



# Computer Lab in Economics Master in International Economics Data analysis and functions with MATLAB

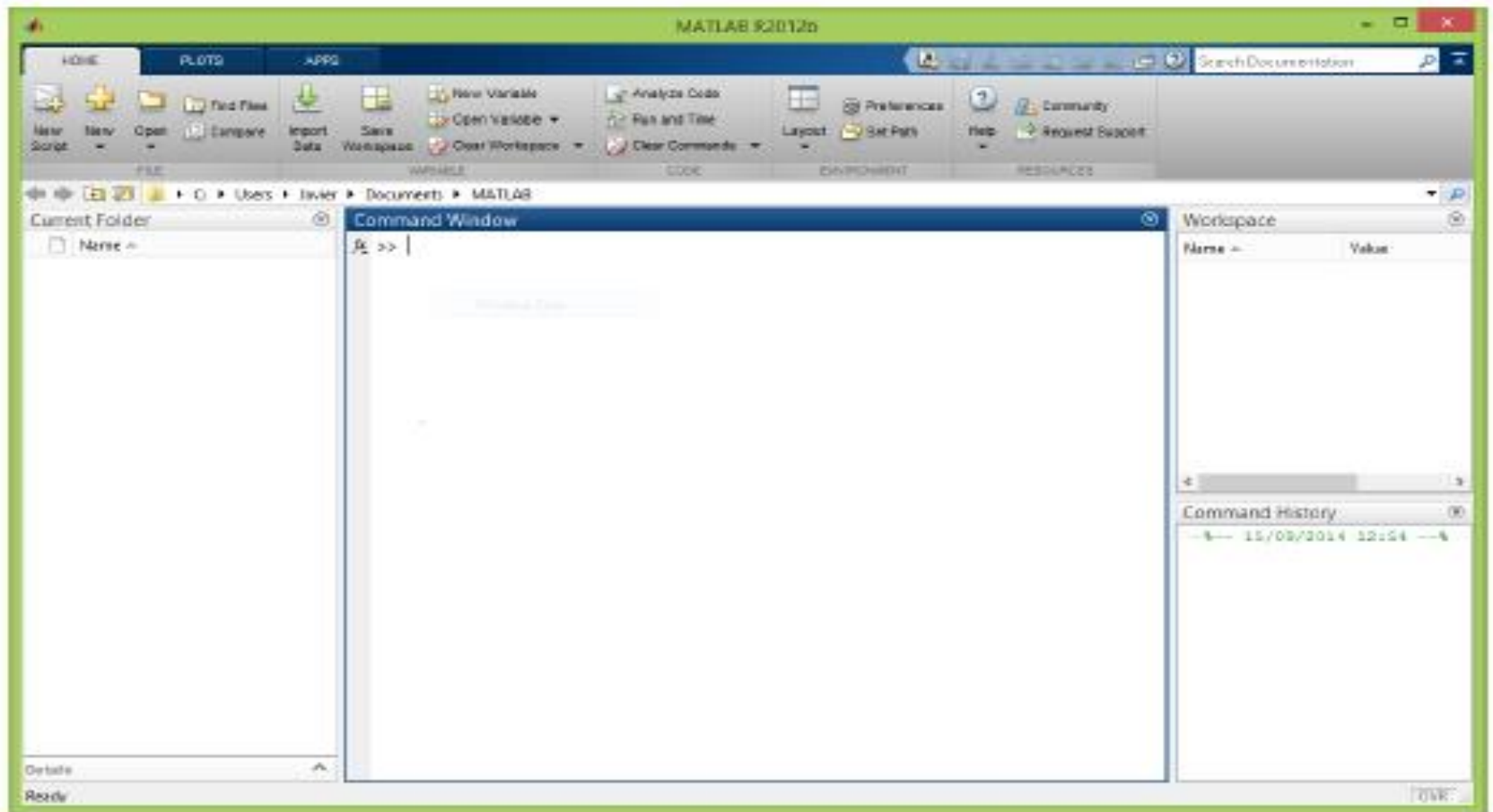
**Inmaculada Álvarez Ayuso**

Office 314 (Módulo I) [www.uam.es/inmaculada.alvarez](http://www.uam.es/inmaculada.alvarez)

E-mail: [inmaculada.alvarez@uam.es](mailto:inmaculada.alvarez@uam.es)

# Data analysis and functions with MATLAB

## MATLAB R2012b Interface



# Data analysis and functions with MATLAB: import data

To import fproduccion.xlsx file, double click on it.

