

# Problem set 7

August 8th, 2011  
practice questions endogeneity

## Question 1

Consider a multiple regression model with endogeneity:

$$\ln(wage) = \beta_0 + \beta_1 education + \beta_3 white + \beta_4 experience + u$$

Where *white* is dummy variable that takes value 1 if an individual is white and 0 otherwise. You also have a measure of IQ available in your data set and a measure of distance from college.

- (a) Explain what causes endogeneity in this model.
- (b) Can you estimate this model by OLS? Explain.
- (c) Explain two ways in which you could estimate this model. Make sure to check whether all the the necessary assumptions of each method are satisfied, describe all additional regressions you might want to run and stress which coefficients are identified (estimated) in each method.

(Hint: you can use distance from college as an instrument for education)