Topics in Macroeconomics and Labor Economics
Problem Set

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Students are supposed to complete the whole problem set by June 29.

- Create an account at https://github.com.
- If you currently don't have R, and don't like to install it into your pc, create an account at https://rstudio.cloud/ and use RStudio cloud.
- Download a sample code from https://github.com/econtanaka/Kobe_Topics_2018/problem_set.
- *Ideally*, you should summarize all your codes and results in a sigle pdf by using *R Markdown*. Check Section 27 of *R for Data Science* for the introduction of *R Markdown*. This following link also tells you how to create a pdf-file from *R Markdown*: https://rmarkdown.rstudio.com/pdf_document_format.html
- Upload your results (*ideally* in a single pdf-file) to the GitHub. You can do it manually on the GitHub website, but it's better to use the git clone to upload your file(s). There are so many websites that tell you how to use git. Also, there are GUI applications for the git clone. My favorite is GitKraken.
- *ideally* – not necessary but preferred.

1. Preparation (10pts)

1. Go to the *R for Data Science* website, http://r4ds.had.co.nz/.
2. Read through Part I, II, and III of R for Data Science online or offline while writing down and executing the sample codes of the textbook in your R file.
3. Submit the R file writing the sample codes of the following chapters:
    - Data Visualization with ggplot2.
    - Data Transformation with dplyr.
    - Data Import with readr.
    - Functions.

- In RStudio Cloud, create a new project and write your R script. To create a new project, you can use the default space named "Your Worksapce" or you can create your new space and can start a new project there. Just be aware that "Your Workspace" is public, which means anonymous people can see your project. On the other hand, if you create a new space, you can set the privacy by yourself.

2. Acemoglu and Autor (40pts)

Replicate Figure 1, Figure 2, Figure 3-(a), Figure 4-(a) and 4-(b) in Acemoglu and Autor (2011, Handbok of Labor Economics).

Step 1. Create an account and download the CPS data from https://cps.ipums.org/cps/.

1. Select variables.
   - Go to PERSON>CORE>DEMOGRAPHICS
     Check *AGE, SEX, RACE*
   - Go to PERSON>CORE>EDUCATION
     Check *EDUC, SCHLCOLL*
   - Go to PERSON>ANNUAL SOCIAL & ECONOMIC SUPPLEMENT (ASEC)>WORK
     Check *INDLY, CLASSWLY, WKSWORK1, WKSWORK2, FULLPART*
   - Go to PERSON>ANNUAL SOCIAL & ECONOMIC SUPPLEMENT (ASEC)>INCOME
     Check *INCWAGE*
   - Go to PERSON>CORE>TECHNICAL
     Check *ASECWT*
2. Seclect samples for all the years, 1962-2017. Don't forget to uncheck *Basic Monthly* sample (checked as default).
3. Create your data extract and download the dat-format data. Rename the file as *data_00.dat*.

Step 2. Dowload the consumer price index.

1. Visit https://fred.stlouisfed.org/. And, search for *Consumer Price Index: Total All Items for the United States*. Download the series, "Index 2010=100, Annual, Not Seasonally Adjusted," in csv-format for the maximum length of the period, 1956–2017.
2. Download the file and rename the file as *data_cpi.csv*.

Step 3. Download and run code_01.R from https://github.com/econtanaka/Kobe_Topics_2018 to select the sample. Export the data frame as *data_01.csv* for the later use.

Step 4. Write a code to generate the graphs. Sometimes, you need to run a regression before drawing graphs. Check *R Cookbook* written by Paul Teetor (O'Reilly).