The screenshot shows the MATLAB R2015a interface. The title bar reads "MATLAB R2015a - academic use". The ribbon includes tabs for HOME, PLOTS, and APPS. The ribbon contains various toolboxes such as FILE, VARIABLE, CODE, SIMULINK, ENVIRONMENT, and RESOURCES. The current folder is "C:\Users\PCECO12\Documents". The file explorer shows a list of files and folders, with "fproduccion.xlsx" selected. The Command Window displays the text "New to MATLAB? See resources for [Getting Started.](#)" and "Academic License". The Command Window prompt is "fx >>". The Workspace window is empty.

HOME PLOTS APPS

Search Documentation

FILE VARIABLE CODE SIMULINK ENVIRONMENT RESOURCES

C:\Users\PCECO12\Documents

Current Folder

- Name
- MATLAB
- PANEL DATA TOOLBOX
- Plantillas personalizadas de Office
- fproduccion.xlsx
- importdata.m
- Matlab\_R2015a.iso
- PanelDataMATLAB-master.zip

Command Window

New to MATLAB? See resources for [Getting Started.](#)

Academic License

fx >>

Workspace

Name	Value
------	-------

# Data analysis and functions with MATLAB: import data

Import - C:\Users\PCECO12\Documents\fproduction.xls

IMPORT VIEW

Range: A2:G552

Variable Names Row: 1

Column vectors  
Numeric Matrix  
Cell Array  
Table

Replace unimportable cells with NaN

Import Selection

Import Data  
Generate Script  
Generate Function

	A	B	C	D	E	F	G	H	I
	REGION	YEAR	LNGDP	TIME	LNLABOUR	LNCAPITAL	dtime	VarName8	VarName9
	Number	Number	Number	Number	Number	Number	Number	Cell	Cell
1	REGION	YEAR	LNGDP	TIME	LNLABOUR	LNCAPITAL	dtime		
2	1	1970	9.6882	1	14.4858	17.2710	1		
3	2	1970	8.3679	1	13.0329	15.9962	1		
4	3	1970	8.2940	1	12.9556	16.0537	1		
5	4	1970	7.9426	1	12.4682	15.4937	0		
6	5	1970	8.2841	1	12.9241	15.7316	0		
7	6	1970	7.5073	1	12.1719	15.4252	0		
8	7	1970	8.9879	1	13.8625	16.6282	1		
9	8	1970	8.4001	1	13.3293	16.0064	1		
10	9	1970	10.1183	1	14.5613	17.7726	1		
11	10	1970	9.3471	1	13.9929	16.9780	1		

