

61348 - New Macroeconometric models

Syllabus Information

Academic year: 2023/24

Subject: 61348 - New Macroeconometric models

Faculty / School: 109 - Facultad de Economía y Empresa

Degree: 525 - Master's in Economics

ECTS: 3.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

Moving in the field of macroeconomics at the highest level requires understanding and using software that exploits the full potential of DSGE (Dynamic, Stochastic, General Equilibrium) models. The tool Dynare is very helpful in achieving this goal and the current subject introduces it to the students.

Dynare is a digital platform for operationalising macroeconomic models with the most advanced representations of the aggregate behaviour of economies: it can represent partial equilibrium phenomena, general equilibrium, interrelationships between different economies, short run, long run or both simultaneously, supporting both neoclassical and New Keynesian features, and estimating models for specific economies.

All of this is presented following its user's guide, reference manual, website, forum, etc.

This is a self-content subject. Only basic computer skills are required.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement:

- Goal 3: Health and Well-being
- Goal 8: Decent Work and Economic Growth
- Goal 9: Industry, Innovation and Infrastructure.

2. Learning results

Upon completion of the subject, the student will:

- a) Know the fundamental elements of the Dynare software package for dynamic and stochastic general equilibrium models (DSGE models).
- b) Know how to program, solve analytically and numerically, simulate, predict and estimate macroeconomic models of the neo-Keynesian synthesis with Dynare.
- c) Be able to formulate DSGE models for an economy with any characteristic of preferences, time horizon, rigidities in the goods or input market, with or without rational expectations and with any fiscal and monetary policy rule, with the necessary requirements to be operational in the Dynare software package.
- d) Be able to design simulation exercises of any type of economy to determine the consequences of fiscal, monetary or structural policies with the Dynare software package.

3. Syllabus

1. Presentation

Solution of stationary DSGE models

Deterministic and stochastic models

Dynare's .mod structure: an example

The complete file

3. Estimation of stationary DSGE models

Declaration of observable variables

A priori distributions

Launch of the estimate

Complete .mod file

The output

4. Solution of non-stationary DSGE models

Non-stationary models: an example

The origin of non-stationarity

Stationarisation of the variables

The complete .mod file

5. Estimation of non-stationary DSGE models

Linking stationary variables to the data

The block of the resulting model in the .mod file

The complete .mod file

Summary

4. Academic activities

The learning process combines the theoretical exposition by the teacher with the active participation of the student, who will have to prepare problems or works proposed by the teacher for some of the classes.

Computer resources will be used in most of the classes, so it is assumed that students have a laptop computer.

The study and, above all, the individual effort of the student is necessary for the practical work that takes a good part of the subject.

Classes are scheduled to be face-to-face. However, if necessary for health reasons, classes may be taught in a blended or online format.

5. Assessment system

The student must demonstrate achievement of the intended learning results through the following assessment activities:

Works, presentation of works and class participation: 50%.

Final exam: 50%

In accordance with the provisions of the UZ Evaluation Regulations, there will be the possibility of a global assessment test.

It is foreseen that all tests will be carried out in person, but if health circumstances require it, they will be carried out in a blended or online manner.