PEP-Training program in Development Policy Modeling

May 2nd-6th 2013

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OBJECTIVES:

To develop the expertise of economists interested in learning how to build a multi-sector macro model able to analyze the macroeconomic impact of policies such as fiscal reforms or shocks (internal or external) on the national economy.

MODALITIES:

The workshop includes both distance learning components and classroom training. The distance training provides a review of the basic elements of micro-economic theory (consumer, producer…), an introduction to the construction and the use of a Social Accounting Matrix (SAM), which is used as the data base for modelers.

During the 5 days of this intensive training, participants will build CGE models, step by step, starting with a very simple model representing an economy in autarky without government, to end up with an open economy. For each model, the hypotheses and specifications will be explained, as well as the SAM used. Then, participants will be invited to interpret results of simulations.

At the same time as the conceptual framework, an introduction to the GAMS software (the main tool used by the international scientific community in the construction and use of Computable General Equilibrium (CGE) models) is provided.

Outcomes:

At the end of this course, participants will:

- Understand the logic and utility of CGE models to analyze economic problems of developing and developed economies;

- Understand the data requirements and statistical needs of implementing such models;

- Have a basic command of the GAMS software;

- Be able to understand the economic logic underlying CGE models;

THURSDAY MAY 2ND

9h-12h30

General presentation of Computable General Equilibrium (CGE) Models and Social Accounting Matrix (SAM):

In this session we present the different uses of CGE models, what they can/cannot do, what type of data we need… Then we present the SAM, how it is built and how it works.

12h30 -14h   Lunch time

14h -17h

Presentation of the AUTA model.

This model refers to an economy without government, in autarky. Presentation of the SAM and related equations.

FRIDAY MAY 3RD

9h-12h30

Introduction of GAMS software:

Presentation of the GAMS (General Algebraic Modeling System) code of AUTA, step by step. The rest of the morning will be devoted to exercises on GAMS, to familiarize participants with the software.

12h 30-14h Lunch time

14h -17h

Interpretation of simulation

Participants will be introduced to simulations using this very simple model. Simulations will involve an increase in the capital stock in a given activity or labor supply in the economy. Participants will work in small groups and then present their results.

17h30-19h

Free session: Exercises on GAMS:

In this session, participants will finish the morning exercises. Half of the exercises will deal with compilation errors; the other half will refer to calibration errors, also called infes. This kind of exercises is extremely useful for the participants because it improves their skills and their ability to find solutions to the problems they meet.

SATURDAY MAY 4TH:

9h-12h30

Presentation of AUTETA

The AUTETA model will be presented. This model is a bit more complex than AUTA because a new agent is added: the government. This change implies a change in the Social Accounting Matrix, as well as some changes in the writing of the equations. Thus, time will be spent on the explanation of the SAM, focusing on the new accounts. Then, particular attention will be paid to the new parameters and variables.

12h30 -14h: Lunch time

14h-17h

Writing of AUTETA in GAMS

The whole afternoon will be devoted to the writing of AUTETA on GAMS. Participants will have to write it by themselves, but will be able to ask for some help if needed.

17h30-19h

Free session: End of AUTETA on GAMS:

For participants who are not finished writing the AUTETA model.

SUNDAY MAY 5TH:

9h-12h30

Interpretation of simulation using AUTETA and closure rules:

In the first half of the morning, participants will be invited to simulate a shock and then explain the results to the other participants. This time, the shock will be a decrease in public spending by 10%. With the introduction of the government, results will become more interesting and more difficult to analyze.

In the second half of the morning, the instructor will explain the closure rules in such model and how important they are.

12h30 -14h Lunch time

14h-17h

<u>Introduction of the rest of the world, the EXTER model:</u>

First, we will start by explaining the SAM, focusing on what is added from the previous one. Then we will explain the trade relationship and what they imply in this type of modeling. Introduction of the current account, as well as the concept of real exchange rate. Closure rules in an open economy model.

Review of the new set of equations and calibration of the trade equations.

MONDAY MAY 6 TH:

9h-12h30

<u>Interpretation of simulation using EXTER:</u>

Interpretation of simulation with the open model, explanation of transmission mechanisms.

12h30-14h Lunch time

14h-17h

<u>Presentation of the PEP 1-1 model:</u>

In this session, we will present the PEP 1-1 model, a standard CGE model that is a bit more complex than EXTER. We would like the participants to use this specific model.

The GAMS code of this model will be presented as well. Note that, for this specific session, participants can download the GAMS code and the presentation directly from the PEP website: http://www.pep-net.org/programs/mpia/pep-standard-cge-models/