General Election Turnout Forensics: Orange County, November 6, 2018, Second Report

December 7, 2018

Executive Summary

In this report, we conduct our second forensic examination of precinct turnout in the November 6, 2018 general election in Orange County (CA) using data reported on November 30, 2018 (the first report used data from November 8, 2018). This analysis finds two polling places that have received further review: precinct 38083, which is currently reporting turnout of 120.65%, and precinct 25382 which currently has a reported turnout of 138.66% (these two precincts were discussed in our earlier report). Both have been investigated by OCROV, and these turnout outliers are highly likely to be the result of administrative errors in these polling places on Election Day.

Methodology

Post-election forensics tools can be helpful for finding anomalies in election administration data that can be further studied. There are a number of different forensics methodologies, ranging from visual examination of elections data to more complex machine learning approaches.[1] Here we present a visual examination of precinct-by-precinct turnout data from the November 6, 2018 general election in Orange County.

In this study, we provide a visual analysis of the precinct-by-precinct turnout data. In this visual analysis we plot the distribution of turnout (the percentage of voters who cast ballots divided by the number of registered voters in the precinct) in a histogram. We expect to see a distribution of voter turnout that looks like a "normal" distribution — one that is single-peaked, is not skewed in either direction, and which doesn't have "outliers" (i.e. precincts that are well outside the turnout distribution).

---

[1] For a summary of these approaches, see Ines Levin, Julia Pomares, and R. Michael Alvarez, "Using Machine Learning Algorithms to Detect Election Fraud", in R. Michael Alvarez, Editor, *Computational Social Science: Discovery and Prediction*, New York: Cambridge University Press, 2016.

For example, we expect to see a distribution of turnout across precincts that looks like the hypothetical distribution shown in Figure 2. Here the hypothetical data has a clear "normal" distribution between 0 and 100 percent — the distribution is clearly unimodal, and there are no significant outliers.
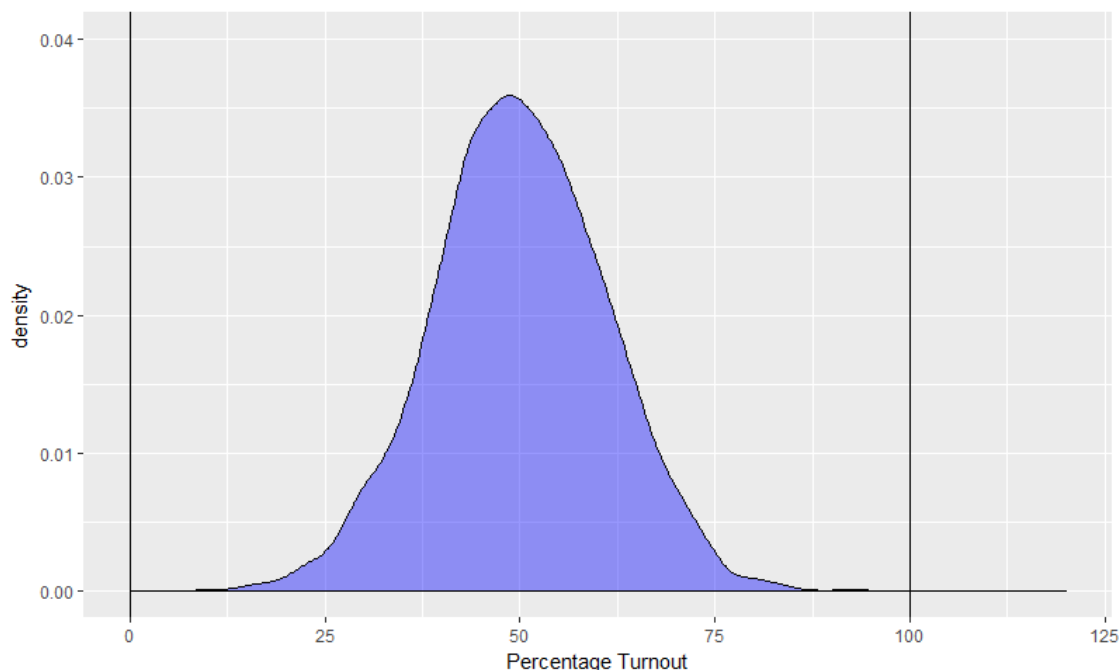

