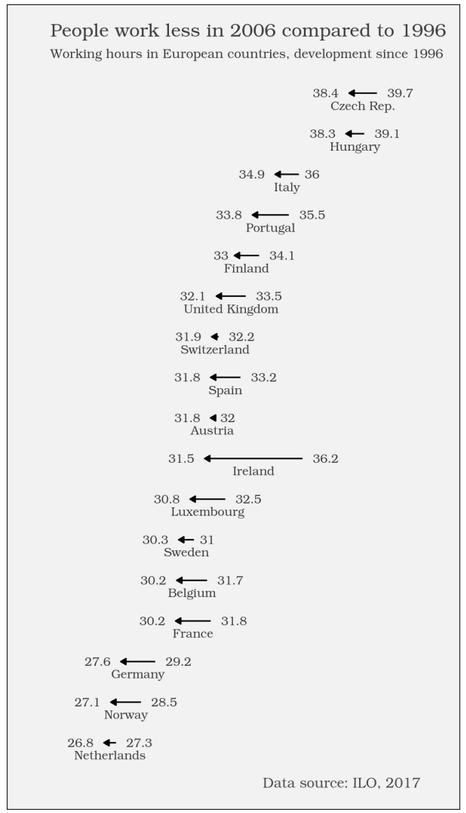
COMMUNICATING WITH DATA IN THE TIDYVERSE

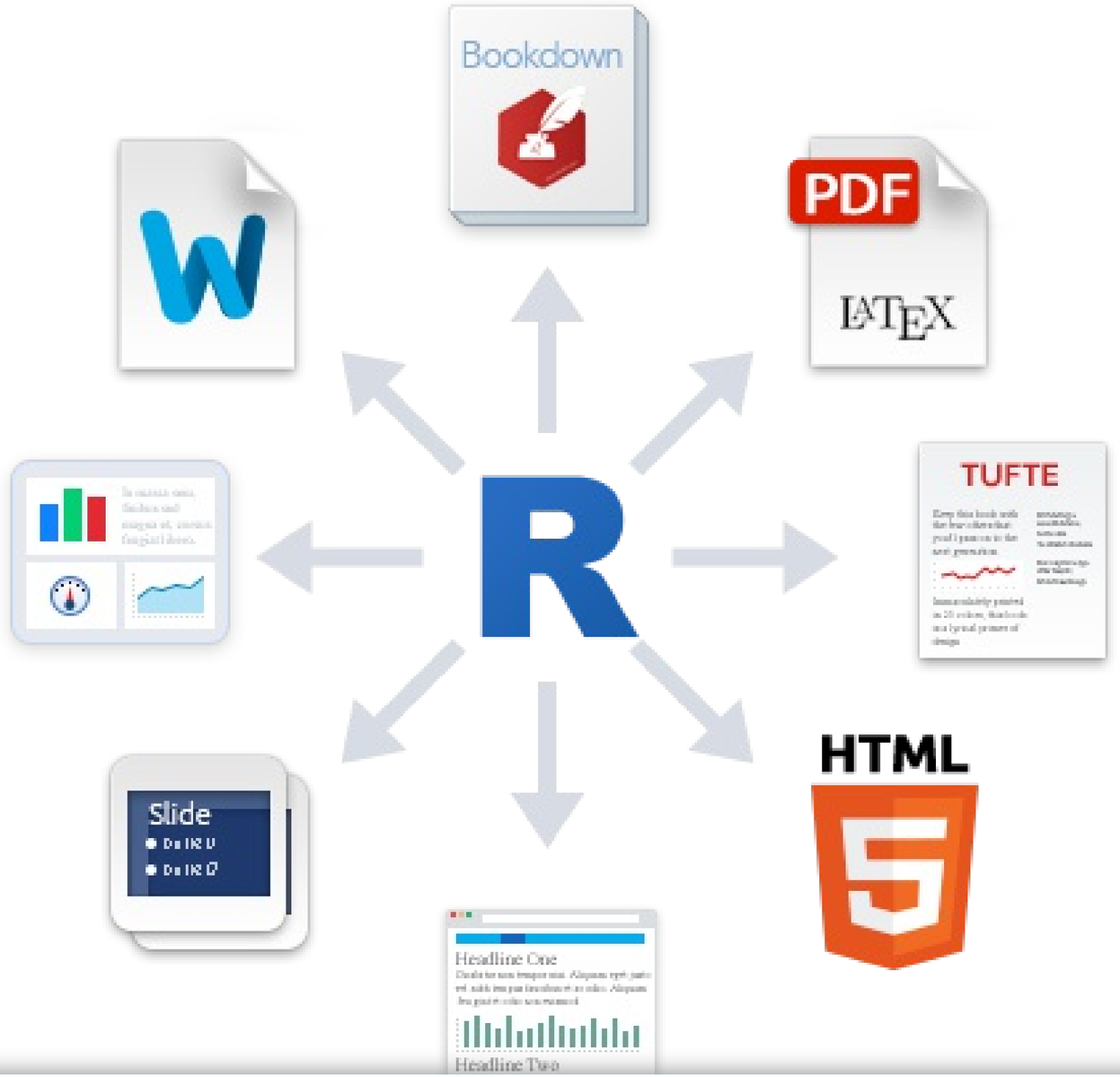
What is RMarkdown?

