# Gretl Workshop 6B

Dummy Variables

Ramanathan data 7-2

# Load Wage Equation Data

- Start gretl
- Choose File/open data/sample file and select data7-2 from the Ramanathan tab.
- Read variable definitions; note dummies.

Omitted occupation is professionals.

# Variable Transformations

- Click on wage and choose Add/logs of selected variables.
- Use Add/Define new variable for:

  RACEGEN=RACE*GENDER

  GENEDUC=GENDER*EDUC

  Remember that gretl names are case sensitive.

# Model 1 No Dummies

- Choose Model/Ordinary Least Squares
- Double-click on l_WAGE (dependent var)
- Add EDUC (explanatory var). Then Ok
  - By how much does expected wage increase for each extra year of education? Note units.
  - Why not enter EDUC in log form?

# Model 2 Intercept Dummy

- Choose Model/Ordinary Least Squares
- Add GENDER to EDUC as explanatory variable. Then Ok
  - What is the reference group?
  - What is the percentage difference in wages between men and women? Is this difference statistically significant?

# Model 3 Slope Dummy

- Choose Model/Ordinary Least Squares
- Add  GENDEDUC to GENDER & EDUC as explanatory variables. Then Ok.
  - Which coefficients are statistically significant?
- Test whether gender has effect on either slope or intercept (In output window choose Tests/omit variables; select GENDER, GENEDUC to omit.)
- Interpret results of these tests.

# Model 4 Two Intercept Dummies

- Choose Model/Ordinary Least Squares
- Remove slope dummy (GENDEDUC)
- Add  RACE to GENDER & EDUC as explanatory variables. Then Ok.
  - What is reference group?
  - Is RACE coefficient significant?

# Model 5 Interaction Term

- Choose Model/Ordinary Least Squares
- Add RACEGEN to RACE GENDER & EDUC as explanatory variables. Then Ok.
- Based on the point estimates report the value of the intercepts for all for race-gender groups.

# Model 6 Multiple Groups

- Remove all RACE variables from the model; regress l_WAGE on EDUC, GENDER, CLERICAL, MAINT,CRAFTS (list variables in this order).
- What is reference group?
- How do you interpret coefficient on CLERICAL? Is it significant?

# Model 6 Multiple Groups

- Test the equality of the coefficients on the three occupation dummies: from the output window choose Tests/linear restrictions; then enter

  b4-b5=0

  b5-b6=0

- Do you reject equality at the 5% level? At the 1% level?

# Homework

- How would you construct the F-statistic for the test of equality that gretl just performed? What is r (number of restrictions)? How would you build these equality restrictions into the regression equation (what variables would you create and enter into the regression for the R-model?).