Bond Analysis in Texas

1. Bond Approval and Defeat

Out of all the bonds in the dataset, 7,210 were approved by voters, and 1,638 were defeated. The approval rates across different government types are as follows:
- Cities: 87.5% approval rate
- Counties: 82.8% approval rate
- School Districts (ISD): 72.4% approval rate
- Water Districts (WD): 94.5% approval rate

The results indicate that water districts have the highest approval rate, while school districts have the lowest. This disparity may be influenced by the nature of the bonds and the specific needs addressed by each government type.

2. Voter Turnout

A new variable called 'Votes_Total' was created by summing the votes 'for' and 'against' each bond measure. The bond measure with the highest voter turnout occurred in Harris County on November 8, 2022, with a total of 1,030,414 votes. This bond was related to road utilities, suggesting that infrastructure projects tend to garner significant public interest, particularly in densely populated areas.

3. Subset Analysis and Distribution

A subset was created that includes bonds that were approved and had at least 100 total votes. A new variable, 'Percent_For,' was calculated to show the percentage of total votes in favor of the bond.

The distribution of this variable was visualized using a histogram (see Figure 1). The descriptive statistics calculated for the 'Percent_For' variable are as follows:
- Mean: 66.03%
- Median: 65.08%
- Standard Deviation: 10.11%
- Interquartile Range (IQR): 14.94%

These statistics indicate that the average percentage of votes in favor of approved bonds is approximately 66%, with half of the bonds having a percentage of approval between roughly 57% (25th percentile) and 72% (75th percentile). The standard deviation of 10.11% shows some variability in voter support across different bonds.

In terms of shape, the distribution appears to be slightly right-skewed, with a concentration

of values around the median of 65%. This skewness suggests that while most approved bonds receive a moderate level of support, a smaller number achieve very high approval rates.

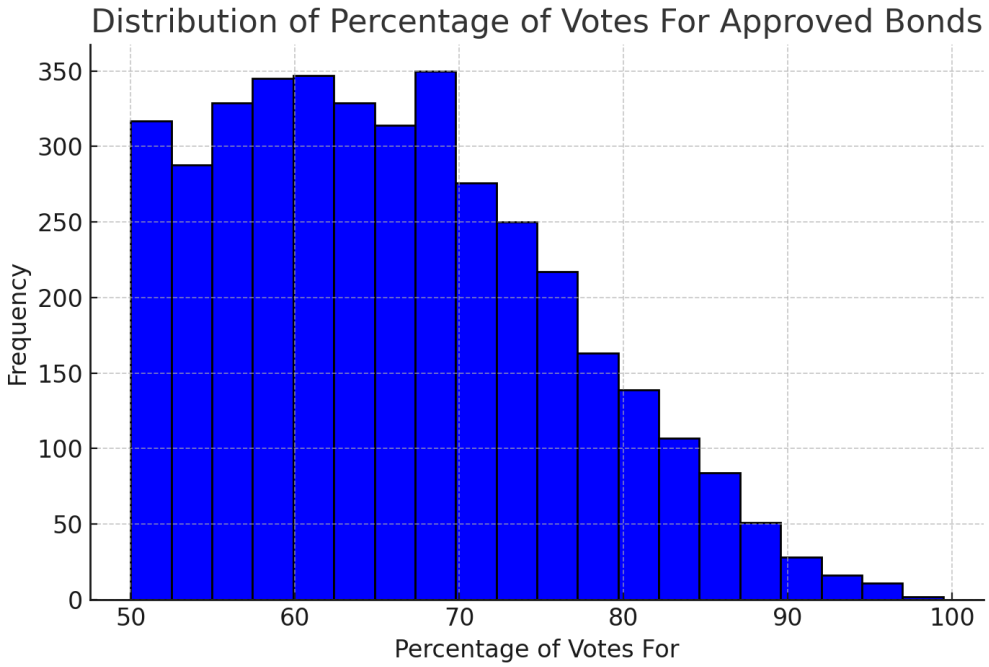

Figure 1: Distribution of the percentage of votes in favor of approved bonds. The histogram shows a slightly right-skewed distribution, indicating that the majority of bonds have approval percentages around the 65% mark, with fewer bonds reaching extremely high approval rates.

4. Relationship Between Margin and Cost

The relationship between the margin (percentage of votes for) and bond cost was analyzed. A scatter plot was created to visualize this relationship (see Figure 2). The correlation coefficient between the bond cost and the percentage of votes in favor is 0.00056.

This extremely low correlation coefficient indicates that there is no significant linear relationship between the amount of a bond and the margin by which it was approved. This suggests that factors other than cost, such as the bond's purpose, public sentiment, or the specific context of the election, may play a more influential role in determining voter support for bond measures.

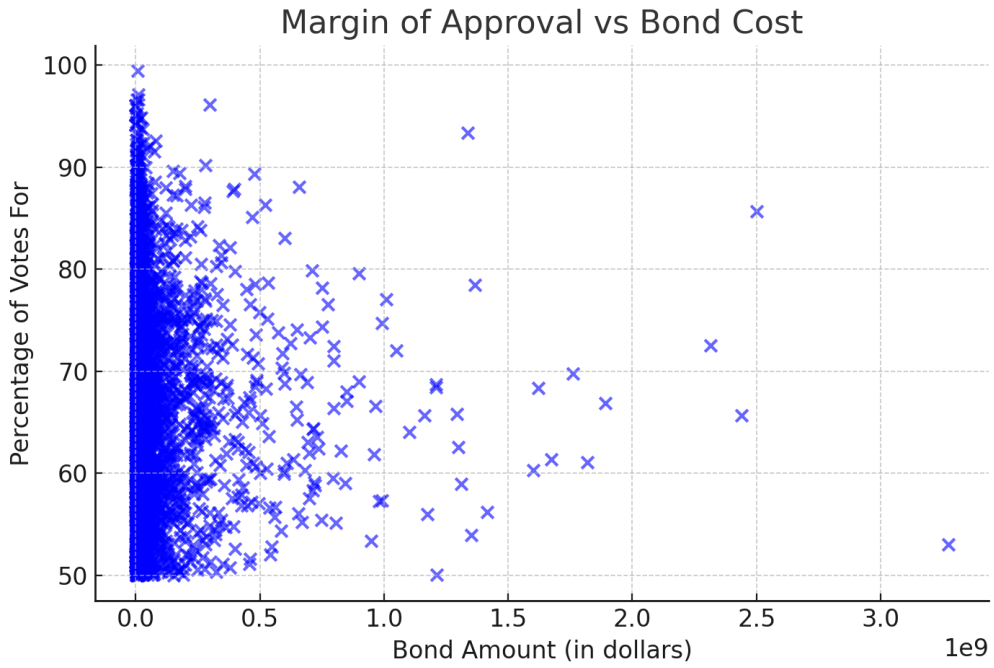

Figure 2: Scatter plot illustrating the relationship between bond cost and percentage of votes in favor. The lack of any discernible pattern confirms the near-zero correlation, suggesting no linear relationship between these variables.