Instructions on how to use the STATA code for Eozenou, Rivas and Schlag (2006): "Minimax Regret in Practice: Four Examples on Treatment Choice"

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Abstract

This is a short tutorial explaining how to use the STATA code with any given data set on treatment effects in order to implement the methodology developed in Eozenou, Rivas and Schlag (2006) : "Minimax Regret in Practice: Four Examples on Treatment Choice".

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1. Preliminaries

The STATA routine is released in a *zip* file named ***MINIMAX STATA.zip*** and it is available for download at the authors websites:

- Http://www.iue.it/Personal/Researchers/eozenou/Research.html (Patrick Eozenou)
- Http://www.iue.it/Personal/Researchers/JavierRivas/ (Javier Rivas)
- Http://www.iue.it/Personal/Schlag/Welcome.html (Karl Schlag)

The package includes a folder called ***STATA files*** which contains five ado files: ***minimax.ado***, ***m_BAR.ado***, ***m_CBAR.ado***, ***m_BAR_PS.ado***, ***m_CBAR_PS.ado***.

Beside this folder, the package also includes the *pdf* file containing the instructions (this file), and an Excel file (*Experiments_Round_1.xls*) containing a dataset which we use to illustrate the method[1].

The package can be unzipped anywhere. The first thing to do then is to copy the five ado files included in the folder ***STATA files*** and to paste them in the appropriate STATA directory. In most cases[2] the STATA directory path will be ***"C:\Program Files\Stata9\"***. In this STATA directory you have to open a folder named ***ado*** (picture 1) where STATA stores all the ado files. In this ado folder you have then to open the folder ***updates*** (picture 2) in which you will find many folders indexed by alphabetical order (picture 3). The destination folder is the folder ***m***. Open this folder and paste the files.

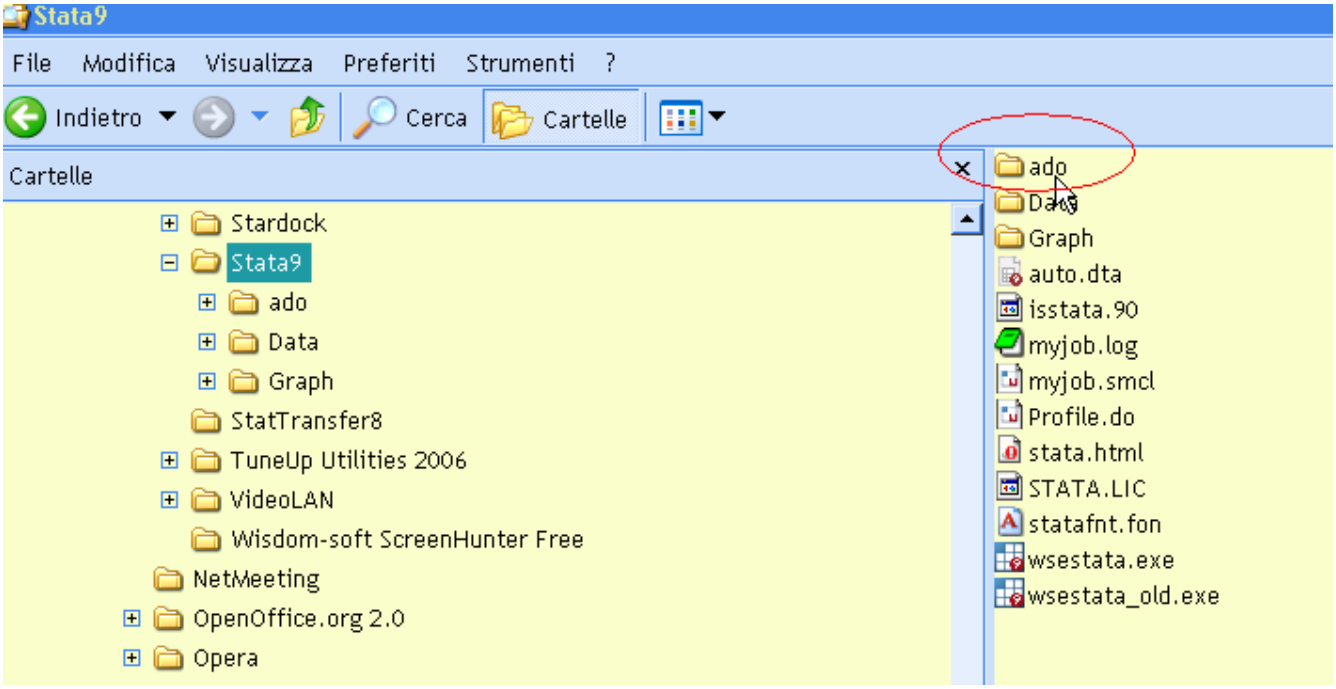
The second thing to do is to create a folder for our data. Go back to the STATA directory (***c:\Program files\Stata9***) and locate the folder where STATA stores the data (usually ***c:\Program files\Stata9\Data***). If this folder doesn't exist, you can create it. In this

1 The STATA routine is a translation of the MATLAB code also available at the authors website. This tutorial echoes the instruction manual written for the MATLAB code and uses the same dataset for illustration.

