Using the CPS as a Measure of Voter Turnout

Preliminary Report on Methodology

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A number of concerns have been raised about the use of the Current Population Survey (CPS) Voting & Registration Supplement as a source for data about voter turnout. The Census Bureau conducts the survey on behalf of the Bureau of Labor Statistics on a monthly basis with about 60,000 households and collects the V&R Supplement every even-numbered year in November. One of the most notable benefits of using CPS data is the ability to disaggregate by demographic characteristics such as age, race, ethnicity, geography, etc. However, an increasing non-response rate and discrepancies in voting-age population (VAP) compared to other Census products threaten to limit the validity and utility of these data. In addition, it appears that the turnout data may have been statistically normed to align with the results of the election at the national level, but not at the state level or in other subgroups. Some methods of adjusting for CPS over/undercounts have been discussed, although, given that the survey is one of the fews sources of disaggregatable data about voter turnout, it is difficult to adjust for error beyond the national level.

This report seeks to explore potential discrepancies in CPS data and evaluate its suitability for research at the Annette Strauss Institute for Civic Life. Additionally, it presents preliminary analyses of 2020 data for review and discussion.

Methodology & Data Wrangling

Four libraries and three datasets are used in this report. The `tidyverse`, `ipumsr`, `forcats`, and `kableExtra` libraries are used for managing and visualizing the data. The datasets are read in below:

```
fips_conv <- read_csv("fips_name_abbr.csv")
```

```
## Rows: 51 Columns: 3
## ── Column specification ────────────────────────────────────────────────────────
## Delimiter: ","
## chr (2): name, abbr
## dbl (1): fips
##
## ℹ Use `spec()` to retrieve the full column specification for this data.
## ℹ Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
pums <- read_ipums_ddi("cps_00005.xml") %>% read_ipums_micro() # https://cps.ipums.org/cps-action/data_requests/download
```

```
## Use of data from IPUMS CPS is subject to conditions including that users should cite the data appropriately. Use command `ipums_conditions()` for more details.
```

```
turnout_actual <- read_csv("turnout_expanded.csv") # https://docs.google.com/spreadsheets/d/1h_2pR1pq8s_I5buZ5agXS9q1vLziECztN2uWeR6Czo0/edit
```

```
## Rows: 51 Columns: 11
## ── Column specification ────────────────────────────────────────────────────
## Delimiter: ","
## chr (2): state, abbr
## dbl (2): elig_turnout, perc_non_cit
## num (7): ballots, elig_pop, voting_age_pop, prison, probation, parole, felon
##
## ℹ Use `spec()` to retrieve the full column specification for this data.
## ℹ Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

- `fips_conv` is a crosswalk used to convert Federal Information Processing Standards (FIPS) codes into state names (Source: Census Bureau (https://www.census.gov/library/reference/code-lists/ansi.html))
- `pums` is a Public Use Microdata Sample (PUMS) that is statistically representative of the results of the November 2020 CPS V&R Supplement as well as selected demographic characteristics of the population (Source: IPUMS (http://cps.ipums.org/))
- `turnout_actual` is the results of the November 2020 Election, as well as state-level data about voter eligibility (Source: U.S. Elections Project (https://www.electproject.org/election-data/voter-turnout-data))

Certain operations were performed on the data to support data analysis. Below, for the PUMS data, observations marked as Not In Universe are removed, FIPS codes are converted to state names, the VOTEDand HISPAN variables are converted to logical bools (i.e. True or False), and the final variables for the data are selected:

```
pums_clean <- filter(pums, VOTED != 99) %>%
  left_join(
    fips_conv,
    by = c("STATEFIP" = "fips")
  ) %>%
  mutate(
    VOTED = as.logical(VOTED == 2),
    HISPAN = as.logical(HISPAN != 0),
    STATE = name
  ) %>%
  select(WTFINL, STATE, AGE, HISPAN, VOTED)
```

- `WTFNL` is the weighting for a given entry calculated by the Census Bureau to make the data statisically accurate
- `STATE` is the name of the state of residence of a given entry
- `AGE` is the numerical age of an entry
- `HISPAN` is whether or not a given entry is identified as Hispanic or Latino of any background
- `VOTED` is whether or not the given entry voted in the previous election

In the interest of this report are the overall turnout rates of different states, as well as testing the validity of disaggregating by age and ethnicity, which historically have predicted subgroup voter turnout. For each statewide summary, the voting-age population (VAP) and total number of votes reported are calculated. Then, the number of felons ineligible to vote for each state is attached to the summary. From this, the voting-eligible population (VEP) is

calculated as VAP - felons. Note that the CPS V&R Supplement is only asked to U.S. Citizens who are at least 18 years old, so citizenship can be safely assumed. The turnout for each state is next calculated as votes reported / VEP. Each summary is then arranged in order of estimated turnout, from highest to lowest.

```
turnout_ovr <- group_by(pums_clean, STATE) %>%
  summarize(
    vap = sum(WTFINL),
    votes = sum(VOTED * WTFINL)
  ) %>%
  left_join(
    select(turnout_actual, state, felon),
    by = c("STATE" = "state")
  ) %>%
  mutate(
    vep = vap - felon,
    turnout_est = votes / vep
  ) %>%
  arrange(desc(turnout_est))

turnout_young <- filter(pums_clean, AGE >= 18 & AGE <= 24) %>%
  group_by(STATE) %>%
  summarize(
    turnout_est = sum(VOTED * WTFINL) / sum(WTFINL),
    pop = sum(WTFINL),
    votes = sum(VOTED * WTFINL)
  ) %>%
  arrange(desc(turnout_est))

turnout_hisp <- filter(pums_clean, HISPAN == TRUE) %>%
  group_by(STATE) %>%
  summarize(
    turnout_est = sum(VOTED * WTFINL) / sum(WTFINL),
    pop = sum(WTFINL),
    votes = sum(VOTED * WTFINL)
  ) %>%
  arrange(desc(turnout_est))
```

And in order to compare the CPS data with the actual results of the election, we join the two datasets together.

```
comp <- left_join(turnout_actual, turnout_ovr, by = c("state" = "STATE"))
```

Given the fact that there is often a sizable difference between the turnout rates suggested by CPS surveying and the election itself, we can attempt a rudimentary form of error correction on the young and Hispanic/Latino voter data by adding the arithmetic difference between what was calculated as the overall turnout and the actual turnout.

