4.32 | 0.22 | 3.5 | 5 |
| **Difference between** **Expert (PEI) and Public (ANES) Estimates of Fairness of Vote** | v162219 | Mean PEI-US 2016 expert assessment of ‘Votes are counted fairly’ – Strongly disagree (1) to Strongly agree (5), aggregated to state*minus*ANES Fair vote count (v162219reversed) for individuals in each state  | 3632 | -0.60 | 1.02 | -4 | 1.2 |
| **Republican ID** | v161158x | Strong/Weak Republican (1), else (0) | 3701 | 0.34 | 0.47 | 0 | 1 |
| **Democrat ID** | v161158x | Strong/weak Democrat (1), else(0) | 3701 | 0.28 | 0.45 | 0 | 1 |
| **Partisan Strength** | v161158x | Independent (0) to Strong Democratic/Republican (3) | 3631 | 1.88 | 1.06 | 0 | 3 |
| **Winner** | v162034a | Trump voter (1), else (0) | 3701 | 0.32 | 0.47 | 0 | 1 |
| **Media exposure scale** | Sum V162002 (TV), V162003 (radio), V162004 (internet), V162005 (newspapers) | Low (0) to high (16) | 3701 | 10.10 | 3.12 | 0 | 16 |
| **Media attention**  | v162257  | Follows politics in media - Not at all (1) to Very Closely (4) | 3639 | 2.78 | 0.82 | 1 | 4 |
| **Satisfaction with democracy** | v162290 | Not at all satisfied (1) to Very satisfied (5) | 3607 | 0.67 | 0.47 | 0 | 1 |
| **Trust in government scale** | Sum V161215, V161216, V161217, V161218 | Low (4) to high (15) | 3571 | 7.81 | 1.93 | 4 | 15 |
| **Ideological Strength** | v162289= | Original on a 0-10, with 0 as extreme left and 10 as extreme right, recoded to 1 for 5, 2 for 6 and 4, etc.  | 3503 | 2.94 | 1.68 | 1 | 6 |
| **Age**  | v161267 | 18-90 years old  | 3553 | 49.48 | 17.60 | 18 | 90 |
| **Sex**  | v161342 | Male (1) Female (0) | 3603 | 0.82 | 0.39 | 0 | 1 |
| **White (race)** | v161310a | Self-reported white race (1), else (0) | 3607 | 0.47 | 0.50 | 0 | 1 |
| **Education**  | v161270 | High school (1), College no degree (2), Bachelors degree (3), Masters or above (4) | 3618 | 2.46 | 1.04 | 1 | 4 |
| **Political knowledge scale** | Sum v162072, v162073a, v162074a, v162075a, v162076a | Low (0) to high (5) | 3649 | 3.06 | 1.52 | 0 | 5 |
| **Web Mode** | v160501 | Telephone (0) Web (1) | 3649 | 0.71 | 0.45 | 0 | 1 |

**Source**: American National Election Time-series Study 2016 (<https://electionstudies.org/project/2016-time-series-study/>) and Perceptions of Electoral Integrity - US 2016 (<https://doi.org/10.7910/DVN/YXUV3W>)

# Appendix B: Expert evaluations of the fairness of the vote count, by state (PEI-US 2016)

|  |  |  |  |
| --- | --- | --- | --- |
| **STATE** | **Mean expert evaluation of fairness of vote count (1-5)** | **STATE** | **Mean expert evaluation of fairness of vote count (1-5)** |
| West Virginia | 5.00 | Delaware | 4.33 |
| New Hampshire | 4.80 | North Carolina | 4.33 |
| Oregon | 4.80 | New Jersey | 4.33 |
| Iowa | 4.75 | Oklahoma | 4.33 |
| Vermont | 4.75 | Rhode Island | 4.33 |
| Washington | 4.71 | Tennessee | 4.33 |
| Maine | 4.67 | Utah | 4.33 |
| New Mexico | 4.67 | Virginia | 4.32 |
| Colorado | 4.63 | Maryland | 4.31 |
| Louisiana | 4.63 | Connecticut | 4.25 |
| Arkansas | 4.60 | Florida | 4.24 |
| Montana | 4.60 | Texas | 4.23 |
| Nebraska | 4.60 | Idaho | 4.20 |
| Mississippi | 4.57 | New York | 4.18 |
| Indiana | 4.55 | Wisconsin | 4.18 |
| Hawai'i | 4.50 | Michigan | 4.14 |
| Kansas | 4.50 | Ohio | 4.10 |
| North Dakota | 4.50 | South Carolina | 4.09 |
| Illinois | 4.48 | Georgia | 4.08 |
| California | 4.46 | Alabama | 4.00 |
| Massachusetts | 4.42 | Kentucky | 4.00 |
| Missouri | 4.42 | South Dakota | 4.00 |
| District of Columbia | 4.40 | Pennsylvania | 3.97 |
| Nevada | 4.40 | Arizona | 3.80 |
| Wyoming | 4.40 | Alaska | 3.50 |
| Minnesota | 4.36 |  |  |
|  |  | **Mean** | **4.37** |

