

Homework Assignment 1

Deadline: February 20, midnight

Source: Stock and Watson, 4th Edition, Exercise 3.1

Data description: You can find the data description [here](#).

Questions

- a. In 2015, the value of the Consumer Price Index (CPI) was 237.0. In 1996, the value of the CPI was 156.9. Create a new variable in your data frame that expressed all earnings in real 2015 dollars. Use this variable to answer the next questions.
- b. Construct a 95% confidence interval for the mean of `ahe` for high school graduates in 1996.
- c. Construct a 95% confidence interval for the mean of `ahe` for high school graduates in 2015.
- d. Construct a 95% confidence interval for the mean of `ahe` for college graduates in 1996.
- e. Construct a 95% confidence interval for the mean of `ahe` for college graduates in 2015.
- f. Did the inflation adjusted wages of high school graduates increase from 1996 to 2015? Use statistical inference to answer.
- g. Did the inflation adjusted wages of collage graduates increase from 1996 to 2015? Use statistical inference to answer.
- h. Did the gap between earnings of college and high school graduates increase? Use statistical inference to answer.

Header for the R script

Start a new R script, copy/paste the header below and save it to `Dropbox\EC282\Assignment1` or a similar path that you created for this homework assignment. Run the R script and make sure that you have the data `df1` in your environment. Conduct the analysis below the header.

```
#####
# list the packages we need and loads them, installs them automatically if we don't have them
# add any package that you need to the list
need <- c('glue', 'dplyr', 'readxl', 'ggplot2', 'tidyr', 'AER', 'scales', 'mvtnorm',
          'stargazer', 'httr', 'repmis')

have <- need %in% rownames(installed.packages())
if(any(!have)) install.packages(need[!have])
invisible(lapply(need, library, character.only=T))

# Save the R script to the assignment 1 folder before this
# To set up the working directory
getwd()
setwd(getwd()) #change getwd() here is you need to set a different working directory

#this clears the workspace
rm(list = ls())
#this sets the random number generator seed to my birthday for replication

options(scipen=999)
```

```
#####
#get the data url
df1.url <- 'https://www.dropbox.com/s/hbi82scuz9q4k11/CPS96_15.xlsx?dl=1'
#download the data
GET(df1.url, write_disk(tdf <- tempfile(fileext = ".xlsx")))
#check if it worked
df1 <- read_excel(tdf) %>%
  mutate(ahe = ahe + rnorm(length(ahe)))

head(df1)

# CONDUCT THE ANALYSIS BELOW
```