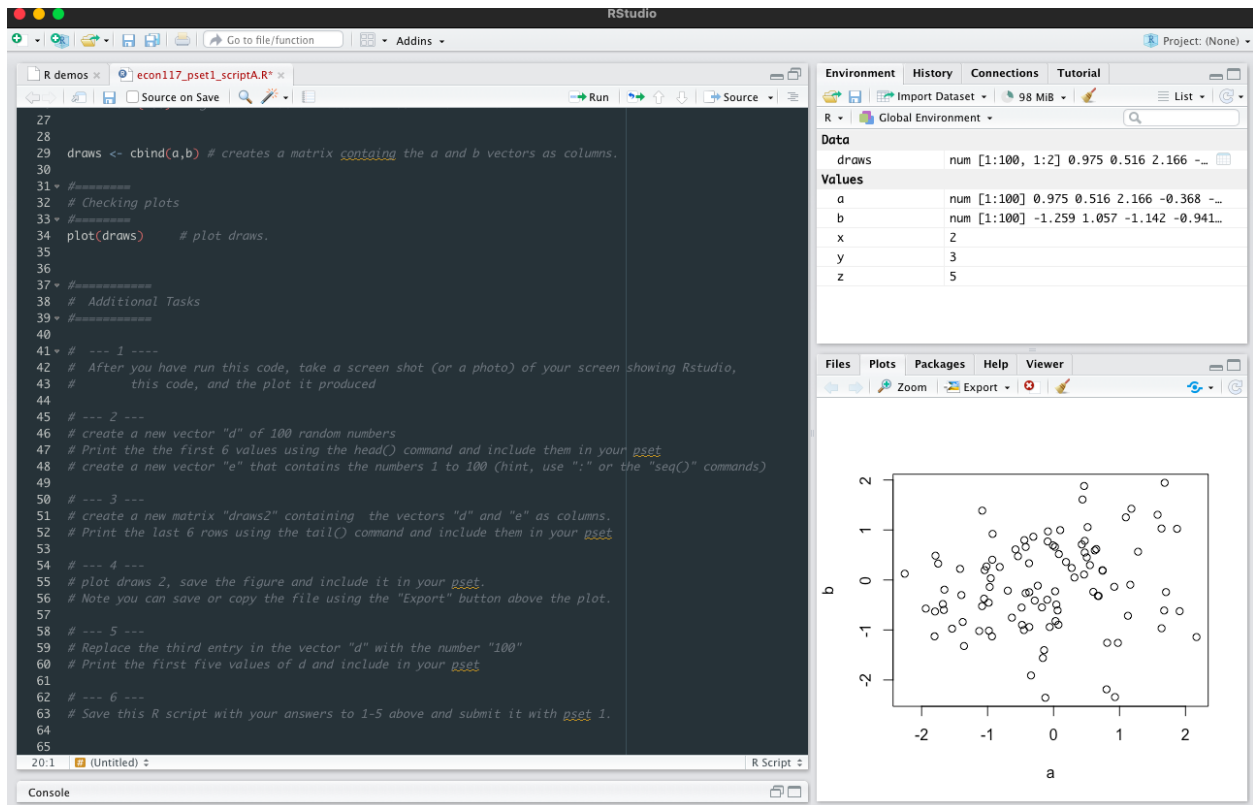# PSET1_Econ117

Aldrin Aujero

1-30-2022

rm(list = ls())
setwd(/Users/aldrin/Desktop/econ117_pset1_folder)

