Advanced Public Economics — Applied Tutorial

Instructor: Dr. Daniel Weishaar

WS 2025/2026 — University of Cologne

Course Description

This course is a complementary applied supplement to the lecture on Advanced Public Economics by Prof. Dr. Felix Bierbrauer. The course provides an introduction to empirical methods in public finance, with a focus on hands-on coding exercises that illustrate how insights from theoretical public finance analyses can be brought to the data and used to inform public policy. All course materials, including slides, and replication code, will be made available through a dedicated GitHub repository.

Logistics

Meeting time: Tuesdays, 17:45–19:15
Date range: 25 November 2025 – 03 February 2026
Location: 106 Seminarraum S12 (106/01/1.06)

Contact

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Schedule

Date	Topic
25.11.2025	Course Overview / Introduction to Tools for Empirical Research
02.12.2025	Optimal Tax Rates, Estimating Optimal Top Tax Rates
09.12.2025	Optimal Tax Rates, Estimating Shape of Optimal Tax Rates
16.12.2025	Optimal Tax Rates, Inverse Optimum Approach
	Christmas break
13.01.2026	Tax Reforms, Microsimulation Models I
20.01.2026	Tax Reforms, Microsimulation Models II
27.01.2026	Tax Reforms, Estimating Revenue Effects
03.02.2026	Tax Reforms, Estimating Welfare Effects

Note: This is the first time this course is taught. Thus, changes in the schedule might occur.

Assessment Scheme

Similar to the assignments from the lecture, there will be one assignment dedicated to the applied course supplement. More information will follow before the Christmas break.

Prerequisites

- **Lecture Material:** A solid understanding of the material covered in the lecture is essential. While we will briefly recap the intuition behind selected formulas, there is no time to review full derivations. This will allow us to focus on the empirical implementation.

- **Coding Experience:** Some prior coding experience is useful, but not required. We will build up the necessary workflow step by step.

- **Hardware and Software:** Please bring your laptop to each session if possible. We will mainly use the following software:

    - **R** (statistical programming language)
    - **RStudio** (main development environment for this course)
    - **Git** (for version control and access to the GitHub repository)

  Please install all required software before the first session (see the instructions below).

Instructions for Software Installation

Please install the following software before the first session: **R**, **RStudio**, and **Git**. This setup mirrors standard empirical research workflows and ensures that you can run all examples and follow the tutorials smoothly.

1. **R.** Download R from the Comprehensive R Archive Network (CRAN). Choose the installer for your operating system and follow the default installation steps. RStudio will automatically detect your R installation.

2. **RStudio.** Download the free RStudio Desktop edition from posit. Install using the default settings. RStudio provides an integrated interface for coding, plotting, file management, and version control.

3. **Git.** Git is required for accessing and updating the GitHub repository with course materials. Installation depends on your operating system:

    - **Windows:** Download from `https://git-scm.com/download/win` and install with default settings. Verify via `git --version` in "Git Bash".
    - **macOS:** Installation recommended via Homebrew. Type `brew install git` in "Terminal". Alternatively, use the installer at `https://git-scm.com/download/mac`. Verify using `git --version` in "Terminal".
    - **Linux (Debian/Ubuntu):** Installation via "Terminal". Type `sudo apt-get update && sudo apt-get install git`.

  After the installation,

- Set your name and email (required for commits):

```
git config --global user.name "Your Name"
git config --global user.email "your.email@example.com"
```

- Clone the repository of the course:

```
git clone https://github.com/DWeishaar/tutorial-publicecon.git
```