R Markdown

Notes for editing

Massimiliano Porto[*]

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Abstract

This is the abstract.
Keywords: a, b

Contents

1 Setting-up

Before starting writing our document let's customize YAML header.

When opening R Markdown you see a YAML header similar to the following:

```
---
title: "Untitled"
author: "Massimiliano Porto"
```

[*]Kobe University

```
date: "25 maggio 2017"
output: pdf_document
---
```

So we have four components of basic YAML header:

- **title**: you can choose the title when you open R Markdown. However, it is always possible to change it;
- **author**: the author's name;
- **date**: the date when you opened the R Markdown document;
- **output**: the format of output that you choose when opening R Markdown. However, you can always change later. For example, if you change mind and want to render your document in html you can write html_document instead of pdf_document.

Now we have a look at other components of YAML header that we can add.[1]

Let's see how we set up the YAML for this document.

```
---
title: "R Markdown"
subtitle: "Notes for editing"
author: "Massimiliano Porto^[Kobe University]"
date: '05 12, 2017'
output:
  pdf_document:
    toc: true
    toc_depth: 2
    number_sections: true
    fig_caption: true
    citation_package: natbib
abstract: |
    This is the abstract.

    **Keywords:** a, b

bibliography: library.bib
biblio-style: apa
fontsize: 12pt
---
```

- **date**: we choose another format for the date. More important, we want that the document will report automatically the date when we finally knit to pdf without the need of changing it manually. For this purpose we set up the following function

```
'`r format(Sys.time(), "%d %m, %Y")`'
```

[1] for more details read R Markdown from RStudio(http://rmarkdown.rstudio.com/pdf_document_format.html#figure_options)

- Note that:
  - `%d` stands for day;
  - `%m` stands for numeric month, `%b` stands for alphabetic (abbreviated) month while `%B` stands for alphabetic (full) month;
  - `%Y` stands for 4 digit year while `%y` for 2 digit year;
- **subtitle**: we can add here a subtitle;
- **author**: we can add affiliation as shown;
- **table of contents**: in order to add a table of contents, we set up
  - **toc: true** that basically add a default table of contents;
  - **toc_depth: 2** that is an option that let us control the depth of headers we want to show in our table of contents. In this case we chose only 2 (the default option is 3);
  - **number_sections: true** is the option to number the headers
- **figure**: there are a number of options concerning the figures
  - **fig_caption: true** make sure that whatever images are included in the document are treated as figures in which our caption in brackets in a Markdown call is treated as the caption in the figure (default option if false). We can add other options such as
  - **fig_with** and **fig_height** to control the default figure width and height (we didn't add this option because we kept 6 x 4.5 default option)
- **citation_package: natbib** is a package to process citations;
- **abstract**: here we write the abstract. Note that the defauls template doesn't render keywords. As consequence, we render keywords as displayed. However, you can install a number of templates with the **rticles package** as follows `install.packages("rticles")`. The templates will be available on the first window after opening R Markdown;
- **fontsize: 12pt** controls for the font size (e.g. 10pt, 11pt, 12pt)
- **bibliography: library.bib** to set up the bibliography. However, there are also other options. To manage bibligraphy it's better to install a reference manager program such as **Mendeley**, **BibDesk** (for Mac) ecc. With these programs you can build your library and assign to each article, journal ecc. a **citation key** that will be read by R Markdown. The citations can be written as follows `[@krugman1980, pp. 951-952]` with output (Krugman, 1980, pp. 951-952), `[@krugman1980, pp. 951-952; @melitz2003, p. 1701]` [2] (we will see later how to set footnotes) or `@krugman1980` Krugman (1980) for in-text citation. If you add `-` before `@` you avoid to mention again the author `[-@krugman1980]` (1980).
  - It is possible to create a bibliography with `knitcitations`.[3] Install the package and upload the library `install.packages("knitcitations")` and `library("knitcitations")`;
  - With function `bib_metadata()` returns a citation's metadata.
  - The function `citet()` is used to cite as in-line text, while `citep()` is used to cite