Part 1

Question 1

Question 2

```r
d <- rnorm(100)
print(head(d))
```

```
## [1] -1.0325177  0.5202672  1.2750442 -0.7483096  1.2139303  0.7742589
```

```r
e <- seq.int(1,100)
```
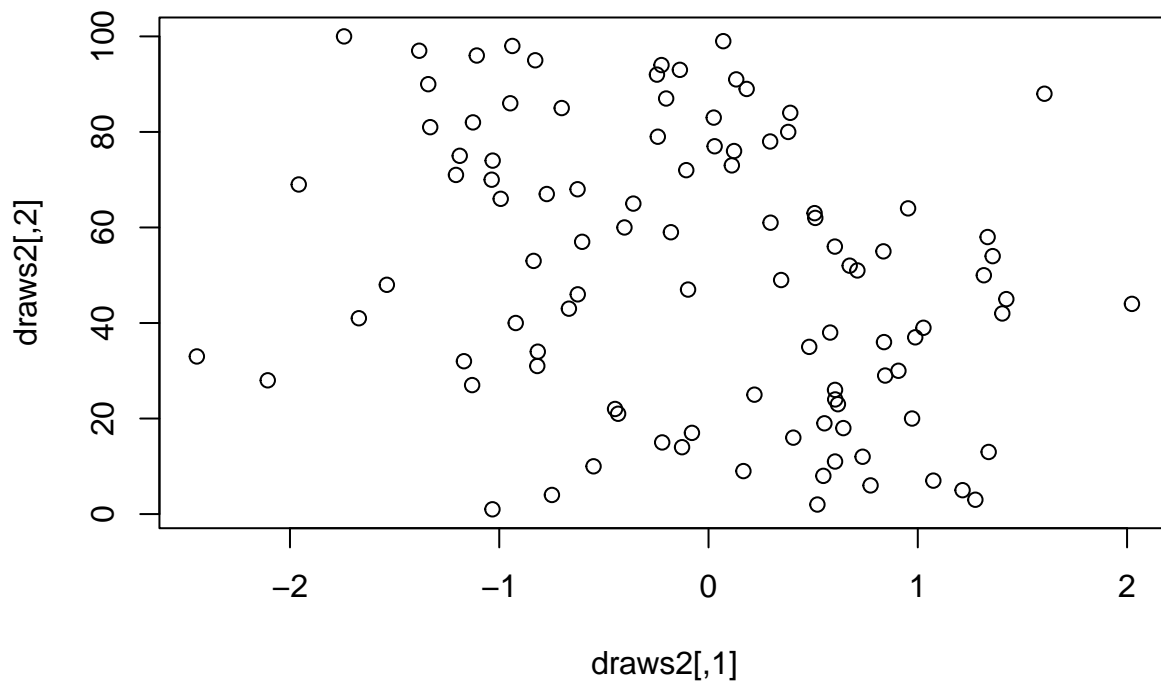
Question 3

```
draws2 <- cbind(c(d),c(e))
print(tail(draws2))
```

```
##               [,1] [,2]
## [95,] -0.82805599   95
## [96,] -1.10741324   96
## [97,] -1.38254586   97
## [98,] -0.93751400   98
## [99,]  0.07033891   99
## [100,] -1.74165103  100
```

Question 4

```
plot(draws2)
```


Question 5

```
d[3] <- 100
print(d[1:5])
```

```
## [1]  -1.0325177   0.5202672 100.0000000  -0.7483096   1.2139303
```