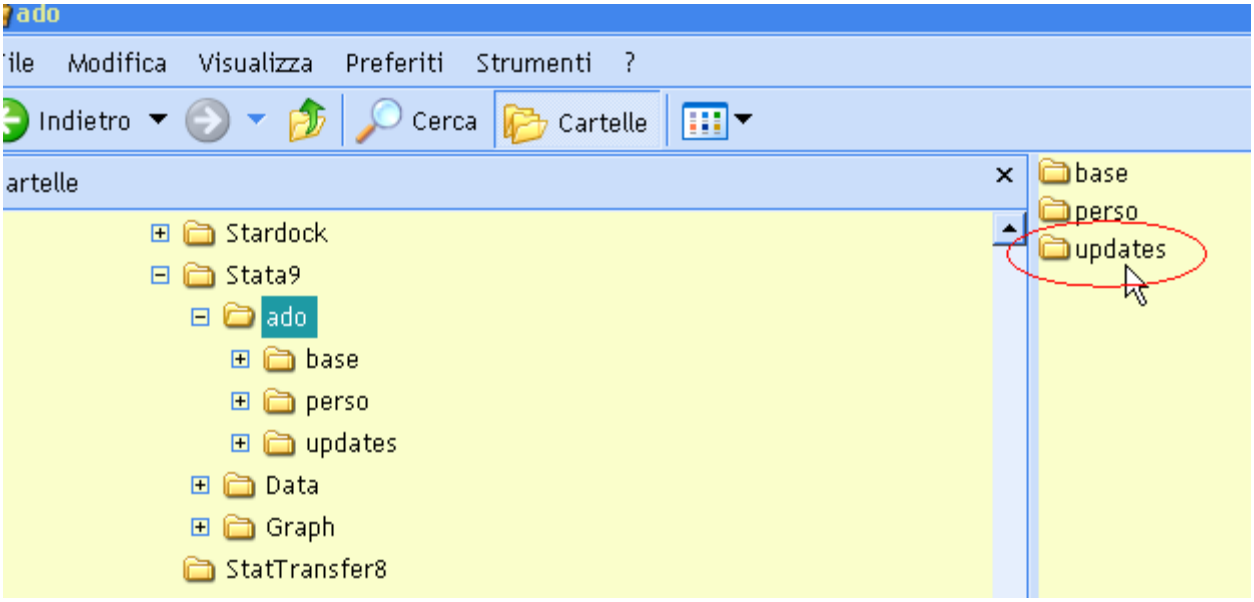
2 This path is valid for the version 9. If you own another version, then the version number should be different.

folder, create a new one which you can call ***Data_MINIMAX***.

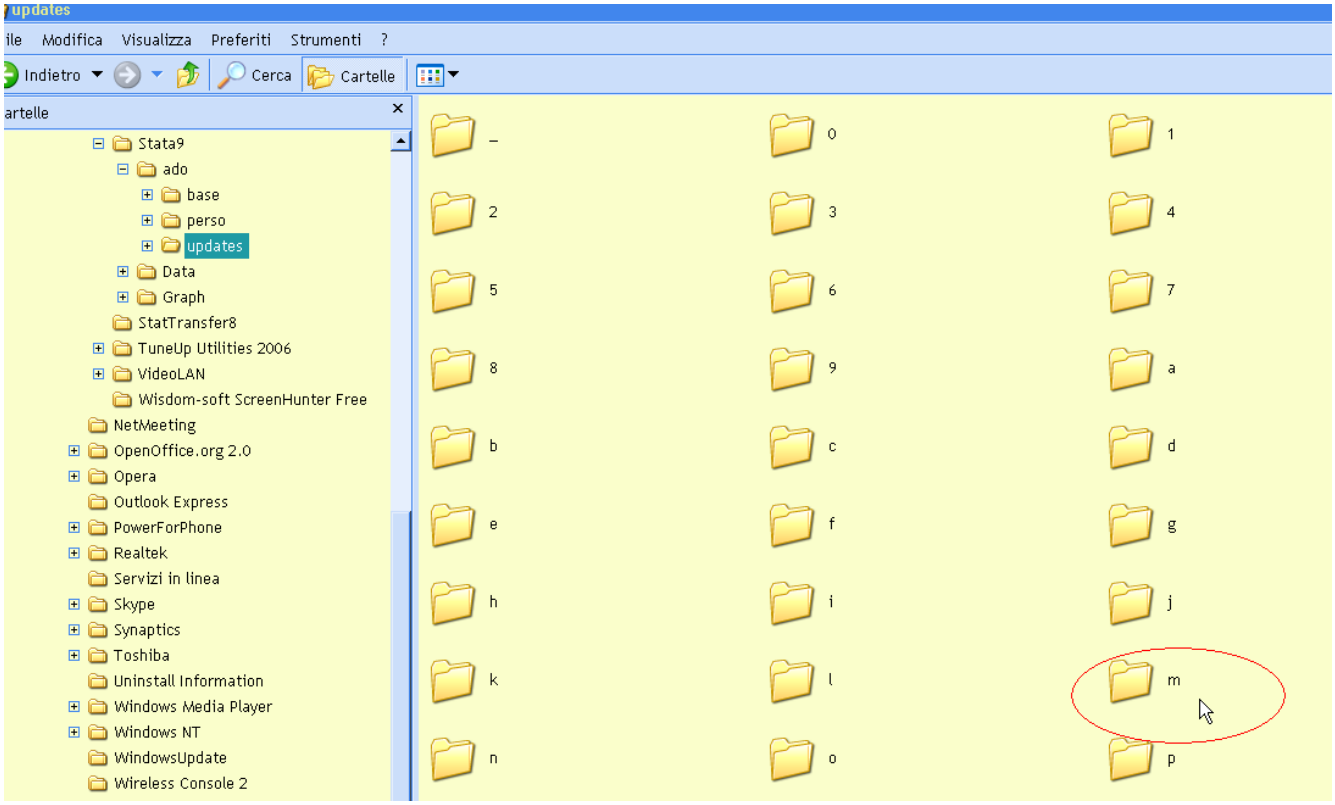
Picture 1



Picture 2



Picture 3



2. Preparing the data

The original dataset can be an Excel file or any other file.

2.1 Preparing the data from an Excel File

In our example case the dataset is the Excel file *Experiments_Round_1.xls*. This file contains the results on round 1 for all countries of the experiment run by Roth et al. (1991). For more information on this dataset see Roth et al. (1991) and Eozenou, Rivas and Schlag (2006).

