Analysis on Gender Statictics

Team 6- The Outsiders

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Contents

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#1 Janice

```
# Libraries
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.1.1     v dplyr   1.0.6
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1
```

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

```
library(ggplot2)
library(readr)
library(broom)
library(stringr)
library(patchwork)
library(kableExtra)
```

```
##
## Attaching package: 'kableExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
library(knitr)
library(bookdown)
library(naniar)
library(GGally)
```

```
## Registered S3 method overwritten by 'GGally':
##   method from
##   +.gg   ggplot2
```

```
Genderstatistics <- read_csv("Data/Genderstatistics.csv")%>%
  rename('2011' = '2011 [YR2011]',
         '2012' = '2012 [YR2012]',
         '2013' = '2013 [YR2013]',
         '2014' = '2014 [YR2014]',
         '2015' = '2015 [YR2015]',
         '2016' = '2016 [YR2016]',
         '2017' = '2017 [YR2017]',
         '2018' = '2018 [YR2018]',
         '2019' = '2019 [YR2019]') %>%
  mutate(`2019` = as.numeric(`2019`))
```

```
##
## -- Column specification --------------------------------------------------------
## cols(
##   `Series Name` = col_character(),
##   `Series Code` = col_character(),
##   `Country Name` = col_character(),
##   `Country Code` = col_character(),
##   `2011 [YR2011]` = col_double(),
##   `2012 [YR2012]` = col_double(),
##   `2013 [YR2013]` = col_double(),
##   `2014 [YR2014]` = col_double(),
##   `2015 [YR2015]` = col_double(),
```

```
##   `2016 [YR2016]` = col_double(),
##   `2017 [YR2017]` = col_double(),
##   `2018 [YR2018]` = col_double(),
##   `2019 [YR2019]` = col_character()
## )

## Warning in mask$eval_all_mutate(quo): NAs introduced by coercion
```

```
analysis<- Genderstatistics %>%
  filter(`Series Name` %in% c("Inflation, consumer prices (annual %)", "Population ages 15-64, female",
  select(-c(`Series Code`,`Country Code`)) %>%
   pivot_longer(cols = -c(`Country Name`,`Series Name`),
                names_to = "Year",
                values_to = "count") %>%
  pivot_wider(names_from = "Series Name",
              values_from = "count")
```

```
analysis <- analysis %>%
mutate(Inflation = as.numeric(`Inflation, consumer prices (annual %)`)) %>%
  mutate(Population_ages_15_64_female = as.numeric(`Population ages 15-64, female`)) %>%
  mutate(Population_ages_15_64_male = as.numeric(`Population ages 15-64, male`)) %>%
  mutate(labour_force = `Population_ages_15_64_female`+`Population_ages_15_64_male`) %>%
  mutate(Year = as.numeric(Year)) %>%
  mutate(Life_expectancy_at_birth_female = as.numeric(`Life expectancy at birth, female (years)`))%>%
  mutate(Life_expectancy_at_birth_male = as.numeric(`Life expectancy at birth, male (years)`))%>%
  select(-c(`Inflation, consumer prices (annual %)`,`Population ages 15-64, female`,`Population ages 15
```

0.1 Inflation

```
library(purrr)
library(ggplot2)
library(patchwork)
countries <- c("Colombia", "United States", "France", "Egypt, Arab Rep.")

infla_labour <- function(countries){
  p1 <- analysis %>%
  filter(`Country Name`== countries)%>%
    na.omit()%>%
    ggplot(aes(x=Year, y=Inflation)) +
  geom_line(color="#69b3a2", size=2) +
  scale_x_continuous(breaks = c(2011:2019))+
    scale_y_continuous(labels = scales::comma)+
  ggtitle("Inflation rate") +
    labs(title = countries)

   p2 <- analysis %>%
  filter(`Country Name`== countries)%>%
     na.omit()%>%
ggplot(aes(x=Year, y=labour_force)) +
  geom_line(color="grey",size=2) +
  scale_x_continuous(breaks = c(2011:2019))+
```

```
    scale_y_continuous(labels = scales::comma)+
  ggtitle("number of labour force") +
    labs(title = countries)

p1 + p2
}


Q1 <- map(countries, infla_labour)
print(Q1)
```