Part 2

Question 1

2

```
getwd()
```

```
## [1] "/Users/aldrin/Desktop/econ117_pset1_folder"
```

Question 2

```
setwd("~/Desktop/econ117_pset1_folder")
```

Question 3

```
list.files()
```

```
## [1] "Draft1_files"           "Draft1.pdf"
## [3] "Draft1.Rmd"             "econ117_pset1_scriptA.R"
## [5] "econ117_pset1_scriptB.R" "img1.png"
## [7] "imgx.jpeg"              "income_shares_USA.csv"
## [9] "PSET1_Econ117.pdf"
```
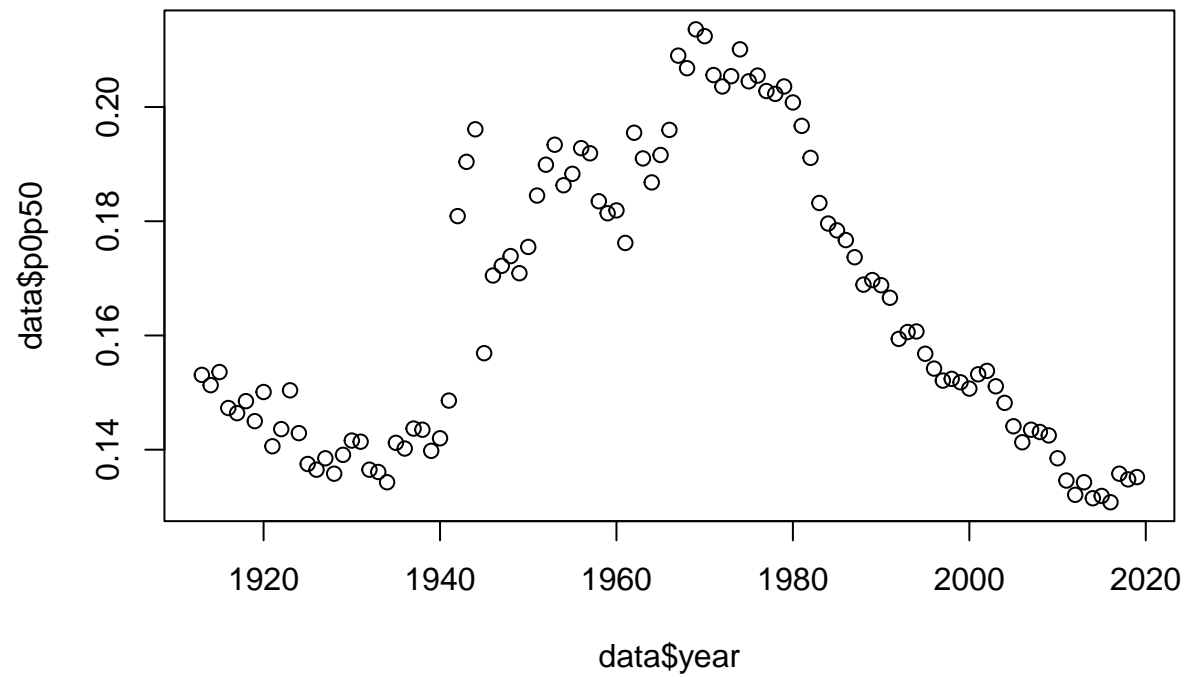
Question 4

```
data <- read.csv("income_shares_USA.csv")
names(data)
```

```
## [1] "year"    "p0p50"   "p50p90"   "p90p100" "p99p100"
```
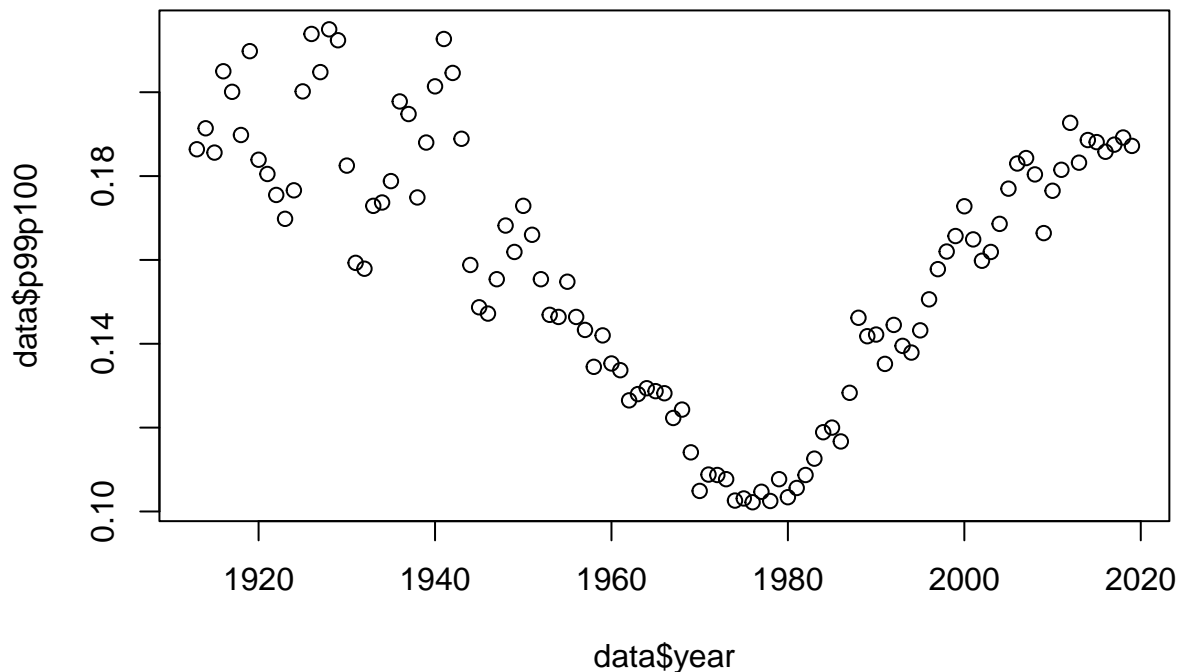
Question 5

```
plot(data$year,data$p0p50)
```

