

SOK-2008-2022-oppgave3

Utfordring 3.1.2

```
# Laster nødvendige pakker
```

```
library(readr)
library(ggplot2)
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.1.3
```

```
## -- Attaching packages ----- tidyverse 1.3.2 --
```

```
## v tibble 3.1.6      v dplyr 1.0.7
## v tidyr 1.1.4      v stringr 1.4.0
## v purrr 0.3.4      v forcats 0.5.1
```

```
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()      masks stats::lag()
```

```
# We will use the following packages for the assignment:
```

```
library(OECD) #The OECD package
```

```
## Warning: package 'OECD' was built under R version 4.1.3
```

```
library(ggrepel) # The ggrepel package
```

We want to create a graph that shows the correlation between minimum wages and unemployment. We need to search the OECD data frame for data on these topics.

```
# Search data set for minimum wages and unemployment statistics
```

```
dsets<-get_datasets()
search_dataset("wage",dsets)
```

```
## # A tibble: 10 x 2
```

```
##   id          title
##   <chr>       <chr>
## 1 MIN2AVE     Minimum relative to average wages of full-time workers
## 2 MW_CURP     Minimum wages at current prices in NCU
## 3 AV_AN_WAGE  Average annual wages
## 4 AWCOMP      Taxing Wages - Comparative tables
```

```
## 5 AEO2012_CH6_FIG3 Figure 3: Time Use by Country Income Level: In middle inco~
## 6 AEO2012_CH6_FIG31 Figure 31: Probability of being waged employed by educatio~
## 7 RMW Real minimum wages
## 8 TABLE_I6 Table I.6. All-in average personal income tax rates at ave~
## 9 AGE_GAP Wage gap by age
## 10 IMW Incomes of minimum wage earners
```

```
search_dataset("unemployment",dsets)
```

```
## # A tibble: 12 x 2
##   id title
##   <chr> <chr>
## 1 DUR_I Incidence of unemployment by duration
## 2 DUR_D Unemployment by duration
## 3 AVD_DUR Average duration of unemployment
## 4 AEO2012_CH6_FIG4 Figure 4: Youth and adult unemployment
## 5 AEO2012_CH6_FIG29 Figure 29: Youth employment and unemployment by educati~
## 6 AEO2012_CH6_FIG19 Figure 19: The trade off between vulnerable employment ~
## 7 EAG_NEAC_DURUNE Distribution of unemployed adults by duration of unempl~
## 8 PTRUB PTR for families claiming Unemployment Benefits
## 9 MIG_NUP_RATES_GENDER Employment, unemployment, and participation rates by pl~
## 10 NRR Net replacement rate in unemployment
## 11 PTRCCUB PTR for parents claiming Unemployment Benefits and usin~
## 12 EAG_TRANS_DURUNEMP Percentage of young adults not in education and unemplo~
```