Sheet1

Workspace

Name	Value

# Data analysis and functions with MATLAB: import data

To obtain the script to import data

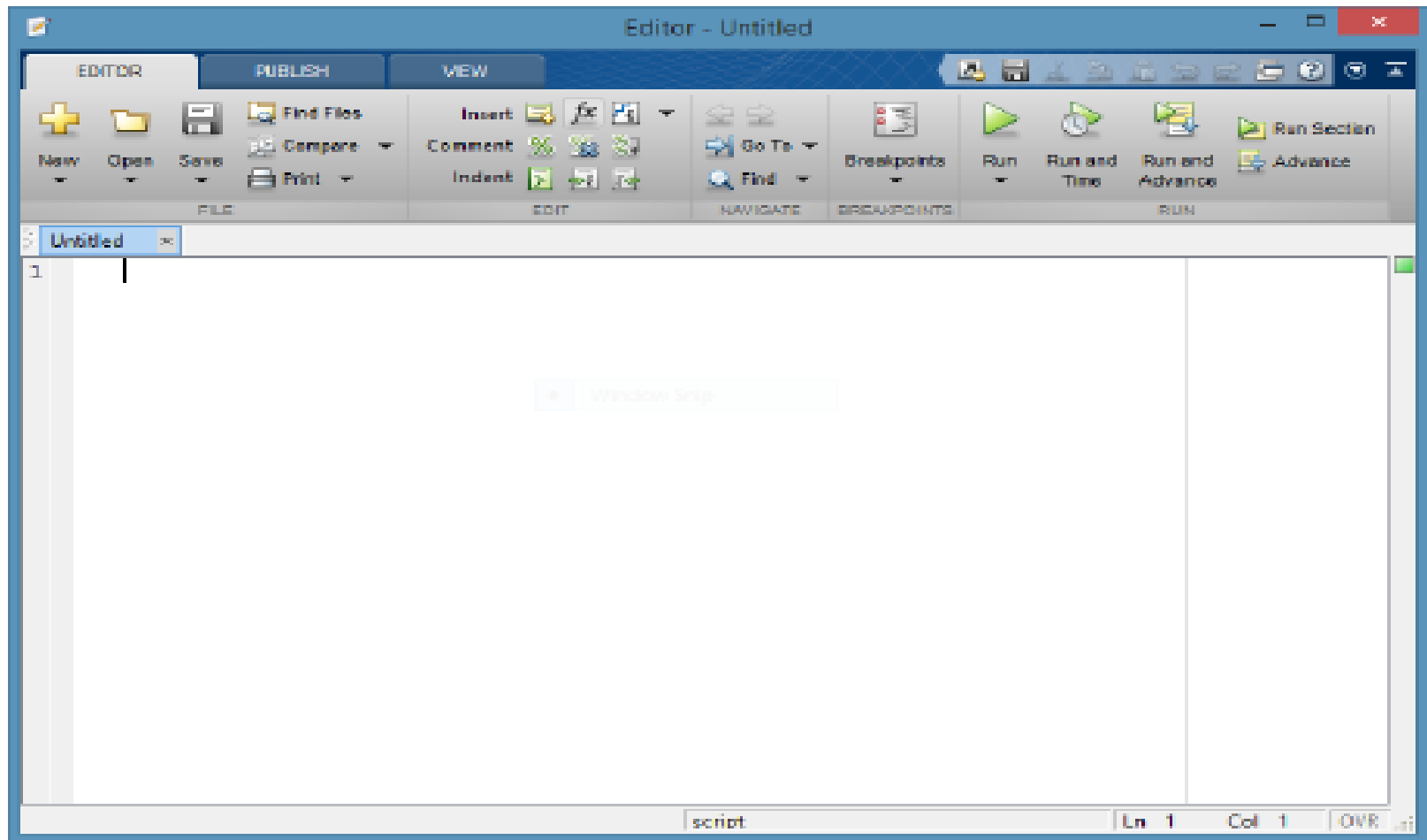
The screenshot shows the MATLAB 'Import' wizard for a file named 'fproduction.xls'. The 'VIEW' tab is active, displaying a preview of the data in a table format. The table has columns labeled A through I, with headers 'REGION', 'YEAR', 'LNGDP', 'TIME', 'LNLABOUR', 'LNCAPITAL', 'dtime', 'VarName8', and 'VarName9'. The data rows show values for these variables from 1970 to 1970. A context menu is open over the table, showing options: 'Import Data', 'Generate Script', and 'Generate Function'. The 'Generate Script' option is highlighted. Below the table, the 'Workspace' window shows a variable 'dtime' of type '551x1 double'. The 'Command Window' shows the MATLAB command: `data = reshape([raw{:}],size(raw));`

	A	B	C	D	E	F	G	H	I
	REGION	YEAR	LNGDP	TIME	LNLABOUR	LNCAPITAL	dtime	VarName8	VarName9
	Number	Number	Number	Number	Number	Number	Number	Cell	Cell
1	REGION	YEAR	LNGDP	TIME	LNLABOUR	LNCAPITAL	dtime		
2	1	1970	9.6882	1	14.4858	17.2710	1		
3	2	1970	8.3679	1	13.0329	15.9962	1		
4	3	1970	8.2940	1	12.9556	16.0537	1		
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10	9	1970	10.1183	1	14.5613	17.7726	1		
11	10	1970	9.3471	1	13.9929	16.9780	1		

```
16 data = reshape([raw{:}],size(raw));
17
```