In the last 50 years, the share of income accounted for by the poorest Americans has been decreasing.

Question 6

```
plot(data$year,data$p99p100)
```

In the last 50 years, the share of income accounted for by the richest Americans has been increasing.

Question 7

I think that income inequality has been increasing over the last 50 years in the US according to the data. This is because the poorest Americans have been receiving decreasing share of income while the richest Americans have been receiving increasing share of income.
Code from econ117_pset1_scriptA.R

```r
#=======================================================
#
# Econ 117 Spring 2022
# Author: Nicholas Ryan & John Eric Humphries
#         edited January 2022 by Vladimir Smirnyagin
#
# Notes: This script is a simple script to practice opening
#        and running R scripts (i.e. files that end in .R)
#        in Rstudio And a few exercises to get used to Rstudio.
#
#=======================================================


#==========
# Simple variable assignment and math
#==========
x <- 2      # define variable x and set it equal to 2
y <- 3      # define variable y and set it equal to 3
z <- x + y  # define z as the sum of x and y
print(z)    # print your results
```
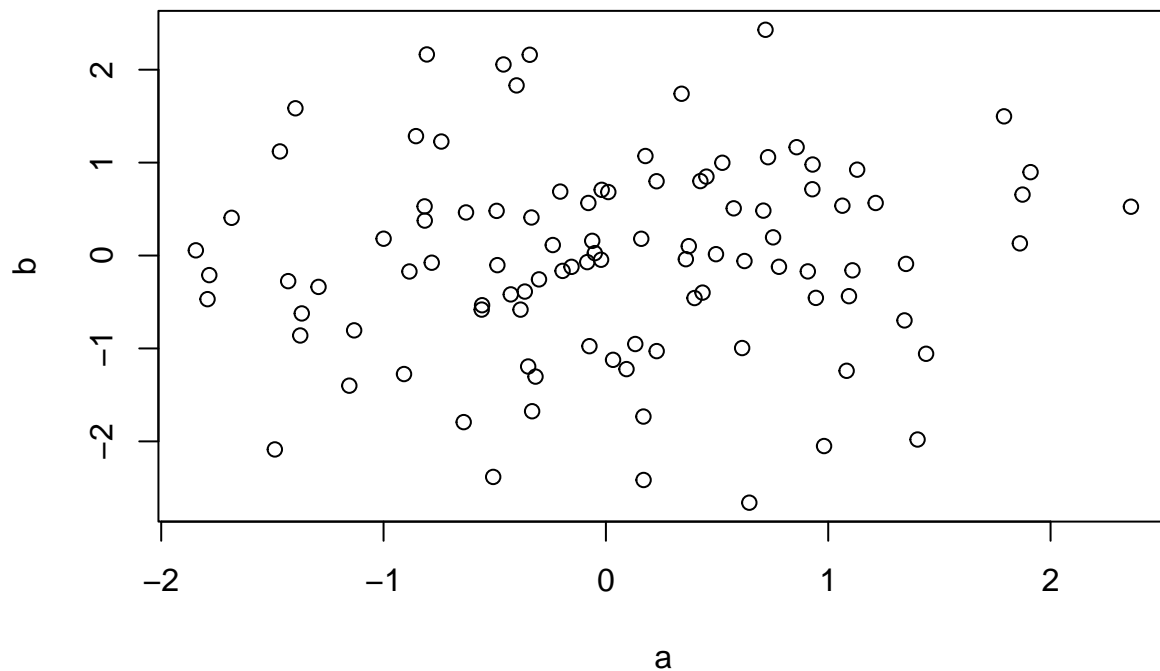
```
## [1] 5
```

```
#===========
# Generating Random Numbers
#===========
a <- rnorm(100)   # generate a vector of 100  random numbers
head(a)           # show the first 6 entries in a
```

```
## [1] -0.3009124 -0.9080005 -0.3424972 -1.6834213  0.4249015  0.4346424
```

```
b <- rnorm(100)   # generate another vector of 100 random numbers
```

```
draws <- cbind(a,b) # creates a matrix containg the a and b vectors as columns.