```
# Data on minimum wages is available in "MIN2AVE"
```

```
# Data on unemployment is available in "MIG_NUP_RATES_GENDER"
```

```
# MinWage
```

```
minwage <- get_dataset("MIN2AVE",
  filter = "USA+CAN+FRA+GBR+DEU+NZL",
  pre_formatted = TRUE)
```

```
# Selecting years and the min wage as a share of median wage
```

```
minwage2019 <- subset(minwage, Time < 2019 & Time > 2007 & SERIES=="MEDIAN")
minwage2007_2019 <- subset(minwage2019, Time>2007)
```

```
# UnEmpl
```

```
unempl <- get_dataset("MIG_NUP_RATES_GENDER",
  filter = "USA+CAN+FRA+GBR+DEU+NZL",
  pre_formatted = TRUE)
```

```
# Selecting years, the unemployment rate of people born in the country,
# and both sexes
```

```
unempl2019 <- subset(unempl, Time<2019 & RATE=="U_RATE" & BIRTH=="NB" & GENDER=="TOT")
unempl2007_2019 <- subset(unempl2019, Time>2007)
```

```
# Combining datasets - we need to merge by both country and year
```

```
# to get the right number in the right place
```

```
minwage_unempl <- left_join(minwage2007_2019, unempl2007_2019, by=c("COUNTRY","Time"))
```

```
# removing countries with missing data
```

```
complete_minwage_unempl <- na.omit(minwage_unempl)
```

```

# transforming the minimum wage and unemployment rate to numeric variables
complete_minwage_unempl$MinWage_0 <-as.numeric(complete_minwage_unempl$ObsValue.x) # MinWage is between
# 0 and 1, I want to transform it to between 0 and 100 later, so I call it MinWage_0 here
complete_minwage_unempl$UnEmpl <-as.numeric(complete_minwage_unempl$ObsValue.y)

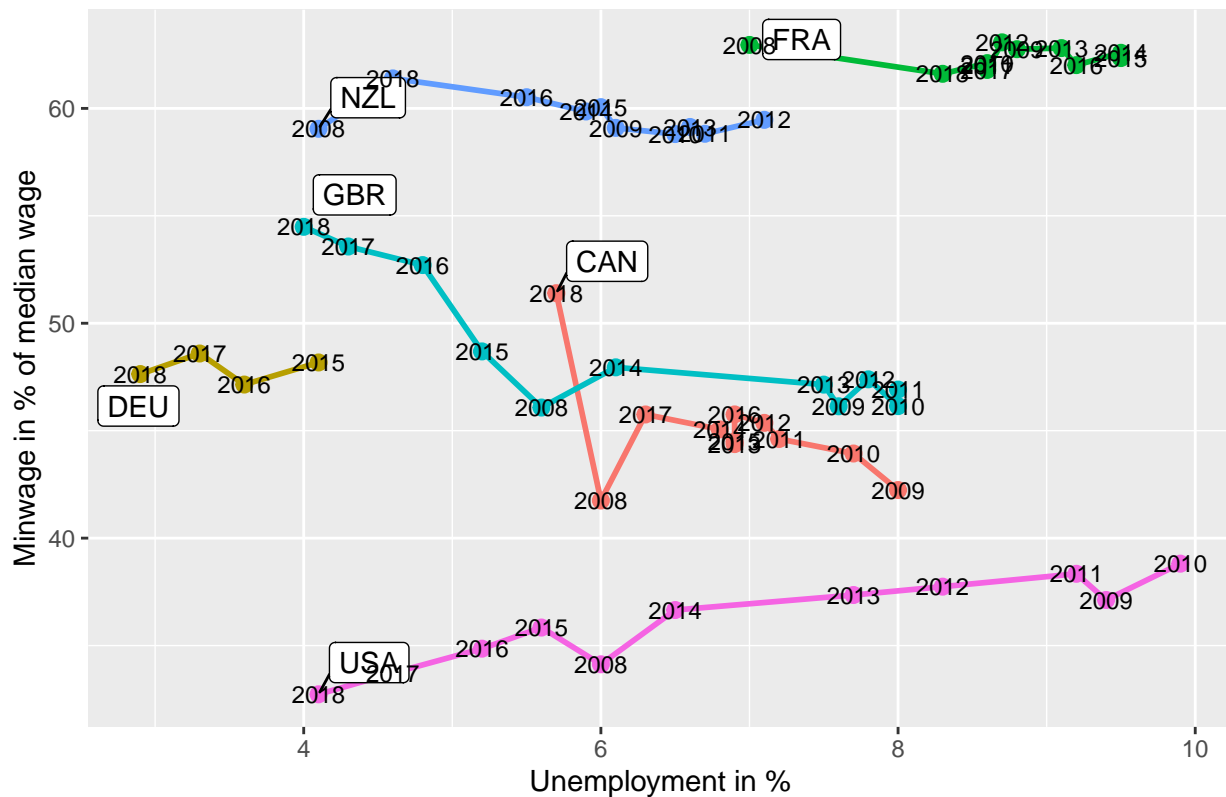
# Transforming Minimum wage to percent
complete_minwage_unempl$MinWage <- complete_minwage_unempl$MinWage_0 * 100

# Code for the graph (you need to insert data and variable names)
minwage_plot <- ggplot(data=complete_minwage_unempl,
                      aes(x=UnEmpl,y=MinWage,
                          group=COUNTRY, color=COUNTRY)) +
  geom_line(aes(group=COUNTRY), size=1) +
  geom_point(size=2.5)+
  labs(x = "Unemployment in %" , y ="Minwage in % of median wage",
       title = "Minwage and Unemployment") +
  theme(legend.position="none")+
  geom_label_repel(
    data=complete_minwage_unempl %>%
      group_by(COUNTRY) %>%
      filter(UnEmpl==min(UnEmpl)),
    aes(UnEmpl, MinWage, fill = factor(COUNTRY), label = sprintf('%s', COUNTRY)),
    color = "black",
    fill = "white") +
  geom_text(aes(label = Time), color = "black", size = 3)

minwage_plot

