1. **Running a regression: Using Stata**

OLS estimation and testing: Cobb-Douglas production function

Loading data, summarize, generating logged variables

Estimation with only K and L, regression output

F-test for single variable equals zero, show equality with t-test

Test of constant returns

  Stata: test lnl + lnk = 1

  methodology using restricted regression:

\[
\lny = a + b \lnk + (1 - b) \lnl + \text{error}
\]

\[
\lny - \lnl = a + b (\lnk - \lnl) + \text{error}
\]

Formula:

\[
\frac{(RSS_r - RSS_u)}{RSS_r (n - k)} = F(r, n-k)
\]

Here: disp (n- k)*(RSSR – RSSU)/RSSU

Add time trend

Repeat constant returns test

Restricted regression is reg lny lnk lnk year

Durbin Watson Statistic and Regression with AR(1) errors

Syntax: run regression
tset year (this sets time counter)
dwstat
critical values (4, 29) are 0.921 1.512
prais lny lnk lnk year, corc (this runs Cochrane Orcutt)
prais lny lnk lnk year (this runs Prais-Winston)
newey lny lnk lnk year, lag(k) (this runs OLS with Newey-West std. errors)

Interpretation of parameters:

  labor share and rate of technological progress