

Overall report

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6/17/2020

1. Introduction

The European Value Study (EVS) covers a time span from 1981 to 2017 with a core questionnaire repeated over time on adult population (*at least 18 years old at the time of survey*) in 33 countries in Europe. The study aims at understanding human values in various topics, namely, life, family, work, region, politics and society. The EVS data is managed by GESIS Leibniz Institute for Social Sciences in Germany, and can be obtained free of charge.

The data used in this report is taken from **EVS 2017**. In 2017, researchers used a mixed mode data collection. The sample size is approximately 1,200 in each country. This report focuses on analyzing two key questions:

- v72: when a mother works for pay, the children suffer.
- v80: when jobs are scarce, employers should give priority to national people over immigrants.

In particular, we want to look at if people agree or disagree with these two statements, and how it changes with ages. We also present a simple regression model to further investigate the relationship between sex, age, education and the degree that people agree with these statements.

2. Descriptive statistics

This section presents the descriptive statistics of the variables in our study. First, I show the summary table for categorical variables, and then for a continuous variable. After cleaning, all missing cases are omitted, therefore, we have a balanced dataset.

There are total 52,823 observations, with the average age of around 49.5. The proportion of each country in the database is quite similar with roughly 3%, except for Denmark and Switzerland with 6% each and no observation in Greece. The percentage of female participants is slightly higher than males with 55. Most of participants have medium education (46%).

For the first question of interest, 43% participants disagree that children would suffer from a working mother. But for the second question, a higher proportion of people agree that when jobs are scarce, employers should give priority to national people over immigrants (28% agree and 34% agree strongly).

```
# set working directory

setwd ("G:/My Drive/IPSDS/Modern Workflow in Data Science/Assignments/Assignment-2/")

## Load necessary packages

library(tidyverse)
library(ggplot2)
library(foreign)
library(pander)
library(qwraps2)
library(texreg)
```

```

# load data
load("data_final.RData")

# make smaller data for descriptive:
explore_data <- data_final %>%
  select(-v72, -v80, -v225, -v243_r, -education)

# get the type of variables
type_var <- unlist(map(explore_data, class))

# make frequency table
freq_tab <- function(x) {
  tab <- cbind(Count = table(x, useNA = "always"),
              Prop = round(prop.table(table(x, useNA = "always")),2))
  tab <- as.data.frame(tab) %>%
    tbl_df() %>%
    mutate(Cat = row.names(tab)) %>%
    select(Cat, Count, Prop)
}

# select only factor variables and make table
props <- map(explore_data[, type_var == "factor"],
             freq_tab)

# get the variable names and put all proportions together
vars <- unlist(map(props, nrow))
props_tab <- reduce(props, rbind)
props_tab <- props_tab %>%
  mutate(Variable = rep(names(vars), vars))

pander(props_tab,
        caption = "Descriptive statistics of factor variables. Data: EVS 2017")

```

Table 1: Descriptive statistics of factor variables. Data: EVS 2017

Cat	Count	Prop	Variable
Albania	1417	0.03	country
Azerbaijan	1726	0.03	country
Austria	1567	0.03	country
Armenia	1480	0.03	country
Bosnia and Herzegovina	1650	0.03	country
Bulgaria	1470	0.03	country
Belarus	1495	0.03	country
Croatia	1436	0.03	country
Czechia	1650	0.03	country
Denmark	3222	0.06	country