[2] (Krugman, 1980, pp. 951-952; Melitz, 2003, p. 1701)

[3] for more details read R for Fledglings(https://www.uvm.edu/rsenr/vtcfwru/R/fledglings/08_Markdown.html)

parenthetically;
  - The function `write.bibtex()` let you create your own .bib file.
  - You can create easily the bibtex citation downloading them from Google Scholar through the cite button below a search result [Figure 1];
- **biblio-style: apa**: this option let you choose the style for citations and references. Here we chose *American Psychological Association 6th edition* style (apa). You can browse more style here Zotero Style Repository(https://www.zotero.org/styles)

Following an example with `knitcitations`:

```
library("knitcitations")
```

```
## Warning: package 'knitcitations' was built under R version 3.3.3
```

```
bib_metadata("Gravity chains: Estimating bilateral trade flows when parts and components
```

```
## [1] R. Baldwin and D. Taglioni. _Gravity Chains: Estimating
## Bilateral Trade Flows When Parts And Components Trade Is
## Important_. 2017. DOI: 10.3386/w16672. <URL:
## http://dx.doi.org/10.3386/w16672>.
```

```
citet("Gravity chains: Estimating bilateral trade flows when parts and components trade
```

```
## [1] "Baldwin and Taglioni (2017)"
```

```
citep("Gravity chains: Estimating bilateral trade flows when parts and components trade
```

```
## [1] "(Baldwin and Taglioni, 2017)"
```

```
write.bibtex(file="references.bib")
```

```
## Writing 1 Bibtex entries ...
```

```
## OK
## Results written to file 'references.bib'
```

```
# to check if the file exists
file.exists("references.bib")
```

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

After you set up your.bib file (in this case *references.bib*) you can open and check the **citation key** to make citations as showed earlier with `@citation_key`. We showed this as an alternative. However, as you will discover it is easier to manage citations through a reference manager program.

1.1 Another example

The folliwing is the YAML header used to edit *R for Beginners*.

```
---
title: "R for Beginners"
subtitle: "Draft II"
author: "Massimiliano Porto^[Kobe University]"
date: "October 26, 2017"
output:
  bookdown::pdf_book:
    template: null
    toc: true
    toc_depth: 4
    number_sections: true
    fig_caption: true
    citation_package: natbib
header-includes:
  - \setlength{\parindent}{2em}
  - \setlength{\parskip}{0em}
  - \usepackage{mathpazo}
fontsize: 12pt
documentclass: scrbook
---
```

2 Emphasis, link, images and ...

Objective	Syntax	Outcome
italics	`*italics*` or `_italics_`	*italics* or *italics*
bold	`**bold**` or `__bold__`	**bold** or **bold**
link	`[R](https://www.r-project.org/)`	R
footnotes	`^[Greene, 2007]` or `Greene, 2007^[The note here]`	[4] or Greene, 2007[5]
image	`![RStudio](asset/figures/markdown/markdown.png)`	

Moreover, we set block quote like this `>block quote`

> block quote

and we create a task list as follows:

```
- [x] Select article and submit your summary for approval
- [ ] Download the data
- [ ] Draft tables of empirical results produced
```

[4] Greene, 2007

[5] The note here

- [x] Select article and submit your summary for approval
- [ ] Download the data
- [ ] Draft tables of empirical results produced

3 Paragraph

You set the paragraph adding its title after `#`. Every `#` corresponds to a level of paragraph as in the example

```
# List

## Unordered list

### Example 1
```

4 List

4.1 Unordered list

4.1.1 Example 1

Here the input ...

```
- List 1
- List 2
    + List 2.1
    + List 2.2
```

... and this is the output

- List 1
- List 2
    - List 2.1
    - List 2.2

4.1.2 Example 2

```
* List 1
* List 2
    + List 2.1
    + List 2.2
```

- List 1

- List 2
  - List 2.1
  - List 2.2

4.2 Ordered list

```
1. List
2. List
    i) sublist
    ii) sublist
```

1. List
2. List
    i) sublist
    ii) sublist

5 Tables

5.1 Creating tables

Following we show how to create simple tables and their output.

```
Continent   Country    Capital
---------   -----      ------
Asia        Japan      Tokyo
Asia        China      Beijing
Europe      Italy      Rome
Europe      Germany    Berlin
```

