Exercises on the Internet for researchers and students to learn Stata

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Introduction

Goals

- One of the best way to learn to use a software is through examples and exercises.
- Previously, we could deliver an exercises notebook to our students. But nowadays, students work increasingly on the Internet.
- That is a good reason to use web pages to give them lessons and examples of using programs.
- Examples
  - Stata blog page: https://blog.stata.com/
  - UCLA IDRE: https://stats.idre.ucla.edu/stata/
- We can find another examples in
  - https://www.stata.com/links/resources-for-learning-stata/
- However, we can write our own web pages easily with a few new Stata commands.

Introduction

Outputs

- Background
  - Stata results could be saved using `log on` ASCII (UTF-8) format.
  - By default this command produces a special format called .smcl (Stata mark-up control language).
- Other output ways.
  - Since the 13th version of Stata, results could be sent to an Excel file through the command `putexcel`.
- New features
  - Since the 15th version of Stata, results could be sent to a .doc file (`putdocx`) and to a .pdf file (`putpdf`).
  - There is also another command that converts markdown files into .html files.

Markdown

Definition

Markdown is a plain text formatting syntax that can be converted into a .html format through the convenient program.

- The Stata command that converts a markdown syntax into a html file is `dyndoc`.

Markdown

Process

- Firstly, we have to write a text file with markdown syntax.
- The following step is running the `dyndoc` command.
  - `dyndoc` *markdownfilename* [*arguments*] [, *options*]
- This produces the file *markdownfilename*.html, although this name can be change with the **saving**(*htmlfilename*) option.
- Especially useful is the **replace** option, because it is seldom needed to repeat the conversion from the text to the html file.

Markdown

Main commands

The *markdownfile* can contain markdown codes. The most useful symbols are the following:

Command	Meaning
#	1st title
##	2nd title
###	3nd title
*	Bullet list
1.	Numbered list
word	Emphasis
word	Bold
[Link](URL "Text")	URL link
	Graph link

Markdown

Example

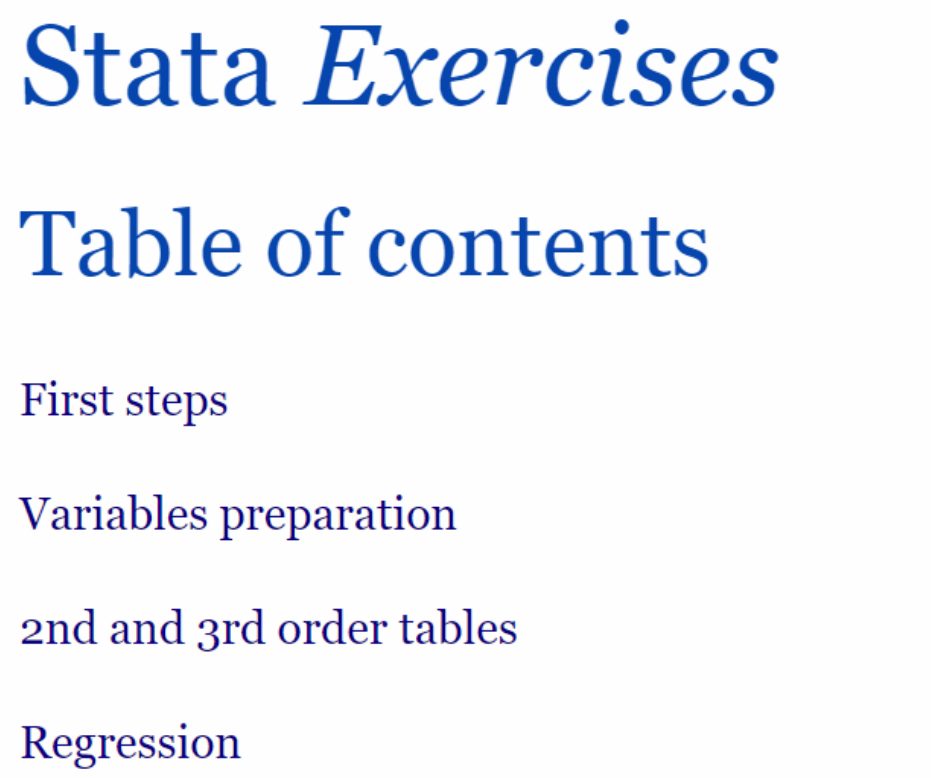
This is an example of the beginning of a markdown file. It may contain html markups:

```
<head>
<link rel="stylesheet" type="text/css" href="stmarkdown.css">
</head>

# Stata *Exercises*
## Table of contents
[First steps](Stata1.html "First steps with Stata")
[Variables preparation](Stata2.html "Preparation")
[2nd and 3rd order tables](Stata3.html "Tabulation")
[Regression](Stata4.html "Regression")
```

Markdown

Result



Using lists

An example of lists with 1., 2., and *.

```
## First steps
1. Explore Stata windows
    * Results
    * Commands
    * History
    * Variables
    * Property
    * Data
    * Help
2. First analysis
```

Markdown

Result of lists

First steps

1. Explore Stata windows
    - Results
    - Commands
    - History
    - Variables
    - Property
    - Data
    - Help
2. First analysis using tabulate tab1 and summarize commands.

Dynamic tags

Main tags

The *markdownfile* can also contain dynamic tags, which are instructions to perform certain actions such a block of Stata code.