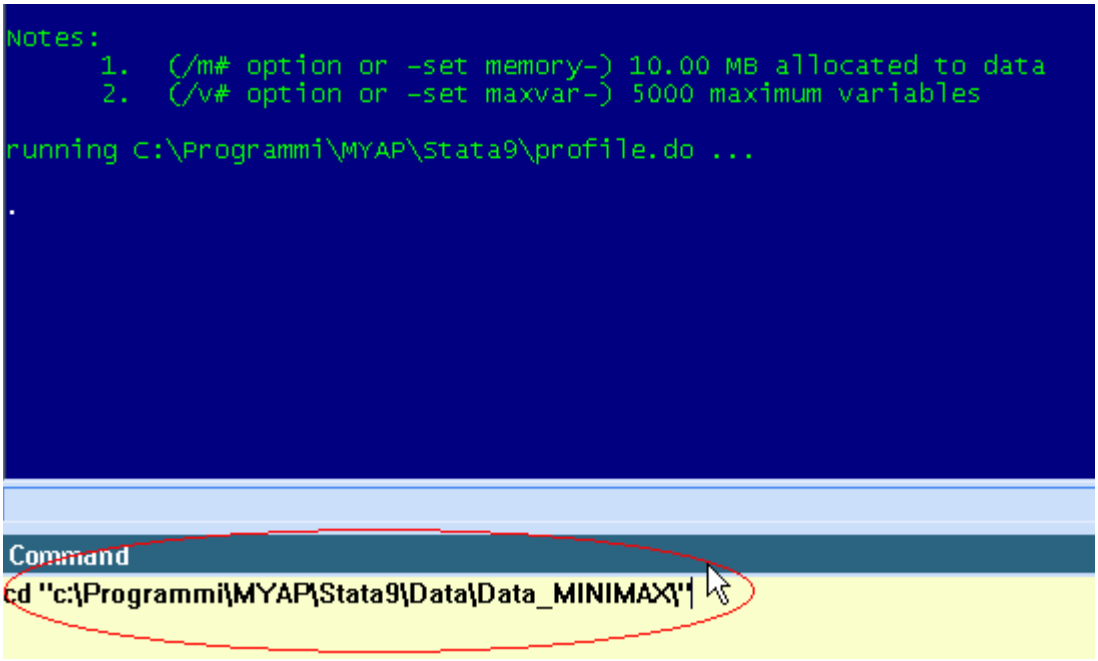
Each country (Israel, Japan, Yugoslavia and USA) represents a treatment. For each

country the first column (A, D, G and J) represents the ID of the offerer and the second column (B, E, H and K) represents the outcome of the treatment on a particular subject.

To prepare the data for **Israel**, proceed as follows:

1. Open STATA. Change the default directory by typing in the **Command window** (consistently with the folder previously created to store the data):

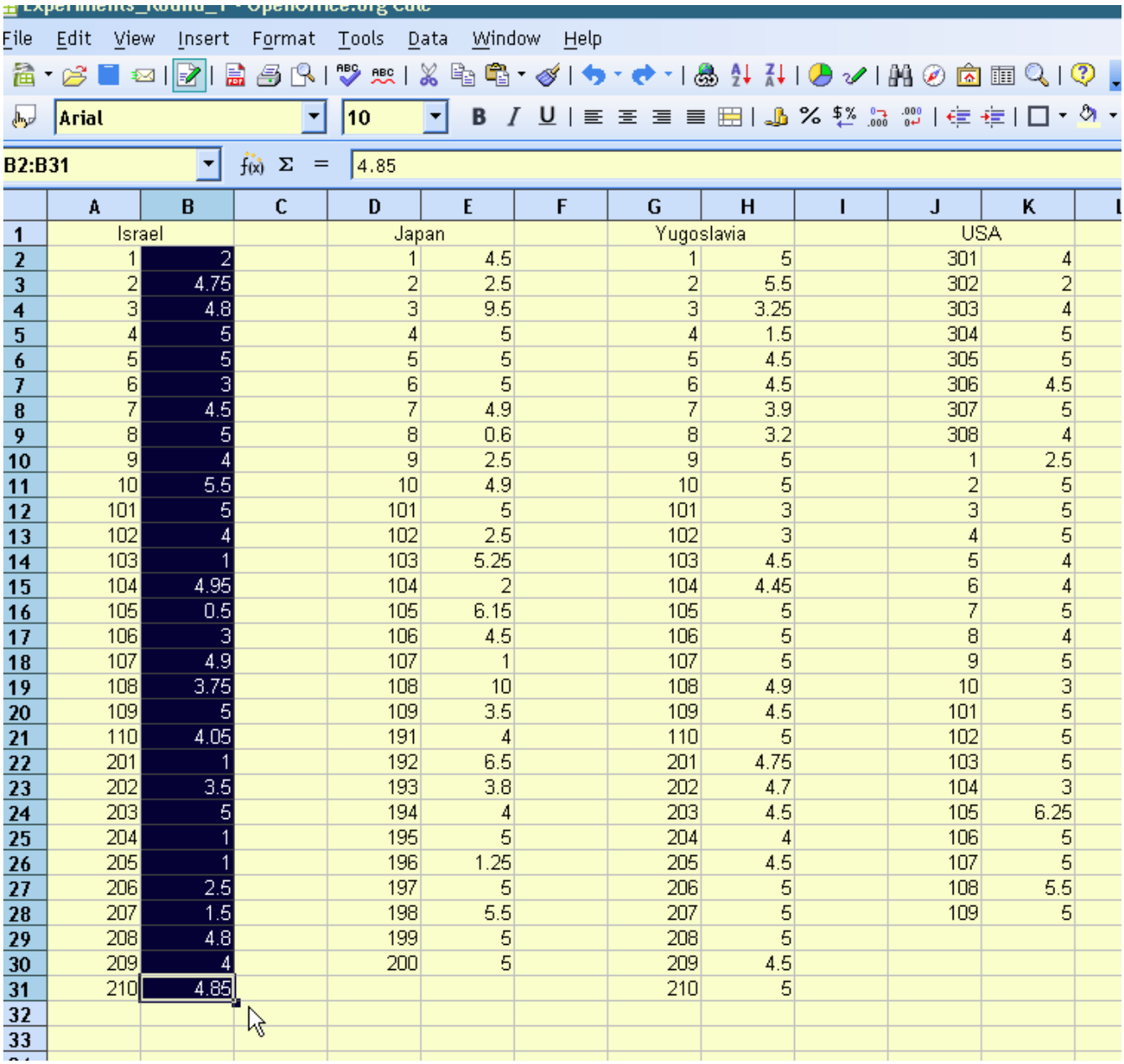
cd "c:*your directory path***Stata9\Data\Data_MINIMAX**"