Continent	Country	Capital
Asia	Japan	Tokyo
Asia	China	Beijing
Europe	Italy	Rome
Europe	Germany	Berlin

```
Continent |  Country  |  Capital
----------|-----------|----------
Asia      | Japan     | Tokyo
Asia      | China     | Beijing
Europe    | Italy     | Rome
Europe    | Germany   | Berlin
```

Continent	Country	Capital
Asia	Japan	Tokyo
Asia	China	Beijing
Europe	Italy	Rome
Europe	Germany	Berlin

```
---------------------------------
Continent   Country     Capital
(code)       (code)     (code)
--------    -------     ---------
AS            JPN       TYO

AS            CHN       BJ

EU            ITA       RM

EU            DEU       BER
---------------------------------
```

Continent (code)	Country (code)	Capital (code)
AS	JPN	TYO
AS	CHN	BJ
EU	ITA	RM
EU	DEU	BER

5.2 Creating tables with knitr::kable and kableExtra[6]

```
install.packages("kableExtra")
```

I create an Excel file with European Community - Japan bilateral trade in the Sixties.

```
library(knitr)
library(kableExtra)
library("readxl")
```

```
## Warning: package 'readxl' was built under R version 3.3.2
```

```
EU_Japan_trade_1960s <- read_excel("C:/Users/porto/Desktop/PhD_Research/PhD_Thesis_wip/T
```

[6]For details about the package Create Awesome HTML Table with knitr::kable and kableExtra(http://haozhu233.github.io/kableExtra/awesome_table_in_html.html)

```
kable(EU_Japan_trade_1960s, caption = "EC - Japan bilateral trade, 1960s, million US dol
    booktabs = T, format = "latex") %>% kable_styling(latex_options = "hold_position") %
    add_header_above(c("", `Exports to Japan[note]` = 4, `Imports from Japan[note]` = 4)
    add_indent(c(2:6)) %>% add_footnote(c("FOB values", "CIF values"), notation = "numbe
```

Table 5: EC - Japan bilateral trade, 1960s, million US dollar

	Exports to Japan[1]				Imports from Japan[2]			
	1960	1963	1965	1967	1960	1963	1965	1967
European Community	209.0	358.38	341.9	584.1	163.2	335.2	454.7	538.1
Belgium-Luxembourg	24.0	34.80	34.9	60.6	21.1	35.1	44.9	61.4
France	27.4	44.80	47.9	78.2	16.4	40.1	59.5	89.3
Germany	120.0	199.00	188.0	318.0	68.0	131.0	240.0	232.0
Italy	15.3	41.60	36.5	53.1	33.9	90.4	48.7	68.3
Netherlands	22.3	38.18	34.6	74.2	23.8	38.6	61.6	87.1
UK	85.1	147.50	148.2	241.2	120.6	152.2	218.7	251.0

[1] FOB values
[2] CIF values

This is the basics to create quality tables in LaTeX. For more options read the article in footnote.

REMARK: I could not find a way to add the source under the table using this package. The following solution to add the source is provided by Professor Kenji Sato.

```
add_source <- function(.kable, ...) {
    str <- add_footnote(.kable, ...)
    gsub("\\textsuperscript{a}", "Source:", str, fixed = TRUE)
}
```

```
kable(EU_Japan_trade_1960s, caption = "EC - Japan bilateral trade, 1960s, million US dol
    booktabs = T, format = "latex") %>% kable_styling(latex_options = "hold_position") %
    add_header_above(c("", `Exports to Japan[note]` = 4, `Imports from Japan[note]` = 4)
    add_indent(c(2:6)) %>% add_footnote(c("FOB values", "CIF values"), notation = "numbe
    add_source("IMF, Directorate of Trade Statistics, online database")
```

As you can see now I have the source under the table as I needed. If you want to replicate it, you need to copy and run the `add_source` function.