Cat	Count	Prop	Variable
Estonia	1237	0.02	country
Finland	1127	0.02	country
France	1815	0.03	country
Georgia	2130	0.04	country
Germany	2067	0.04	country
Greece	0	0	country
Hungary	1466	0.03	country
Iceland	1558	0.03	country
Italy	2168	0.04	country
Lithuania	1360	0.03	country
Montenegro	953	0.02	country
Netherlands	2292	0.04	country
Norway	1093	0.02	country
Poland	1280	0.02	country
Romania	1449	0.03	country
Russia	1711	0.03	country
Serbia	1419	0.03	country
Slovakia	1396	0.03	country
Slovenia	1045	0.02	country
Spain	1174	0.02	country
Sweden	1144	0.02	country
Switzerland	3069	0.06	country
North Macedonia	1036	0.02	country
Great Britain	1721	0.03	country
NA	0	0	country
Female	29212	0.55	male
Male	23611	0.45	male
NA	0	0	male
agree strongly	5150	0.1	working_mom_fct
agree	14808	0.28	working_mom_fct
disagree	22615	0.43	working_mom_fct
disagree strongly	10250	0.19	working_mom_fct
NA	0	0	working_mom_fct
agree strongly	18205	0.34	immigrant_job_fct
agree	14787	0.28	immigrant_job_fct
neither agree nor disagree	8102	0.15	immigrant_job_fct
disagree	7608	0.14	immigrant_job_fct
disagree strongly	4121	0.08	immigrant_job_fct
NA	0	0	immigrant_job_fct
lower	10496	0.2	education_fct
medium	24406	0.46	education_fct
higher	17921	0.34	education_fct
NA	0	0	education_fct

make table for continuous variables

```
cont_var <- list("Age" =
  list("min" = ~ min(explore_data$age),
        "median" = ~ median(explore_data$age),
        "max" = ~ max(explore_data$age),
        "mean (sd)" = ~ mean_sd(explore_data$age)))
```

```
knitr::kable(summary_table(explore_data, cont_var),
  row.names = TRUE,
  caption = "Descriptive statistics of Age. Data: EVS 2017")
```

Table 2: Descriptive statistics of Age. Data: EVS 2017

	Age (N = 52,823)
min	18
median	50
max	82
mean (sd)	49.48 ± 17.62

3. Graphs

In this section, we will explore how people's attitude towards working mothers and jobs for immigrants changes with age.

Working mom and age

```
explore_data %>%
  ggplot(aes(x = age,
             y = working_mom))+
  stat_summary(fun.y = mean,
              geom = "line",
              color = "red")+
  ylim(1,4)+
  theme_bw()+
  labs(x = "Age",
       y = "Attitude towards working mothers",
       caption = "Figure 1: Age and the attitude towards working mothers. Data: EVS 2017")
```

