

ECON 5350 Problem Set #6

Due: Friday, December 1 by 11:59 pm

MATLAB PROBLEMS

1. Estimate the historical U.S. growth rate in real GDP per capita using the following model:

$$\ln(GDP_t) = \beta_1 + \beta_2 t + \beta_3 \ln P_t + \beta_4 \ln POP_t + \varepsilon_t. \quad (1)$$

Provide a table of the all the pertinent regression results and discuss your interpretation of the results. Also include a scatter plot with a best-fitting regression line. Finally, contrast your estimates of the growth rates from equation (1) with those using real GDP per capita directly.

2. Use the spline regression model to test four different hypotheses:
 - (a) the planet is warming at an increasing rate.
 - (b) the cost of college is increasing at an increasing rate.
 - (c) U.S. labor force participation rates are declining.
 - (d) U.S. federal debt is increasing at an increasing rate.

For each of the four hypotheses, collect the necessary data and include at least one explanatory variable in your model. Report your regression estimates in four separate tables and include the appropriate test statistics.