Econ 7010 - Assignment 3

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Due: Nov. 12th. Worth 3% of your mark. For each answer include the R code that you use, as well as a brief explanation. Upload your answers to the assignment 3 dropbox on UM Learn.

In example 9.2 (Life Expectancy - F-test), in Section 9.6 (Testing for differences), we drew the conclusion that the determinants of life expectancy might have different effects between OECD and non-OECD countries. In particular, health expenditure (`HEXP`) seems to be more effective in OECD countries. This result was controversial.

Let's revisit this conclusion by estimating a model that includes *additional* variables:

$$\begin{aligned} DALE =& \beta_1 + \beta_2 HEXP + \beta_3 HC3 + \beta_4 HC3^2 + \beta_5 GINI + \beta_6 TROPICS + \beta_7 POPDEN \\ &+ \beta_8 PUBTHE + \beta_9 GDPC + \beta_{10} VOICE + \beta_{11} GEFF + \epsilon \end{aligned} \tag{1}$$

where `GINI` is the Gini coefficient for income inequality, `TROPICS` is a dummy variable, `POPDEN` is population density, `PUBTHE` is the proportion of health expenditure paid by public authorities, `GDPC` is Normalized GDP per capita, `VOICE` is the World Bank measure of democratization, and `GEFF` is the World Bank measure of government effectiveness (see Table F6.3 from Greene).

In addition to model **??**, estimate a model that allows the `OECD` dummy variable to fully interact with every variable.

1. Test the hypothesis that there are no differences between OECD and non-OECD countries.
2. Your conclusion should differ from that drawn in example 9.2. Explain this discrepancy using the concepts of unbiasedness, consistency, and Section 8.1 of the lecture notes.
