Gretl Workshop 8 Heteroscedasticty

Gretl mrw data

Cross Country Growth Regression

Load Data, Restrict Sample, and Transformations (as Workshop 4)

- Choose File/Open Data/sample file/ and select mrw data from the gretl tab.
- Restrict sample to eliminate Kuwait: choose Sample/Restrict based on criterion and enter gpd60<60000
- Choose Add/Define new variable/ and enter gdppcgrow=gdpgrow-popgrow
- Click on gdp60; choose Add/squares of selected variables.

Basic OLS Regression

- Choose Model/Ordinary least squares and double-click on gdppcgrow; add gdp60, school, inv as explanatory variables. Ok.
- Choose Save/Squared residuals from output window
- Keep output window open

White Test

- From output window choose Tests/heteroscedsticty
- Examine the form of the White test regression.
- What do you conclude from the White test? (Notice gretl uses a chi-squared statistic, rather than the F. The meaning is the same).

Park-Glejser Test

- From main window choose Model/ordinary least squares.
- Double-click on usq1 for dependent variable (square of residuals).
- Include sq_gdp60 as only explanatory variable (remove any others). Then Ok.
- Is the slope significant? At what level? Why might 10% level be used here?

Weighted Least Squares

- From main window choose Add/Define new variable and enter

  wgdp60=1/gdp60

- Choose Model/Other linear models/Weighted least squares
  - Dependent: gdppcgrow
  - Explanatory: gdp60, school, inv
  - Weight: wgdp60 (the equation is multiplied by the reciprocal of gdp60)
- Compare standard errors with Model 1.

White’s Correction

- From main window choose Model/Ordinary least squares. Variables should be the same as previous model.
- Check box “robust standard errors” and click on Configure; choose HC0 for the White correction. Then ok.
- Compare standard errors with Model 1.
- Why are coefficients same of OLS estimates?