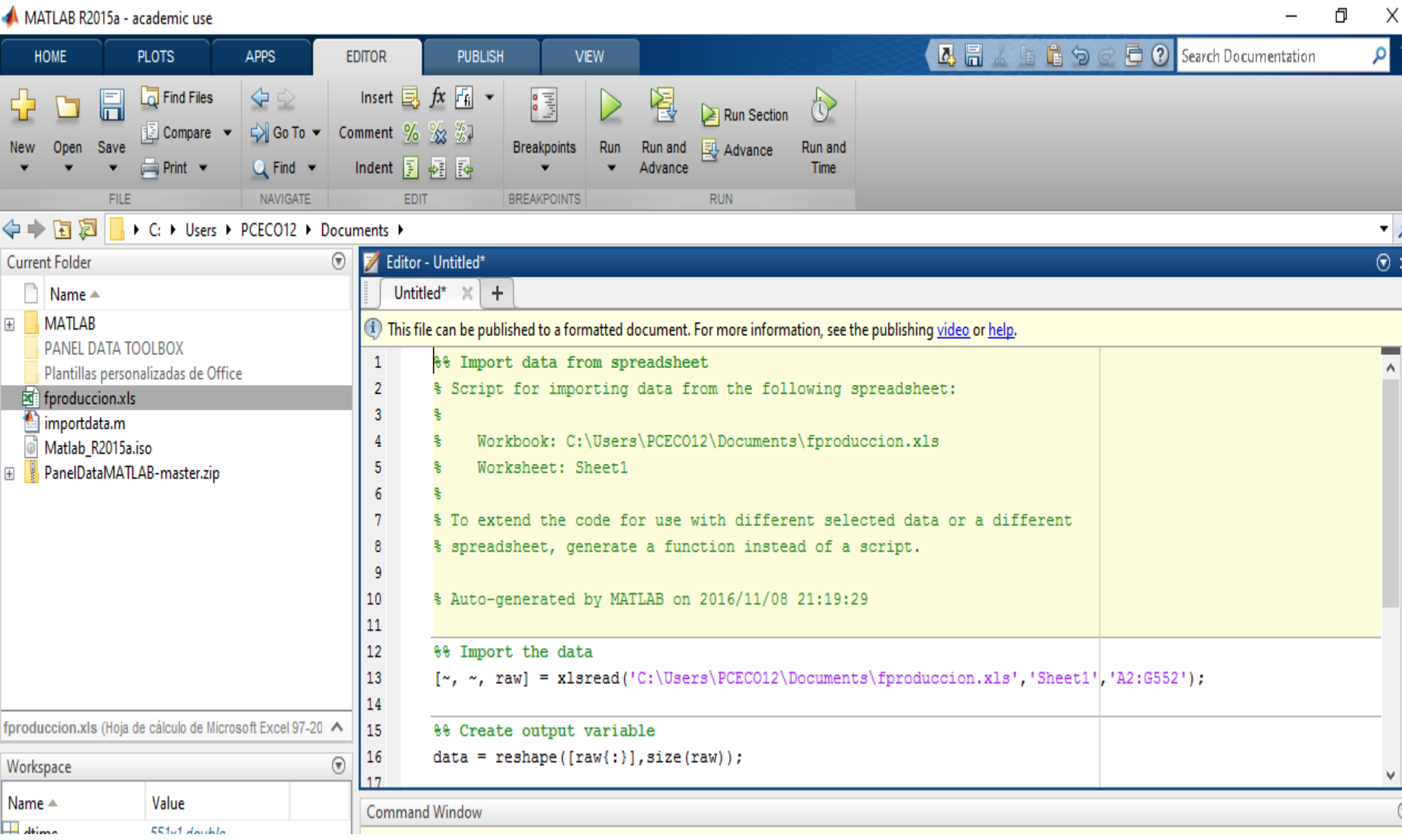
# Data analysis and functions with MATLAB: import data

This is the script editor



# Data analysis and functions with MATLAB: import data

This is the script editor to import data, which can be saved as an .m file  
(importdata.m)



