Lesson-7—30.05.2023.R

bramu

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```r
rm(list = ls())

library(here)
```

```
## here() starts at C:/Users/bramu/OneDrive/Dokumente/Data-visualisation-with-R
```

```r
library(dplyr)
```

```
##
## Attache Paket: 'dplyr'
```

```
## Die folgenden Objekte sind maskiert von 'package:stats':
##
##     filter, lag
```

```
## Die folgenden Objekte sind maskiert von 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
library(tidyr)
library(ggplot2)
library(rdbnomics)
```

```
## Visit <https://db.nomics.world>.
```

```r
source(here("Lesson 7 - 30.05.2023/functions.r"))

country_code <- c("D_W", "DEU", "FRA", "ITA", "NLD", "ESP", "USA")

countries <- paste0("AMECO/OVGD/", country_code, ".1.1.0.0.OVGD")

df_rgdp <- rdb(ids = countries) %>%
  filter_function() %>%
  germany_function()

df_unemp <- readRDS(here("Lesson 6. - 23.05.2023/df_final.rds"))

df_final <- df_rgdp %>%
  inner_join(df_unemp, by = c("Country", "Year")) %>%
```

```r
  rename(rgdp = value.x,
         unemp = value.y) %>%
  relocate(Year, Country, rgdp, unemp) %>%
  group_by(Country) %>%
  mutate(dunemp = c(NA, diff(unemp)),
         rgdp_gr = round(c(NA, diff(rgdp))/lag(rgdp) * 100, digits = 2)) %>%
  drop_na()

cols <- c("Germany" = "blue",
          "Spain" = "red",
          "France" = "green",
          "United States" = "orange",
          "Italy" = "black",
          "Netherlands" = "purple")

p1 <- ggplot(df_final, aes(y = rgdp_gr,
                           x = Year,
                           group = Country,
                           color = Country)) +
  geom_line() +
  theme_bw() +
  scale_color_manual(values = cols) +
  theme(legend.position = "bottom") +
  labs(color = NULL,
       y = "Percent",
       title = paste0("Gross domestic product,", min(df_final$Year), "-", max(df_final$Year)),
       subtitle = "2015 reference levels (OVGD)",
       caption = "Source: AMECO data from dbnomics.") +
  theme(axis.text.x = element_text(angle = 45,
                                   hjust = 1)) +
  scale_x_continuous(breaks = seq(min(df_final$Year), max(df_final$Year), 5))

p1
```
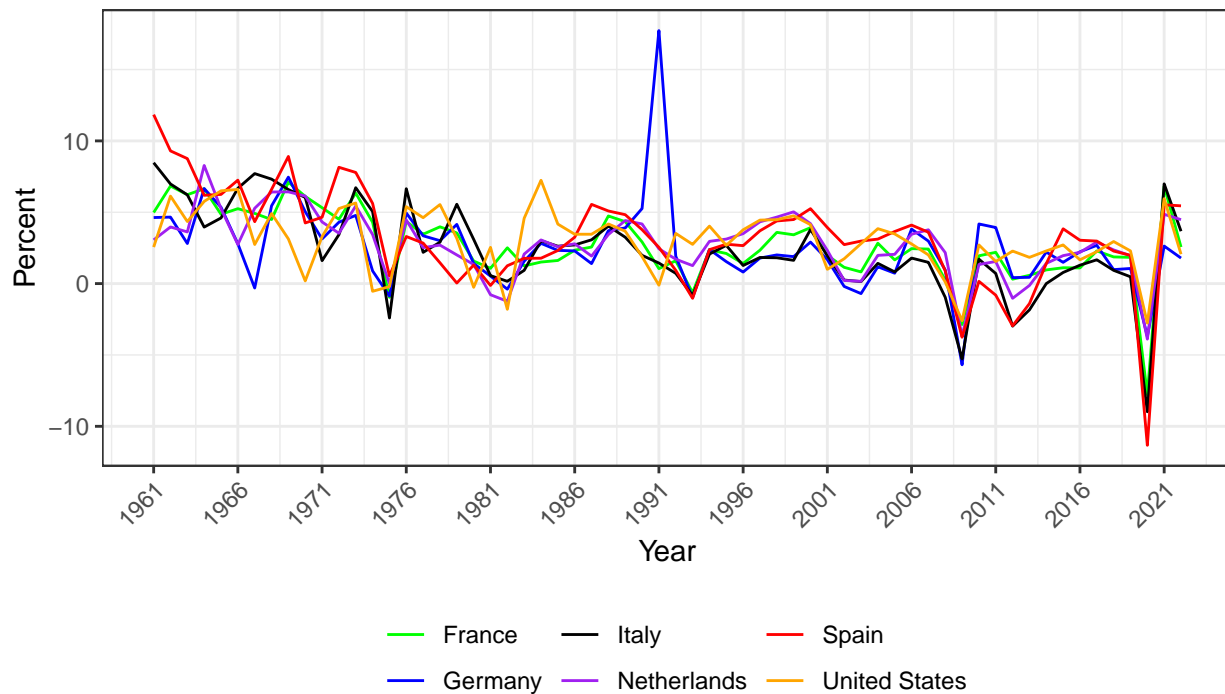
Gross domestic product,1961–2022
2015 reference levels (OVGD)

Source: AMECO data from dbnomics.