Timo Grossenbacher
Data Journalist

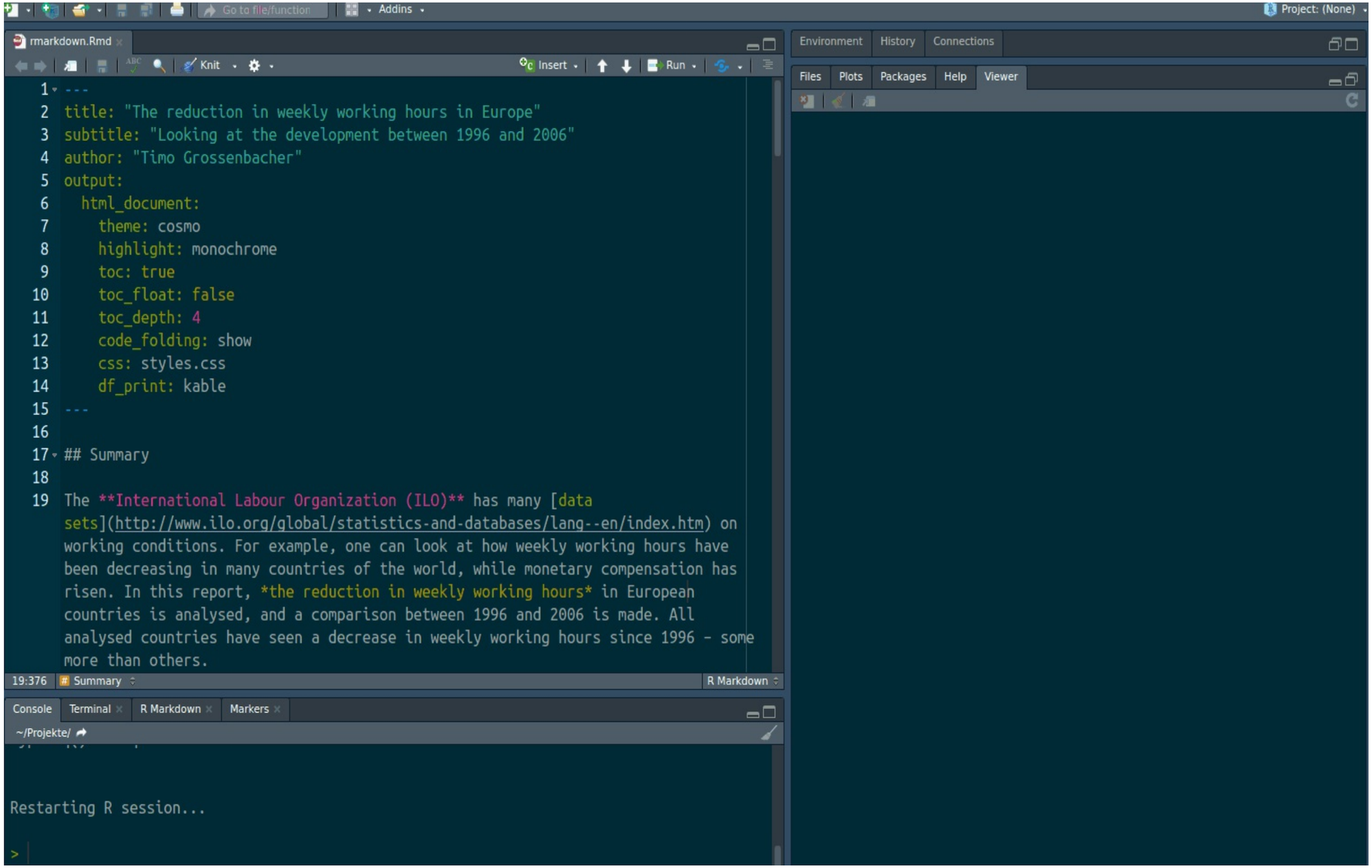
What you have done so far



- ...loaded the necessary libraries
- ...preprocessed the data with mutate() and filter()
- ...defined a custom theme
- ...created a dot plot
- ...polished that plot and made it fit for mobile screens



[1] Taken from rmarkdown.rstudio.com (http://rmarkdown.rstudio.com/images/RMarkdownOutputFormats.png)


Go to file/function
Addins
Project: (None)
rmarkdown.Rmd
Knit
Insert
Run
Environment
History
Connections
Files
Plots
Packages
Help
Viewer
1 ---
2 title: "The reduction in weekly working hours in Europe"
3 subtitle: "Looking at the development between 1996 and 2006"
4 author: "Timo Grossenbacher"
5 output:
6 html_document:
7 theme: cosmo
8 highlight: monochrome
9 toc: true
10 toc_float: false
11 toc_depth: 4
12 code_folding: show
13 css: styles.css
14 df_print: kable
15 ---
16
17 ## Summary
18
19 The **International Labour Organization (ILO)** has many [data sets](http://www.ilo.org/global/statistics-and-databases/lang--en/index.htm) on working conditions. For example, one can look at how weekly working hours have been decreasing in many countries of the world, while monetary compensation has risen. In this report, *the reduction in weekly working hours* in European countries is analysed, and a comparison between 1996 and 2006 is made. All analysed countries have seen a decrease in weekly working hours since 1996 - some more than others.
19:376
Summary
R Markdown
Console
Terminal
R Markdown
Markers
~/Projekte/
Restarting R session...
>

Behind the scenes

[1] R for Data Science (http://r4ds.had.co.nz/r-markdown.html)

Reproducibility

Advantages

- others can reproduce and question your work
- you can automate your workflow

Prerequisites

- the code needs to be executable
- the data needs to be provided or at least linked to
- (the software environment needs to be known)

COMMUNICATING WITH DATA IN THE TIDYVERSE

Let's practice!

COMMUNICATING WITH DATA IN THE TIDYVERSE

Formatting with Markdown

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Markdown

Markdown was created in 2004 by John Gruber, with the goal of of enabling people "to write using an easy-to-read, easy-to-write **plain text format**, then convert it to **structurally valid HTML**".

