Homework Assignment 1

Deadline: October 16, 2022 11PM

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
```