

Exercise class 9

Introduction to Programming
and Numerical Analysis

Class 3

Annasofie Marckstrøm Olesen
Spring 2023

UNIVERSITY OF COPENHAGEN



Inaugural project

Data Project

Feedback on the Inaugural project

Generally, very good job on the coding in questions 1-3! Don't forget to also write some text interpreting your results.

Question 3: SLSQP behaves a bit weird - remember to do an "intuition check" of your results. Also good idea to check if different solvers give same result.

Question 4: If you have trouble setting up the minimization problem, start with just examining how your regression estimates vary when you change α and σ , interpret and compare to Siminski and Yetsenga.

It's also a good idea to reflect a bit on what the data actually says. What is the interpretation of $\beta_0 = 0.4$ and $\beta_1 = -0.1$?

Feedback on the inaugural project

Question 5 is mandatory for the exam!

An "extension" means that you modify one or more of the equations in the model. It is not sufficient to just change the value of a parameter such as σ or the wages.

If you have an extension in mind but have trouble implementing it, **don't just leave the question blank!** Write down:

1. What the extension is: which equations are you modifying? Why is it interesting?
2. How could the extension be implemented in the code?
3. What have you tried to do, and what do you think went wrong?
4. What did you do to try to solve the problem?

Feedback on the inaugural project

For example:

"Women working more at home than men could also be explained by —. To add this to the model, I modify equation — to —. The interpretation of this is —.

To implement this extension, I write a function that takes — as input and returns —. This function is supposed to do —.

When running the code, however, I get an error message of —. I have examined whether this error is caused by x , y or z , but this does not seem to be the case."

A few words on the data project (repeated from last time)

Objective: Download and clean data then do some empirical analysis - but how, what and why is entirely up to you!

Choose something interesting but manageable. Since each project is different, the possibility to copy code from lectures will be limited.

You can get data from API's or by downloading manually to ie. a CSV-file.

For the analysis, focus on presenting your data in a nice way, ie. through a pretty figure or table. Think about the point you want to get across - how can you best illustrate that?

Inspiration for data (repeated from last time)

- Statistics Denmark, or pydst or dstapi (see lecture on fetching data)
- Pandas-datareader can access many data sources, including Federal Reserve, NASDAQ, World Bank, Yahoo Finance etc. (see lecture on fetching data)
- Our World in Data, or the package owid-catalog
- Understat (European Football Leagues)
- IMDB-data and the Cinemagoer package
- FiveThirtyEight hosts all code and data on their GitHub
- This list of publicly available API's (You may need to interact with the API directly instead of using a package.)