[1] Daringfireball.net (https://web.archive.org/web/20040402182332/http://daringfireball.net/projects/markdown/)

Markdown

```
# A short text

## Introduction

Hello, *my name* is
**Timo Grossenbacher** and I
work at
[SRF Data](https://srf.ch/data).
```

```
<h1>A short text</h1>

<h2>Introduction</h2>

Hello, <em>my name</em> is
<strong>Timo Grossenbacher</strong>
and I work at
<a href = "https://srf.ch/data">
SRF Data</a>.
```

A SHORT TEXT

INTRODUCTION

Hello, *my name* is **Timo Grossenbacher** and I work at SRF Data.

Pandoc Markdown

RMarkdown = **Markdown prose** + R code

For all formatting options see the Pandoc Markdown Reference

COMMUNICATING WITH DATA IN THE TIDYVERSE

Let's put this into practice!

COMMUNICATING WITH DATA IN THE TIDYVERSE

R code in RMarkdown documents

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Analysis

Data

The herein used data can be found in the statistics database of the ILO. For the purpose of this course, it has been slightly preprocessed.

```
load(url("http://s3.amazonaws.com/assets.datacamp.com/production/course_5807/datasets/ilo_data.RData"))
```

```
# Some summary statistics
ilo_data %>%
  group_by(year) %>%
  summarize(mean_hourly_compensation = mean(hourly_compensation),
            mean_working_hours = mean(working_hours))
```

```
## # A tibble: 27 x 3
##      year mean_hourly_compensation mean_working_hours
##    <fctr>                    <dbl>              <dbl>
##  1   1980                 9.267500           33.98103
##  2   1981                 8.692500           33.61923
##  3   1982                 8.355000           33.47409
##  4   1983                 7.809091           33.86589
##  5   1984                 7.543636           33.71051
##  6   1985                 7.786364           33.73358
##  7   1986                 9.700000           33.97494
##  8   1987                12.146923           33.58138
##  9   1988                13.199231           33.66441
## 10   1989                13.136154           33.53312
## # ... with 17 more rows
```

As can be seen from the above table, the average weekly working hours of European countries have been descreasing since 1980.

Adding R chunks

````
```{r}
x <- 2 + 2
x
```
````

```
4
```

```
2 plus 2 equals `r 2 + 2`.
```

2 plus 2 equals 4.

The knitr package

[1] R for Data Science (http://r4ds.had.co.nz/r-markdown.html)

R chunk options

````
```{r include=FALSE}
x <- 2 + 2
x
```
````

````
```{r}
x
```
````

4

More R chunk options

Option	Effect
include	Wether to show the R code chunk and its output.
echo	Whether to show the R code chunk.
message	Whether to show output messages.
warning	Whether to show output warnings.
eval	Whether to actually evaluate the R code chunk.

More options on the respective help page of the knitr package.

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Let's try this out!