(press enter after each command)

2. Open the file *Experiments_Round_1.xls*.

3. In the Excel window, select the data corresponding to the outcome (here the array B2:B31).

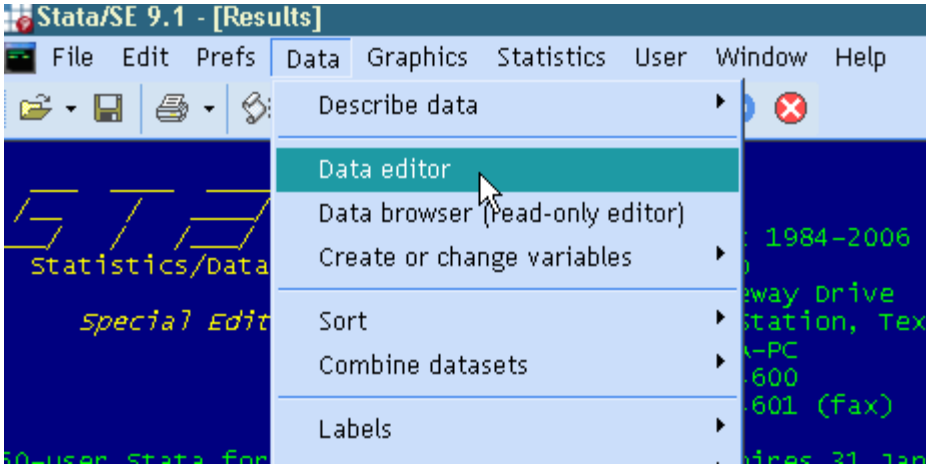


	A	B	C	D	E	F	G	H	I	J	K
1	Israel			Japan			Yugoslavia			USA	
2	1	2		1	4.5		1	5		301	4
3	2	4.75		2	2.5		2	5.5		302	2
4	3	4.8		3	9.5		3	3.25		303	4
5	4	5		4	5		4	1.5		304	5
6	5	5		5	5		5	4.5		305	5
7	6	3		6	5		6	4.5		306	4.5
8	7	4.5		7	4.9		7	3.9		307	5
9	8	5		8	0.6		8	3.2		308	4
10	9	4		9	2.5		9	5		1	2.5
11	10	5.5		10	4.9		10	5		2	5
12	101	5		101	5		101	3		3	5
13	102	4		102	2.5		102	3		4	5
14	103	1		103	5.25		103	4.5		5	4
15	104	4.95		104	2		104	4.45		6	4
16	105	0.5		105	6.15		105	5		7	5
17	106	3		106	4.5		106	5		8	4
18	107	4.9		107	1		107	5		9	5
19	108	3.75		108	10		108	4.9		10	3
20	109	5		109	3.5		109	4.5		101	5
21	110	4.05		191	4		110	5		102	5
22	201	1		192	6.5		201	4.75		103	5
23	202	3.5		193	3.8		202	4.7		104	3
24	203	5		194	4		203	4.5		105	6.25
25	204	1		195	5		204	4		106	5
26	205	1		196	1.25		205	4.5		107	5
27	206	2.5		197	5		206	5		108	5.5
28	207	1.5		198	5.5		207	5		109	5
29	208	4.8		199	5		208	5			
30	209	4		200	5		209	4.5			
31	210	4.85					210	5			
32											
33											

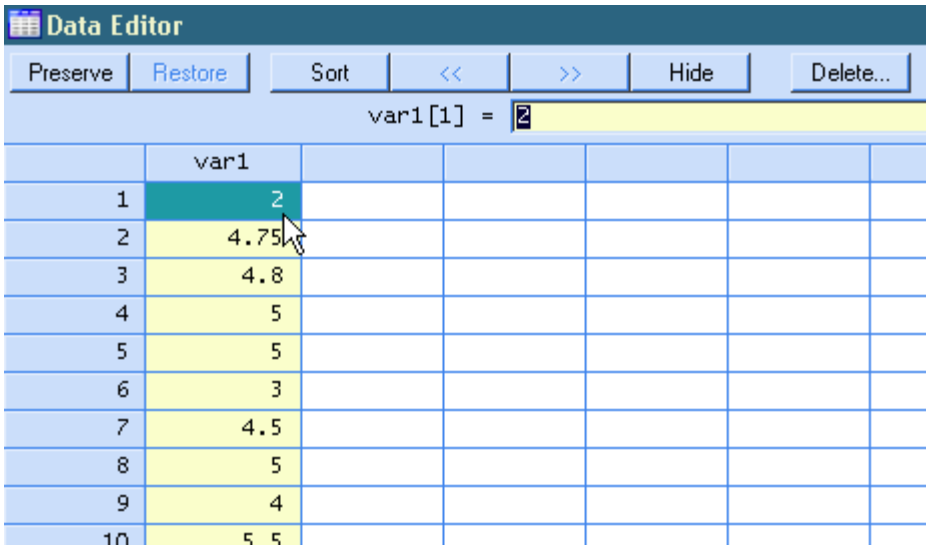
Take care that the data you read in Excel are *dot-separated* and not *comma-separated*, this will depend on your language settings in Excel. STATA does not read comma-separated values. You can change this settings in Excel by going to Format > Cell.