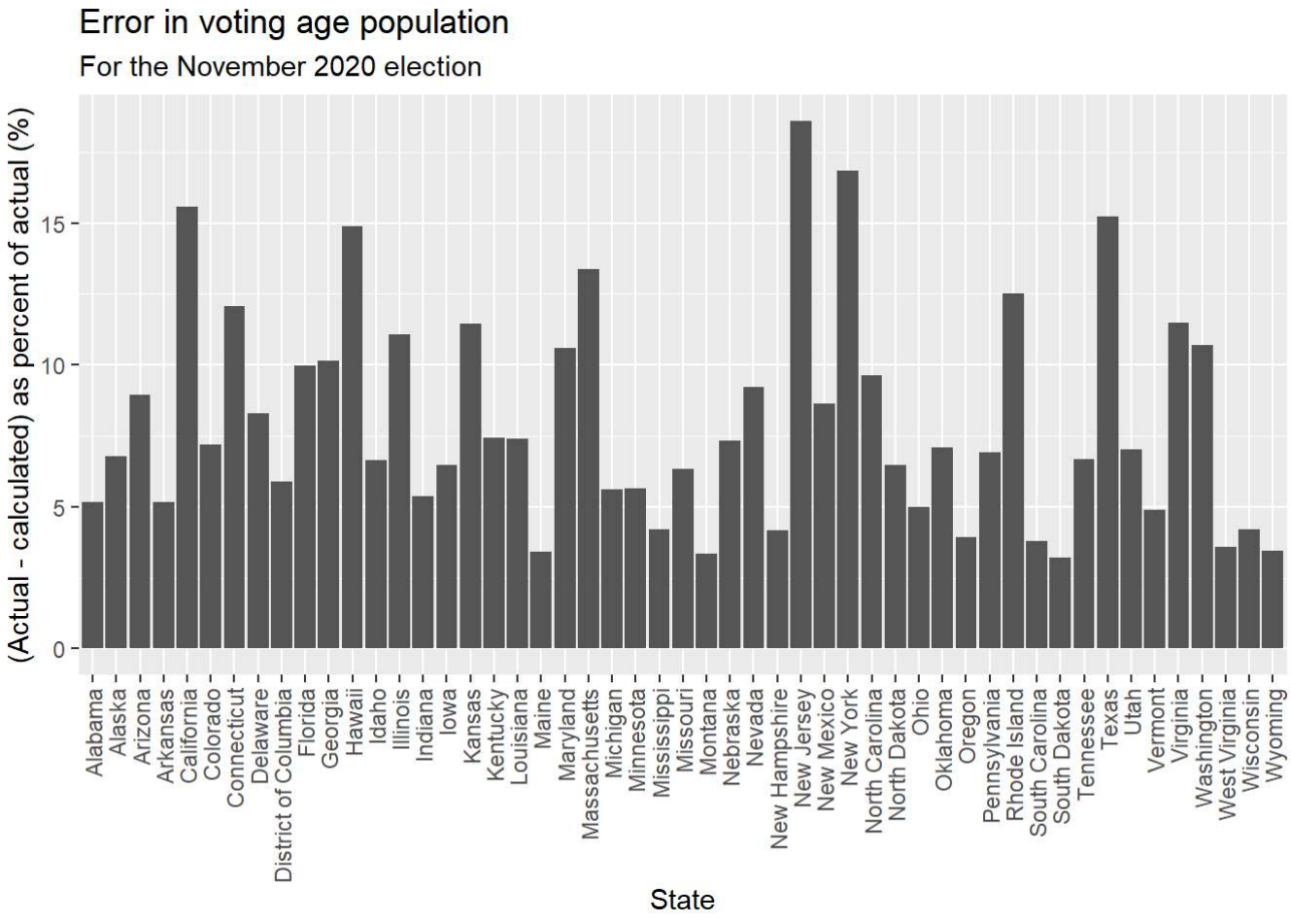
```
turnout_young <- left_join(
  turnout_young,
  mutate(
    comp,
    state = state,
    error = comp$elig_turnout - comp$turnout_est,
    .keep = "none"
  ),
  by = c("STATE" = "state")
) %>%
  mutate(
    turnout_adj = turnout_est + error
  ) %>%
  select(-error)

turnout_hisp <- left_join(
  turnout_hisp,
  mutate(
    comp,
    state = state,
    error = comp$elig_turnout - comp$turnout_est,
    .keep = "none"
  ),
  by = c("STATE" = "state")
) %>%
  mutate(
    turnout_adj = turnout_est + error
  ) %>%
  select(-error)
```

Visualizations & Analyses

Voting age population error

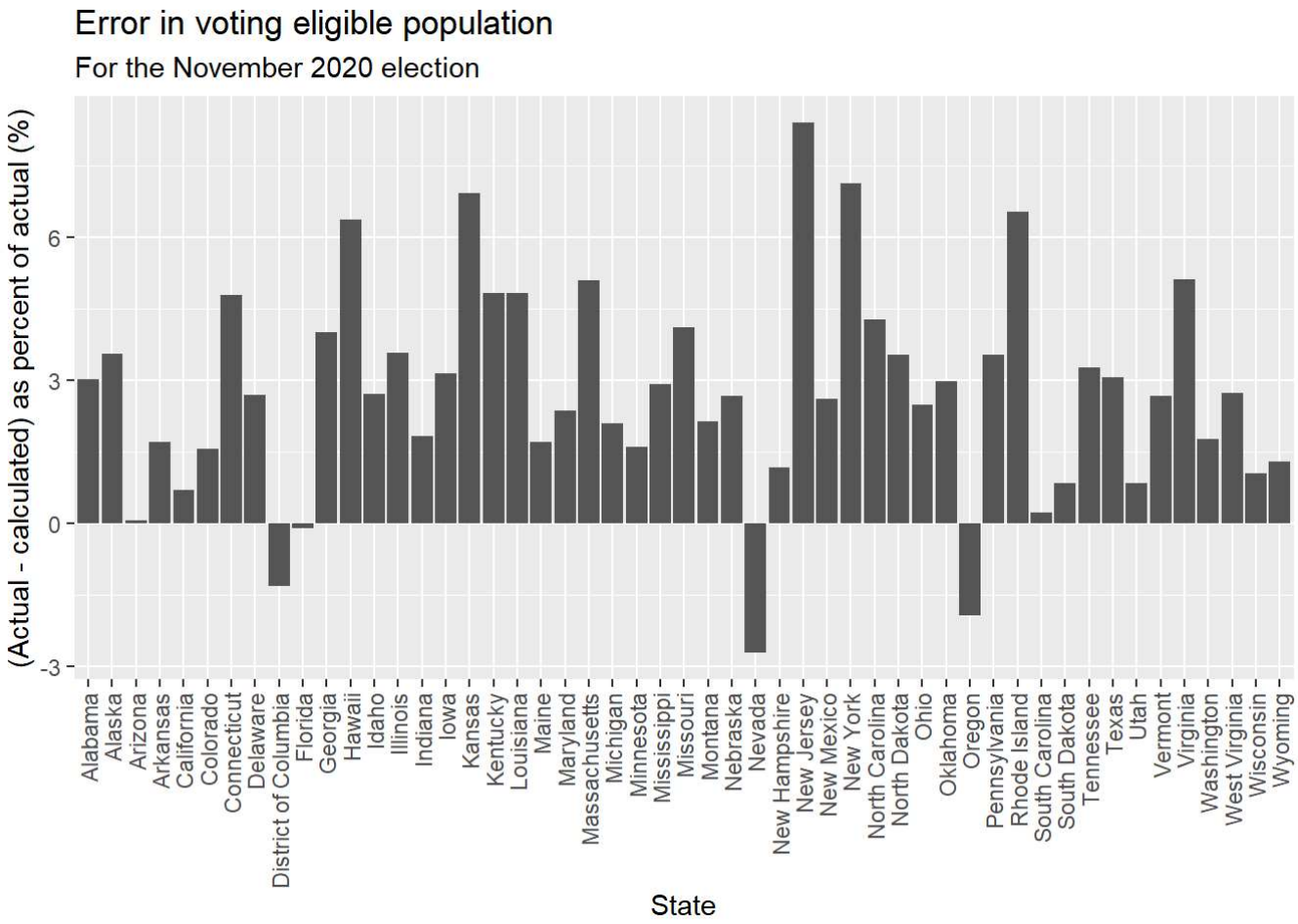
```
ggplot(comp) +
  geom_col(
    aes(
      x = state,
      y = 100 * (voting_age_pop - vap) / voting_age_pop
    )
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  ) +
  labs(
    title = "Error in voting age population",
    subtitle = "For the November 2020 election",
    x = "State",
    y = "(Actual - calculated) as percent of actual (%)"
  )
```



