

MATLAB PRACTICE

In both exercises with MATLAB the results should be presented in word and the procedures in a script as .m file.

1. Using the file **wage.xlsx** and functions in PANEL DATA TOOLBOX, create a script to perform the estimation of the following econometric specification

$$\ln W_{it} = C + \ln P_{it-1} - U_{it} + \mu_i + v_{it}$$

Where W represents the wage, P the price index and U the unemployment. μ_i and v_{it} are individual effects and error term respectively.

The complete analysis must contains:

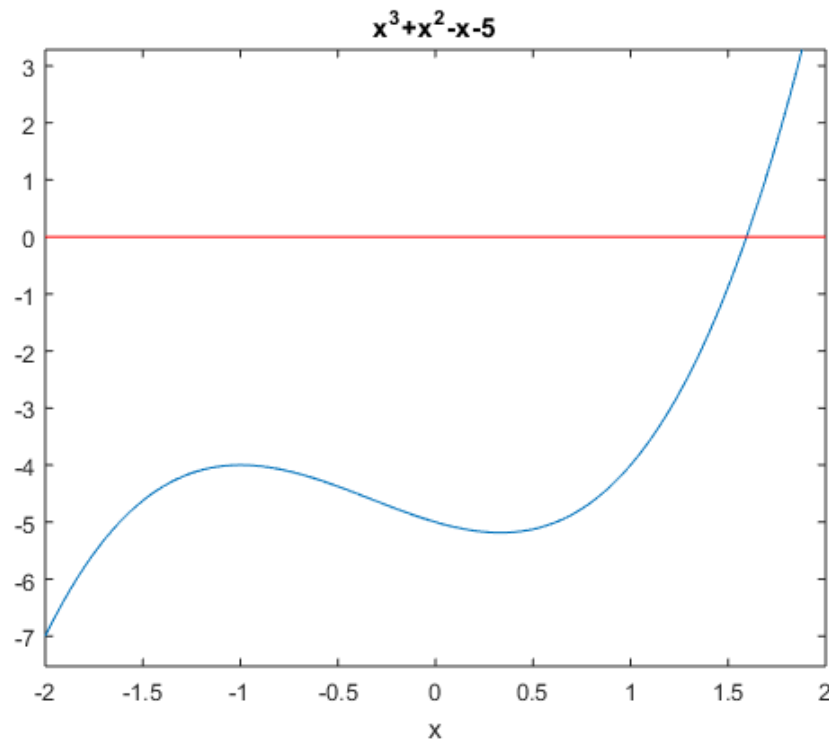
- OLS estimation.
- Panel data estimation (fixed and random effects).
- The tests to choose the most adequate estimator.

2. Consider the following objective function:

$$f(x) = x^3 + x^2 - x - 5$$

- Define the objective function as an anonymous function or as a function in a file.
- Plot the objective function between -2 and 2.

[Result should look as follows or better]



c) Using the optimization functions find the zero of the function.

[Hint: Look at the graph to choose a good initial guess]

d) Find the maximum of the function between -2 and 0. Display both where is the maximum and the value of the function at the local maximum found.

e) Find the minimum of the function between -1 and 2. Display both where is the minimum and the value of the function at the local minimum found.

[The output of the script should be informative. Example:]

```
Zero:
1.5943

Maximum between -2 and 0 located at x=
-1.0000

At the maximun, the function evaluates to: f(x)=
-4.0000

Minimum between -1 and 2 located at x=
0.3333

At the minimun, the function evaluates to: f(x)=
-5.1852
```

Pack all the files in a compressed .ZIP file and send through e-mail to:
inmaculada.alvarez@uam.es