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Images in RMarkdown files

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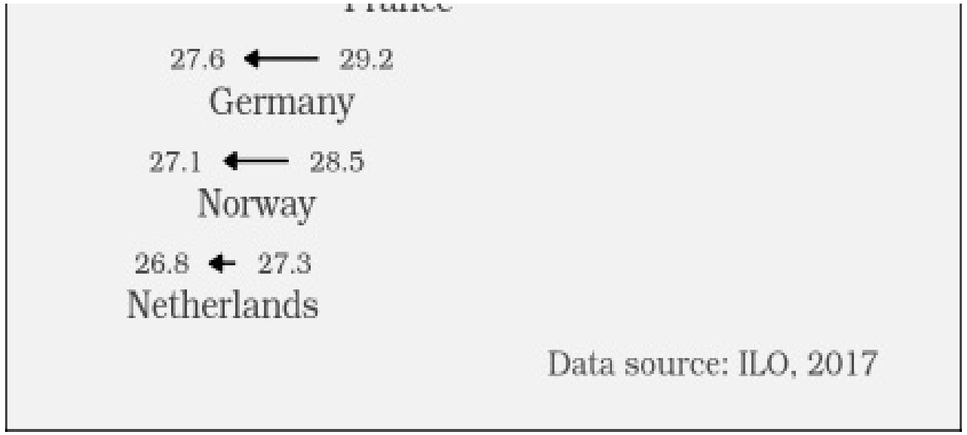
```
European countries have been descreasing since

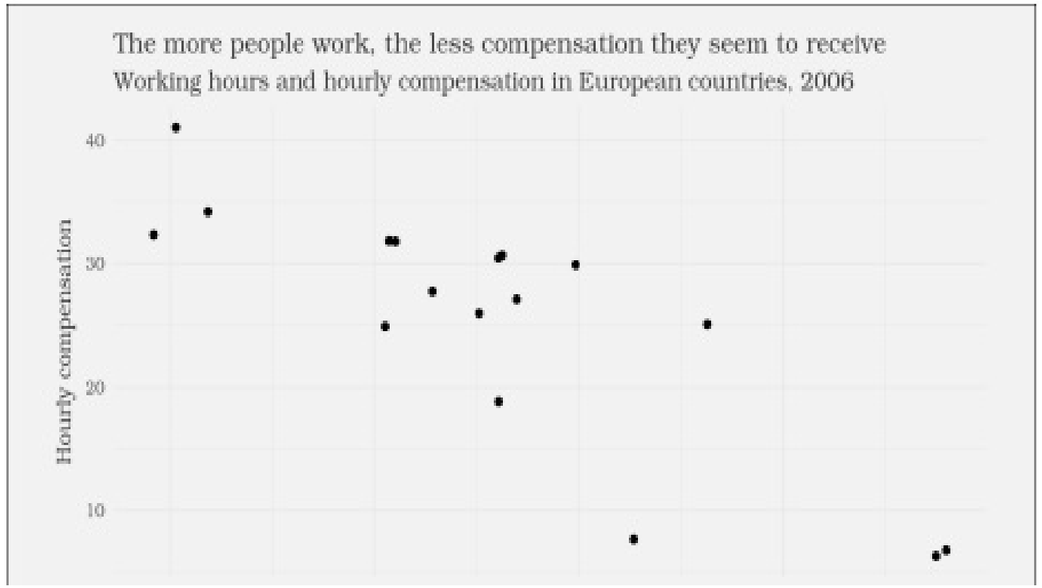

good time range for comparison.
```

R Markdown



An interesting correlation

The results of another analysis are shown here, even though they cannot be reproduced with the data at hand.