4. Copy the selected cells.

5. In STATA, open the Data editor



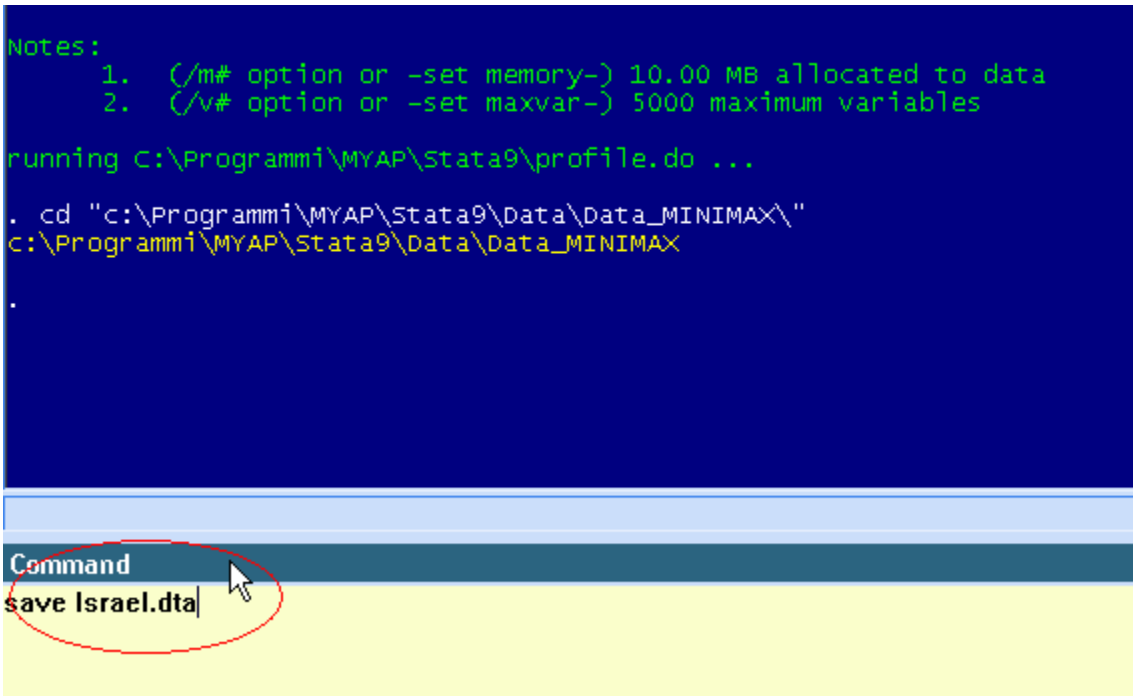
6. In the Data editor, select the upper left cell and paste the data



The variable created will be labeled **var1** (DO NOT change the name of this variable). Close the Data editor.

7. Now save the data by typing in the **Command window**:

save Israel.dta



Note: If the data file Israel.dta was already created, type:

save Israel.dta, replace

8. Clear the Data editor by typing in the **Command window**:

clear

That's it. To prepare the data for the other countries, repeat step 2 to step 8. In the end, you should have four data files e.g ***Israel.dta***, ***Japan.dta***, ***Yugoslavia.dta*** and ***USA.dta***.

You can check the presence of these files in

c:*your directory path*\Stata9\Data\Data_MINIMAX.

2.2 Preparing the data from other types of files

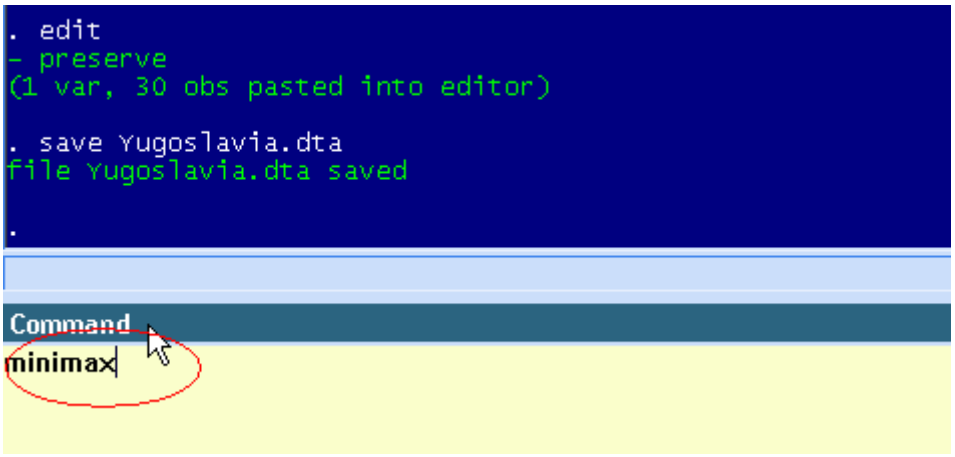
If the original dataset is not formatted as an Excel file you can either use a format transer software (e.g ***Stat Transfer***) to bring it into STATA format[3], or convert the dataset into an Excel file (see the Excel manual).

3. Running the code

We explain now how to run the program. As an illustration we show how to choose the better treatment between Israel and Yugoslavia using the *Binomial Average Rule*, as described in Eozenou, Rivas and Schlag (2006).