First we consider how the differences between what the CPS says is the actual population of each state and the VAP used by the USEP. On average, the CPS data is a 8.02% underestimate. The consistent underestimate in CPS data may reflect methodological issues or just a different method of calculating VAP used by the USEP. It may be prudent to use American Community Survey (ACS) data if possible to add an additional layer of robustness to the baseline population data. A potential difficulty lies in crosswalking ACS PUMS data with CPS PUMS data.

Voting eligible population error

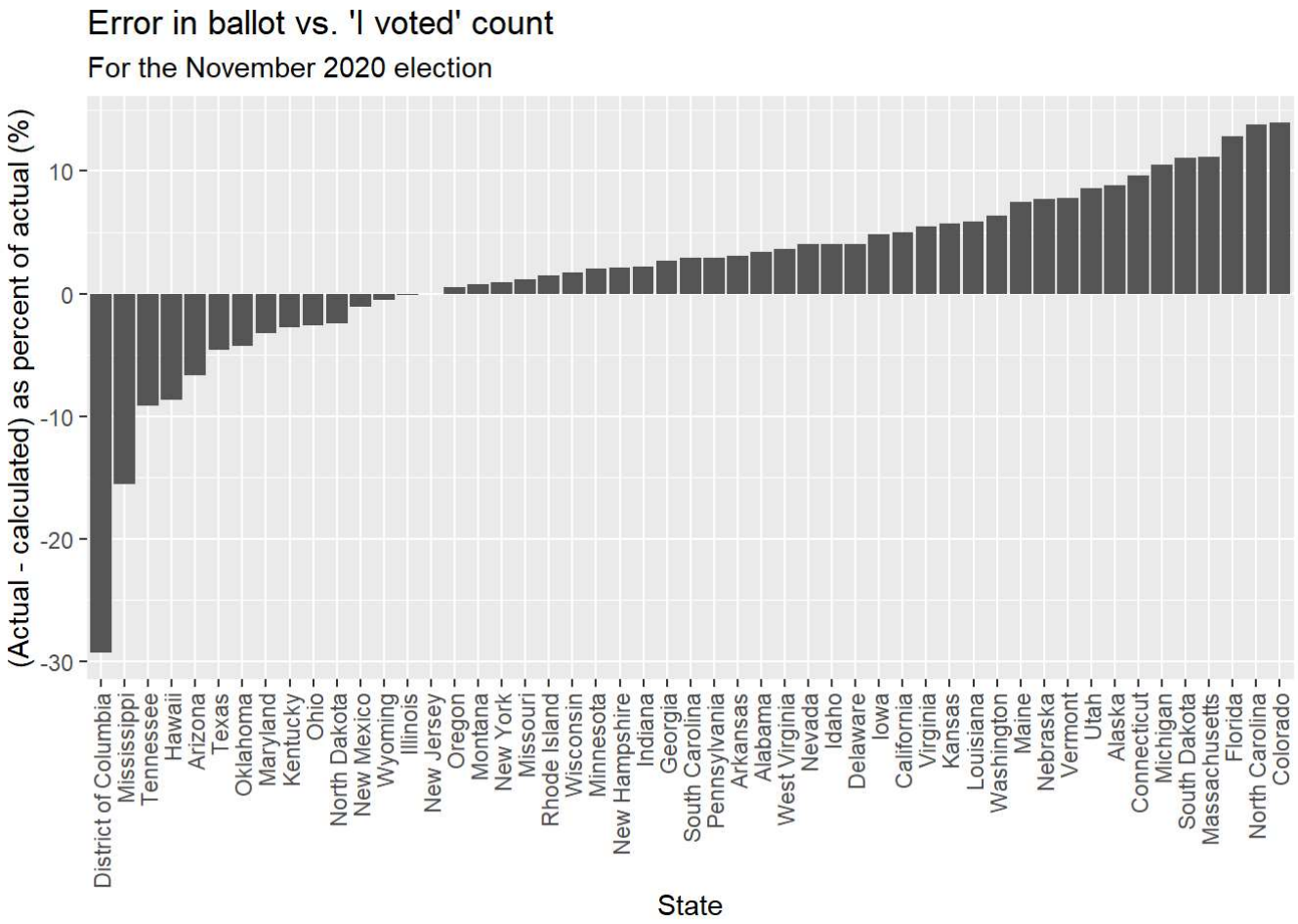
```
ggplot(comp) +
  geom_col(
    aes(
      x = state,
      y = 100 * (comp$elig_pop - vep) / comp$elig_pop
    )
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  ) +
  labs(
    title = "Error in voting eligible population",
    subtitle = "For the November 2020 election",
    x = "State",
    y = "(Actual - calculated) as percent of actual (%)"
  )
```



When the VEP is calculated, however, the mean error is much lower at a 2.75% underestimate. This may be a result of CPS data only being asked to citizens, whereas the USEP data factors that into VEP later.