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

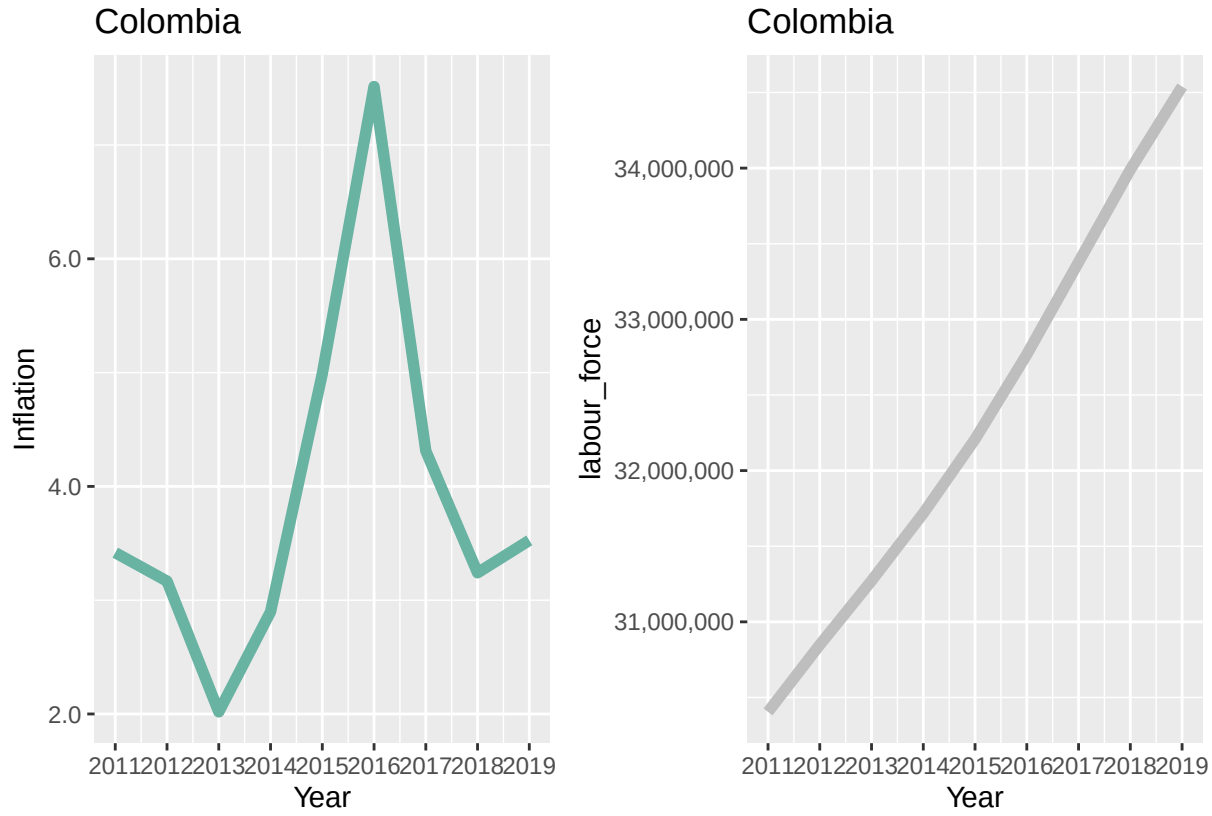


