HUL315: Econometrics Methods

Assignment 4

Indian Institute of Technology Delhi
Maximum Marks: 10 Marks

Instructions:

1. Deadline for submission is **1st April, 2024**.
2. You need to upload your assignment on Moodle in the following format (Name_Entry Number).
3. Assignments have to be submitted only in PDF generated using LaTeX.

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1. Investment refers to the purchase or construction of capital goods, including residential and nonresidential buildings, equipment and software used in production, and additions to inventory stocks. It plays a crucial role in determining the long-run productive capacity of the economy. This necessitates an understanding of the key determinants of investment.

   In India, pertinent data on real investment (I_t), real GDP (Y_t), nominal interest rate (proxied by call money rate, i_t), and inflation (measured by the change in the log of the Consumer Price Index, CPI) is collected by the Reserve Bank of India and is available in the RBI Database on Indian Economy. For your convenience, we have done the job for you and the required datasets have been attached herewith.

   Based on the available data, estimate the following equation and display the results using a table. Interpret the results:

   $$\ln I_t = \beta_0 + \beta_1 lni_t + \beta_2 \Delta \ln CPI_t + \beta_3 \ln Y_t + \beta_4 t + u_t$$

   Furthermore, test the hypothesis that $\beta_1 = -\beta_2$ to examine whether investors primarily focus on the real interest rate.

   Some General Guidelines to help you out:

   - The time period that you will consider will be from **1970-71 to 2017-18**.
   - Use the data on Gross Domestic Capital Formation (GDCF) at constant prices for the variable real investment. Note that, the data is bifurcated - certain years with base year 2004-05 and certain others with 2011-12. To ensure economic coherence, make sure to convert them to a uniform base year, **2011-12**. How? This is your task, be assured that it's quite simple. Do some research yourself!
   - For GDP, you have been directly provided with the entire dataset with the base year 2011-12. Your work is easier.
   - For inflation, you will find there are two columns- CPI-AL (CPI-Agricultural Labour) and CPI-IW (CPI for Industrial Workers). In order to find the combined CPI for a certain year, just use the simple average of the indices for a particular year. For example, CPI for the year 2014 is $\frac{CPI-AL_{2014}+CPI-IW_{2014}}{2}$. Again make sure, there is uniformity in the datasets, by assuming the base year 2011-12 is consistent everywhere.