```

```
#=========
# Checking plots
#========
plot(draws)       # plot draws.
```



```
#============
#  Additional Tasks
#===========
```

```
#  --- 1 ----
#  After you have run this code, take a screen shot (or a photo) of your screen showing Rstudio,
#       this code, and the plot it produced

# --- 2 ---
# create a new vector "d" of 100 random numbers
# Print the the first 6 values using the head() command and include them in your pset
# create a new vector "e" that contains the numbers 1 to 100 (hint, use ":" or the "seq()" commands)
d <- rnorm(100)
print(head(d))
```

```
## [1]  0.49834020  2.12588483  1.94038769  0.06209979 -2.06916262  0.72340162
```

```
e <- seq.int(1,100)
```

```
# --- 3 ---
# create a new matrix "draws2" containing  the vectors "d" and "e" as columns.
# Print the last 6 rows using the tail() command and include them in your pset
draws2 <- cbind(c(d),c(e))
print(tail(draws2))
```
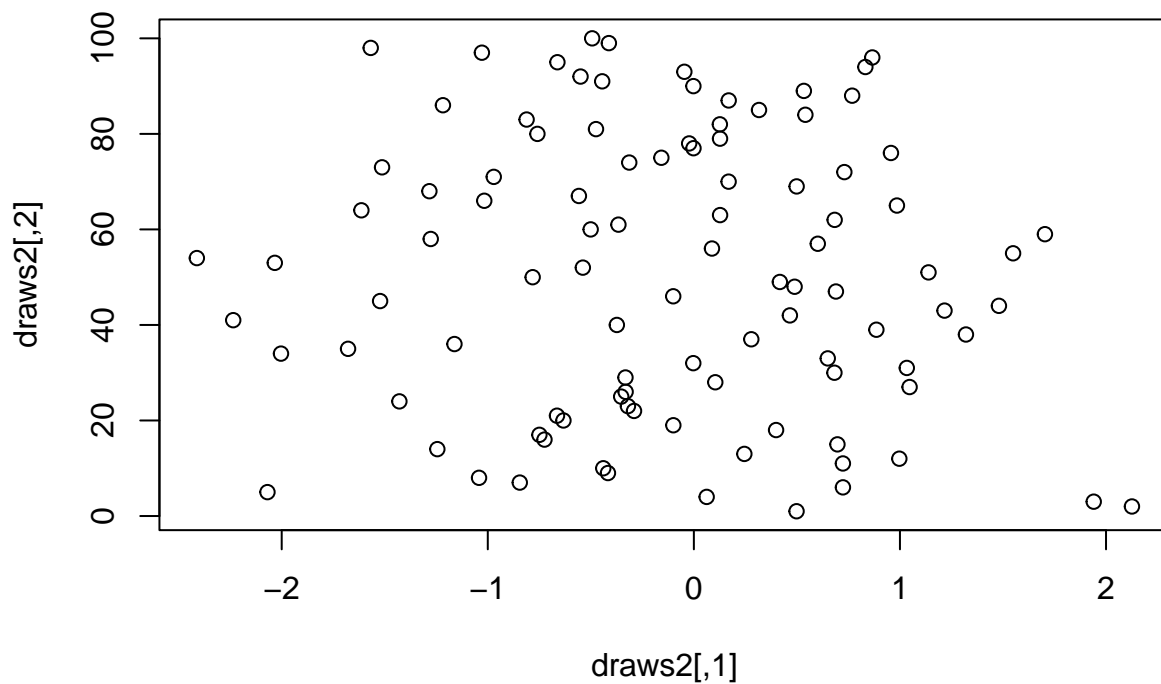
```
##                [,1] [,2]
##   [95,] -0.6621885   95
##   [96,]  0.8658484   96
##   [97,] -1.0285519   97
##   [98,] -1.5680964   98
##   [99,] -0.4124491   99
## [100,] -0.4934033  100
```

```
# --- 4 ---
# plot draws 2, save the figure and include it in your pset.
# Note you can save or copy the file using the "Export" button above the plot.
plot(draws2)
```

```
# --- 5 ---
# Replace the third entry in the vector "d" with the number "100"
# Print the first five values of d and include in your pset
d[3] <- 100
print(d[1:5])
```

```
## [1]    0.49834020    2.12588483 100.00000000    0.06209979  -2.06916262
```

```
# --- 6 ---
# Save this R script with your answers to 1-5 above and submit it with pset 1.
```