**Note:** Mean responses by experts in US states to the statement: “*Votes are counted fairly*” measured on a 5-point scale from 1 “Strongly disagree” to 5 “Strongly agree”. N. 51 (US States + DC)

**Source:** Perceptions of Electoral Integrity - US 2016 (<https://doi.org/10.7910/DVN/YXUV3W>)

# Appendix C: Note on the Applicability of ‘Fairness of Vote Count’ to overall Electoral Integrity

Do measures about the fairness of the vote count reflect the wider concept of electoral integrity? To answer this question, two tests were undertaken.

First, in regards to public perceptions, a principal component analysis (PCA) with varimax rotation is conducted on five electoral integrity items included in the 2012 ANES. While the 2016 ANES included only the item on the fairness of the vote count, the 2012 also included the following items: “Journalists provide fair coverage of elections”, “Election officials are fair”, “Voters are offered a genuine choice at the ballot box”, and “Rich people buy elections”, which tap into different stages of the electoral cycle. For the purposes of the PCA, the last items was reversed, so that higher scores in all items denote lower integrity. The Kaiser-Meyer-Olkin measure was KMO=0.66 overall, and above 0.63 for each individual item, verifying sampling adequacy for the analysis (Kaiser 1974). Furthermore, Bartlett's test of sphericity showed that correlations between items were sufficiently large for PCA (*χ*2 (10) = 3556.18, *p* < 0.001). The PCA showed only one component with Eigenvalue above 1. The scale formed by this first component is reliable (Cronbach’s α= 0.58) and also highly correlated with an additive index of those five items (Pearson's *r*=0.97, *p*< 0.001). This suggests that (at least in 2012), the vote count item captures the underlying concept of electoral malpractice.

In addition to this, the dimensionality of the item was also tested with data from the 7th wave of the World Values Survey, containing nine electoral integrity items. Again, ‘fair vote count’ is a solid proxy for general public perceptions of electoral malpractice, loading with a score of 0.84 on a single underlying dimension.

Second, regarding the experts’ perceptions, a similar PCA rotation using all 49 items of the PEI-US survey shows one underlying, highly reliable dimension (Cronbach α =0.92), which includes the item about the vote count. An additive scale of all items is highly correlated with this underlying dimension (*r*=0.99, *p*<0.05). Furthermore, this additive measure of electoral integrity is very highly correlated with a rating variable asking the experts to rate the overall integrity of the election in their state on a scale from one to ten (*r*=0.99, *p*<0.001). This strongly suggests that perceptions of the vote count tap into the underlying dimension of electoral malpractice.

# Appendix D: Validity of expert evaluations of the vote count (PEI-US 2016)

**Internal Validity**

To test internal validity, it is necessary to demonstrate that expert perceptions are not simply biased by the same socio-demographic and attitudinal factors that may predict the public’s perceptions of the fairness of the vote count. Here, a simple OLS regression with state-level fixed effects compares whether four key socio-demographic and attitudinal variables can predict expert and public responses (see table below). These four socio-demographic variables are: sex, age, whether the respondent voted, and placement on a left-right ideological spectrum.[[1]](#footnote-1) The results demonstrate that while *public* perceptions of the fairness of the vote count can be predicted by all four variables, the *expert* perceptions were only related to the respondent’s gender. It is important that the experts’ responses were not simply reflections of whether they voted or their placement on a left-right ideological spectrum. This suggests that experts are much less susceptible to individual characteristics influencing their judgements, lending support to the use of expert perceptions as a closer reflection to actual levels of electoral malpractice.

**The predictors of expert and public perceptions of the fairness of the vote count**

|  |  |  |
| --- | --- | --- |
|   | (1) | (2) |
| VARIABLES | Experts | Public |
| Sex (male) | 0.21\*\*\* (0.06) | 0.18\*\*\* (0.03) |
| Age Group 40-59 | -0.04 (0.07) | 0.23\*\*\* (0.04) |
| Age Group 60 + | -0.03 (0.08) | 0.33\*\*\* (0.04) |
| Voted | 0.11 (0.08) | 0.38\*\*\* (0.05) |
| Left-Right Scale Placement | 0.02 (0.02) | -0.02\*\*\* (0.01) |
| Constant | 3.11\*\*\* (0.48) | 3.19\*\*\* (0.18) |
| Observations | 625 | 3,038 |
| R-squared | 0.12 | 0.08 |

**Notes**: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 OLS Linear regression models. Dependent Variable: Perceptions of fair vote in each state and individual perceptions. State fixed effects included in model but not reported in the table.