6 Slides with Beamer

You can create slides with Beamer (Fig. 1)

Table 6: EC - Japan bilateral trade, 1960s, million US dollar

	Exports to Japan[1]				Imports from Japan[2]			
	1960	1963	1965	1967	1960	1963	1965	1967
European Community	209.0	358.38	341.9	584.1	163.2	335.2	454.7	538.1
Belgium-Luxembourg	24.0	34.80	34.9	60.6	21.1	35.1	44.9	61.4
France	27.4	44.80	47.9	78.2	16.4	40.1	59.5	89.3
Germany	120.0	199.00	188.0	318.0	68.0	131.0	240.0	232.0
Italy	15.3	41.60	36.5	53.1	33.9	90.4	48.7	68.3
Netherlands	22.3	38.18	34.6	74.2	23.8	38.6	61.6	87.1
UK	85.1	147.50	148.2	241.2	120.6	152.2	218.7	251.0

[1] FOB values
[2] CIF values
Source: IMF, Directorate of Trade Statistics, online database

Basically you set up the header as in R Markdown. Following an example for Beamer

```
---
title: "Title"
subtitle: "Draft"
author: "Massimiliano Porto"
date: "October 06, 2017"
institute: "Kobe University"
department: "Faculty of Economics"
output:
  beamer_presentation:
    theme: "Boadilla"
    colortheme: "whale"
    fonttheme: "structurebold"
---
```

The main difference with R Markdown is the **beamer_presentation** options. You can find different themes here http://deic.uab.es/~iblanes/beamer_gallery/

You set up the title of slides as you set up paragraphs and divide pages by

```
-------------------
```