Ballot error

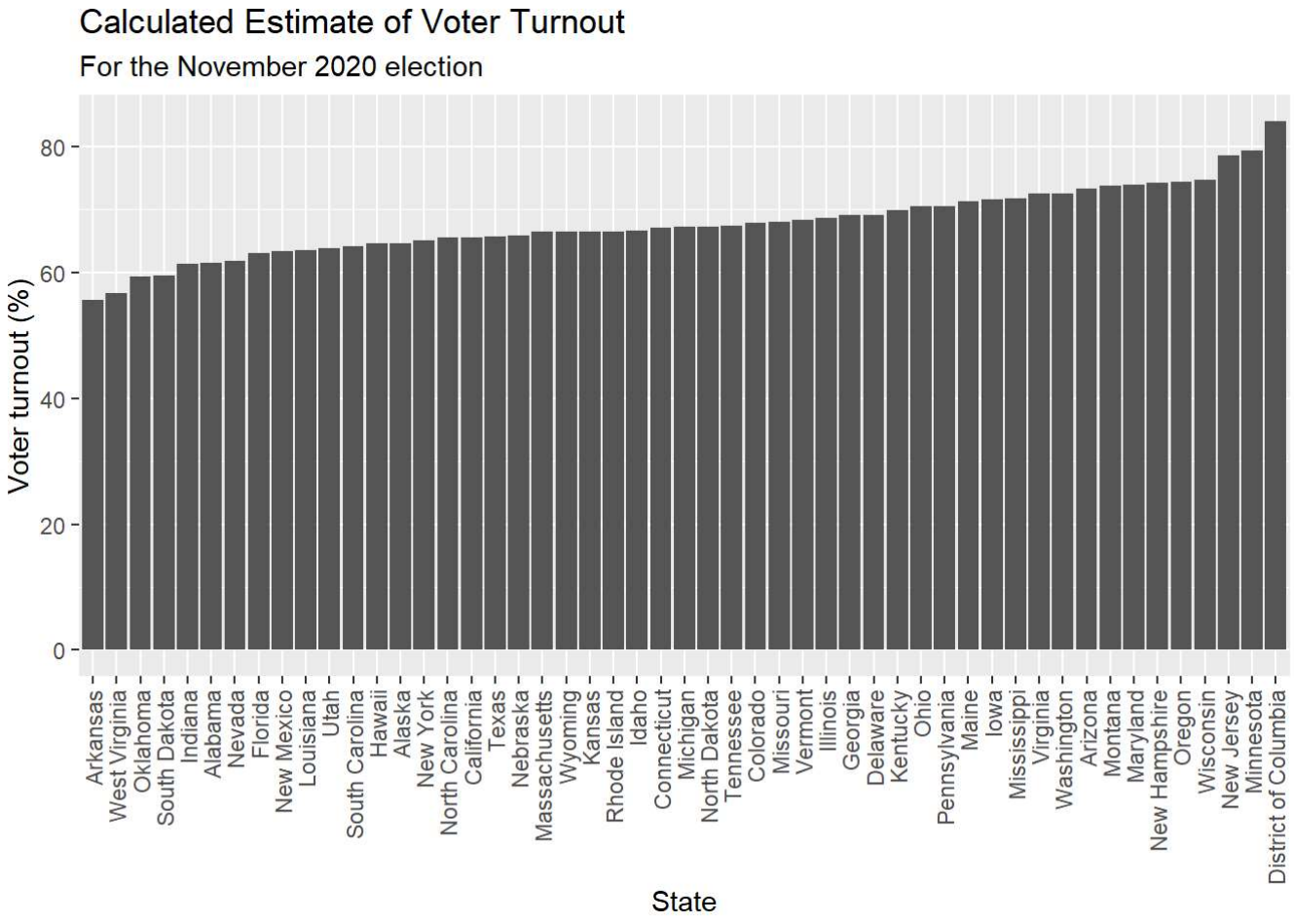
```
ggplot(comp) +
  geom_col(
    aes(
      x = fct_reorder(state, (ballots - votes) / ballots),
      y = 100 * (ballots - votes) / ballots
    )
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  ) +
  labs(
    title = "Error in ballot vs. 'I voted' count",
    subtitle = "For the November 2020 election",
    x = "State",
    y = "(Actual - calculated) as percent of actual (%)"
  )
```



The difference between the number of ballots cast and people who say they vote varies from a massive overestimate in DC to a large underestimate in CO. However, it is very important to note that the average error is almost exactly 0. This suggests that the CPS data may have been normed to the national number of ballots cast. It also presents an opportunity for the basic adjustments performed at the end of the previous section.

Estimated turnout by state

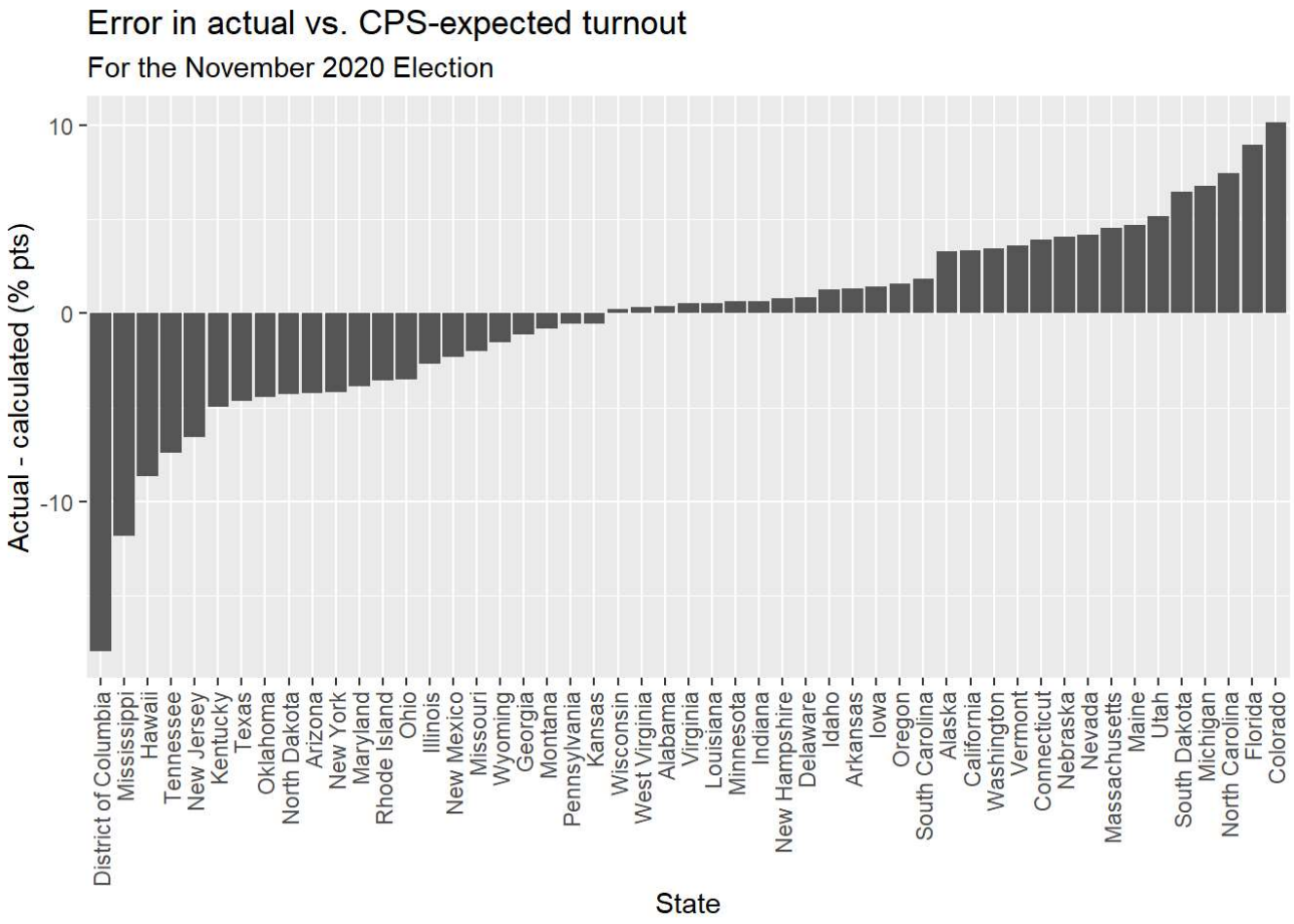
```
ggplot(turnout_ovr) +
  geom_col(
    aes(
      x = fct_reorder(STATE, turnout_est),
      y = turnout_est * 100
    )
