Bivariate Regression Analysis

- Example: Education and voter turnout in the 2000 election.
- Hypothesis: A greater size of college graduate in a state is associated with a higher rate of voter turnout.
- Open statedata.sav
- Draw a scatter plot:
  
  ```
  graph
  /scatterplot(bivar)=college with turnout.
  ```
- The independent variable is located at the horizontal axis, while the dependent variable is located at the vertical axis.
Bivariate Regression Analysis

- Draw a scatter plot with a regression line:

  igraph
  /x1 = var(college)
  /y = var(turnout)
  /fitline method = regression linear line = total
  /scatter.
Bivariate Regression Analysis

- Run a regression model
  
  regression
  /dependent turnout
  /enter college.
Interpret the Estimated Result

- \[ \hat{\text{TURNOUT}} = 43.072 + 0.412 \times \text{COLLEGE} \]

- One percent increase in college graduate produces 0.412 percent increase in the rate of voter turnout.

- If the absolute value of sample t-statistic is greater than the critical t value \( \rightarrow \) reject the null hypothesis \( (\beta = 0) \). Otherwise, cannot reject the null hypothesis.
Estimate another model

- Test the relationship between education and the Democratic vote share in the presidential election.
- Use demvote for measuring the Democratic vote share.
- Produce a scatter plot.
- Run a regression model.