Code from econ117_pset1_scriptB.R

```
#=======================================================
#
# Econ 117 Lessons on working directory, Spring 2022.
# Authors: Jaime Arellano-Bover and Vladimir Smirnyagin
#
# Notes: This is a simple script meant to understand the
#        concept of working directory, how to set it up,
#        how to load a data set from it and produce simple graphs
#=======================================================

# Whenever you want to load a data set, R will need to know
# which is the folder in our computer where it should look for the
```

```
# file. When working with R, we set up a "working directory". The
# working directory is the folder in which R looks for files to
# load (and where it saves output such as figures). The questions
# below will familiarize you with using a working directory.
#===========
#  Tasks
#===========


# --- 1 ----
# Even if you haven't specified one yet, R has a default working directory.
# At any time you can figure out which is your current working directory
# using the getwd() command. Print your current working directory using
# the getwd() command and include it in your pset.
getwd()
```

```
## [1] "/Users/aldrin/Desktop/econ117_pset1_folder"
```

```
# --- 2 ----
# As you can see in the previous question, the working directory is
# indexed by a path. A path is a sequence of folders that
# lead up to a given folder. Using the setwd() command, make the folder
# econ117_pset1_folder your new working directory.
# [hint: when writing the path inside the brackets of setwd()
# you should use quotation marks ""]
# [hint: In Rstudio you can choose Session -> Set Working Directory -> Choose Directory
# to choose a working directory by hand. This will also run the
# corresponding setwd() command.]
setwd("~/Desktop/econ117_pset1_folder")


# --- 3 ----
# Download the data file income_shares_USA.csv from the
# Problem Set 1 page under assignments.   Move
# this file to the folder econ117_pset1_folder. The list.files()
# command allows you to list all the files in your working directory.
# Use the list.files() command to print the contents of your working
# directory and include it in your pset...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
list.files()
```

```
## [1] "Draft1_files"           "Draft1.pdf"
## [3] "Draft1.Rmd"             "econ117_pset1_scriptA.R"
## [5] "econ117_pset1_scriptB.R" "img1.png"
## [7] "imgx.jpeg"              "income_shares_USA.csv"
## [9] "PSET1_Econ117.pdf"
```

```