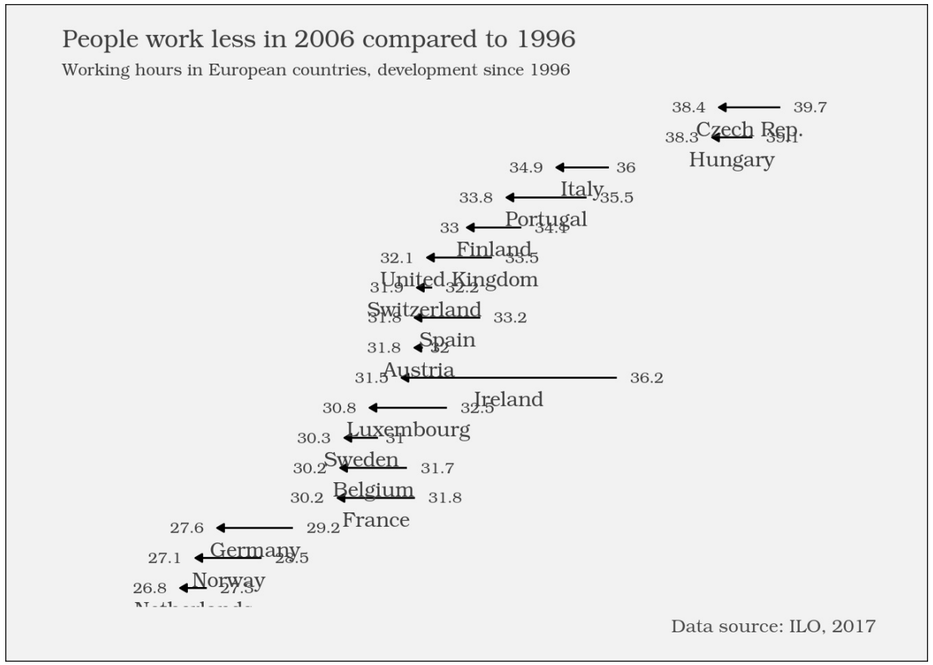


Adjusting figure options in RMarkdown

```
```{r}

... ggplot2 code ...

```
```



Adjusting figure options in RMarkdown

````
```{r fig.height = 6}

... ggplot2 code ...

```
````

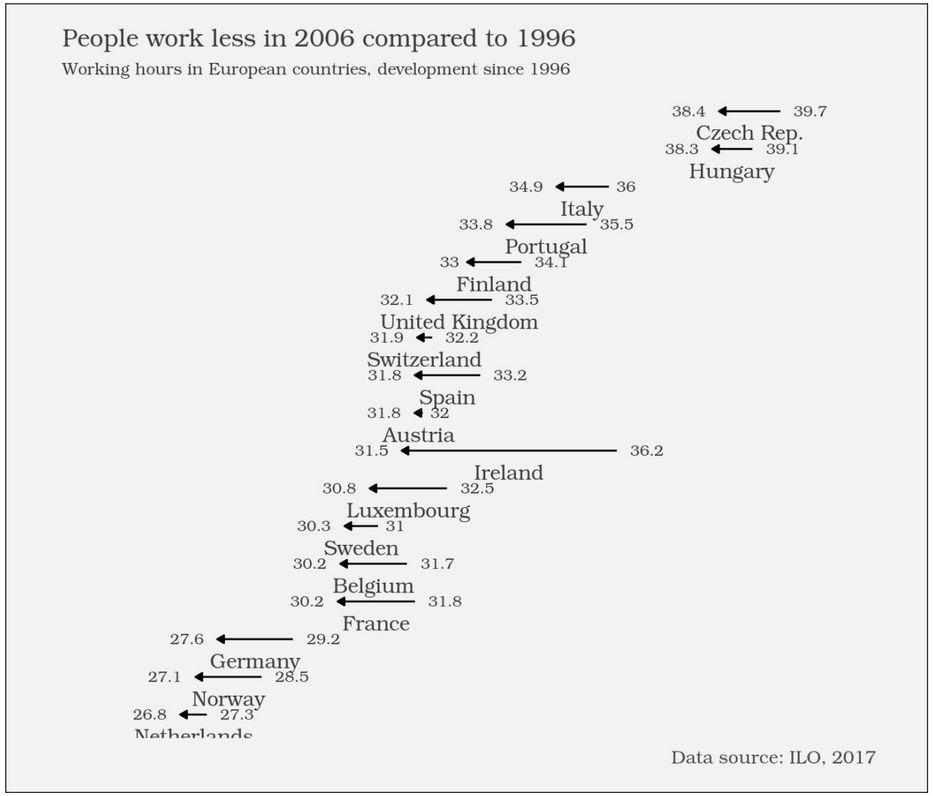


Figure options

Option	Possible values	Effect
fig.height	Numeric, inches	The height of the image in inches.
fig.width	Numeric, inches	The width of the image in inches.
fig.align	One of "left", "right" or "center"	The alignment of the image in the report.

More options on the respective help page of the knitr package.

External images in RMarkdown reports

```
 ![An impressive mountain](https://upload.wikimedia.org/wikipedia/commons/thumb/6/
Matterhorn_from_Domh%C3%BCtte_-_2.jpg/1200px-Matterhorn_from_Domh%C3%BCtte_-_2.jp
```

An impressive mountain

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Let's practice!