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  )  +
  labs(
    title = "Calculated Estimate of Voter Turnout",
    subtitle = "For the November 2020 election",
    x = "State",
    y = "Voter turnout (%)"
  )
```



Without any adjustments, this is the turnout rate for each state calculated from the CPS V&R supplement. It ranges from about 55% in Arkansas to approximately 84% in DC. However, it is not entirely accurate as the next visual shows.

Turnout error

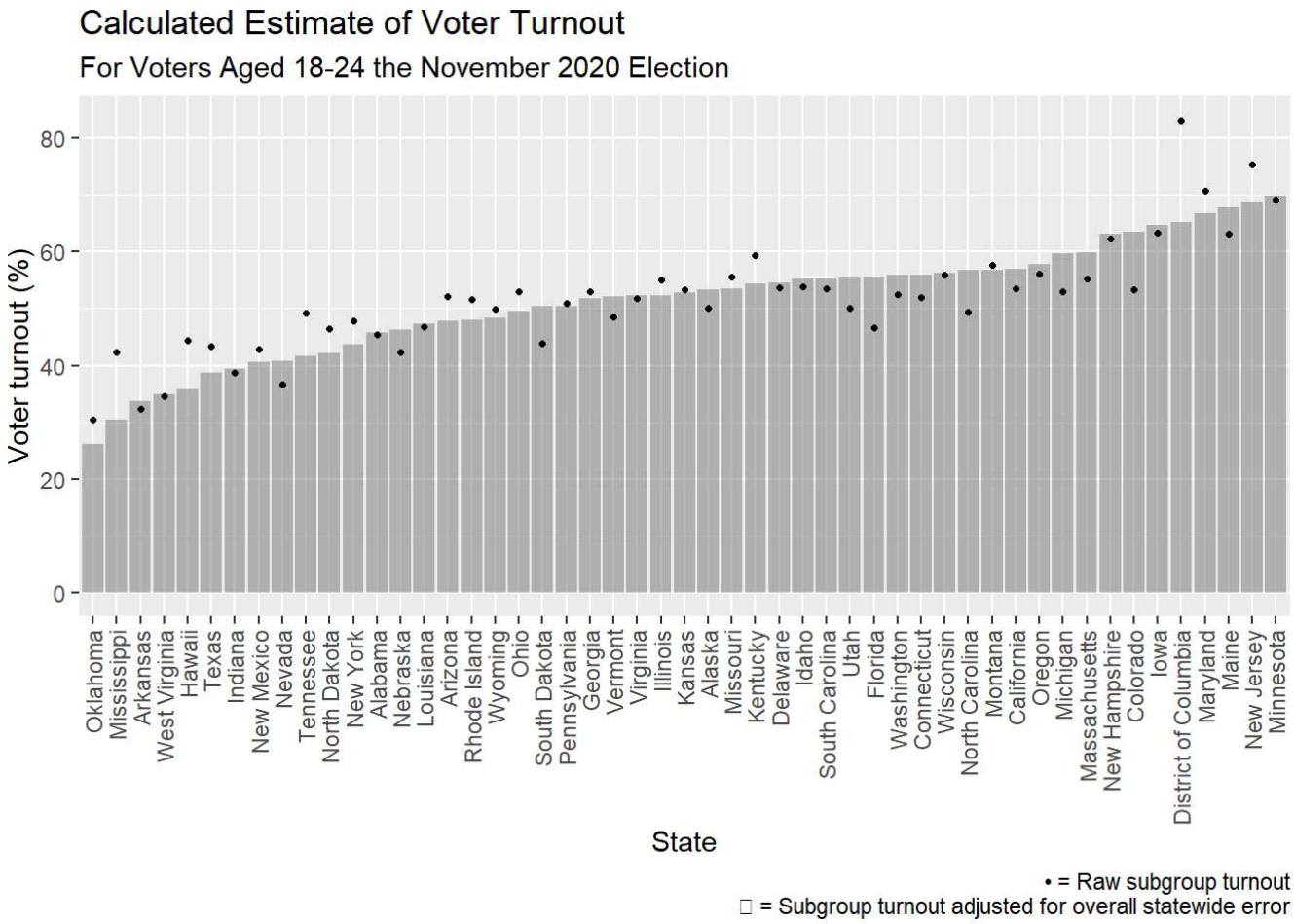
```
ggplot(comp) +
  geom_col(
    aes(
      x = fct_reorder(state, elig_turnout - turnout_est),
      y = 100 * (elig_turnout - turnout_est)
    )
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  ) +
  labs(
    title = "Error in actual vs. CPS-expected turnout",
    subtitle = "For the November 2020 Election",
    x = "State",
    y = "Actual - calculated (% pts)"
  )
```



This largely mirrors the graph of ballot error from earlier. Once more, it also averages out to almost exactly zero. Note that most states are within about 10 percentage points of the actual value, except for a couple outliers.

