

Macroeconomic Simulations with MAKROMAT (Abstract)

MAKROMAT is a macroeconomic simulation environment in which students can build their own macro-models within a pre-structured framework. The software allows for WYGIWYK (What You Get Is What You Know), i.e. users can start with very simple income-expenditure-models for basic multiplier analyses and go on to more sophisticated models just by adding supplementary model blocks. The non-relevant part of the underlying equation shell is hidden from the user, so students can work with the simulation environment from the beginning of their first courses in macroeconomics. As their knowledge grows they can make use of more and more modelling features (e.g. Mundell-Fleming-models, inflation models). By means of individual experimental calculations (sensitivity analyses, policy simulations) the user is free to analyse as many examples as he or she likes to. Therefore MAKROMAT is designed as a supplementary simulation-tool for macroeconomic textbooks which supports explorative and experimental learning. Since MAKROMAT can be downloaded for free from its website (www.makromat.de) the whole number of current users is unknown. At the University of Muenster the software is part of the macroeconomic courses for undergraduates (approx. 800 students per year). It is also used in macroeconomic courses at the University of Bochum. It is used in the classroom (during three of twelve sessions in the last winter semester at Muenster) as well as by the students on their own when they work at home. The focus is on the last kind of usage: individual simulation experiments for getting familiar with the model behaviour and for finding the implications of the underlying theory. In May 2000 a MAKROMAT-based german textbook was published which includes MAKROMAT on a CD-. In this book macroeconomics are presented in an extended case study story. Students can work with it while attending basic as well as advanced courses in macroeconomics.

Example of use:

A student who has just learned about the Haavelmo-theorem may ask himself whether this effect does work with autonomous as well as with income dependent taxes. So he starts by reconstructing the model that was presented during the lecture and experiments with the tax and government-expenditure functions. Further analyses will show that the simple Haavelmo-effect does not necessarily come into force instantaneously and that there is a difference between the comparative-static and the dynamic aspect of the Haavelmo-theorem.

More advanced students might analyse within an inflation-income-framework (demand side: dynamic Mundell-Fleming-model; supply side: extended Phillips-curve model) whether rational expectations imply that monetary policy actions are ineffective under all circumstances. They will find that there is a difference between the short-term and the long-term view when the money demand is interest dependent. By experimenting with different Phillips-curve approaches they will see that there might be even a real long-term effect of a change in the monetary growth rate.

Web: www.makromat.de

Literatur:

Kooths, S.: Gesamtwirtschaftlicher Modellbau mit MAKROMAT; München : Vahlen 2000. [Lehrbuch]

Kooths, S.: Das CAL-Werkzeug MAKROMAT 5.0 - Ein Simulationsprogramm für den makroökonomischen Modellbau; in: Wirtschaftswissenschaftliches Studium (WiSt), 28. Jg., Heft 1 (Januar 1999), S. 39 ff. [Überblicksartikel]

Kooths, S.: Erfahrungsregeln und Konjunkturdynamik – Makromodelle mit Neuro-Fuzzy-generierten Erwartungen; Frankfurt/M. : Peter Lang 1998. [MAKROMAT-Forschungsversion]