# --- 4 ----
# Load the income_shares_USA.csv data set from Canvas using
# the read.csv() command. # [Hint: this can also be done with the "Import Dataset"
# button in the "Environment" tab of Rstudio, and will generate the command as well.]
# [Hint: you can assign a name to you dataset by typing
# dataset_name <- read.csv(), where "dataset_name" is a name of your choice].
# Print the list of variable names
```

```
# of the data set using the names() command and include it in your pset...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
# DATASOURCE: https://wid.world/data/
data <- read.csv("income_shares_USA.csv")
names(data)
```

```
## [1] "year"    "p0p50"   "p50p90"  "p90p100" "p99p100"
```

```
# --- 5 ---
# Using plot() command, produce a plot of the income share accounted for by the
# bottom 50% of the income distribution (variable p0p50) over years. Save the graph and
# include it in your pset. [Hint: you can plot variable X of dataset "dataset_name"
# against variable Y by typing plot(dataset_name$Y,dataset_name$X)].
# [Hint: you can save the graph by clicking "Export" button located right above the graph.]
# Describe what happened with the share of income accounted for by the poorest Americans
# over the last 50 years (1 sentence).
plot(data$year,data$p0p50)
```
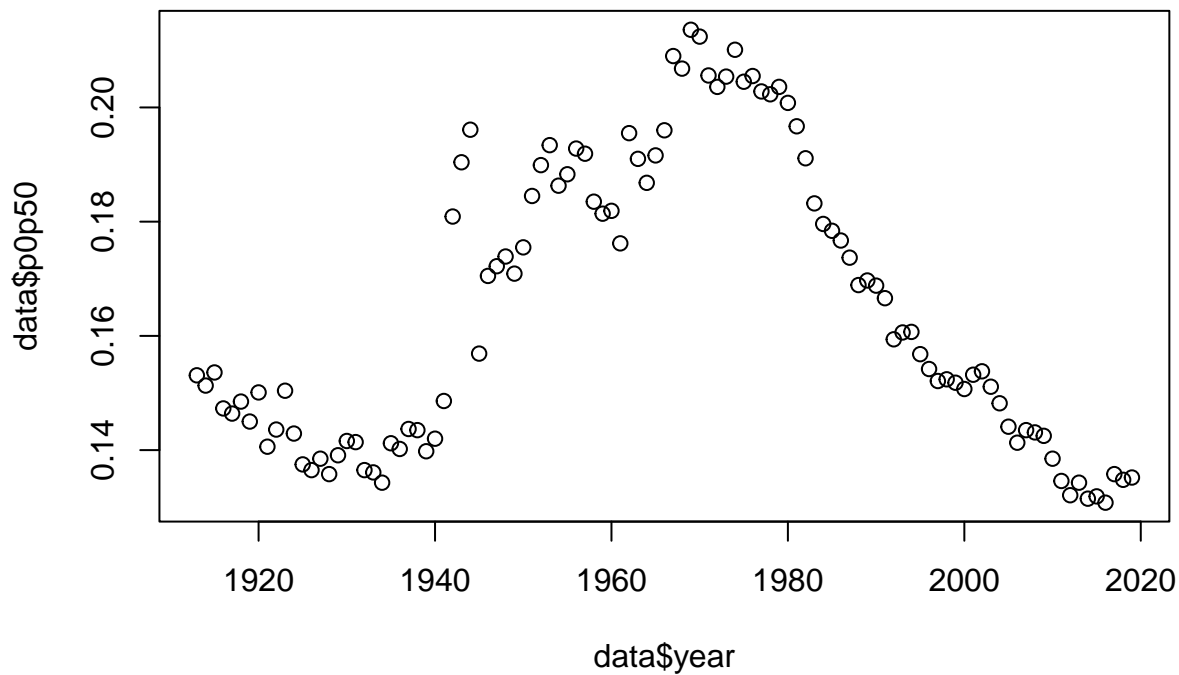


```
# In the last 50 years, the share of income accounted for by the poorest Americans has been decreasing.

# --- 6 ---
# Produce a plot of the income share accounted for by the
# top 1% of the income distribution (variable p99p100). Save the graph and
# include it in your pset.
# Describe what happened with the share of income accounted for by the richest Americans
```

```
# over the last 50 years (1 sentence).
plot(data$year,data$p99p100)
```
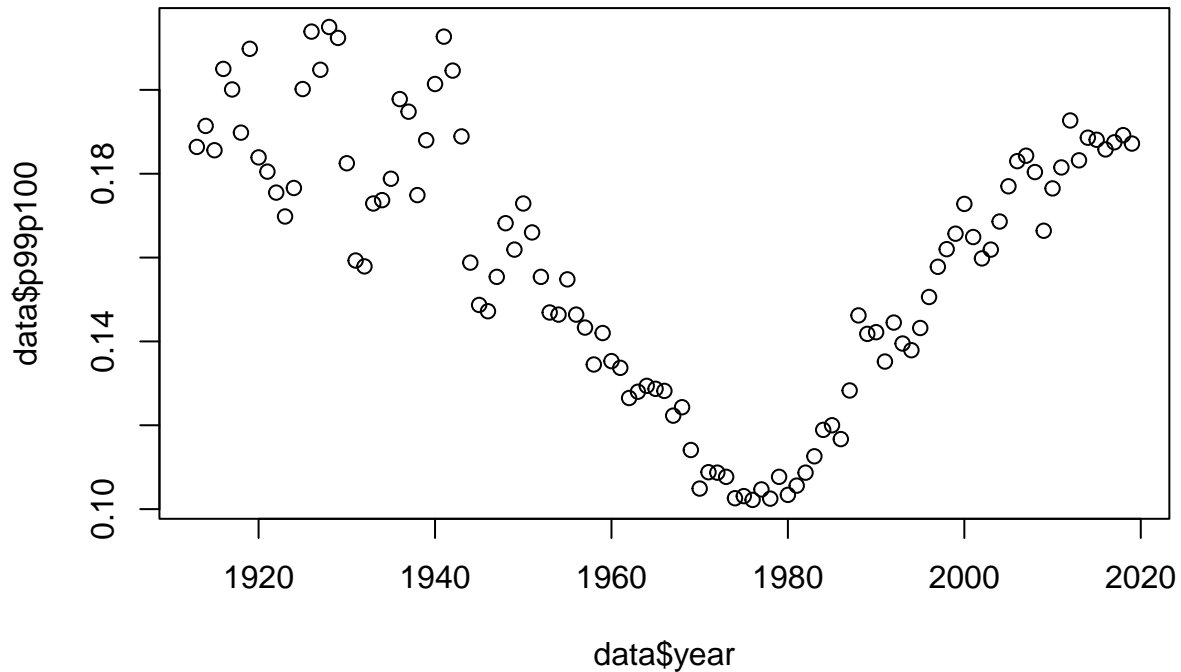


```
# In the last 50 years, the share of income accounted for by the richest Americans has been increasing.

# --- 7 ---
# Using max 3 sentences, describe what you think happened with income inequality
# in the US over the last 50 years. Refer to the results you obtained in (5) and (6)
# while answering this question.

# I think that income inequality has been increasing over the last 50 years in the US according to the
# is because the poorest Americans have been receiving decreasing share of income while the richest Ame
# have been receiving increasing share of income.
# --- 8 ---
# Save this R script with your answers to 1-7 above and submit it with pset 1.
# All done.
```