

Economic Equilibrium with Transport: A GAMS Programming Tutorial

Wisconsin Institutes for Discovery
University of Wisconsin
Madison, WI
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Instructors

Prof. Thomas Rutherford, University of Wisconsin

Renger van Nieuwkoop, Swiss Federal Institute of Technology, Zürich

Description

This workshop introduces economic concepts and GAMS programming techniques for modeling spatial economic models. These models are suitable to study policy issues at the interface of transportation investments, economic activity and location decisions by households and firms.

Economic and mathematical concepts that will be treated include price theory, model calibration, traffic congestion externalities, agglomeration externalities and the interplay between transportation infrastructure and economic activity.

Programming techniques are presented related to implementation, debugging and reporting of network models in GAMS. These models may be formulated as linear or non-linear optimization problems or in complementarity format. Visualization tools based on a transparent R interface are included with the course materials.

The course will cover the following economic and transportation models implemented in GAMS:

- several manifestations of the canonical network model including applications to electricity, natural gas, and transportation supply chains,
- a spatial price equilibrium model with imperfectly competitive firms
- a classical von Thünen landuse model,
- a spatial general equilibrium model inspired by the markets for mules and porters in Lamjung district Nepal,
- a spatial model with agglomeration externalities,
- a Wardropian Model traffic network model,
- an integrated transport-household sorting model.

The course will be a mix of lectures and computing exercise sessions. Participants should bring their own laptops. During the hands on sessions the instructors will interact with the groups on class topics, questions and general GAMS usage.

Preparation

Participants should download GAMS version (www.gams.com) and R (www.r-project.org). Course materials will be made available to participants on registration.

Course Site and Accommodation

The workshop will be held from Monday to Friday, July 16-20, from 9am to 4pm (on Friday 3pm) at the Wisconsin Institutes for Discovery at the University of Wisconsin Madison (www.discovery.wisc.edu), which is located at 330 N. Orchard Street, Madison, WI 53715. Information on hotels and other housing options will be provided for registrants.

Note that the Swiss Federal Institute of Technology will organize a workshop on the use of MATSim (Multi-Agent Transport Simulation) in the week from July 23-27 at the same location. More information on this workshop can be found at www.matsim.org.

Fee and Payment

There is no fee for university students from the UW state system or ETH. There is a fee of \$500 for other academic participants and \$2000 for all other participants. Non-student participants are admitted on a first-come-first-serve basis subject to availability. Enrollment is limited to 25 participants. The fee includes an evaluation version of GAMS, a set of course notes, papers and model files.

Registration

To register by phone, fax, or e-mail, contact:
Course Coordinator (John O'Reilly)
GAMS Development Corp
joreilly@gams.com
tel: +1 202-342-0180
fax: +1 202-342-0181