**Variables for Internal Validity Check**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Expert/Citizen** | **Observations** | **Mean** | **Std. Dev.** | **Min** | **Max** |
| **Votes Counted Fairly** | Experts | 632 | 4.33 | 0.66 | 1 | 5 |
| Citizens | 3,632 | 3.73 | 1.00 | 1 | 5 |
| **Male** | Experts | 726 | 0.68 | 0.47 | 0 | 1 |
| Citizens | 3,607 | 0.47 | 0.50 | 0 | 1 |
| **Age Groups (0=20-39, 1=40-59, 2=60+)** | Experts | 726 | 1.05 | 0.70 | 0 | 2 |
| Citizens | 3,493 | 0.99 | 0.81 | 0 | 2 |
| **Voted** | Experts | 726 | 0.88 | 0.33 | 0 | 1 |
| Citizens | 3,306 | 0.87 | 0.34 | 0 | 1 |
| **Self-Placement on Left-Right Spectrum** | Experts | 718 | 3.36 | 1.54 | 1 | 10 |
| Citizens | 3,503 | 5.72 | 2.46 | 0 | 10 |

**Sources**: American National Election Time-series Study 2016 (<https://electionstudies.org/project/2016-time-series-study/>) and Perceptions of Electoral Integrity - US 2016 (<https://doi.org/10.7910/DVN/YXUV3W>)

**External Validity**

Using expert judgment to measure complex and hard-to-observe construct has become a common and accepted practice in the social sciences (Bowler, Farrell, and Pettitt 2005; McElroy and Benoit 2007; Coppedge et al. 2015) and in policy circles[[2]](#footnote-2) alike.

The validity and reliability of the results of the Global Perceptions of Electoral Integrity Index (PEI-5.0), using identical methods, has also been tested against many standard indicators which are widely used in social science. The PEI-5.0 Index[[3]](#footnote-3), covering 241 national presidential and parliamentary elections in 158 countries, was found to be strongly correlated at cross-national level when matched in the closest year to the combined Freedom House/imputed Polity IV measure of democratization (*r*=0.76, *p*<0.05, n=133). It was also correlated with the Varieties of Democracy measures of electoral democracy (polyarchy) (r=0.82, *p*<0.05, n=125), liberal democracy (0.87, *p*<0.05, n=125), and free and fair elections (R=0.82, *p*<0.05, n=71).[[4]](#footnote-4) To further establish the external validity of the PEI estimates, we check the robustness of this dataset against other available data on the quality of elections in US states.[[5]](#footnote-5)

***Electoral Law***

We first tested the external validity of a number of the components of the PEI\_US index, namely the ease of voting and electoral boundary efficiency. We tested the accuracy of expert perceptions of the ease of voting and the restriction of voter rights through the construction of a new Electoral Law Index (ELI) classifying the legal and procedural framework governing the electoral process in each U.S. state. This index captures state laws regulating common registration and balloting procedures in the 2016 election were coded from the most strict conditions (coded low) to most lenient requirements (coded high) based on the following selected procedures: Election-day registration; Online registration; Pre-registration (prior to attaining the age of 18); Automatic Voter Registration; Voter identification requirements to cast a ballot; Absentee ballots; All mail-in voting; Early Voting; and Provisional ballots. The Election Laws Index (ELI) was created by summing these criteria (maximum total of 9 points), where a high score reflects more convenient registration and voting procedures.[[6]](#footnote-6) Data comes from several sources including the National Council of State Legislatures (NCLS) database which tracks when electoral laws were enacted and implemented by state legislatures the Election Administration and Voting Survey (EAV), which has been administered by the United States Election Assistance Commission (EAC) for every election since 2004.[[7]](#footnote-7) The external validity of questions pertaining to the voting process in PEI\_US index was tested against the ELI index. The question posed to experts “Election laws restricted citizens’ rights” was correlated with the ELI (*r*=-0.69, *p*<0.001), as was the question “The process of voting was easy,” which was also correlated with the ELI (*r*= 0.35, *p*<0.05). Both of these correlations are in the expected direction and demonstrate the experts’ ability to respond to these electoral integrity questions vital to the question of fair vote counts, which is the focus of this paper. These findings are confirmed when an alternative source of data, the Voting Access Scorecard is used (“Election laws restricted citizens’ rights”, *r*= -0.48, *p*<0.001; “The process of voting was easy”, *r*= 0.31, *p*<0.05).[[8]](#footnote-8) Furthermore, the actual laws surrounding the use of postal ballots were compared with expert responses to the question “Postal ballots were available.” States with excuse-required absentee ballots had a mean response of 3.90 (where 1 is strongly disagree and 5 is strongly agree), whereas those states with no-excuse required absentee ballots had a mean response of 4.36, and those states with all mail-ballots had a mean response of 4.97.[[9]](#footnote-9) These cross-checks increase confidence in the reliability of the PEI expert perceptions, since they are closely related to the legal electoral framework in U.S. states.[[10]](#footnote-10)