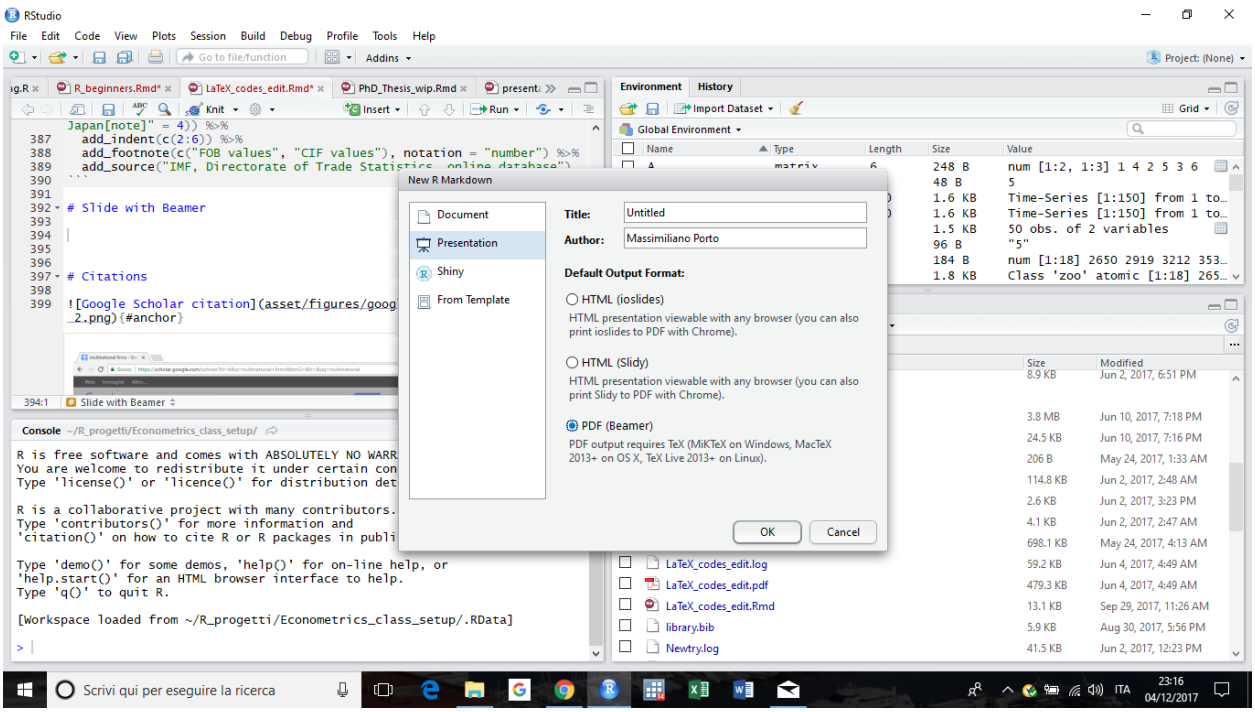

Figure 1: Slides with Beamer

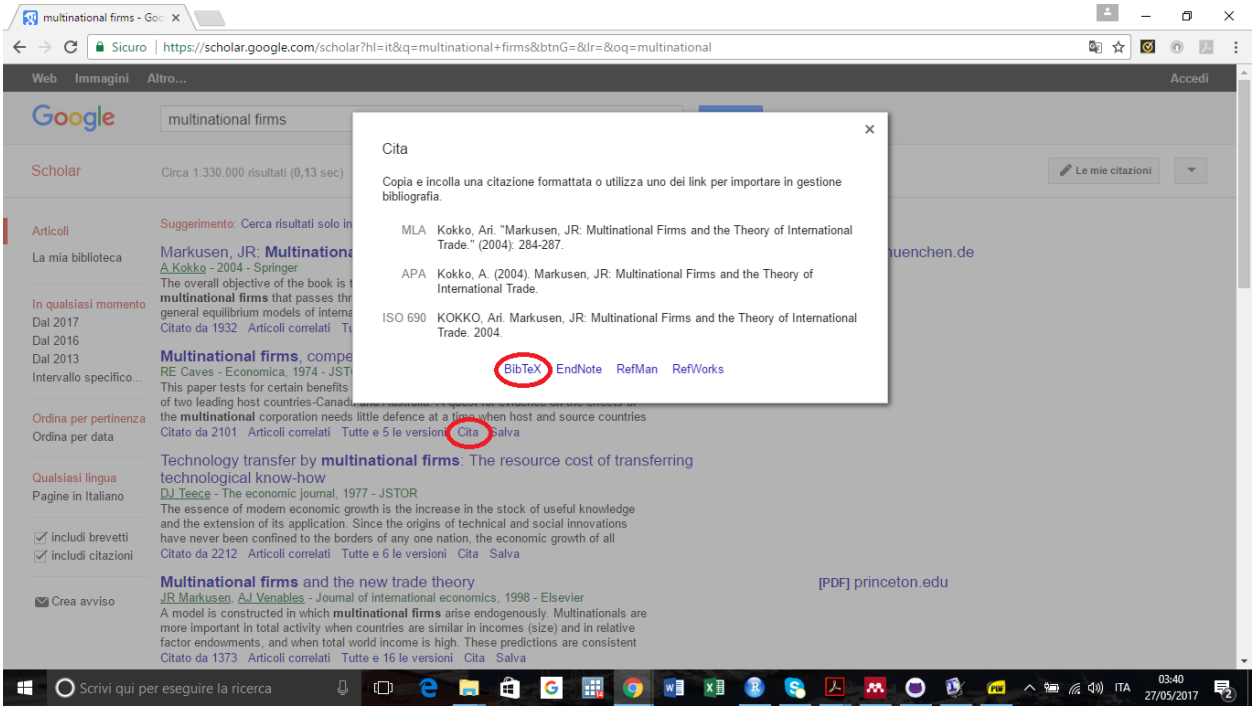

Figure 2: Google Scholar citation

7 Citations

References

Krugman, P. (1980). Scale Economies, Product Differentiation, and the Pattern of Trade. *The American Economic Review*, 70, No. 5:950 – 959.

Melitz, M. J. (2003). The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica*, 71, No. 6:1695–1725.