Figure 1: Inflation vs Labour force

```
##
## [[2]]
```

```
##
## [[3]]
```

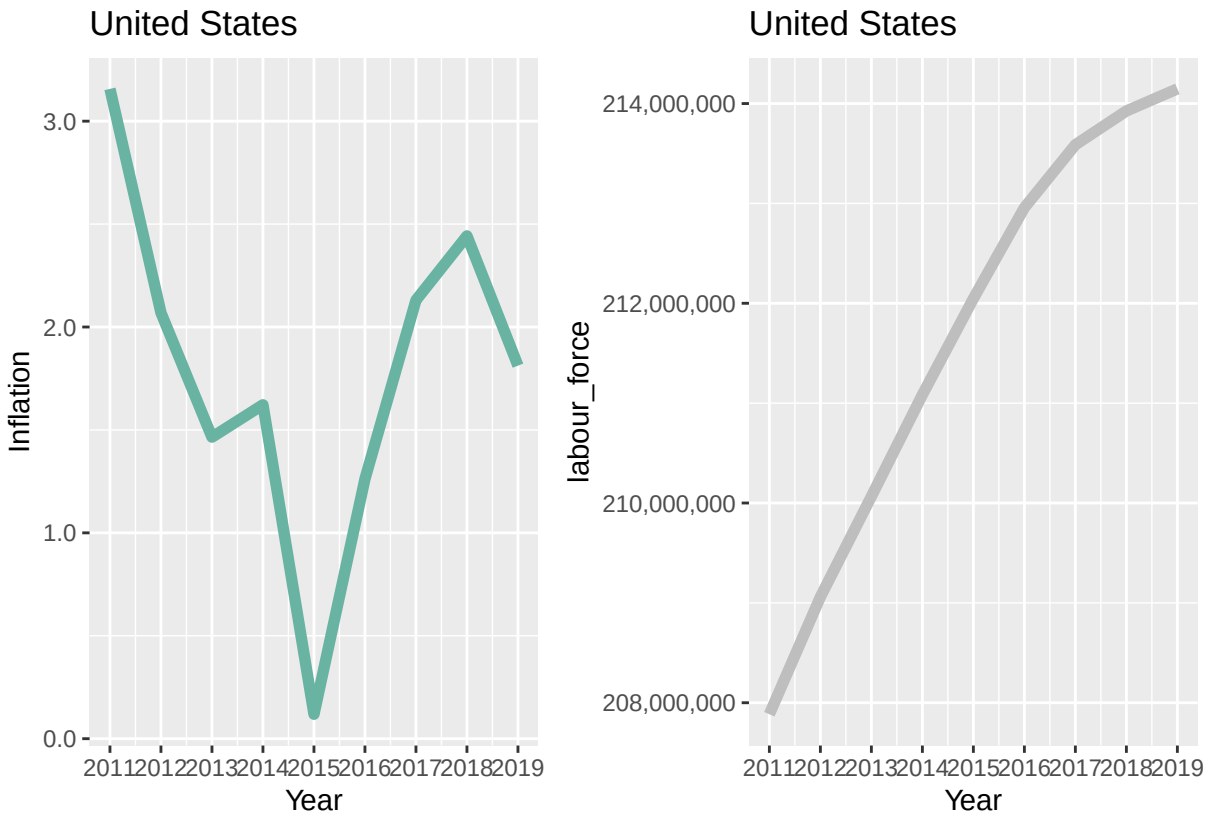


