

Introduction to Microsimulation
Wintersemester
2022/2023
Course Overview

Helena Vitt

Institute for Socio-Economics

Email: helena.vitt.due@gmail.com

Campus Duisburg, LE 407a

Seminars: Every Tuesday, 12.00 pm – 02.00 pm

A. Description

Microsimulation models – Developing Social Protection

The advantage of microsimulation models is that it allows for an ex-ante as well as an ex-post analysis of the impact of policy changes. In tax and benefit models, such as the STSM from the DIW or MSM-TTL from the Ifo Institute potential effects of tax or transfer reforms on the distribution of income as well as a labor supply can be simulated. Therefore, microsimulation models are widely used in the analysis of social protection policies.

In this course, we will learn the basics in setting up a microsimulation model based on household data. The overall goal will be the creation of a policy instrument that effectively reduces income inequality. For that matter, we will first:

1. Thoroughly analyze the dimensions and extent of income inequality and poverty of the given households in the data set.
2. Based on this analyze, we will develop a proper policy response such as the introduction of a child benefit, unemployment benefit or other transfers that potentially reduce poverty and/or inequality.
3. After agreeing on a potential solution, we will set up the microsimulation model, simulating the introduction of the chosen policy instrument. Afterwards, the impact of the instrument on poverty and income inequality will be analyzed.

The microsimulation model will be developed in Stata. Therefore, it is quite helpful for this course if you already know some basics about Stata.

Final goal of this seminar:

- Development of a microsimulation model, which analyzes the distributional effects of a social policy in form of a cash benefit
- Development of social policy aiming to reduce inequality and poverty

B. Timetable

The meetings are planned to be all in-person. However, due to uncertainties regarding the energy crisis, we might have to change back to online meetings.

In each seminar meeting, I will introduce a part of the microsimulation modelling process. Afterwards, you will have time to apply the presented process in your own microsimulation model. From time to time, I will give you small tasks to prepare at home, which we will then discuss in class.

| Meeting | Date | Topic |
|---------|--------|--|
| 1 | 11.10. | Introduction to microsimulation |
| 2 | 18.10. | A first go at a microsimulation model (Descriptive Statistics) |
| 3 | 25.10. | A first go at a microsimulation model (Benefit Simulation) |
| | 01.11. | Feiertag |
| 4 | 08.11. | Overview of income tax systems |
| 5 | 15.11. | Setting a tax simulation |
| 6 | 22.11. | Distributional analysis of an income tax (I) |
| 7 | 29.11. | Distributional analysis of an income tax (I) |
| 8 | 06.12. | Behavioral Model |
| 9 | 13.12. | Behavioral Model |
| | 20.12. | Christmas Break |
| | 27.12. | Christmas Break |
| | 03.01. | Christmas Break |
| 10 | 10.01. | Tutorials on Development on Microsimulation Models |
| 11 | 17.01. | Tutorials on Development on Microsimulation Models |
| 12 | 24.01. | Presentations |
| 13 | 31.01. | Presentations |

C. Examination

1. Policy Brief

Imagine being hired as social policy experts to advise the government on potential social policies, that tackle the problem of inequality and poverty in the country. The aim is to find instruments that most efficiently provides a solution to that problem. In a group of max. 2 persons, create a policy brief that entails:

- An analysis of inequality and poverty in the country of the data set
 - o The analysis should look into detail how poverty and inequality is structured: Differences by gender, region, education depending on level of analysis
- Proposal of two different types of policy interventions in the form of either a transfer or a tax
 - o Based on the poverty and inequality analysis, two types of policy interventions should be developed, which might elevate poverty and/or inequality
 - o Which policy interventions are proposed and why?
- Presentation of the results of the simulated policy intervention
 - o Impact Analysis on Inequality and Poverty
 - o Benefit Incidence Analysis
 - o Behavioral Model
- Concluding Recommendations of Policy Intervention
 - o Which measures could be further implemented to reduce inequality and poverty?

The policy brief should be around max. 5000 words. The deadline of the policy brief is on the 3rd of March 2023, 23:59.

2. Presentation of Policy Brief:

- Imagine presenting the findings of your brief to government officials. The target audience of your presentation therefore knows the basics about social policy but is not an expert on the specifics of their effect on poverty and inequality. The presentation should present the main findings of your brief short, precisely and easy to understand. It is recommended to use graphs, if they help to bring across your point. Essentially, you want to convince the government officials that your analysis is on point and your policy instruments should be implemented.
 - o The presentation should precisely entail your findings of the poverty and inequality analysis
 - o Show which and why you chose your policy instruments
 - o Present the effect of the chosen instruments on inequality and poverty

3. Grading

80% of the grade is made up by the policy brief and the do-file. 20% of the grade is based on the presentation. The do-file should be well structured, easy to understand and should be running through without any errors.

D. Complementary Readings

O'Donoghue, Cathal, Practical Microsimulation Modelling (Oxford, 2021; online edn, Oxford Academic, 23 Sept. 2021), <https://doi.org/10.1093/oso/9780198852872.001.0001>, accessed 19 Sept. 2022.