```r
df_final_modified <- df_final %>%
  filter(!(Year %in% c(1991, 2020:2022)))

# saveRDS(df_final_modified, file = "Lesson 7 - 30.05.2023/df_final_modified.rds")

p2 <- ggplot(df_final_modified, aes(x = rgdp_gr,
                                    y = dunemp,
                                    group = Country,
                                    color = Country)) +
  geom_point() +
  theme_bw() +
  geom_smooth(method = lm,
              se = FALSE,
              fullrange = TRUE) +
  scale_color_manual(values = cols) +
  theme(legend.position = "bottom") +
  labs(color = NULL,
       y = "Diff. unemployment rate, \n percentage points",
       x = "Growth rate real gdp, \n percent",
       title = paste0("Okun's law,", min(df_final_modified$Year), "-", max(df_final_modified$Year)),
       caption = "Source: AMECO data from dbnomics.")

p2

## 'geom_smooth()' using formula = 'y ~ x'
```
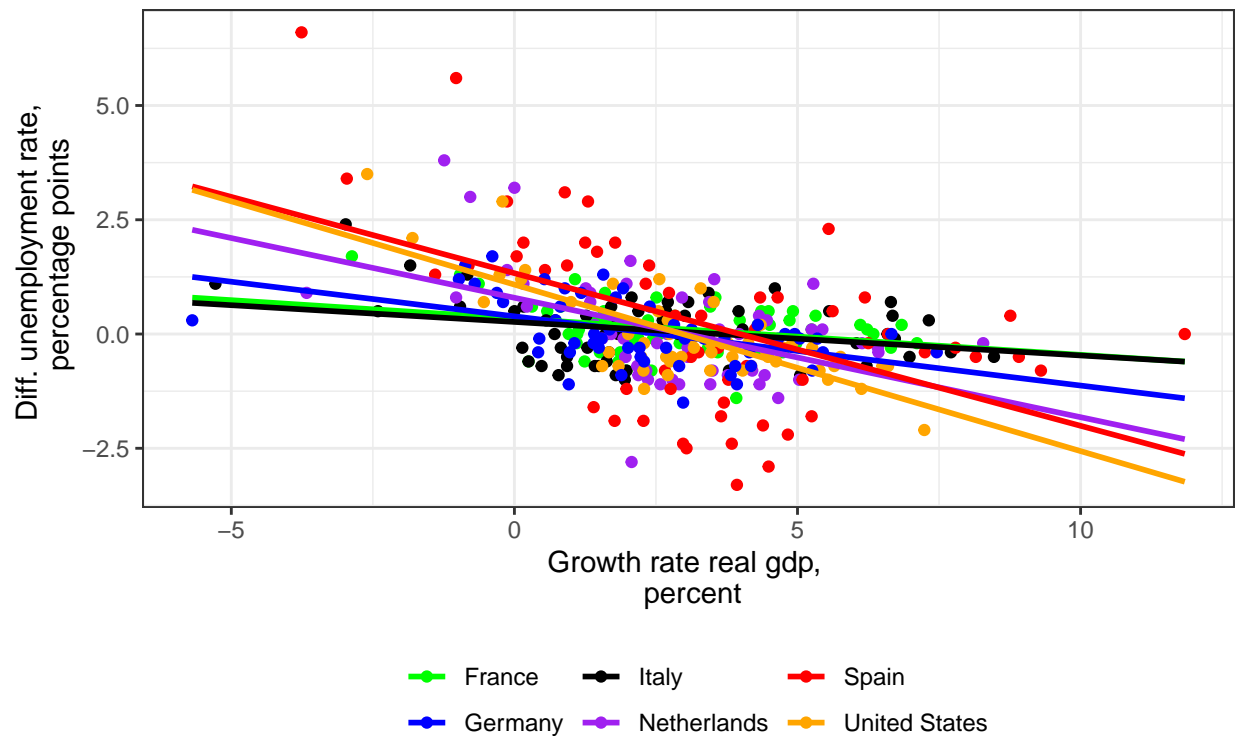
Okun's law,1961–2019

