SYLLABUS

Computable General Equilibrium Modelling

Provided by Luc Savard

Introduction

Economists use several types of models to understand and explain economic phenomena. Among these tools, we find computable general equilibrium (CGE) models. CGE models are not forecasting tools: they are above all simulation models that attempt to explain the mechanisms of transmission of economic shocks or public policies.

To be able to construct and use a CGE model, an economist must master each of the following aspects, which will be covered during this training:

1. **Economic theory**. CGE modelling is based on strong theoretical micro and macroeconomic foundations. It is therefore essential that these foundations are well understood by the modeler, both for the construction of the model and for the explanation of the results.
2. **National accounting**. The statistical basis of a CGE model is the social accounting matrix, a table of economic accounts built on the basis of the system of national accounts.
3. **Programming**. The resolution of a CGE model requires the use of software: we will use GAMS.

General objectives

The objective of this course is to introduce participants to computable general equilibrium modeling. At the end of the course, the student will be able to:

1. Build a social accounting matrix.
2. Develop the theoretical and mathematical structure of computable general equilibrium models and understand the implications of the chosen assumptions.
3. Use GAMS to numerically solve a CGE model.
4. Simulate policy scenarios and shocks and interpret simulation results.

Specific objectives

Specific objectives for each lesson will be specified at the beginning of the lesson. These objectives must be achieved by the end of each lesson, since they are the basic requirements to successfully proceed to the next lesson. This means that at the end of each lesson, the student must be sure to understand the concepts of that session before moving on to the next one.

The evaluation of the students' understanding will be done through regular quizzes and exercises to be done at different times of the session. An individual oral evaluation at the end of the session will complete the evaluation of participants.

Instructional approach

To facilitate learning, a progressive approach is proposed. This means explanations start with simple examples and the complexity of examples increase with the increasing understanding of the students.

For each lesson, narrated presentations are available. The lessons also contain exercises and readings in order to allow the student to understand the notions and concepts. Finally, additional documents are made available to students to enable them to deepen their understanding of certain concepts. The course includes 2 live Q&A sessions where participants can interact directly with the instructors and other participants.

Learning steps

For each lesson, the learning steps will be set out. In general, these steps consist of:

1. Watching the narrated presentation(s).
2. Doing the mandatory readings.
3. Doing the suggested exercises.
4. Making sure to master the concepts.

Supervision strategy

Students are encouraged to communicate their questions using the forum available for each session. In the case of a more specific problem, or in case the use of the forum is impossible, the student can

communicate by email with the teacher. A period of availability will be determined at the beginning of the session.

Content and activities

Part 1 - Theoretical Framework

- Lesson 1 - Introduction
- Lesson 2 - Theoretical Framework
- Lesson 3 - A Simple Example

Part 2 - Statistical Base

- Lesson 4 - Social Accounting Matrix

Part 3 - Operationalisation

- Lesson 5 - Model AUTA
- Lesson 6 - Model AUTETA
- Lesson 7 - Model EXTER

Part 4 - Applications

- Lesson 8 - PEP Standard model