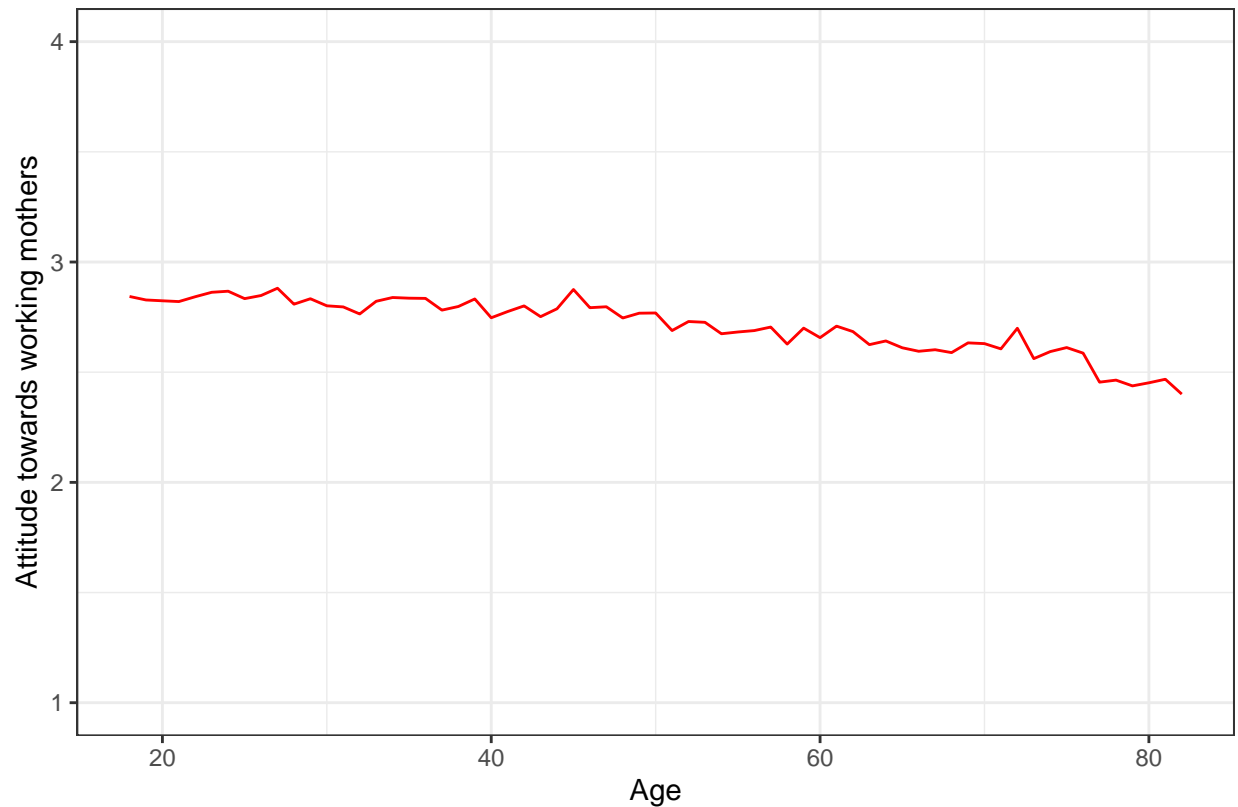


Figure 1: Age and the attitude towards working mothers. Data: EVS 2017

Figure 1 shows that as age increases, people tend to agree with the statement that children will suffer when a mother works for pay. However, this change in the attitude towards working mothers is very small across different ages.

```
# Jobs for immigrants and age

explore_data %>%
  ggplot(aes(x = age,
             y = immigrant_job))+
  stat_summary(fun.y = mean,
              geom = "line",
              color = "blue")+
  ylim(1,4)+
  theme_bw()+
  labs(x = "Age",
       y = "Attitude towards jobs for immigrants",
       caption = "Figure 2: Age and the attitude towards jobs for immigrants. Data: EVS 2017")
```

