install.packages("corrplot")

library(corrplot)

install.packages("dplyr")

library(dplyr)

install.packages("plm")

library(plm)

install.packages("ggplot2")

library(ggplot2)

install.packages("AER")

library(AER)

install.packages("factoextra")

library(factoextra)

install.packages("GGally")

library(GGally)

install.packages("FactoMineR")

library(FactoMineR)

install.packages("lmtest")

library(lmtest)

install.packages("car")

library(car)

install.packages("stargazer")

library(stargazer)

library(readxl)

library(readxl)

dataset <- read\_excel("dataset.xlsx", col\_types = c("text",

"text", "numeric", "numeric", "text",

"numeric", "numeric", "numeric", "numeric",

"numeric", "numeric", "numeric", "numeric",

"numeric", "numeric", "numeric", "date",

"text"))

View(dataset)

summary(dataset)

names(dataset)

df<- as.data.frame(dataset)

D <- as.data.frame(dataset)

stargazer(D, type="text", out="D.html")

##########корреляционная матрица#########

names(dataset)

data\_cor <- dplyr::select(dataset,-name,-year,-code,-cod,-date,-tin,-full\_name,-list,-noncurrent,-other, -royalty)

corrplot(cor(data\_cor))

#построим матрицу со значениями

corrplot(cor(data\_cor), addCoef.col = TRUE, addgrid.col = TRUE)

#############синтетический контроль#############

install.packages("vctrs")

install.packages("installr")

install.packages("readxl")

install.packages("dplyr")

install.packages("reshape2")

install.packages("stringr")

install.packages("purr")

install.packages("tidysynth")

install.packages("ggplot2")

install.packages("ggpubr")

install.packages("plm")

install.packages("stargazer")

library(installr)

library(stargazer)

library(readxl)

library(dplyr)

library(reshape2)

library(stringr)

library(purrr)

library(tidysynth)

library(ggplot2)

library(ggpubr)

library(plm)

View(dataset)

summary(dataset)

data<- dataset[-c(1:35), ]

d1 <- dataset[dataset$name == 'ОМА', ]

d2 <- dataset[dataset$name == 'СМС\_ТРАФИК', ]

d3 <- dataset[dataset$name == 'МАКСИМАТЕЛЕКОМ', ]

d4 <- dataset[dataset$name == 'ПРОЦЕССИНГОВЫЙ\_ЦЕНТР', ]

d5 <- dataset[dataset$name == 'НЕФТЕАВТОМАТИКА', ]

data1 <- rbind(d1,data)

data2 <- rbind(d2,data)

data3 <- rbind(d3,data)

data4 <- rbind(d4,data)

data5 <- rbind(d5,data)

names(data)

#################гипотеза 1###############################

H1\_out<- data5 %>%

synthetic\_control(outcome = intang,

time = year,

unit = name,

i\_unit = 'НЕФТЕАВТОМАТИКА',

i\_time = 2020,

generate\_placebos=TRUE) %>%

generate\_predictor(time\_window = 2016:2020,

workers = mean(workers, na.rm = T),

current = mean(current, na.rm = T),

revenue = mean(revenue, na.rm = T),

profit = mean(profit, na.rm = T),

credit = mean(credit, na.rm = T))%>%

generate\_predictor(time\_window = 2020,

intang\_2020 = intang) %>%

generate\_weights(optimization\_window = 2016:2020,

margin\_ipop = 0.02, sign\_ipop = 7, bound\_ipop = 6) %>%

generate\_control()

H1\_out %>% plot\_placebos()

H1\_plot<-H1\_out %>% plot\_trends()

H1\_plot

H1\_plot15<-H1\_out %>% plot\_differences()+ geom\_hline(yintercept=0.04, color ='red',linewidth=1.2)+

geom\_hline(yintercept=0.02, color ='grey',size=2)+

geom\_hline(yintercept=-0.02, color ='grey',size=2)

H1\_plot15

H1\_plot2<-H1\_out %>% plot\_mspe\_ratio()+ geom\_hline(yintercept=1)

H1\_plot2

H1\_out %>% grab\_synthetic\_control()

H1\_out %>% plot\_trends()

H1\_plot3<-H1\_out %>%plot\_placebos(prune=F)

H1\_plot3

#################гипотеза 2###############################

H2\_out<- data5 %>%

synthetic\_control(outcome = workers,

time = year,

unit = name,

i\_unit = 'НЕФТЕАВТОМАТИКА',

i\_time = 2020,

generate\_placebos=TRUE) %>%

generate\_predictor(time\_window = 2016:2020,

intang = mean(intang, na.rm = T),

current = mean(current, na.rm = T),

revenue = mean(revenue, na.rm = T),

profit = mean(profit, na.rm = T),

credit = mean(credit, na.rm = T)) %>%

generate\_predictor(time\_window = 2020,

workers\_2020 = workers) %>%

generate\_weights(optimization\_window = 2016:2020,

margin\_ipop = 0.02, sign\_ipop = 7, bound\_ipop = 6) %>%

generate\_control()

H2\_out %>% plot\_placebos()

H2\_plot<-H2\_out %>% plot\_trends()

H2\_plot

H2\_plot15<-H2\_out %>% plot\_differences()+ geom\_hline(yintercept=0.04, color ='red',size=1.2)+

geom\_hline(yintercept=0.02, color ='grey',size=2)+

geom\_hline(yintercept=-0.02, color ='grey',size=2)

H2\_plot15

H2\_plot2<-H2\_out %>%plot\_mspe\_ratio()+ geom\_hline(yintercept=1)

H2\_plot2

H2\_plot3<-H2\_out %>%plot\_placebos(prune=F)

H2\_plot3