***Electoral Boundaries***

Finally, the PEI\_US boundaries index was compared with a common measure of efficiency in electoral boundaries. Efficiency of district boundaries refers to the difference between the numbers of ‘wasted votes’ in any state between political parties (Engstrom 2013). When boundaries are gerrymandered, or drawn for attempted political gain, this gap will increase in favor of one party or another. This can be calculated by dividing the number of ‘wasted votes’ for each party by the total number of votes cast. Using calculations of the ‘efficiency gap’ calculated in a report from Brennan Centre for Justice, it is found that the boundaries index from PEI\_US correlates with the efficiency gap (*r*= -0.37, *p*<0.1). [[11]](#footnote-11) States with higher efficiency gaps tend to have lower expert perceptions of the integrity of electoral boundaries.

# Appendix E: Explaining Perceptions of “Fairness of the Vote Count”, models split by survey mode

|  |  |  |  |
| --- | --- | --- | --- |
|   | **(1)****Fairness of vote count(ANES)1-5** | **(2)****Fairness of vote count(ANES)1-5** | **(3)****Difference between****Expert (PEI) and Public (ANES) estimates of fairness of vote count** |
|  |
| VARIABLES | **Mode: In-person** | **Mode: Internet** | **Mode: In-person** | **Mode: Internet** | **Mode: In-person** | **Mode: Internet** |
|   | *Coefficient (Std.Err.)*  |   |   |   |   |
| Conspiracy (9/11) | **-.10** (.04)\*\* | **-.13** (.03)\*\*\* | **-.09** (.04)\*\* | **-.12** (.03)\*\*\* | **-.10** (.04)\*\* | **-.13** (.03)\*\*\* |
| Populism Scale | **-.01** (.00)\*\* | **-.01** (.00)\*\*\* | **-.01** (.00)\* | **-.01** (.00)\*\*\* | **-.01** (.00)\*\* | **-.01** (.00)\*\*\* |
| Expert Perceptions |  |  | .15 (.18) | **.17** (.10)\* |  |  |
| Republican party ID | .00 (.16) | -.09 (.12) | -.08 (.16) | -.04 (.12) | .00 (.16) | -.09 (.12) |
| Democrat party ID | -.03 (.15) | .01 (.11) | -.11 (.16) | .04 (.11) | -.03 (.15) | .01 (.11) |
| Partisan Strength | .09 (.08) | .06 (.05) | .12 (.08) | .04 (.05) | .09 (.08) | .06 (.05) |
| Winner | .05 (.09) | .07 (.06) | .07 (.09) | .06 (.06) | .05 (.09) | .07 (.06) |
| Media exposure | .02 (.02) | .01 (.01) | .02 (.02) | .00 (.01) | .02 (.02) | .01 (.01) |
| Media attention | -.04 (.06) | **.09** (.04)\*\* | -.03 (.06) | **.10** (.04)\*\* | -.04 (.06) | **.09** (.04)\*\* |
| Satisfaction w Democracy | **.36** (.08)\*\*\* | **.27** (.05)\*\*\* | **.36** (.09)\*\*\* | **.27** (.06)\*\*\* | **.36** (.08)\*\*\* | **.27** (.05)\*\*\* |
| Trust in Government | .02 (.02) | **.05** (.02)\*\*\* | .02 (.02) | **.05** (.02)\*\*\* | .02 (.02) | **.05** (.02)\*\*\* |
| Ideological Strength | **-.04** (.02)\* | **-.03** (.02)\*\* | **-.04** (.02)\* | **-.04** (.02)\*\* | **-.04** (.02)\* | **-.03** (.02)\*\* |
| Political Knowledge | **.08** (.03)\*\* | **.11** (.02)\*\*\* | **.08** (.03)\*\* | **.11** (.02)\*\*\* | **.08** (.03)\*\* | **.11** (.02)\*\*\* |
| Education - College | -.18 (.12) | -.01 (.07) | **-.21** (.12)\* | -.01 (.07) | -.18 (.12) | -.01 (.07) |
| Education - Bachelor | -.04 (.10) | .05 (.06) | -.05 (.10) | .07 (.06) | -.04 (.10) | .05 (.06) |
| Education - Master’s + | .07 (.11) | .07 (.07) | .08 (.11) | .08 (.07) | .07 (.11) | .07 (.07) |
| Age | **.01** (.00)\*\* | **.01** (.00)\*\*\* | **.00** (.00)\*\* | **.01** (.00)\*\*\* | **.01** (.00)\*\* | **.01** (.00)\*\*\* |
| White | **.34** (.10)\*\*\* | **.43** (.07)\*\*\* | **.30** (.10)\*\*\* | **.47** (.08)\*\*\* | **.34** (.10)\*\*\* | **.43** (.07)\*\*\* |
| Male | .12 (.07) | **.11** (.05)\*\* | **.14** (.07)\* | **.11** (.05)\*\* | .12 (.07) | **.11** (.05)\*\* |
| Constant | 3.00 (.47)\*\*\* | 2.25 (.36)\*\*\* | 2.41 (.90)\*\*\* | 1.67 (.53)\*\*\* | -.80 (.47)\* | -1.75 (.36)\*\*\* |
| State Fixed Effects | Yes | Yes | No | No | Yes | Yes |
| Observations | 867 | 2,357 | 867 | 2,357 | 867 | 2,357 |
| R-squared | 0.25 | 0.25 | 0.21 | 0.23 | 0.28 | 0.27 |