Figure 2: Inflation vs Labour force

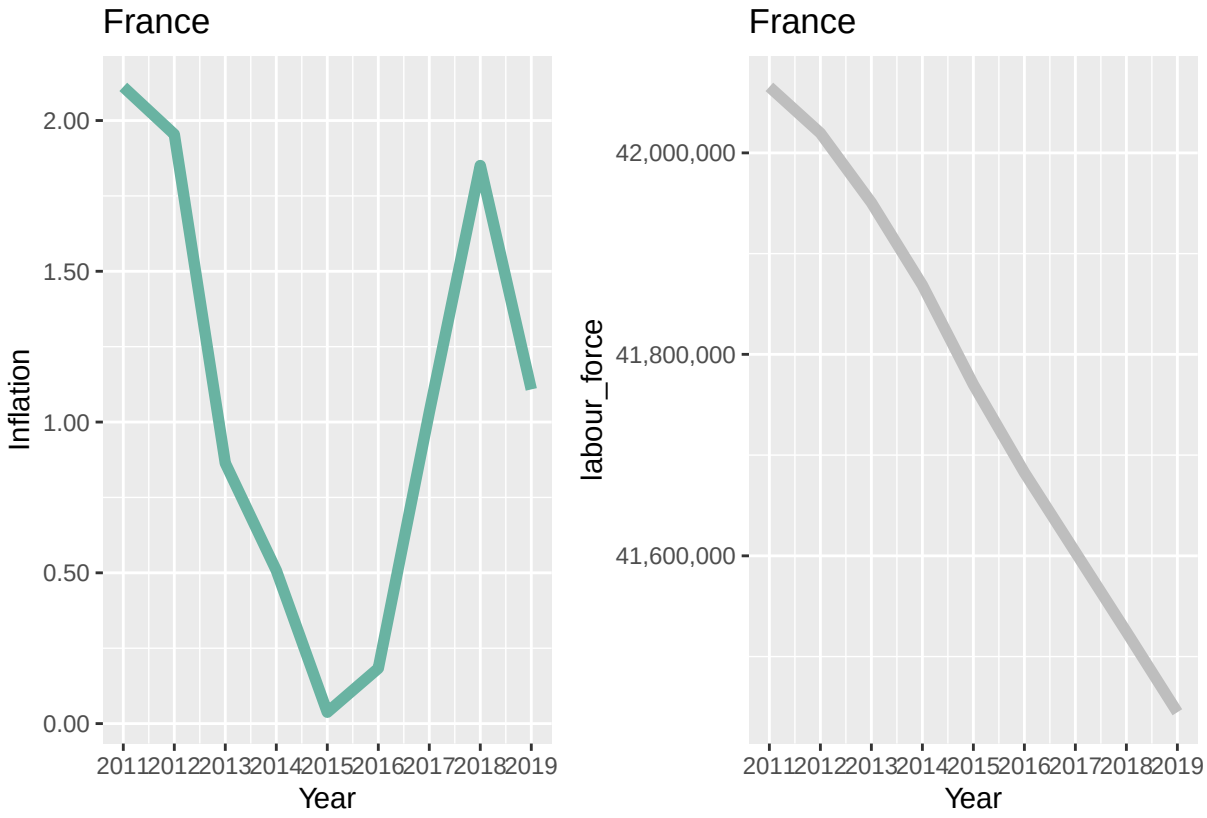
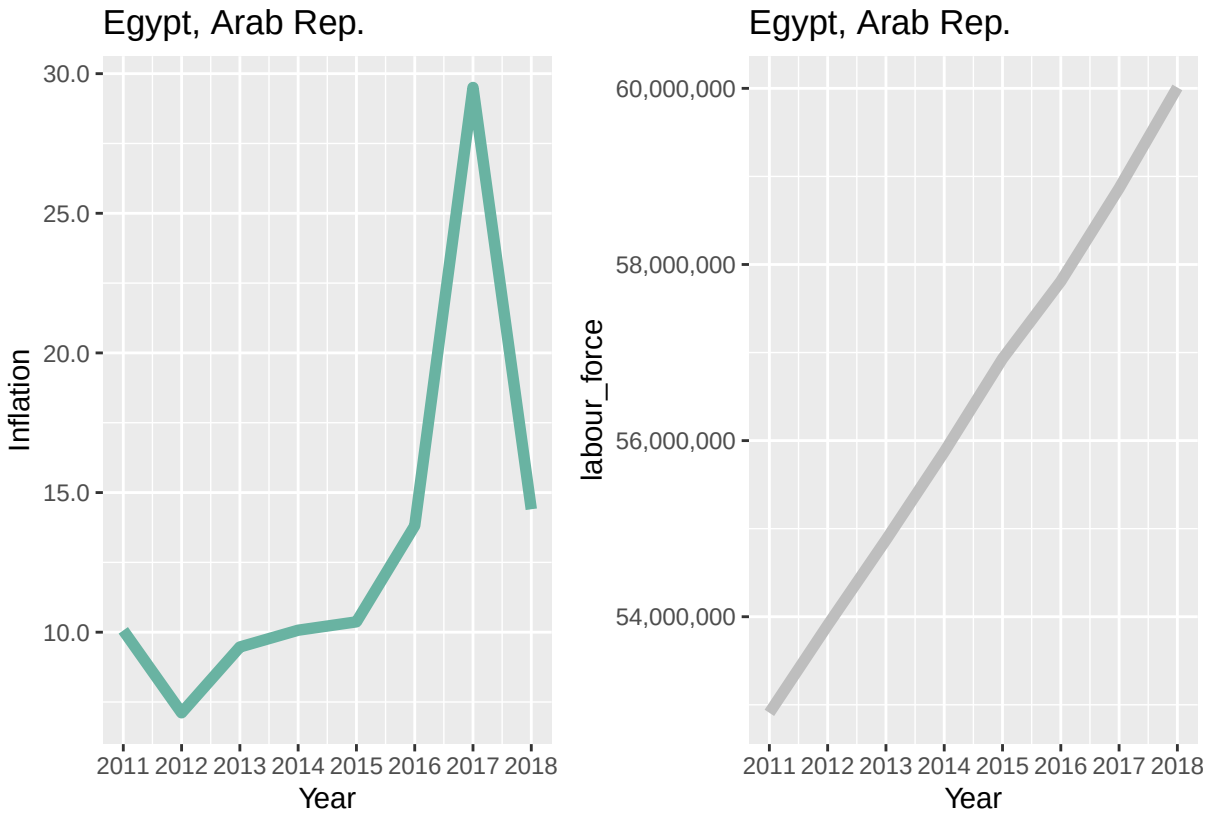


