

Introduction

In recent years, the difficulty of voting has become a crucial topic in political science and public discourse. Understanding the obstacles voters face in casting their ballots is vital for ensuring a fair and equitable electoral process. This research aims to explore whether Democratic voters or Republican voters experience more difficulty voting, using data from the ANES 2022 Pilot Study. The research question is of significant interest to policymakers, electoral authorities, and political analysts, as it can inform strategies to improve voter accessibility and reduce barriers to voting. By examining voting difficulty through a partisan lens, we can identify systemic issues that may disproportionately affect specific groups and address them to enhance democratic participation.

This analysis employs the Wilcoxon Rank Sum Test, a nonparametric statistical method suitable for comparing ordinal data distributions between two independent groups. Given the ordinal nature of the voting difficulty measure (votehard), this test is appropriate and robust for our analysis. The following report will define the key concepts, describe their operationalization, and detail the statistical procedures used to investigate the research question.

The Research Question

Do Democratic voters or Republican voters experience more difficulty voting?

Conceptualization and Operationalization

Defining political affiliation and voting difficulty

1. **Who is a Voter?** A voter is defined as any individual who has participated in the electoral process. In this study, a voter is identified through their responses about voter registration and participation in recent elections.
2. **Who is a "Republican" and Who is a "Democrat"?** Party affiliation is determined using responses to questions about general party identification, party leanings, and voting behavior in recent elections. This approach ensures accurate classification reflecting political preferences and voting behavior.
3. **What is the Difficulty of Voting?** Voting difficulty is conceptualized as the challenges a voter encounters when casting their ballot, measured by the votehard variable on a scale from 1 (Not difficult at all) to 5 (Extremely difficult).

Data Wrangling

The analysis begins by investigating the dataset to understand user responses, selecting columns of interest, and checking for missing values. The variables of interest include party affiliation and voting difficulty (votehard).

Data Understanding

Background on ANES

The American National Election Studies (ANES) is a long-running survey series that collects data on voting, public opinion, and political participation in the United States. The data for this analysis comes

from the ANES 2022 Pilot Study, capturing voter engagement and challenges faced by voters leading up to the 2022 elections.

Handling Missing Data

ANES employs specific codes to handle missing data and nonresponses. For this analysis, missing values have been coded accordingly to ensure accurate representation.

Defining our variables

Summary Statistics of Voting Difficulty by Party Affiliation

Party Affiliation	Mean Voting Difficulty	Standard Deviation of Voting Difficulty	Number of Respondents	Percentage of Respondents
Democrat	1.244147	0.6475757	709	44.73%
Republican	1.134791	0.4521350	660	41.64%
NA	1.904762	1.0910895	216	13.63%

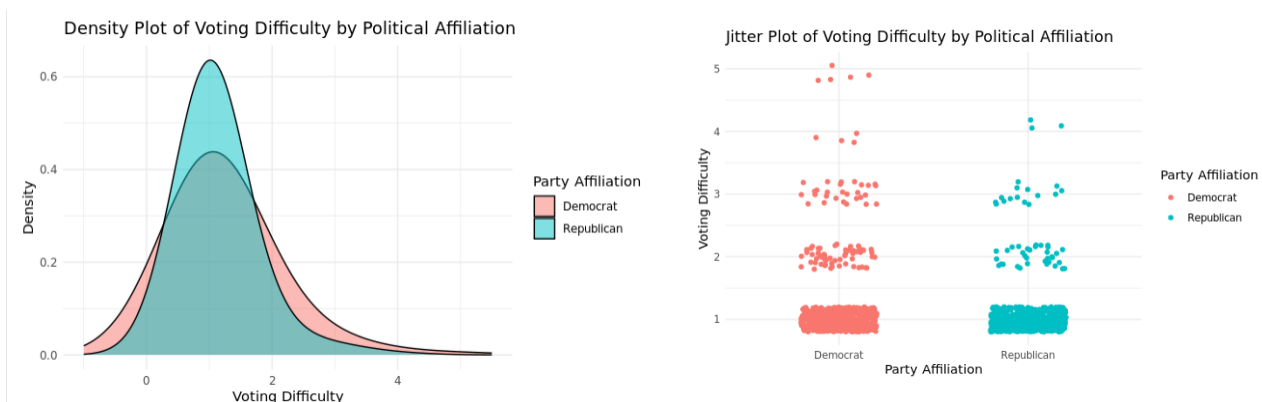
Stating a Hypothesis

Null Hypothesis (H0): Democratic voters and Republican voters experience the same level of difficulty when voting.

Alternative Hypothesis (H1): Democratic voters and Republican voters experience different levels of difficulty when voting.

Test Selection and Evaluation of Assumptions

The Wilcoxon Rank Sum Test is employed to compare voting difficulty between Democrats and Republicans. This test is suitable for ordinal data and does not assume a normal distribution. The assumptions for the test include independent samples, an ordinal scale, and similar shape distributions for the two groups.



The visual inspections from the density and jitter plots suggest that the distributions of voting difficulty scores for Democrats and Republicans do not differ dramatically in shape. They both have a concentration of low difficulty scores with some spread towards higher difficulty scores. Given these observations, we can reasonably conclude that the data

meet the assumptions for the Wilcoxon rank-sum test. Therefore, it is appropriate to use this non-parametric test to compare the voting difficulty between the two groups.

Test Results and Interpretation

The Wilcoxon rank-sum test reveals a statistically significant difference in voting difficulty between Democrats and Republicans ($p = 0.001447$). Democrats experience slightly more difficulty on average, with a mean voting difficulty of 1.24 compared to 1.13 for Republicans. However, the effect size is small, indicating that the practical significance of this difference is moderate.

Conclusion

The Wilcoxon rank-sum test reveals a statistically significant difference in voting difficulty between Democrats and Republicans ($p = 0.001447$). Practically, while Democrats face slightly more voting difficulty on average, the effect size is moderate, suggesting that the difference, though significant, may not be substantial in real-world terms. In summary, the results indicate that while there is a statistically significant difference in voting difficulty between party affiliations, the practical significance and effect size suggest that the difference, though meaningful, is not large.