

MobiDK Project

The MobiDK project is a unit of the Ministry of Business and Industry of the Danish government. It was formed in September 1996 with the intention of developing modeling skills within the Danish government, as well as in the broader Danish academic and policy community. Those skills span the development of micro-consistent data, the construction of models as needed for policy analyses, and the evaluation of modeling analyses. The primary goal of the project has been to develop human capital amongst a cohort of brilliant Danish Ph.D. students that are attached to the unit (Anders Hoffman, Jesper Jensen, Morten Lau, and Tobias Rasmussen). Glenn Harrison and Thomas Rutherford were appointed directors of the project. The MobiDK Project web site is <http://www.mobidk.dk>. The website contains documentation on the data and models, downloadable versions of papers, and an exciting link to a real-time web interface for the models employed.

The core activities of the project have focused on the construction and use of three groups of CGE models.

The first is a large model of the Danish economy, viewed as a small open economy (SOE). This static version of the model serves as an analytical "coat hanger" for the detailed data available in Denmark. The model has up to 117 sectors, a rich treatment of domestic taxes, multiple households to allow extensive equity analysis of results, and a detailed energy sector. It allows IRTS as well as CRTS, and has been used by the Danish Competition Council for industry analyses. It also allows for explicit implementation of "compensation criteria" to ensure that all households gain from policy reforms if that is feasible. This model will remain the first "port of call" for anyone wanting to understand the extensive Danish database assembled.

Two important variants of the static SOE model have been developed, and are the versions of the model used in all policy work and publications. The first variant is a Ramsey model in which firms and households maximize over an infinite horizon and perfect foresight applies. The project has several policy papers using this variant of the model, primarily in the context of the design of Danish carbon policy. We have also written a "primer" on the way in which one can mitigate some of the implausible dynamic properties of Ramsey models for open economies. The second variant is a dynamic OLG model, in which different generations of households maximize over a finite horizon. This variant has been used to study issues of human capital formation and inter-generational burden-sharing of carbon policy.

The second is a multi-regional model of the European Union, designed to allow analysis of issues having to do with burden-sharing and competition within the EU. Building from earlier models constructed by Harrison and Rutherford, the policy issues examined include burden-sharing within the EU with respect to the EU-wide Kyoto carbon commitments, evaluation of the effects on the welfare costs of Kyoto commitments from adopting unrealistically optimistic BAU assumptions about autonomous improvements in energy efficiency, and evaluation of the effects of hastening the 'completion of the market' within the EU. Plans for next year include a complete re-building of the EU model, using newer IO and trade data (unless GTAP5 does that).

The third is a global model, using the GTAP database and the GTAPinGAMS software. The policy issues examined here include the extent of carbon leakage from Kyoto commitments by

OECD countries, burden-sharing between the North and South in the wake of Kyoto, and the effects of allowing permit trading on the incentives for coalition formation in the implementation of global carbon policy.

The real-time web interface for the MobiDK Project should interest all GTAP Consortium members. Using general software available within GAMS, we have been able to develop and use models "locally" for a specific paper or policy issue. It is then possible to quickly "package" the model for web access. Users can access the model, define counter-factual policy simulations on the web, run the model, and retrieve results all from their browser. The web link for this site is currently <http://econ.badm.sc.edu/gams-cgi/>, but this will change in the near future (general links will be provided at the MobiDK Project home page). The models currently available for access include

- General Equilibrium Model for Denmark, 1992 (117 sectors)
- General Equilibrium Model of Denmark for 1992 (27 Sectors)
- A Dynamic Multi-Regional Trade Model for Carbon Tax Policy Analysis
- The Dynamic MOBI-DK Model -- OLG and Ramsey Formulations
- Life Cycle Model with Endogenous Human Capital Formation
- Extending the Ramsey Model: Environmental Taxes and Transition

The first two are static SOE models, and the last four include various dynamic features. Welcome to the future of CGE modeling!