Figure 3: Inflation vs Labour force

```
##
## [[4]]
```



According to Figure@ref(fig:A1), developed countries such as United States and France both have the lowest inflation rate in 2015. This is because in 2015, the crude oil price collapsed. (https://blogs.worldbank.org/developmenttalk/what-triggered-oil-price-plunge-2014-2016-and-why-it-failed-deliver-economic-impetus-eight-charts), and the global economy has not recovered from the GFC yet. ((https://www.reuters.com/article/us-usa-economy-inflation-idUSKCN0UY1LH)).

Moreover, low inflation rate does not mean the currency is more valuable. On the contrary, it signals demand for goods and services is lower than expected and will then result in recession and the an increase in unemployment. (https://www.weforum.org/agenda/2019/06/inflation-is-healthy-for-the-economy-but-too-much-can-trigger-a-recession-7d37501704)

Additionally, developed countries usually have more stable inflation rate than developing countries. This is to keep the economy and the currency stable.

```
library(kableExtra)
t1 <- analysis %>%
  select(`Country Name`,Year,Inflation,labour_force) %>%
  filter(Year == "2015") %>%
   knitr::kable(
    caption = "Inflation and the labour force in 2015"
  ) %>%
  kable_styling(c("hover", "striped"))

t1
```

Table 1: Inflation and the labour force in 2015

Country Name	Year	Inflation	labour_force
Colombia	2015	4.9902343	32207438
United States	2015	0.1186271	212046898
France	2015	0.0375144	41770007
Egypt, Arab Rep.	2015	10.3704903	56930104