Figure 1: Hypothetical precinct turnout data

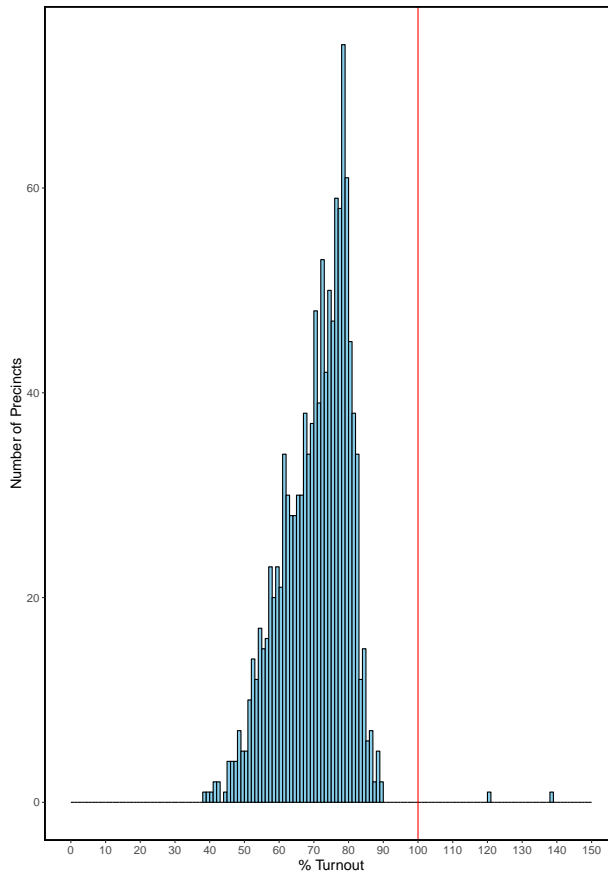# Second Analysis: November 2018 General Election Turnout Data

The data we use in this second analysis comes from the precinct turnout reports that the Orange County Registrar of Voters (OCROV) has made available on their website in the post-general election period.[2] The turnout report used in this analysis was made available by OCROV on November 30, 2018. Using that pdf report ("Run 31"), we transformed the information in it into comma-separated data. We then removed from the data the mail ballot precincts.[3]

In Figure 2 we show the distribution of precinct turnout from the most recent OCROV report.

In general, in Figure 2 we see what we expect: the distribution of voter turnout across precincts has a single peak, with a skew to the left. In the November 30, 2018 report, turnout is 70.99%, which

---

[2] https://www.ocvote.com/results/detailed-data-and-reports/reports-and-results/

[3] The mail ballot precincts typically have few registered voters, often in the single or double-digits, and have very different turnout patterns than the typical in-person voting precinct in Orange County.

November 8, 2018 data.
Preliminary turnout data from the Orange County Registrar of Voters.
These figures are estimates, and may not reflect the final totals.

Figure 2: Final Preliminary Analysis

roughly corresponds to the central tendency that we see in the figure. In general, this histogram of voter turnout appears to be smoothly distributed, and has a single mode.
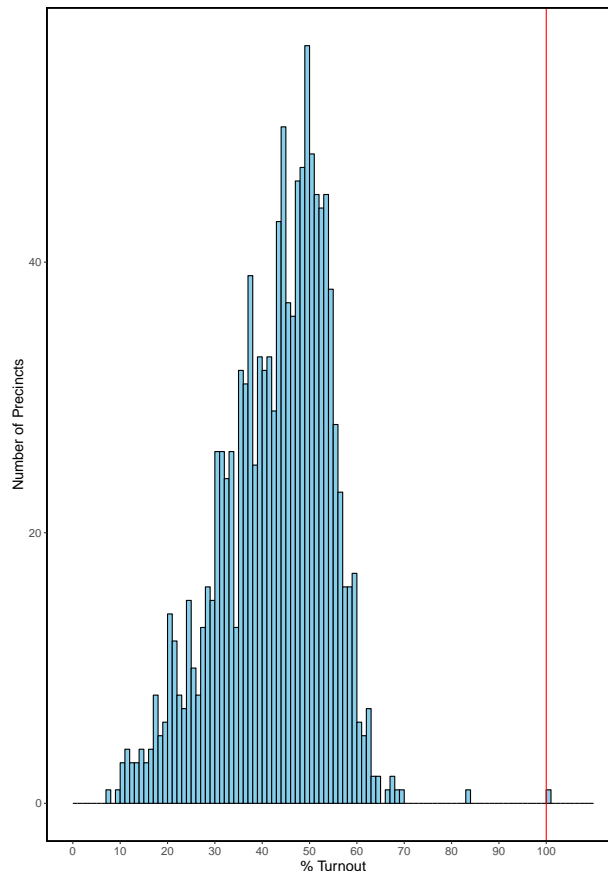
As noted in the first analysis (reproduced in the next section), we see two outliers: precincts 25382 (138.66% reported turnout), and 38083 (120.65% reported turnout). These two precincts have been investigated by OCROV, as discussed in detail in the first analysis. Both of these outliers arise from administrative errors in these two precincts on Election Day.

