

## Introduction to TSP

### Organisation:

- Lecturer's path (here you can only read): L:\Microeconometrics  
⇒ Here you can find the data prepared for the course.
- Common path (everyone can read and write here): T:\  
⇒ You can work either here (create a folder with your name) or locally (D:\).
- Don't forget to save your files at the end of the exercise session by taking them home on an USB stick or sending them to yourself by email!
- The program TSP can be started as **TSP through the Looking Glass** (more clearly organised on the screen) or as **TSP/Givewin** (better for graphical analyses) per ICON-Click or through the Start-menue, group "Programs". In the course we will use the latter option.

### And now we can start:

- Copy the prepared files from L:\microeconometrics to a local folder or a folder on T:\.
- Learn how to handle TSP/Givewin by running the program test.tsp:
  1. Start **Givewin**.
  2. Load TSP-program 'test.tsp' (use option "Open" – file type "All files").
  3. Read the program and the comments and try to understand what the program does.
  4. Click RUN-button ("person running to the right").
  5. An output window 'test.out' appears. Distinguish between three types of files: program files (.tsp), data files (for instance .raw) and output files (.out). You can save, copy, paste and delete these files in the same way as other files under windows, but the data file must be stored in the same folder as the program file for TSP to find it. Check the output file to see if the program did what you expected.
  6. Click away 'test.out' (or click on the program file) before you run 'test.tsp' again.
  7. To exercise, modify the program a bit (for instance put the stop command at different places within the program) and run the program.
  8. To write your own program open an empty program file or save the program test.tsp under a different name and then modify it. Of course you can also write programs using any text editor at home and save the file as a program file (.tsp) later.Remark: Using the option Windows-Tile you can organize the program window and the output window on your screen.

## General Remarks:

- Always write a program! When working interactively, one often loses track of what is going on.
- Have a look at the TSP user's guide

[http://www.tspintl.com/support/tsp/ug\\_online.htm](http://www.tspintl.com/support/tsp/ug_online.htm)

and the TSP Reference Manual

[http://elsa.berkeley.edu/wp/tsp\\_ref/alphapdf.htm](http://elsa.berkeley.edu/wp/tsp_ref/alphapdf.htm).

- You can find interesting example programs for specific econometric estimation problems on the TSP homepage <[www.tspintl.com](http://www.tspintl.com)>.

## Programming in TSP

Basic structure of a program (each command ends with “;”):

```
options crt;  
< commands to be executed >  
stop;  
< commands not to be executed: test run until stop >  
end;
```

Example program: 'test.tsp'

```
options crt;  
smpl 1 100;           ? sample size  
read(file='test.raw') y x;   ? data from file 'test.raw'  
msd y x ;             ? descriptive statistics of y and x  
print x y;            ? get a table of the data  
olsq y c x;           ? linear regression of y on x  
?stop;                ? stop: do not view graph  
sort x y @fit;        ? sort data by x  
print x y @fit;       ? get a table of the data and the fitted values  
graph(preview,title='OLS fit') x y @fit; ? graph: scatter plot and fitted line  
end;                  ? here the program ends
```

Remark: '?' starts a comment

Output-file of TSP: 'test.out'

Some commands are commented out with '?'

```
-----  
|           this copy licensed           |  
|           for use by:                 |  
| TSP/GiveWin update10/06#50AGT1006 |  
-----
```

TSP Version 5.0  
(10/04/06) TSP/GiveWin 4MB  
Copyright (C) 2006 TSP International  
ALL RIGHTS RESERVED  
04/17/09 4:33 PM

In case of questions or problems, see your local TSP  
consultant or send a description of the problem and the  
associated TSP output to:

TSP International  
P.O. Box 61015  
Palo Alto, CA 94306  
USA

PROGRAM

COMMAND \*\*\*\*\*

```
1 ? Testing TSP  
1 options crt;  
2 smpl 1 100;           ? sample size  
3 read(file='test.raw') y x; ? data from file test.dat  
4 msd y x ;           ? descriptive statistics of y and x  
5 print x y;         ? get a table of the data  
6 olsq y c x;       ? linear regression of y on x  
7 ?stop;           ? stop: do not view graph  
7 sort x y @fit;    ? sort data by x  
8 print x y @fit;   ? get a table of the data and the fitted values  
9 graph(preview,title='OLS fit') x y @fit; ? graph: scatter plot and  
fitted line  
10 end;           ? here the program ends
```

EXECUTION

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Current sample: 1 to 100

Univariate statistics

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Number of Observations: 100

	Mean	Std Dev	Minimum	Maximum
Y	0.0021285	1.07482	-2.99799	1.84696
X	0.10601	1.01712	-2.40363	2.41468

	Sum	Variance	Skewness	Kurtosis
Y	0.21285	1.15523	-0.42055	-0.56118
X	10.60088	1.03453	-0.12662	-0.15202

	X	Y
1	-0.53954	-0.0034500
2	-0.40104	0.67720
...		

Equation 1

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Method of estimation = Ordinary Least Squares

Dependent variable: Y

Current sample: 1 to 100

Number of observations: 100

Mean of dep. var. = .212852E-02	LM het. test = .682480 [.409]
Std. dev. of dep. var. = 1.07482	Durbin-Watson = 1.74985 [<.120]
Sum of squared residuals = 114.361	Jarque-Bera test = 4.33935 [.114]
Variance of residuals = 1.16695	Ramsey's RESET2 = .426431 [.515]
Std. error of regression = 1.08025	F (zero slopes) = .616293E-02 [.938]
R-squared = .628831E-04	Schwarz B.I.C. = 153.208
Adjusted R-squared = -.010141	Log likelihood = -148.603

Variable	Estimated Coefficient	Standard Error	t-statistic	P-value
C	.124020E-02	.108616	.011418	[.991]
X	.837975E-02	.106742	.078504	[.938]

	X	Y	@FIT
1	-2.40363	-0.50471	-0.018902
2	-2.07128	-0.48055	-0.016117
...			

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END OF OUTPUT.

MEMORY USAGE:	ITEM:	DATA ARRAY	TOTAL MEMORY
	UNITS:	(4-BYTE WORDS)	(MEGABYTES)
MEMORY ALLOCATED	:	500000	4.0
MEMORY ACTUALLY REQUIRED	:	2431	2.1
CURRENT VARIABLE STORAGE	:	902	