

## Regional Stress Response to Macroeconomic Shocks & Earthquakes in Türkiye

A Data-Driven Analysis Using Google Trends, Earthquake Data, and FX Shocks (2018–2025)

### 1. Project Overview

This project investigates whether Türkiye's seven geographical regions exhibit different levels of collective stress in response to major nationwide shocks.

### 2. Data Sources

- Google Trends provincial-level data for stress-related keywords.
- Earthquake data (magnitude  $\geq 4.5$ , depth 0–40 km).
- FX shocks from USD/TRY log-returns.

### 3. Analysis Pipeline

- Collect Google Trends per province.
- Construct earthquake and FX shock event dates.
- Build a weekly region-level stress index using z-scores.
- Perform event window analysis ( $\pm 30$  days).
- Conduct ANOVA to compare regional differences.

### 4. Key Result

ANOVA p-value =  $0.0886 \geq 0.05 \rightarrow$  No statistically significant regional differences in stress responses.

### 5. Conclusion

Türkiye exhibits a synchronized national stress response to major events.