**Notes**: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 OLS Linear regression models.

ANES survey weights were used.

**Source**: American National Election Time-series Study 2016 (<https://electionstudies.org/project/2016-time-series-study/>); Perceptions of Electoral Integrity - US 2016 (<https://doi.org/10.7910/DVN/YXUV3W>)

1. Unfortunately, these four variables are the only socio-demographic or attitudinal variables that match with the ANES survey questions. [↑](#footnote-ref-1)
2. See for instance Transparency International’s Corruption Perceptions Index (<https://www.transparency.org/research/cpi/>) or the Bertelsmann Stiftung's Transformation Index (BTI) (<https://www.bti-project.org/en/home/>). [↑](#footnote-ref-2)
3. See Pippa Norris and Max Grömping. 2017. *Populist threats to electoral integrity: The year in elections, 2016-2017.* Sydney: University of Sydney/EIP. [↑](#footnote-ref-3)
4. Data was drawn from Jan Teorell, Stefan Dahlberg, Sören Holmberg, Bo Rothstein, Felix Hartmann and Richard Svensson. January 2017. *The Quality of Government Standard Dataset,* version Jan17. University of Gothenburg: The Quality of Government Institute, <http://www.qog.pol.gu.se> and the Varieties of Democracy project V7.1 <https://www.v-dem.net/en/> [↑](#footnote-ref-4)
5. Ideally we could check the United States Sub-national Perceptions of Electoral Integrity Index against the Pew Electoral Performance Index, which compiles some of the available sources of performance data by state, but has not yet been released for the 2016 election. [↑](#footnote-ref-5)
6. The 9 items in the ELI scale generated a moderately strong Cronbach’s Alpha (0.59). [↑](#footnote-ref-6)
7. Data from the National Conference of State Legislative (NCSL) Election Law Database. <http://www.ncsl.org/research/elections-and-campaigns/voter-id-history.aspx> and the Electoral Assistance Commission. 2015. *The 2014 EAC Election Administration and Voting Survey Comprehensive Report.* http://www.eac.gov/research/election\_administration\_and\_voting\_survey.aspx [↑](#footnote-ref-7)
8. The Voting Access Scorecard measures the accessibility of American elections by analyzing state election laws and practices based on 30 metrics. More information available here: <https://thefranchiseproject.com/voter-scorecards/> [↑](#footnote-ref-8)
9. Using Tukey HSD, p<0.05. [↑](#footnote-ref-9)
10. For further discussion, see chapter 9 of Norris (2017). [↑](#footnote-ref-10)
11. See Laura Royden and Michael Li. 2017. Extreme Maps. Brennan Centre for Justice <https://www.brennancenter.org/publication/extreme-maps> This analysis, like that in the Brennan Centre report, only includes states with more than 6 congressional districts. [↑](#footnote-ref-11)