1. Prepare the data for the two treatments as explained in the previous section.
2. In the **Command window**, type:

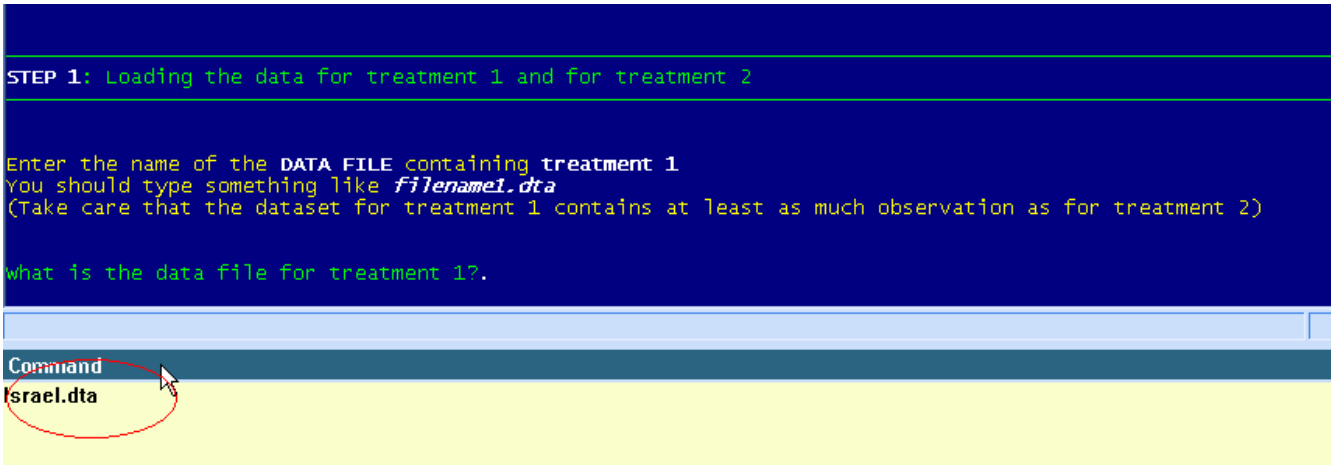
minimax



3 In this case it is important to have only one treatment per data file and to keep the variable name of your file labelled as **var1**.

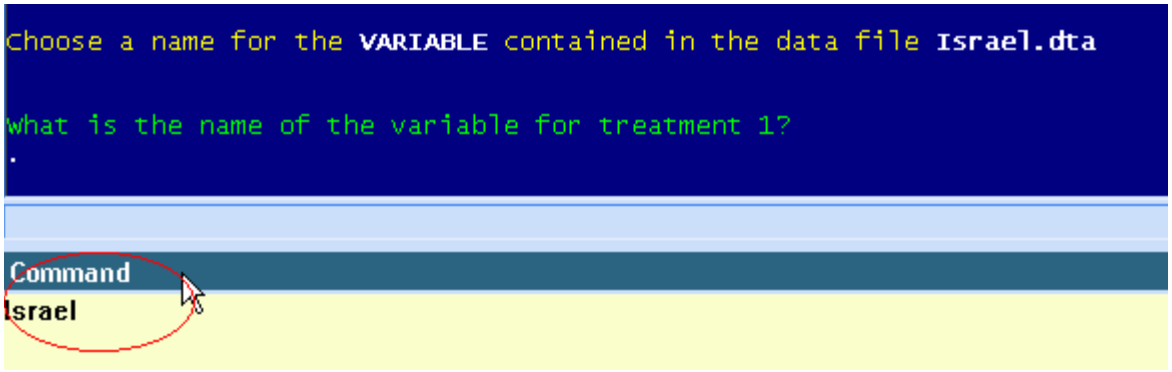
3. The program then asks you the **name of the data file for treatment 1**. You should type here the name of the data file that contains the higher number of observation (in our example, both *Israel.dta* and *Yugoslavia.dta* contain 30 observations...)

