

Exercise class 5

Introduction to Programming
and Numerical Analysis

Class 3

Annasofie Marckstrøm Olesen
Spring 2023

UNIVERSITY OF COPENHAGEN





Random numbers

Problem set 2

Poll

Problem set 2 and using random numbers

Simulating random numbers is an absolutely fundamental tool in numerical economics:

- Models with uncertainty about outcomes
- Models with heterogeneity in preferences, endowments, productivity...
- Simulation of difficult integrals (Monte Carlo Integration)

Take-aways from this weeks' lecture + exercise:

- Drawing random numbers from specified distributions.
- Using seeds and states to ensure reproducibility.
- Solving an exchange economy model with heterogenous preferences.
- Numerical integration by Monte Carlo.

Problem set 2

Plan for today:

- Now-16: You solve the **Tasks**.
- 16-16.15: Break
- 16.15-16.25: Solutions to tasks + tips for the **Problem**.
- 16.45-17: Finish together + Poll

Solving the exchange economy equilibrium

Think "algorithmically" - what does the solution look like, and which steps do we take to get there?

The solution: A set of prices that result in market clearing.

The steps:

1. Create the agents, their preferences and their endowments using a random number generator.
2. For a given set of prices p , compute each agent's income and demand for each good.
3. Compute aggregate demand, aggregate supply and excess demand at prices p .
4. If markets do not clear, try another value of p and return to step 2. Use a root finding algorithm to update guesses.



Poll



Student Login

Room Name

JOIN



English ▾

Next time

Video lectures

- Structure, debugging and git
- Consumption
- Labor supply
- Production Economy

Physical lecture:

- Inaugural project

Exercise:

- Work on inaugural project