

# County-Level Climate Deviations and Climate Concern in Texas

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## INTRODUCTION

2024 and 2025 were reported as the warmest years on record, with Texas experiencing historically high temperatures and severe drought conditions (NOAA, 2024; NCEI, 2025).

While prior research does find that individuals surveyed during warmer-than-usual periods are more likely to believe in global warming (Egan & Mullin, 2012; Zaval et al., 2014), political ideology has been found to be a consistently greater driver of worry over climate concern than weather exposure (Marquart-Pyatt et al., 2014) with county-level variation in belief being shaped by local partisan composition (Mildenberger et al., 2016).

This study raises the question: **Does deviation from historical climate conditions in 2024 predict levels of climate concern across Texas counties?**

## DATA & METHODS

### Sample

Data was taken from county level data sets, Yale CCCM (2024), NOAA (2024), Ballotpedia (2024), FEMA (2024), on climate change beliefs, weather data, voting data, and socioeconomic conditions for counties in the state of Texas (N = 254).

### Measures

**Worried:** Percentage of respondents who reported being somewhat or very worried about global warming (Yale CCCM, 2024).

**Δ Max Temp:** 2024 annual maximum temperature minus the 1900–2001 historical average (NOAA, 2024).

**GOP Vote Share:** Total Republican votes divided by total county votes, 2024 presidential election (Ballotpedia, 2024).

**Controls:** County population and a composite resilience index measuring socioeconomic vulnerability and infrastructure capacity (FEMA, 2024).

**Method:** OLS regression. Counties with missing data on any variable excluded from analysis.

## RESULTS

### Multivariate

GOP vote share is significant and the strongest predictor ( $\beta = -4.182, p < .001$ ). A one percentage point increase in GOP vote share is associated with a .42 decrease in climate change worry.

Δ Max Temp is significant ( $\beta = 0.918, p < .001$ ). A one degree increase in temperature results in approximately a one percentage point increase in worry.

F1 is significant ( $\beta = -1.960, p < .001$ ).

Population is not significant ( $p = .801$ ). Full model  $R^2 = .777$  (N = 254).

Predictors of Climate Worry (1)	
Change in Max Temp	0.918*** (0.230)
Population	0.000 (0.000)
Total Votes GOP	-41.819*** (1.802)
F1	-1.960*** (0.508)
_cons	82.377*** (1.707)
N	254
R <sup>2</sup>	0.777

Standard errors in parentheses  
\* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

### Bivariate

Δ Max Temp shows a positive relationship with climate worry across all counties.

The positive slope, representing greater concern over global warming, is steepest in low-GOP counties and flattens in high-GOP counties (Fig. 1).

Figure 1

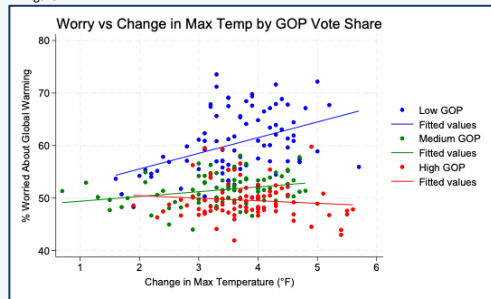
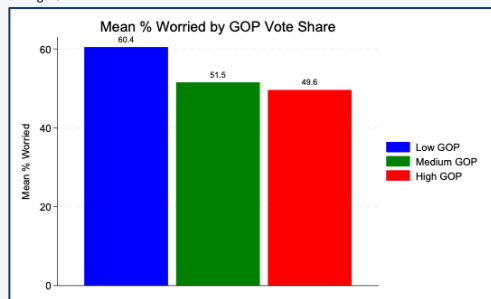


Figure 2



Low-GOP counties average 60.4% worried compared to 49.6% in high-GOP counties (Fig. 2).

## DISCUSSION

While rising temperatures do influence worry, political composition serves a stronger driver. GOP vote share accounts for most of the variance while temperature adds a smaller but still significant effect.

This can be seen with figure 1. The same degree of warming produces different levels of worry depending on the percent of a county that voted Republican. In high-GOP counties, the relationship between temperature and worry becomes negatively sloped. This is consistent with prior work showing that political ideology outweighs weather exposure in shaping climate concern (Marquart-Pyatt et al., 2014; McCright & Dunlap, 2011).

Some limitations include the use of county level data. This limits individual-level inference. Additionally, GOP vote share likely correlates with other unmeasured cultural or economic variables other than climate concern.

**Conclusion:** Although increasing max temperatures does have a significant effect on worry over global warming, political identity is the dominant predictor of climate worry in Texas. Framing concern over climate change around partisan identity may be more effective than presenting environmental data alone.

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