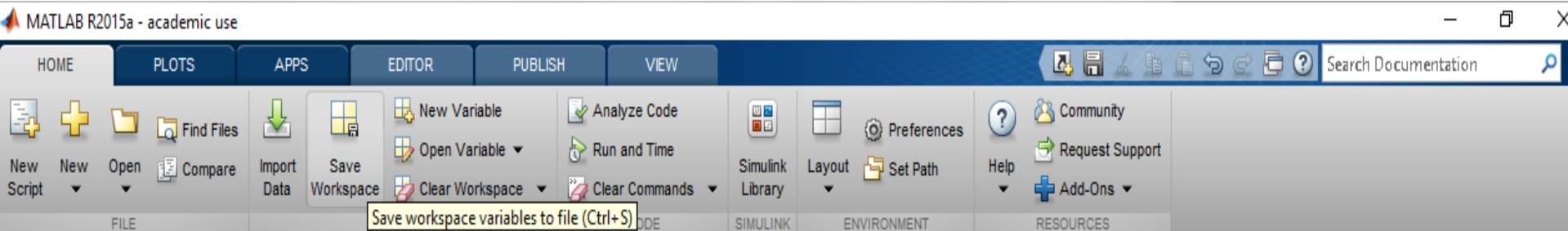
The screenshot displays the MATLAB R2015a script editor interface. The title bar indicates 'MATLAB R2015a - academic use'. The main window is titled 'Editor - Untitled\*' and contains a script for importing data from a spreadsheet. The script is as follows:

```
1 %% Import data from spreadsheet
2 % Script for importing data from the following spreadsheet:
3 %
4 %   Workbook: C:\Users\PCECO12\Documents\fproduccion.xls
5 %   Worksheet: Sheet1
6 %
7 % To extend the code for use with different selected data or a different
8 % spreadsheet, generate a function instead of a script.
9
10 % Auto-generated by MATLAB on 2016/11/08 21:19:29
11
12 %% Import the data
13 [~, ~, raw] = xlsread('C:\Users\PCECO12\Documents\fproduccion.xls','Sheet1','A2:G552');
14
15 %% Create output variable
16 data = reshape([raw{:}],size(raw));
17
```

The interface includes a menu bar with options like HOME, PLOTS, APPS, EDITOR, PUBLISH, and VIEW. Below the menu bar is a toolbar with icons for file operations (New, Open, Save, Find Files, Compare, Print), navigation (Go To, Find), editing (Insert, Comment, Indent), breakpoints, and running (Run, Run and Advance, Run Section, Advance, Run and Time). The current folder is 'C:\Users\PCECO12\Documents' and the workspace is empty.

# Data analysis and functions with MATLAB: import data

To save in .mat format, click in save workspace (fproduccion.mat)



The screenshot shows the MATLAB R2015a interface. The ribbon is set to the 'EDITOR' tab. The 'Save' group is active, and the 'Save workspace variables to file (Ctrl+S)' option is highlighted. The current folder is 'C:\Users\PCECO12\Documents'. The editor window shows the following code:

```
1 %% Import data from spreadsheet
2 % Script for importing data from the following spreadsheet:
3 %
4 %     Workbook: C:\Users\PCECO12\Documents\fproduccion.xls
5 %     Worksheet: Sheet1
6 %
7 % To extend the code for use with different selected data or a different
8 % spreadsheet, generate a function instead of a script.
9
10 % Auto-generated by MATLAB on 2016/11/08 21:19:29
11
12 %% Import the data
13 [~, ~, raw] = xlsread('C:\Users\PCECO12\Documents\fproduccion.xls', 'Sheet1', 'A2:G552');
14
15 %% Create output variable
16 data = reshape([raw{:}], size(raw));
17
```



# Data analysis and functions with MATLAB: import data

- A file in .mat format can be used with command **load**:

```
% Load data
```

```
load('f:\fproduccion.mat')
```

- A data file in excell, can be loaded in .csv format with **csvread** (**importcsv.m**):

