Your Homework

1. Use the data set "schooling" of Verbeek for the following analyses based on the wage equation

$$\log(wage76) = \beta_1 + \beta_2\, ed76 + \beta_3\, exp76 + \beta_4\, exp762 + \beta_5\, black + \beta_6\, smsa76 + \beta_7\, south76 + \beta_8\, nearc4 + \varepsilon$$

   a. Estimate the reduced form for *ed76*, including *daded* and *momed* (i) with and (ii) without *nearc4*; assess the validity of the potential instruments; what indicate the correlation coefficients?

   b. Estimate the wage equation, using the instruments *age*, age^2, *daded,* and *momed* (i) with and (ii) without *nearc4*; interpret the results including the test for validity and the Sargan test.

   c. Compare the estimates for β_2 (i) from the model in b., (ii) from the model with instruments *age*, age^2, and *nearc4*, (iii) from the GRETL Instrumental variables (Two-Stage Least Squares …) procedure, and (iv) with the OLS estimates.

Your Homework, cont'd

2. For the model for consumption and income (slide 13 ff):
   a. Show that both y_t and x_t are endogenous:

$$E\{y_t\, \varepsilon_i\} = E\{x_t\, \varepsilon_i\} = \sigma_\varepsilon^2 (1 - \beta_2)^{-1}$$

   b. Derive the reduced form of the model