Israel.dta



4. Next, you have to choose a name for the variable of the previous datat file, e.g type

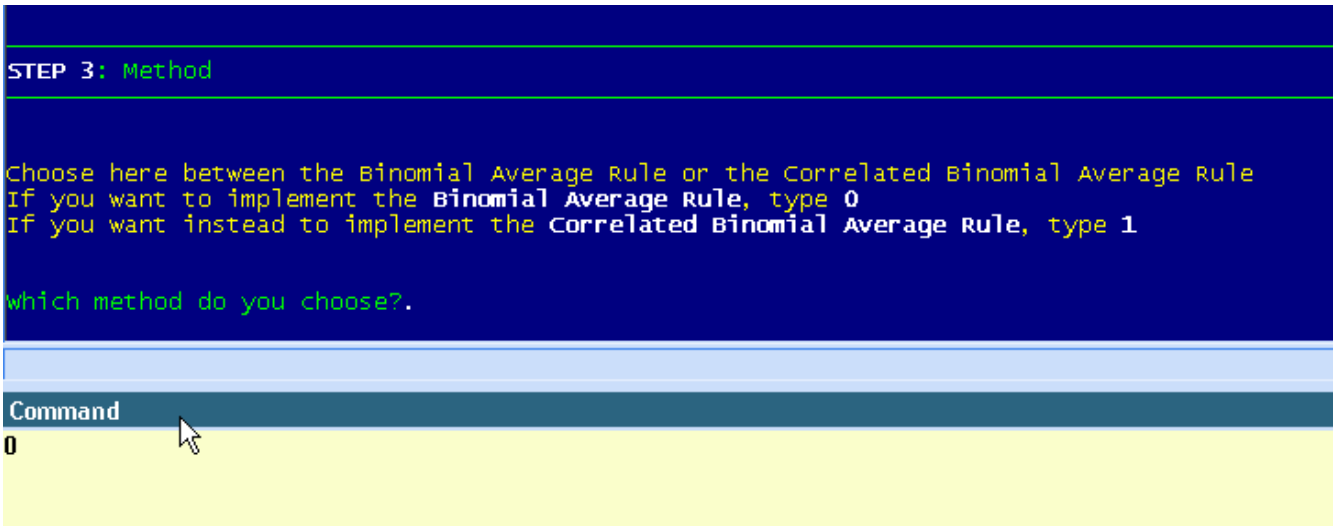
Israel



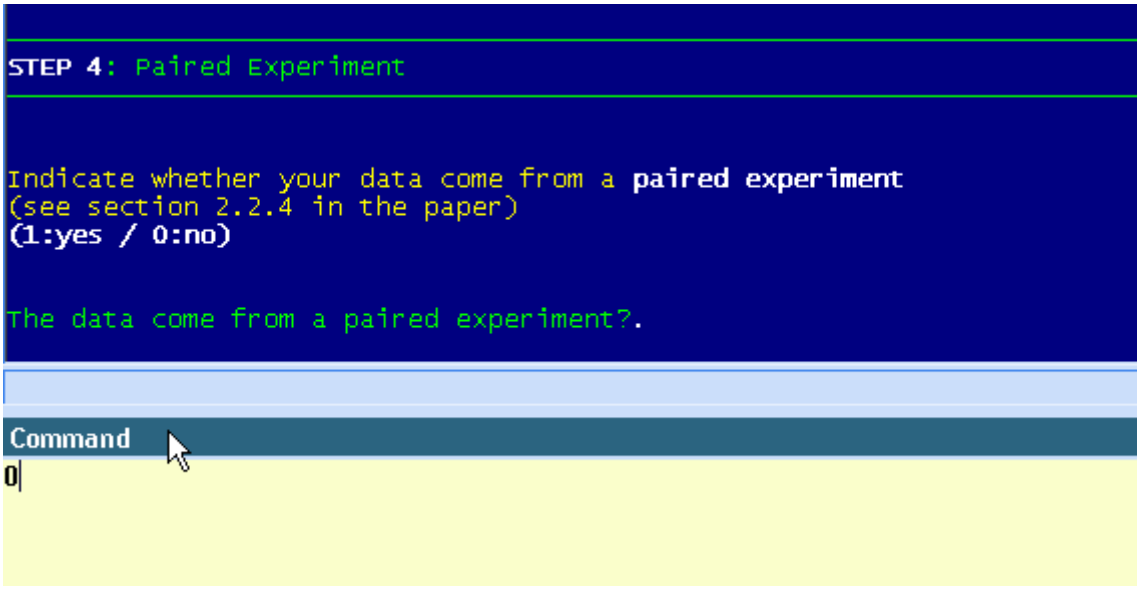
5. After that, the program asks you to repeat step 3 and step 4 for treatment 2

6. Enter the **lowest possible value** of the outcome and the **highest possible value** to determine the range. In our example the range is **[0 ; 10]**.

7. Now choose whether you want to implement the ***Binomial Average Rule*** (type **0**) or the ***Correlated Binomial Average Rule*** (type **1**).



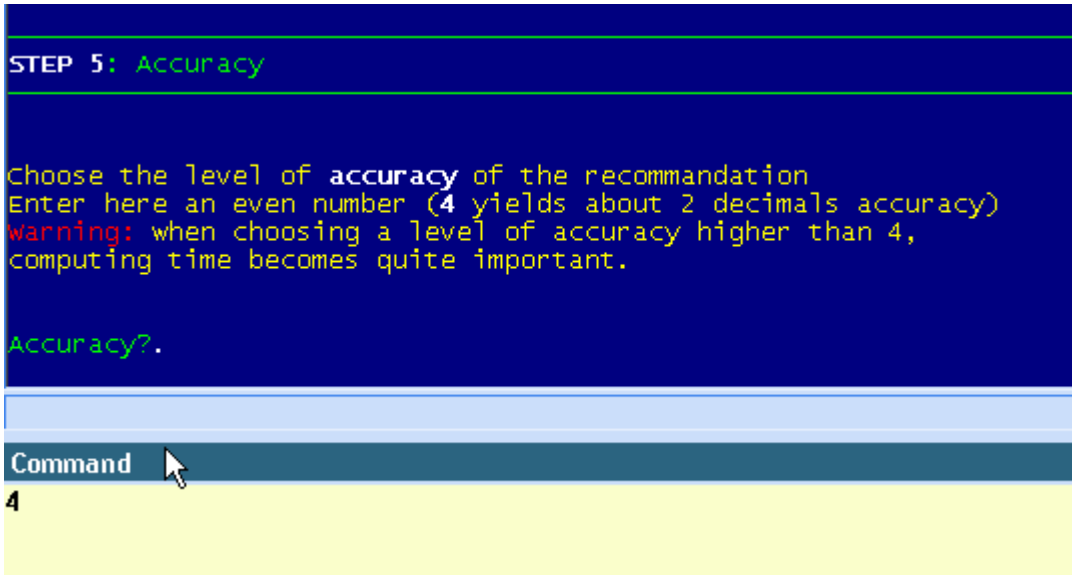
8. Tell the program whether the data come from a **paired sample** (1: yes / 0: no).