The screenshot displays the MATLAB R2015a software interface. The top ribbon includes tabs for HOME, PLOTS, and APPS. The ribbon contains various toolboxes such as FILE, VARIABLE, CODE, SIMULINK, ENVIRONMENT, and RESOURCES. The current folder is set to C:\Users\PCECO12\Documents. The Command Window is open, showing the MATLAB help page for the `csvread` function. The help page includes a search bar, navigation tabs (MATLAB, Data Import and Export, Standard File Formats, Text Files), and the following content:

### csvread

Read comma-separated value (CSV) file [expand all in page](#)

#### Syntax

```
M = csvread(filename) example  
M = csvread(filename,R1,C1) example  
M = csvread(filename,R1,C1,[R1 C1 R2 C2]) example
```

#### Description

M = `csvread(filename)` reads a comma-separated value (CSV) formatted file into array M. The file must contain only `numeric values` example

# Data analysis and functions with MATLAB: functions

## Example with *Panel Data Toolbox*



### Panel Data Toolbox

A Panel Data Toolbox for MATLAB

[Panel Data Toolbox](#) [Download](#) [Authors](#) [How to cite](#) [FAQ](#)

## Panel Data Toolbox

**Panel Data Toolbox v2.0** is a new package for **MATLAB** that includes functions to estimate the main econometric methods of panel data analysis. The package covers the standard fixed, between and random effects methods, that are extended to allow for instrumental variables, as well as spatial panel data specifications.

$$\hat{\beta} = (X'X)^{-1}X'y$$

# Data analysis and functions with MATLAB: functions

## Example with *Panel Data Toolbox*

MATLAB R2015a - academic use

HOME PLOTS APPS

Find Files New Variable Analyze Code Preferences Community

FILE

Current Folder: C:\Users\PCECO12\Documents

Workspace

**Set Path**

All changes take effect immediately.

MATLAB search path:

- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\data
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\examples
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\examplesjss
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\numericalchecks
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\paneldata
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\paneldata\estimation
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\paneldata\stafun
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\paneldata\tests
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\paneldata\util
- C:\Users\PCECO12\Documents\PANEL DATA TOOLBOX\unittests
- C:\Users\PCECO12\Documents\MATLAB
- C:\Program Files\MATLAB\R2015a\toolbox\matlab\addons
- C:\Program Files\MATLAB\R2015a\toolbox\matlab\addons\cef
- C:\Program Files\MATLAB\R2015a\toolbox\matlab\addons\fallbackmanager
- C:\Program Files\MATLAB\R2015a\toolbox\matlab\demos
- C:\Program Files\MATLAB\R2015a\toolbox\matlab\graph2d
- C:\Program Files\MATLAB\R2015a\toolbox\matlab\graph3d

Buttons: Add Folder..., Add with Subfolders..., Move to Top, Move Up, Move Down, Move to Bottom, Remove, Save, Close, Revert, Default, Help

# Data analysis and functions with MATLAB: functions

Example with *Panel Data Toolbox*: *example.m* and *fproduccion.mat*

MATLAB R2015a - academic use

HOME PLOTS APPS EDITOR PUBLISH VIEW

Search Documentation

FILE NAVIGATE EDIT BREAKPOINTS RUN

C:\Users\PCECO12\Documents

Current Folder

- MATLAB
- PANEL DATA TOOLBOX
- Plantillas personalizadas de Office
- example.asv
- example.m
- fproduccion.mat
- fproduccion.xls
- importdata.m
- Matlab\_R2015a.iso
- PanelDataMATLAB-master.zip

Editor - C:\Users\PCECO12\Documents\example.m

```
example.m x +
1 - clear all
2 - clc
3
4 - % Load data
5 - load('f:\fproduccion.mat')
6
7 - y = LNGDP;
8 - X = [ LNCAPITAL LNLABOUR];
9
10 - ynames = {'LNGDP'};
11 - xnames = {'LNCAPITAL', 'LNLABOUR'};
12
13 - %%%%%%%%%%% CROSS SECTION %%%%%%%%%%%
14
15 - % OLS
16 - regols = ols(y,X);
17 - regols.ynames = ynames;
18 - regols.xnames = xnames;
```

Command Window

New to MATLAB? See resources for [Getting Started](#).

Name	Value
LNCAPITAL	551x1 double