Young voter turnout (w/ adjustments)

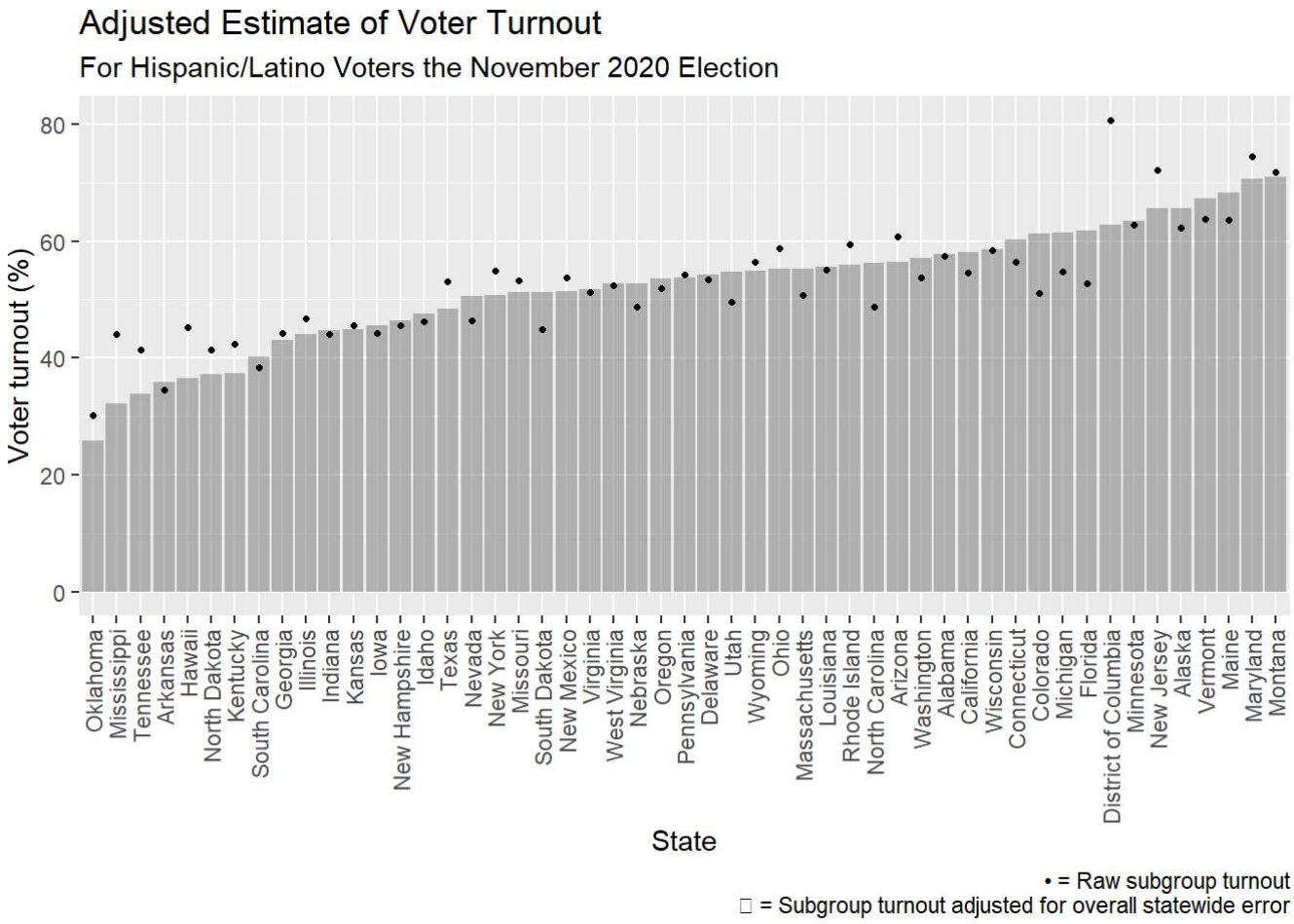
```
ggplot(turnout_young) +
  geom_col(
    aes(
      x = fct_reorder(STATE, turnout_adj),
      y = turnout_adj * 100
    ),
    alpha = 0.4
  ) +
  geom_point(
    aes(
      x = fct_reorder(STATE, turnout_adj),
      y = turnout_est * 100
    ),
    col = "black",
    pch = 20
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  )  +
  labs(
    title = "Calculated Estimate of Voter Turnout",
    subtitle = "For Voters Aged 18-24 the November 2020 Election",
    x = "State",
    y = "Voter turnout (%)",
    caption = "• = Raw subgroup turnout\n▨ = Subgroup turnout adjusted for overall statewide er
ror"
  )
```



Texas does not perform well according to this metric, ranking 46th after adjustment (43rd raw). Voters aged 18-24 at the state-level consistently turn out at levels lower than the overall population ranging from about 31% raw/26% adj in OK to 83% in DC (raw) or 70% in MN (adj).

Hispanic voter turnout (w/ adjustments)

```
ggplot(turnout_hisp) +
  geom_col(
    aes(
      x = fct_reorder(STATE, turnout_adj),
      y = turnout_adj * 100
    ),
    alpha = 0.4
  ) +
  geom_point(
    aes(
      x = fct_reorder(STATE, turnout_adj),
      y = turnout_est * 100
    ),
    col = "black",
    pch = 20
  ) +
  theme(
    axis.text.x = element_text(
      angle = 90,
      vjust = 0.5,
      hjust = 1
    )
  )  +
  labs(
    title = "Adjusted Estimate of Voter Turnout",
    subtitle = "For Hispanic/Latino Voters the November 2020 Election",
    x = "State",
    y = "Voter turnout (%)",
    caption = "• = Raw subgroup turnout\n▨ = Subgroup turnout adjusted for overall statewide er
ror"
  )
```



Texas does slightly better on Hispanic turnout at 36th place after adjustment (25th raw). After adjustment, Montana leads with an approximate 71% turnout rate, while Oklahoma comes in last once more with a 26% rate. Before adjustment, DC takes first with a raw turnout rate of 81%, and Oklahoma is at the bottom for raw turnout rates as well at 30%.

Concluding remarks

After spending the last few days refining the methods used to wrangle and analyze the CPS data, I feel increasing confident in its utility while still holding a few reservations about its inherent validity. It is important to note that, in line with CPS practice (but not many other institutions), voters who did not respond to the supplement or refused to answer the question are assumed as not voting. Calculating the turnout out of just yes/no responses to the voting question makes the entire survey become a massive overestimate.

