

# ECON 5350 Problem Set #4

Due: Friday, October 27 by 11:59 pm

## MATLAB PROBLEMS

1. Consider a modified resource curse model from Problem Set #3:

$$\% \Delta Y_i = \beta_1 + \beta_2 RESOURCES_i + \beta_3 DISTPORT_i + \epsilon_i,$$

where  $\% \Delta Y$  is the growth in real income per capita. Use the resource curse data to perform a Monte Carlo experiment and graph the power function for the null hypothesis:  $\beta_2 \leq -0.1$ . How can you increase the power of the statistical test? What are the costs of doing so?

2. Estimate the following regression:

$$\ln(wage_i) = \beta_1 + \beta_2 Age_i + \beta_3 Age_i^2 + \beta_4 Grade_i + \beta_5 Married_i + \epsilon_i$$

and test to see if a quadratic age-earnings profile is appropriate. (The data are available alongside Matlab Example #11.) Then perform two additional tests: (i) schooling matters and (ii) overall goodness of fit.