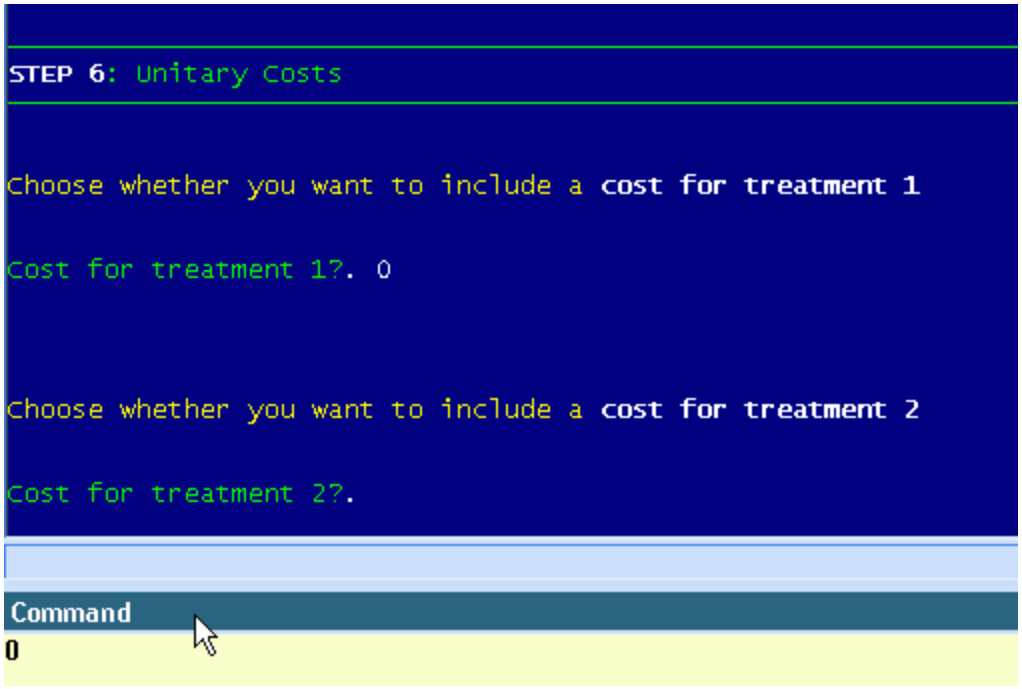
9. Choose the **level of accuracy** for the recommendation. You should enter here an even number. We suggest 4 here to get approximately 2 decimals accuracy.

Technical note:

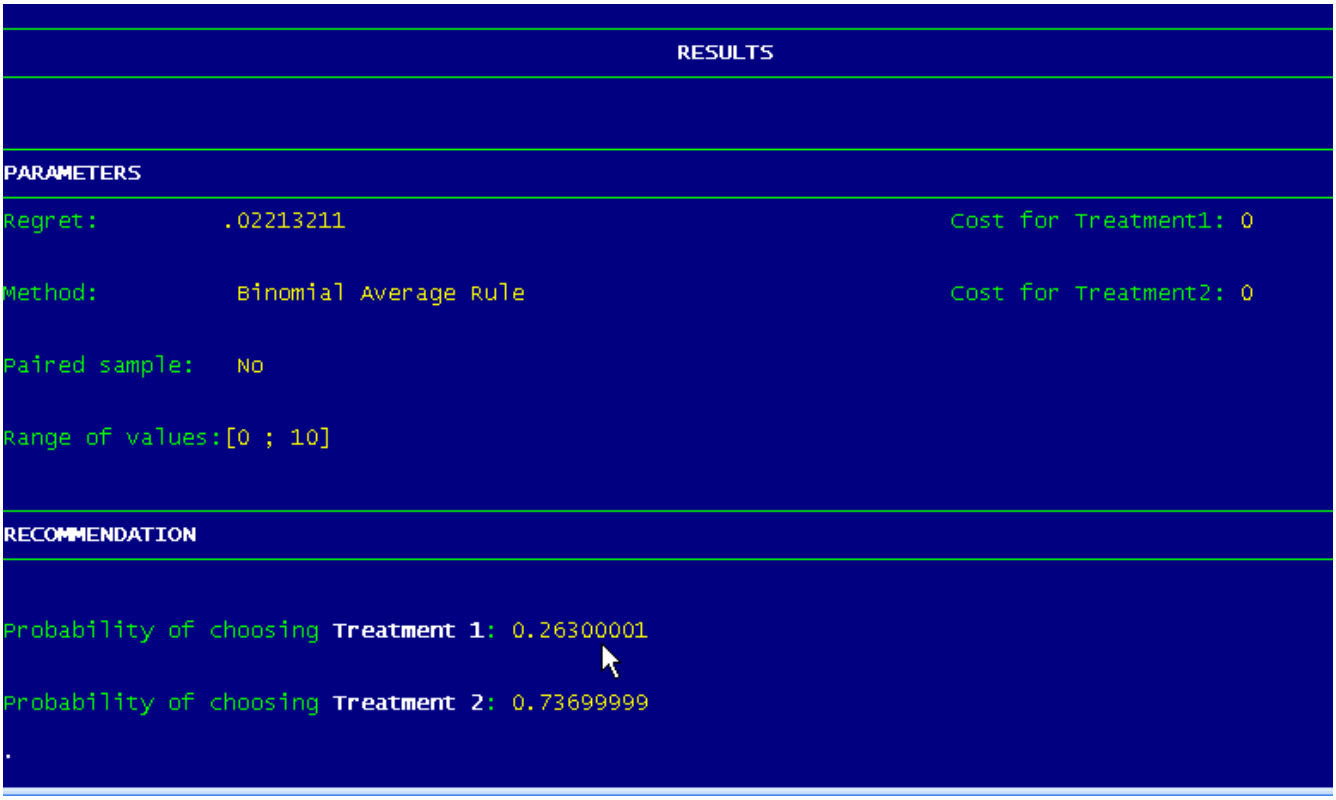
The program is built on **two nested loops**. The level of accuracy determines the number of iterations for both the **inner loop** and the **outer loop**. When the sample is not balanced (i.e when the number of observations from treatment 1 differs from the number of observations for treatment 2) or when the data come from a paired sample, setting accuracy to **4** results in **100** iterations of the **outer loop.** Setting it to **6** results in **1000** iterations of the outer loop and hence implies a very important computing time. When the sample is balanced and when the data do not come from a paired experiment, it is ok to increase the level of accuracy. Otherwise, 4 is a good compromise between precision and computing time.



10. Choose whether you want to include unitary costs for treatment 1 or for treatment 2. In our example we set both costs to zero.



11. That's it. The program computes the recommendation and displays the results.



4. Errors

The program will detect most typical input mistakes and report an error message and a recommendation on how to correct it. However when a non standard error message is reported, the user can contact patrick.eozenou@iue.it for assistance. Any comments or suggestions on how to improve the code are also welcome.