All things considered, although more complex techniques like Bayesian Improved Surname Geocoding show significant promise in providing additional strong sources of disaggregatable data about voter turnout, it still seems like the CPS data is the best option available and may be possible to adjust to yield more precise results.

References

Census Bureau. “CURRENT POPULATION SURVEY, November 2020 Voting and Registration Supplement TECHNICAL DOCUMENTATION.” https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov20.pdf (https://www2.census.gov/programs-surveys/cps/techdocs/cpsnov20.pdf). Accessed 6 June 2024.

Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, J. Robert Warren, Daniel Backman, Annie Chen, Grace Cooper, Stephanie Richards, Megan Schouweiler, and Michael Westberry. IPUMS CPS: Version 11.0 [dataset]. Minneapolis, MN: IPUMS, 2023. https://doi.org/10.18128/D030.V11.0 (https://doi.org/10.18128/D030.V11.0)

Hur, Aram, and Christopher H Achen. “Coding voter turnout responses in the current population survey.” *Public Opinion Quarterly*, vol. 77, no. 4, winter 2013, pp. 985–993, https://doi.org/10.1093/poq/nft042 (https://doi.org/10.1093/poq/nft042).

McDonald, Michael P. 2020. “Voting Statistics” United States Elections Project. https://docs.google.com/spreadsheets/d/1h_2pR1pq8s_I5buZ5agXS9q1vLziECztN2uWeR6Czo0/view (https://docs.google.com/spreadsheets/d/1h_2pR1pq8s_I5buZ5agXS9q1vLziECztN2uWeR6Czo0/view). Accessed 6 June 2024.

Appendix: Tables of Turnout Estimates

Overall turnout by state

```
kable_styling(kbl(turnout_ovr))
```

STATE	vap	votes	felon	vep	turnout_est
District of Columbia	533532.8	448051.7	0	533532.8	0.8397828
Minnesota	4142008.0	3224663.4	79140	4062868.0	0.7936914
New Jersey	5920613.1	4637589.7	18099	5902514.1	0.7856974
Wisconsin	4421041.7	3253034.7	71193	4349848.7	0.7478501
Oregon	3241658.3	2401608.1	13795	3227863.3	0.7440241
New Hampshire	1077121.2	797436.8	2635	1074486.2	0.7421564
Maryland	4302940.0	3166205.3	18165	4284775.0	0.7389432
Montana	826638.4	607278.2	3754	822884.4	0.7379872
Arizona	5074899.5	3649349.3	93699	4981200.5	0.7326245
Washington	5388797.5	3853686.9	78536	5310261.5	0.7257057
Virginia	5974232.4	4274545.2	76732	5897500.4	0.7248063
Mississippi	2176877.3	1530527.6	46032	2130845.3	0.7182725
Iowa	2293353.9	1617652.7	33933	2259420.9	0.7159590
Maine	1074767.3	766390.7	0	1074767.3	0.7130759

STATE	vap	votes	felon	vep	turnout_est
Pennsylvania	9620841.2	6755887.1	44148	9576693.2	0.7054509
Ohio	8740110.8	6128387.6	49892	8690218.8	0.7052052
Kentucky	3227477.2	2210195.9	68281	3159196.2	0.6996070
Delaware	721516.6	488512.4	15013	706503.6	0.6914507
Georgia	7399524.9	4887508.0	329754	7069770.9	0.6913248
Illinois	8860457.5	6057521.4	38464	8821993.5	0.6866386
Vermont	499841.6	341935.1	0	499841.6	0.6840870
Missouri	4475106.3	2990244.8	76599	4398507.3	0.6798317
Colorado	4199508.7	2837138.6	18905	4180603.7	0.6786433
Tennessee	5038275.3	3346231.4	74926	4963349.3	0.6741882
North Dakota	555859.7	372978.4	1679	554180.7	0.6730267
Michigan	7466977.3	4994042.1	38183	7428794.3	0.6722547
Connecticut	2524310.9	1681305.6	17720	2506590.9	0.6707539
Idaho	1298850.6	843268.0	34968	1263882.6	0.6672044
Rhode Island	776316.3	514809.7	2766	773550.3	0.6655154
Kansas	1974843.1	1296997.3	25522	1949321.1	0.6653585
Wyoming	427458.1	279882.3	6759	420699.1	0.6652791
Massachusetts	4897406.8	3248797.6	7772	4889634.8	0.6644254
Nebraska	1368961.4	892227.6	15455	1353506.4	0.6591971
Texas	18581120.5	11874468.8	492390	18088730.5	0.6564567
California	25946400.1	16893487.8	207316	25739084.1	0.6563360
North Carolina	7391457.0	4780256.2	97497	7293960.0	0.6553719
New York	13298219.6	8608829.3	87600	13210619.6	0.6516598
Alaska	516371.0	329627.4	6927	509444.0	0.6470337
Hawaii	979772.0	630019.7	5007	974765.0	0.6463299

STATE	vap	votes	felon	vep	turnout_est
South Carolina	3877983.2	2459349.8	43392	3834591.2	0.6413591
Utah	2177874.4	1385728.5	6287	2171587.4	0.6381178
Louisiana	3299140.1	2041396.1	83304	3215836.1	0.6347948
New Mexico	1498414.4	938095.3	17188	1481226.4	0.6333234
Florida	15644601.3	9719654.9	223139	15421462.3	0.6302680
Nevada	2198443.0	1351443.8	12399	2186044.0	0.6182143
Alabama	3715620.0	2246928.5	67782	3647838.0	0.6159617
Indiana	4920967.6	3002132.1	26302	4894665.6	0.6133477
South Dakota	649293.7	380150.2	10781	638512.7	0.5953683
Oklahoma	2800453.0	1631455.6	55106	2745347.0	0.5942621
West Virginia	1379357.0	773216.7	15132	1364225.0	0.5667809
Arkansas	2195079.1	1185607.5	64974	2130105.1	0.5565958

Young voter turnout by state (w/ adjustments)

```
kable_styling(kbl(turnout_young))
```

STATE	turnout_est	pop	votes	turnout_adj
District of Columbia	0.8314625	56415.61	46907.46	0.6516796
New Jersey	0.7533622	705701.75	531649.06	0.6876649
Maryland	0.7071110	530007.85	374774.38	0.6681678
Minnesota	0.6919192	429873.03	297437.39	0.6982278
Iowa	0.6332622	247824.41	156937.82	0.6473032
Maine	0.6309318	90166.22	56888.74	0.6778559
New Hampshire	0.6234519	107815.47	67217.75	0.6312955
Kentucky	0.5931465	264518.23	156898.07	0.5435395
Montana	0.5757872	104423.50	60125.71	0.5678000