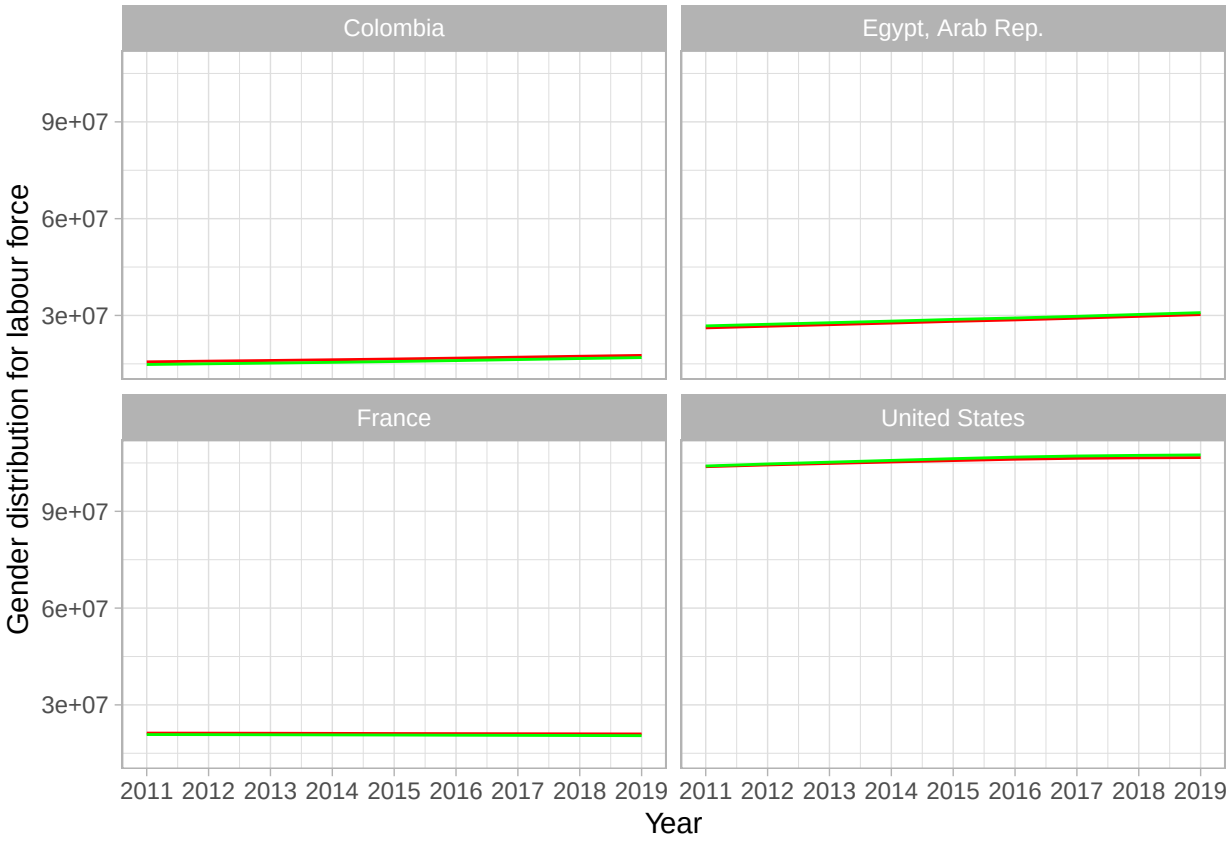
Table @ref(tab:A2) shows the 2015 inflation rate.

0.2 Gender distribution for labour force

Moreover, the labour force in each country is increasing but decreasing in France. We will take a deeper look in the employment and unemployment in the following sections and try to conclude why the labour force for France is decreasing.

Let's also look at the gender distribution in the labour force.