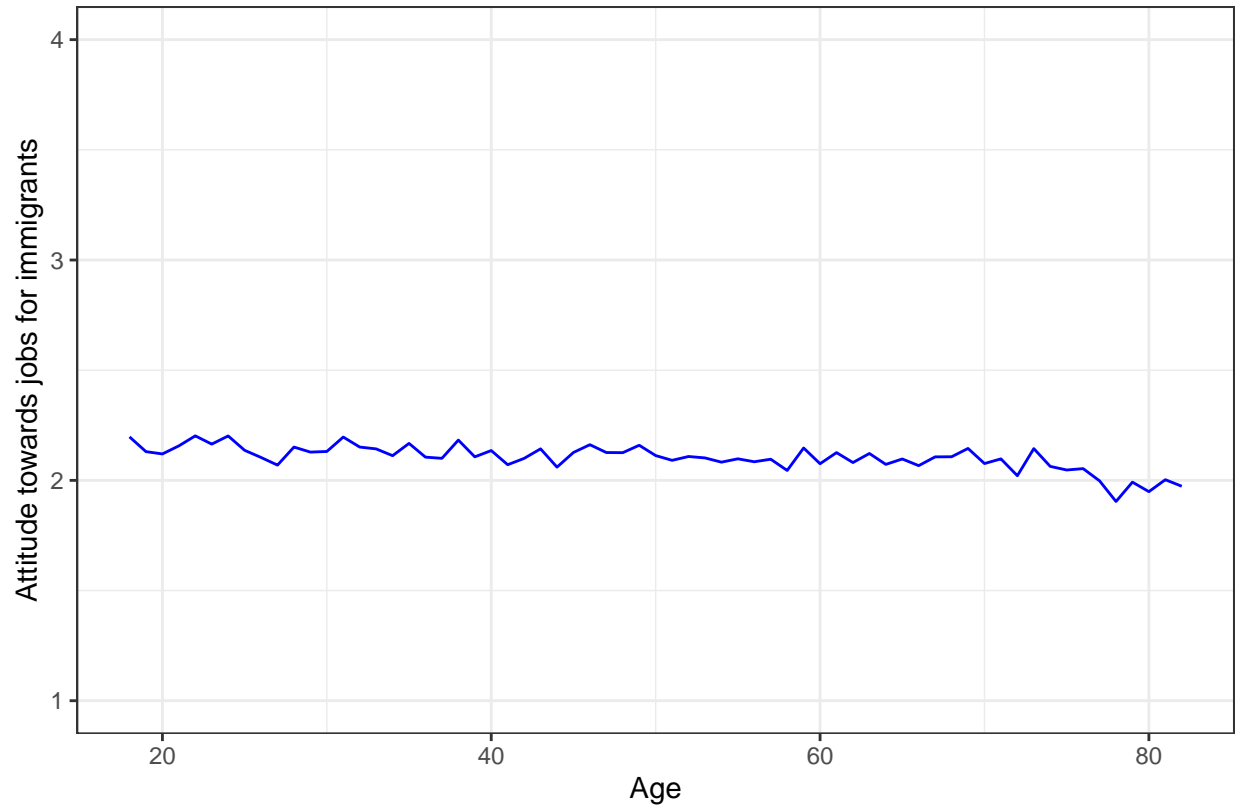


Figure 2: Age and the attitude towards jobs for immigrants. Data: EVS 2017

Figure 2 illustrates that the attitude towards jobs for immigrants is quite stable across different ages. The line slightly goes down as age increases show that people tend to agree with the statement that when jobs are scarce, employers should give priority to national people over immigrants.

Overall, two figures show that as people age, they tend to be less opened to working mothers and immigrants.

4. Empirical analysis

This section presents the results of two regression models. Model 1 investigates the relationship between the attitude towards working mothers and other independent variables: age, sex and education level. Model 2 investigates the relationship between the attitude towards jobs for immigrants and the same independent variables.

```
# working mom and age
model_1 <- lm(data = explore_data,
              formula = working_mom ~ age + I(age^2) + male + education_fct)

# Immigrant jobs and age
model_2 <- lm(data = explore_data,
              formula = immigrant_job ~ age + I(age^2) + male + education_fct)

# make table
texreg(list(model_1, model_2),
       table = F,
```

```

use.packages = F,
digits = 5,
caption = "Regression table. Data: EVS 2017")

```

	Model 1	Model 2
(Intercept)	2.73608*** (0.02986)	2.26034*** (0.04379)
age	-0.00205 (0.00126)	0.00029 (0.00185)
age ²	-0.00003* (0.00001)	-0.00004* (0.00002)
maleMale	-0.07184*** (0.00758)	0.02772* (0.01111)
education_fctmedium	0.11810*** (0.01034)	-0.02871 (0.01516)
education_fcthigher	0.40458*** (0.01096)	0.46218*** (0.01608)
R ²	0.04775	0.03513
Adj. R ²	0.04766	0.03504
Num. obs.	52823	52823

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Model 1 shows that as age increases, people tend to agree with the statement that children will suffer when a mother works for pay, *ceteris paribus*, but this increases with a decreasing rate. However, this variable is not statistically significant at any conventional level. Males also tend to agree with this statement. Meanwhile people with higher educational level tend to disagree with the statement.

In model 2, we see that males or people with higher educational level tend to disagree that when jobs are scarce, employers should give priority to national people over immigrants, than females and people with lower educational level, respectively.

All in all, older people and people with lower educational level tend to be less opened to working mothers and immigrants.