First Analysis: November 2018 General Election Turnout Data

The data we use in this analysis comes from the precinct turnout reports that the Orange County Registrar of Voters (OCROV) has made available on their website in the post-general election

period.[4] The turnout report used in this analysis was made available by OCROV on November 8, 2018. Using that pdf report ("Run 13"), we transformed the information in it into comma-separated data. We then removed from the data the mail ballot precincts.[5]

In Figure 3 we show the distribution of precinct turnout from an earlier OCROV report (November 8, 2018).

November 8, 2018 data.
Preliminary turnout data from the Orange County Registrar of Voters.
These figures are estimates, and may not reflect the final totals.

Figure 3: Final Preliminary Analysis

In general, in Figure 3 we see what we expect: the distribution of voter turnout across precincts has a single peak, with a slight skew to the left. In the latest report, turnout is 43.91%, which roughly corresponds to the central tendency that we see in the figure. In general, this histogram of voter turnout appears to be smoothly distributed, and has a single mode.

We note two outliers.

---

[4] https://www.ocvote.com/results/detailed-data-and-reports/reports-and-results/

[5] The mail ballot precincts typically have few registered voters, often in the single or double-digits, and have very different turnout patterns than the typical in-person voting precinct in Orange County.

One outlier is precinct 38083, which is currently reporting 465 registered voters, 387 ballots cast, for a turnout of 83.23%. Precinct 38083 was at Valencia Elementary School in Laguna Hills, and was consolidated with precinct 38312. Precinct 38312 has 1086 registered voters, and is now reporting 484 ballots cast, for a turnout of 44.75%. It's likely that due to the consolidation, some voters from precinct 38312 have been recorded as voting in precinct 38083.[6]

The second outlier is precinct 25382, which is now reporting 670 registered voters, 674 ballots cast, for a turnout of 100.6%. This precinct was at The Regency in Laguna Woods, and was not a consolidated polling location. OCROV performed a forensic investigation into this outlier, and found that the "Judge's Booth Controller" (or "JBC") assigned to precinct 25382 was used at precinct 25234; the JBC for precinct 25234 was at precinct 25382, but was not used, and no votes were cast using that JBC. Further analysis by OCROV of the votes cast at each polling place confirm this conclusion.

Conclusion

This preliminary analysis of precinct-by-precinct turnout forensics has shown the usefulness of this approach. We identified two polling locations that are outliers, and upon further investigation they have been found with high likelihood to be the result of administrative errors in these polling places on Election Day. It's important to note that Orange County used 984 polling places in the 2018 general election, and given the large number of polling places that administrative issues like these are highly likely to arise on Election Day.

Precinct turnout forensics are a helpful tool for easily assessing the integrity of an election. Simple visualizations of precinct-by-precinct voter turnout have been shown to be a helpful diagnostic tool, as they can quickly and easily provide a means to understand whether there are multi-modalities or outliers in voter turnout in a jurisdiction that might require additional analysis or investigation. We have identified two precincts that deserve further examination.

We will update this analysis shortly to reflect updated information from OCROV.

---

[6]A similar situation arose in the June 2018 primary, where we noted a similar outlier in a consolidated precinct. As OCROV policy requires that precincts consolidated into a single polling location have identical ballot styles, voters in this location would have received the correct ballot style.