Tag	Meaning	End
«dd_version»	Version of dynamic conversion	-
«dd_do»	**Execute a block of Stata code**	«/dd_do»
«dd_display»	Output of a Stata expression	-
«dd_graph»	**Export and include a Stata graph**	-
«dd_include»	Include a text file	-
«dd_ignore»	Ignore dynamic tags	«/dd_ignore»
«dd_remove»	Remove the following text	«/dd_remove»
«dd_skip_if»	Skip text based on condition	«dd_skip_end»

In addition we use ~~~~ to express that some text (Stata commands or outputs) should be written in plain format.

Dynamic markdown

False webuse and proper use of nhanes2

```
~~~~
webuse svy_tabopt, clear

«dd_do:quietly»
use nhanes2, clear
«/dd_do »
~~~~
```

```
. webuse svy_tabopt, clear
```

Executing dynamic commands

An example of tabulate and summary commands

```
~~~~
«dd_do»
tab1 race sex
«/dd_do»
~~~~

~~~~
«dd_do»
tabulate race sex
«/dd_do»
~~~~

~~~~
«dd_do»
summarize income weight height
«/dd_do»
~~~~
```

Example of Stata web page

Univariate tables

```
. tab1 race sex

-> tabulation of race

       Race |      Freq.     Percent        Cum.
------------+-----------------------------------
      White |      9,065       87.58       87.58
      Black |      1,086       10.49       98.07
      Other |        200        1.93      100.00
------------+-----------------------------------
      Total |     10,351      100.00

-> tabulation of sex

    1=male, |
   2=female |      Freq.     Percent        Cum.
------------+-----------------------------------
          1 |      4,915       47.48       47.48
          2 |      5,436       52.52      100.00
------------+-----------------------------------
      Total |     10,351      100.00
```

Example of Stata web page

Univariate tables

```
. tabulate race sex

           |   1=male, 2=female
      Race |         1          2 |     Total
-----------+----------------------+----------
     White |     4,312      4,753 |     9,065
     Black |       500        586 |     1,086
     Other |       103         97 |       200
-----------+----------------------+----------
     Total |     4,915      5,436 |    10,351
```

Example of Stata web page

Univariate tables

```
. summarize income weight height

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
      income |     10,351    47.57965    17.21483          20         74
      weight |     10,351    71.89752    15.35642       30.84     175.88
      height |     10,351    167.6509    9.655916       135.5        200
```

Example of Stata web page

Overview

Excercises to learn Stata (24/10/2018)

Beginning of the session:

1. Open the file auto from its web ubication. Look at the structure of a command: **command** space **file_name** [, **option**]

```
webuse svy_tabopt, clear
```

First steps

1. Explore Stata windows
   - Results
   - Commands
   - History
   - Variables
   - Property
   - Data
   - Help
2. First analysis using tabulate tab1 and summarize commands.

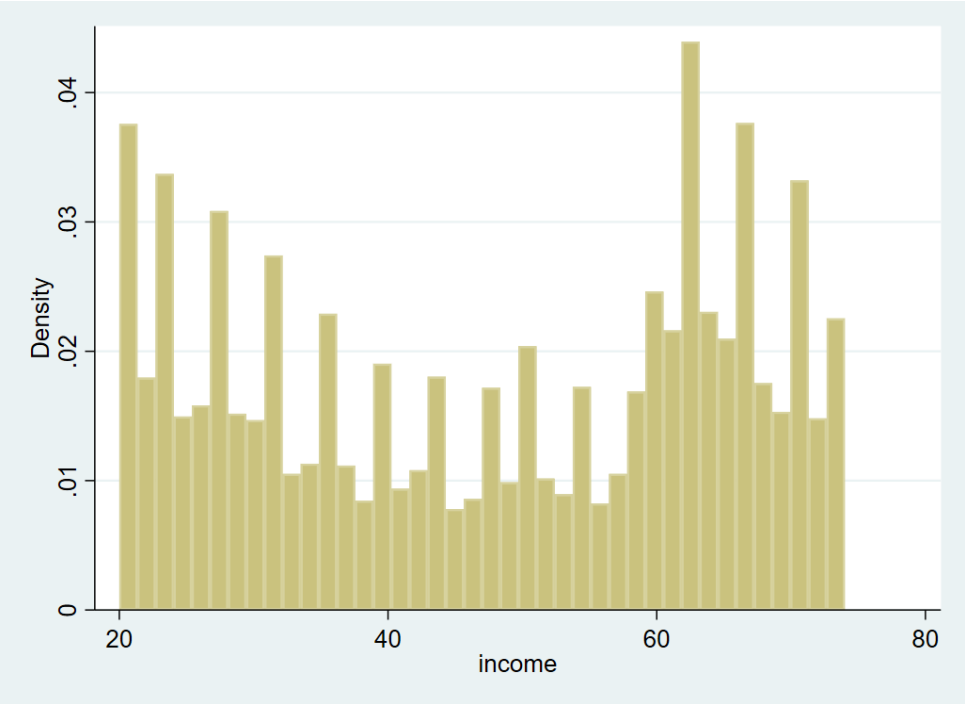
```
. tabulate sex

    1=male, |
   2=female |      Freq.     Percent        Cum.
------------+-----------------------------------
          1 |      4,915       47.48       47.48
          2 |      5,436       52.52      100.00
------------+-----------------------------------
      Total |     10,351      100.00
```

Markdown

Graphs

«dd_do»
histogram income, name(gr1, replace)
«/dd_do»
«dd_graph:saving(gr1.png) width(700) graphname(gr1) replace»



Overview

Steps

- Plan a Stata session.
- Write the markdown file with dynamic tags.
- Convert the markdown file to a html file with `dyndoc`.
- Repeat it with other Stata sessions.
- Write a markdown file with a list of links to the previous html files, and convert it into the main html page.

Last slide

Thanks

Visit this page as a Spanish example.

Thank you very much!

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