Uncertainty and Large Scale Models - Why continuous beats discrete sensitivity analyses

Even though we might engage in statistical evaluation of our input parameters, such as economic elasticities, our large scale models' complexity renders our standard statistical tools helpless in evaluating the scope of uncertainty on the final results. In Denmark we use many economic models ranging from econometric-based to neoclassical CGE models. All with very detailed deterministic descriptions of consumer and producer behavior using CES functions or similar. But what is the confidence interval on GDP effects from these models with respect to estimated elasticities? Given the complex nature of our models, we suggest using monte carlo simulations every time we do modelling to shed light on some of these uncertainties. By simulating models thousands of times, with input parameters being drawn from statistical distributions, we get insights of the uncertainties pertaining to these parameters. We present monte carlo simulations on the Danish Energy Agency's IntERACT model, evaluating the economic and energy system impact of energy policy shocks.

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