```

Minwage and Unemployment



Jeg klarte ikke å få dataene for hvert land i stigende rekkefølge, så vurderingene er gjort med basis i tabellen.

Jeg dukker litt dypere inn i hvert lands data og bruker det i kommentarene:

```
## test for samvariasjon for Canada:
test_CAN <- complete_minwage_unempl %>%
  filter(COUNTRY == "CAN")

cor(test_CAN$UnEmpl, test_CAN$MinWage, use = "everything")
```

```
## [1] -0.5414016
```

```
mean(test_CAN$MinWage)
```

```
## [1] 44.97748
```

```
mean(test_CAN$UnEmpl)
```

```
## [1] 6.863636
```

```
## test for samvariasjon for Frankrike:
test_FRA <- complete_minwage_unempl %>%
  filter(COUNTRY == "FRA")

cor(test_FRA$UnEmpl, test_FRA$MinWage, use = "everything")
```

```
## [1] -0.1100761
```

```
mean(test_FRA$MinWage)
```

```
## [1] 62.36524
```

```
mean(test_FRA$UnEmpl)
```

```
## [1] 8.718182
```

```
## test for samvariasjon for Tyskland:
```

```
test_DEU <- complete_minwage_unempl %>%  
  filter(COUNTRY == "DEU")
```

```
cor(test_DEU$UnEmpl, test_DEU$MinWage, use = "everything")
```

```
## [1] 0.1134524
```

```
mean(test_DEU$MinWage)
```

```
## [1] 47.88706
```

```
mean(test_DEU$UnEmpl)
```

```
## [1] 3.475
```

```
## test for samvariasjon for USA:
```

```
test_USA <- complete_minwage_unempl %>%  
  filter(COUNTRY == "USA")
```

```
cor(test_USA$UnEmpl, test_USA$MinWage, use = "everything")
```

```
## [1] 0.9248303
```

```
mean(test_USA$MinWage)
```

```
## [1] 36.11741
```

```
mean(test_USA$UnEmpl)
```

```
## [1] 6.954545
```

```
## test for samvariasjon for Storbritania:
```

```
test_GBR <- complete_minwage_unempl %>%  
  filter(COUNTRY == "GBR")
```

```
cor(test_GBR$UnEmpl, test_GBR$MinWage, use = "everything")
```

```
## [1] -0.8369275
```

```
mean(test_GBR$MinWage)
```

```
## [1] 48.83701
```

```
mean(test_GBR$UnEmpl)
```

```
## [1] 6.263636
```

```
## test for samvariasjon for Ny Zeeland:
```

```
test_NZL <- complete_minwage_unempl %>%
```

```
  filter(COUNTRY == "NZL")
```

```
cor(test_NZL$UnEmpl, test_NZL$MinWage, use = "everything")
```

```
## [1] -0.4680133
```

```
mean(test_NZL$MinWage)
```

```
## [1] 59.61967
```

```
mean(test_NZL$UnEmpl)
```

```
## [1] 5.91
```