Advanced Econometrics TA session 2

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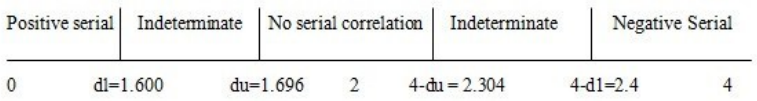
1. GLS

1.1 Heteroscedasticity

- Residual plot (STATA: rvfplot)
- Test
  - ☐ BP test (STATA: estat hettest, rhs)
  - ☐ White test (STATA: estat imtest, white)
- Solution
  - ☐ WLS (STATA: [aweight=varname])
  - ☐ FGLS (STATA: [aweight=…])
  - ■ Robust SE (STATA: vce(robust))
- Empirically, correct the bias with robust SE

1.2 Auto-correlation

- Test
  - ☐ DW test (STATA: estat dwatson)



  - ☐ BM test (STATA: estat bgodfrey)
- Solution
  - ☐ CO transformation (STATA: prais y x1 x2, corc)
  - ☐ PW transformation (STATA: prais y x1 x2)
  - ☐ Auto-correlated robust SE (STATA: newey y x1 x2, lag(#))
- Empirically, try to model the exact nature of the autocorrelation in your data

2. MLE

2.1 Estimation (STATA: programe… ml model lf … ml max)

2.2 Test

- Likelihood ratio test (STATA: lrtest model1 model2)
- Wald test (STATA: test varname=0)
- LM test

3. Discrete Choice Model

3.1 Estimation

- LPM (STATA: ols+robust SE)
- MLE (STATA: probit, logit … margins)

3.2 Test

- Likelihood ratio test (STATA: lrtest model1 model2)
- Wald test (STATA: test varname=0)