Exercise 3

When estimating wage equations, we expect that young, inexperienced workers will have relatively low wages and that with additional experience their wages will rise, but then begin to decline after middle age, as the worker nears retirement. This lifecycle pattern of wages can be captured by introducing experience and experience squared to explain the level of wages. If we also include years of education, we have the equation:

$$Wage = \beta_0 + \beta_1 * Educ + \beta_2 * Exper + \beta_3 Exper^2 + u$$

a) What is the marginal effect of experience on wages?

b) Estimate the model using data **cps_small.gdt**. Do the estimated coefficients have expecting signs?

c) Test the hypothesis that education had no effect on wages. What do you conclude? Do the same for experience.

d) Test whether the model suffers from heteroskedasticity problem. What do you conclude?

e) Suppose you are interested in expected wage difference between black and white people. Modify the model, estimate it and comment to any differences for two groups.

f) Now suppose you are also interested in examining returns to education for black and white people. Make necessary changes into the model, estimate it and comment to any differences for two groups.