STATE	turnout_est	pop	votes	turnout_adj
Oregon	0.5612379	372672.19	209157.74	0.5772138
Wisconsin	0.5599346	576970.43	323065.72	0.5620845
Missouri	0.5553630	563377.97	312879.30	0.5355313
Massachusetts	0.5522721	468559.58	258772.38	0.5978467
Illinois	0.5499031	1059795.91	582785.11	0.5232645
Idaho	0.5386063	176563.22	95098.07	0.5514020
Delaware	0.5361453	81039.36	43448.87	0.5446945
California	0.5355723	3333844.94	1785515.09	0.5692363
South Carolina	0.5342247	420899.93	224855.14	0.5528656
Kansas	0.5338152	239580.68	127891.80	0.5284567
Colorado	0.5329063	481433.19	256558.76	0.6342630
Ohio	0.5298826	1048778.51	555729.51	0.4946774
Michigan	0.5292718	886731.77	469322.12	0.5970171
Georgia	0.5291558	924679.93	489299.75	0.5178310
Washington	0.5241075	516133.57	270509.47	0.5584018
Arizona	0.5204489	628744.02	327229.11	0.4778244
Connecticut	0.5192268	271151.81	140789.27	0.5584729
Virginia	0.5175246	668217.73	345819.12	0.5227183
Rhode Island	0.5161758	96258.96	49686.55	0.4806604
Pennsylvania	0.5098432	1017008.74	518515.00	0.5043923
Utah	0.5014928	400751.29	200973.90	0.5533750
Alaska	0.4999349	58577.82	29285.10	0.5329012
Wyoming	0.4985578	50762.17	25307.87	0.4832787
North Carolina	0.4929728	820371.51	404420.80	0.5676009
Tennessee	0.4912335	611325.74	300303.70	0.4170453

STATE	turnout_est	pop	votes	turnout_adj
Vermont	0.4859956	53133.73	25822.76	0.5219087
New York	0.4781710	1460565.63	698400.13	0.4365112
Louisiana	0.4686723	369510.96	173179.54	0.4738774
Florida	0.4656465	1391259.28	647834.97	0.5553784
North Dakota	0.4643395	64231.05	29825.01	0.4213129
Alabama	0.4538894	427213.95	193907.88	0.4579277
Hawaii	0.4441156	93143.52	41366.49	0.3577858
South Dakota	0.4392493	76701.50	33691.08	0.5038810
Texas	0.4329550	2365958.72	1024353.76	0.3864983
New Mexico	0.4290489	177489.90	76151.84	0.4057255
Nebraska	0.4227526	116917.85	49427.32	0.4635554
Mississippi	0.4225897	249363.24	105378.35	0.3043172
Indiana	0.3875718	571068.95	221330.25	0.3942241
Nevada	0.3667708	262080.27	96123.39	0.4085565
West Virginia	0.3459271	152983.55	52921.16	0.3491462
Arkansas	0.3234052	260972.33	84399.82	0.3368095
Oklahoma	0.3054172	333361.72	101814.39	0.2611551

Hispanic/Latino voter turnout by state (w/ adjustments)

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kable_styling(kbl(turnout_hisp))
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STATE	turnout_est	pop	votes	turnout_adj
District of Columbia	0.8067767	32257.595	26024.675	0.6269938
Maryland	0.7444353	195094.976	145235.590	0.7054921
New Jersey	0.7212682	996284.373	718588.192	0.6555708
Montana	0.7174214	19221.214	13789.710	0.7094342

STATE	turnout_est	pop	votes	turnout_adj
Vermont	0.6372640	5733.038	3653.459	0.6731770
Maine	0.6354659	11045.869	7019.273	0.6823900
Minnesota	0.6272715	155738.231	97690.153	0.6335801
Alaska	0.6226149	26981.194	16798.893	0.6555812
Arizona	0.6075214	1339744.530	813923.438	0.5648969
Rhode Island	0.5945676	60443.624	35937.820	0.5590522
Ohio	0.5868679	298568.007	175219.982	0.5516627
Wisconsin	0.5836240	172699.829	100791.761	0.5857739
Alabama	0.5742219	52911.923	30383.187	0.5782602
Wyoming	0.5645409	37679.789	21271.781	0.5492618
Connecticut	0.5638727	346804.875	195553.809	0.6031188
Louisiana	0.5512287	130613.095	71997.691	0.5564339
New York	0.5490566	1608341.091	883070.364	0.5073969
Michigan	0.5467057	302080.258	165149.006	0.6144510
California	0.5464832	8305472.338	4538801.106	0.5801472
Pennsylvania	0.5428627	496526.282	269545.622	0.5374118
New Mexico	0.5379784	538814.156	289870.396	0.5146551
Washington	0.5370829	485340.967	260668.335	0.5713772
Delaware	0.5346871	36932.221	19747.183	0.5432364
Missouri	0.5326018	178096.847	94854.709	0.5127701
Texas	0.5307639	5599308.319	2971910.491	0.4843071
Florida	0.5271934	3393985.624	1789286.765	0.6169253
West Virginia	0.5247174	14674.566	7700.000	0.5279364
Oregon	0.5190873	201419.346	104554.221	0.5350632
Virginia	0.5130533	424948.377	218021.156	0.5182470

STATE	turnout_est	pop	votes	turnout_adj
Colorado	0.5108082	617550.364	315449.819	0.6121650
Massachusetts	0.5068834	448706.710	227441.961	0.5524579
Utah	0.4959079	180346.380	89435.186	0.5477901
North Carolina	0.4875663	491833.823	239801.583	0.5621944
Nebraska	0.4873685	55243.592	26923.985	0.5281713
Illinois	0.4675186	1015853.259	474930.292	0.4408800
Nevada	0.4644154	515478.193	239396.021	0.5062011
Idaho	0.4630554	118795.455	55008.876	0.4758510
New Hampshire	0.4560710	30987.566	14132.529	0.4639146
Kansas	0.4549735	210101.419	95590.576	0.4496150
Hawaii	0.4521687	65524.872	29628.299	0.3658389
South Dakota	0.4485686	10278.217	4610.485	0.5132003
Iowa	0.4423019	89908.772	39766.817	0.4563429
Georgia	0.4417127	402686.633	177871.813	0.4303879
Mississippi	0.4406285	52716.716	23228.486	0.3223560
Indiana	0.4400348	135477.131	59614.654	0.4466871
Kentucky	0.4240300	60229.500	25539.114	0.3744230
North Dakota	0.4147075	11300.016	4686.202	0.3716809
Tennessee	0.4136334	151900.867	62831.269	0.3394452
South Carolina	0.3833051	163022.585	62487.391	0.4019461
Arkansas	0.3455252	82877.321	28636.199	0.3589294
Oklahoma	0.3031578	248462.685	75323.399	0.2588957