18.443. Pset 10. Due Wednesday, Nov. 29.

(1) Consider OECD Economic Development dataset. Take logarithm of per capita income as a response variable Y and percent of labor force in agriculture and industry as two explanatory variables.

log(income) $= \beta_1 + \beta_2$ (% in agr.) $+ \beta_3$ (% in ind.) $+ \varepsilon$.

(a) Without using Matlab 'regress' function, compute estimates of parameters $\hat{\beta}$ and $\hat{\sigma}^2$ and test the hypothesis

$$H_0 : \beta_2 = \beta_3 = 0$$

at the level of significance $\alpha = 0.05$ and compute a p-value.

(b) Construct a 95% confidence interval for parameter β_1.

Write all steps of your work, formulas, Matlab commands and outputs.