```r
p3 <- ggplot(df_final_modified, aes(x = rgdp_gr,
                                    y = dunemp,
                                    group = Country,
                                    color = Country)) +
  geom_point() +
  theme_bw() +
  geom_smooth(method = lm,
              se = FALSE,
              fullrange = TRUE) +
  scale_color_manual(values = cols) +
  facet_wrap(~Country,
             nrow = 2,
             scales = "free") +
  theme(legend.position = "bottom",
        strip.background = element_blank()) +
  labs(color = NULL,
       y = "Diff. unemployment rate, \n percentage points",
       x = "Growth rate real gdp, \n percent",
       title = paste0("Okun's law,", min(df_final_modified$Year), "-", max(df_final_modified$Year)),
       caption = "Source: AMECO data from dbnomics.")

p3
```
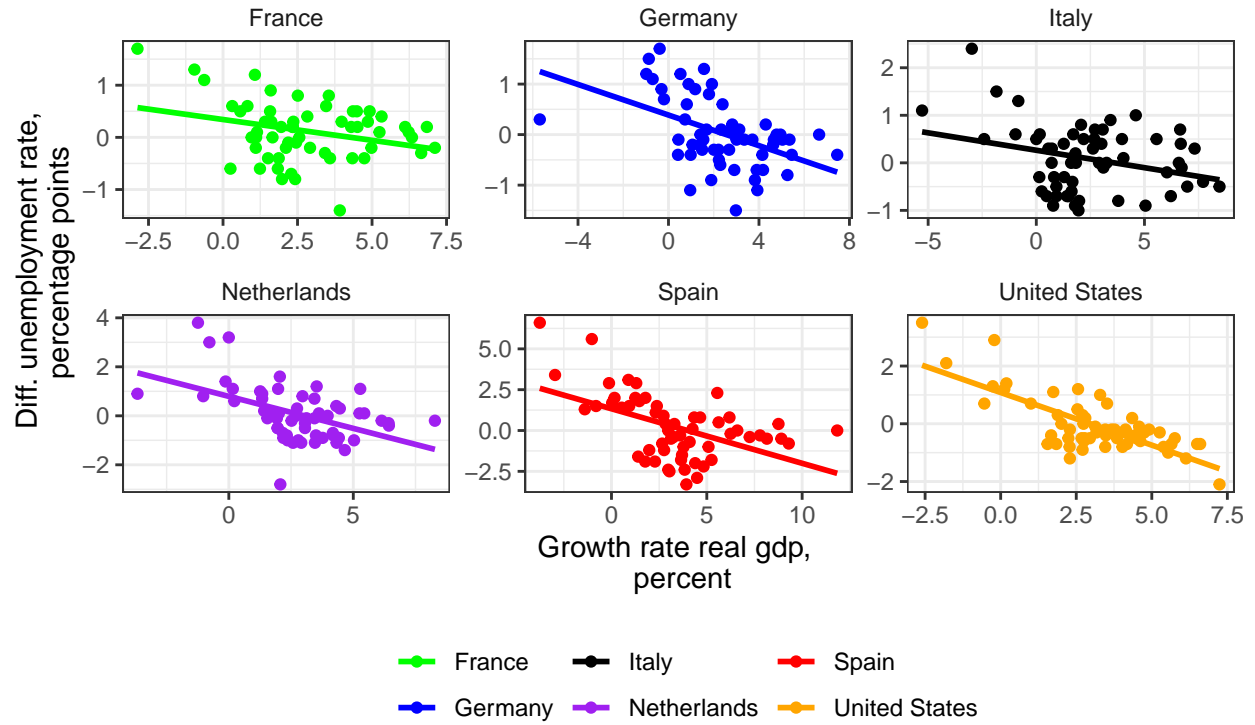
```
## `geom_smooth()` using formula = 'y ~ x'
```

Okun's law,1961−2019

Source: AMECO data from dbnomics.