

## Exploring University Design

### The prototype microsimulation model U-SIM-7

Hardy Hanappi

Economics, University of Technology, Vienna (Austria)

[www.tuwien.ac.at/hanappi/](http://www.tuwien.ac.at/hanappi/)

[Hanappi@econ.tuwien.ac.at](mailto:Hanappi@econ.tuwien.ac.at)

Bernhard Rengs

Economics, University of Technical, Vienna (Austria)

[bernhard.rengs@econ.tuwien.ac.at](mailto:bernhard.rengs@econ.tuwien.ac.at)

Paper contributed to the 1<sup>st</sup> General Conference of the International Microsimulation Association, Vienna, August 20 – 22, 2007.

Area: Dynamic microsimulation models

#### Abstract

In this paper we present U-SIM-7, the prototype of a microsimulation of a university, which is embedded in a macroeconomic environment. The goal of U-SIM is to explore the interdependencies between the design of a university, including central quantitative parameters, and the overall economic performance of the political economy in which it is embedded. This type of investigation should provide new, i.e. less singular and more consistent insight into the possible reform paths of tertiary educational institutions that currently are on the agenda in the member states of the European Union.

The structure of U-SIM-7 allows for the specification of four heterogenous sets of micro-agents: students, teachers, researchers and administrators. Within each of these sets a further (but rather limited) sub-division into types is allowed for; e.g. five student types with different financial backgrounds can be distinguished, different types of coinciding teacher-researcher mixes can be assumed, and so on. Each agent type acts according to its own internal model.

The endogenous dynamics of these sets work within a set of exogenous trajectories that characterize economic supplies for a university's inputs (people, financial inputs, ...) as well as economic needs for a university's output (academics, skilled drop-outs, patents, knowledge, ...). In a simple macroeconomic growth model macroeconomic performance, including welfare implications, serves as exogenously given embedding scenario.