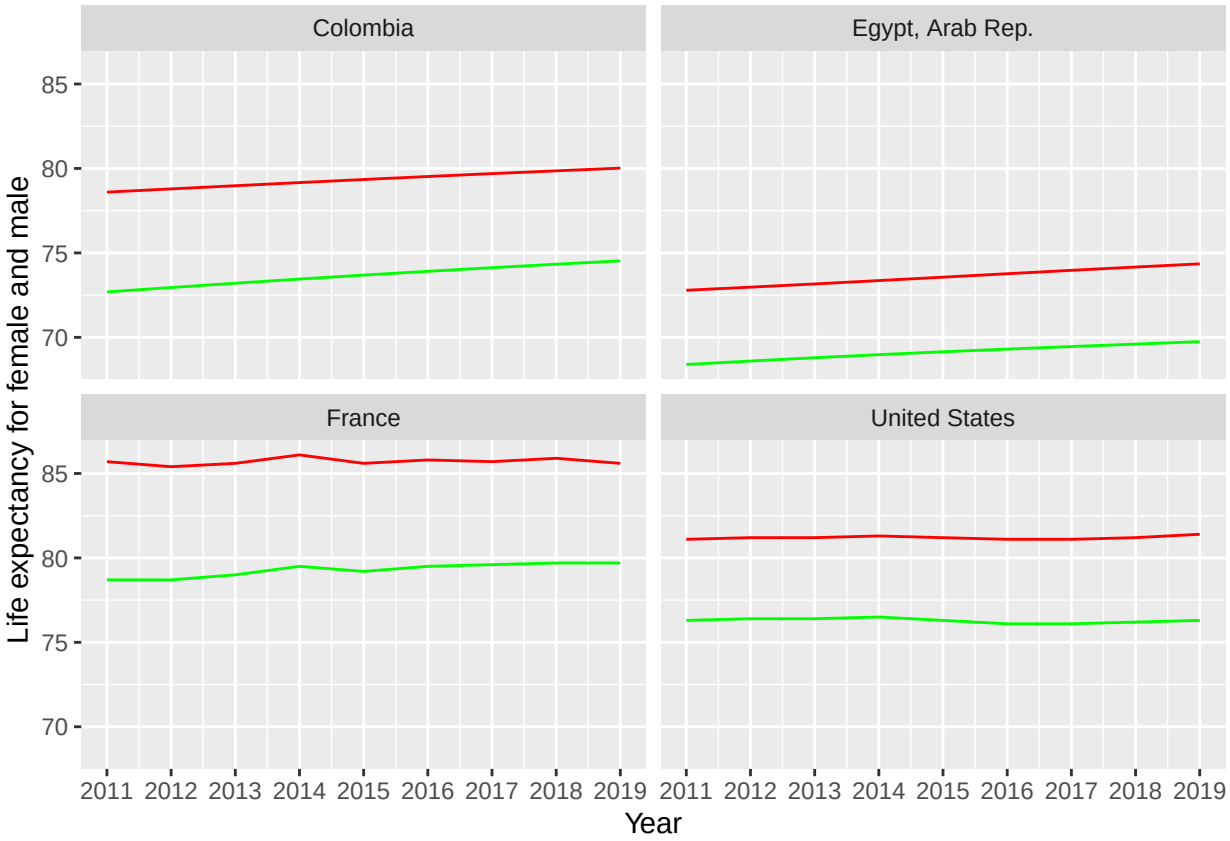
```
analysis %>%
  ggplot(aes(x = Year))+
  geom_line(aes(y = Population_ages_15_64_female), color = "red")+
  geom_line(aes(y = Population_ages_15_64_male), color = "green")+
  ylab("Gender distribution for labour force")+
  scale_x_continuous(breaks = c(2011:2019))+
  theme_light()+
  facet_wrap(~`Country Name`)
```



Figure@ref(fig:A3) shows the lines for female labour force and the male labour force are almost overlapped with each other, meaning the gender distribution for labour force is fairly equal in these countries.

0.3 Life expectancy for female and male at birth

```
analysis %>%
  ggplot(aes(x = Year))+
  geom_line(aes(y = Life_expectancy_at_birth_female), color = "red")+
  geom_line(aes(y = Life_expectancy_at_birth_male), color = "green")+
  ylab("Life expectancy for female and male")+
  scale_x_continuous(breaks = c(2011:2019))+
  facet_wrap(~`Country Name`)
```



Figure@ref(fig:A4) shows the life expectancy for female is obviously higher than male. More interestingly, US and France are having a stable life expectancy from 2011 til 2019, while in Egypt and Colombia, the life expectancy for both genders is increasing.

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#2 Nelson

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#3 Ratul