UNIVERSITÄT BIELEFELD
Fakultät für Wirtschaftswissenschaften

Coping with Uncertainty in Dynamic Economies

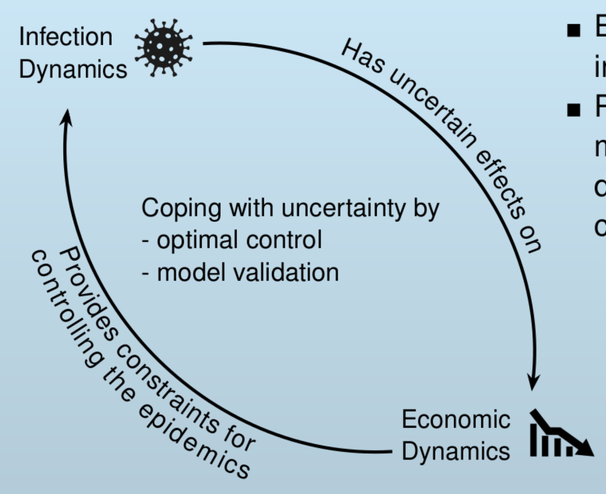
Area C: Applications – Consequences of Uncertainty for Policy and Welfare

Overview

- We study consequences of acknowledging uncertainty for policy and governance in dynamic economies.
- Deviations from subjective expected utility can be assumed.
- This makes adaption of policy advise and governance decisions necessary.
- Considered applications are epidemics, politics (trust), capacity adjustment, environmental economics, and insurance.

C1. Impacts of Epidemics in Dynamic Economies

Giorgio Ferrari and Christiane Fuchs



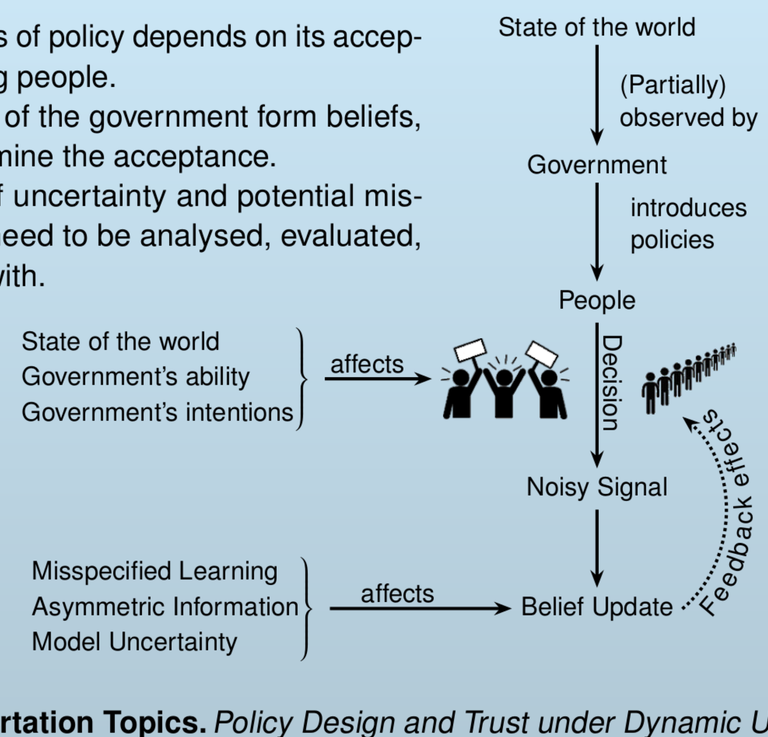
- Economics and epidemics interact in nontrivial ways.
- Provide novel epidemiological models that better integrate dynamic economies with competitive markets.

Potential Dissertation Topics. *Efficient Computation of Bayes factors; Optimal Decisions in Epidemic Models under Uncertainty*

C2. Trust in Economic Policies

Herbert Dawid, Manuel Förster, and Dominik Karos

- Effectiveness of policy depends on its acceptance among people.
- Past actions of the government form beliefs, which determine the acceptance.
- Dynamics of uncertainty and potential misperception need to be analysed, evaluated, and coped with.

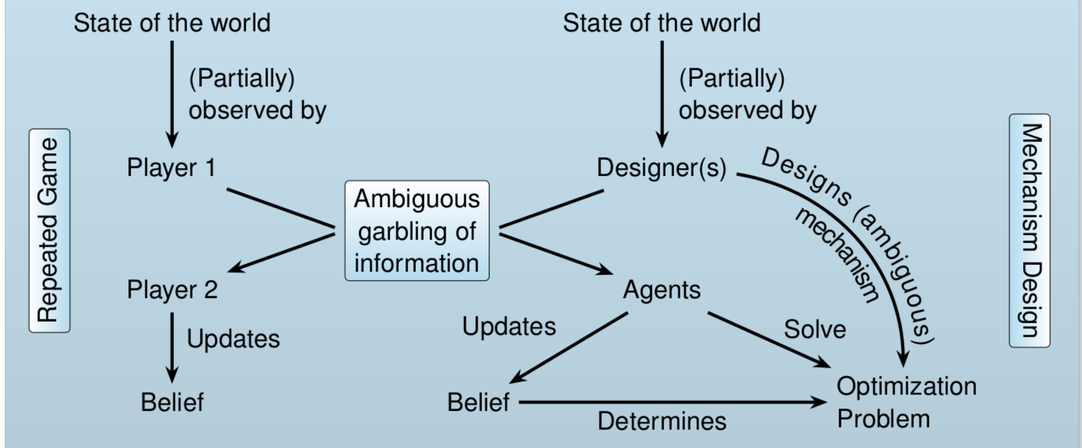


Potential Dissertation Topics. *Policy Design and Trust under Dynamic Uncertainty; Model Uncertainty in the Evaluation of Economic Policies; Optimal Policies in Societies with Heterogeneous Beliefs*

C3. Mechanism Design under Uncertainty

Dominik Karos and Frank Riedel

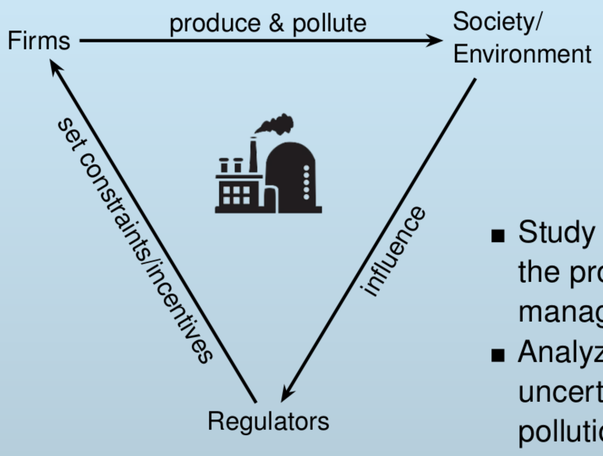
- Develop game-theoretical models under uncertainty: How is ambiguous information strategically passed on to decision makers?
- Study strategic information revelation as well as the reduction of ambiguity by competition.



Potential Dissertation Topics. *Revelation of Ambiguous Information in Strategic Contexts; Ambiguity Attitude and Revelation of Information; Competition and the Reduction of Ambiguity; Information in Repeated Games under Knightian Uncertainty*

C4. Dynamic Models of Pollution Reduction

Giorgio Ferrari and Maren Diane Schmeck



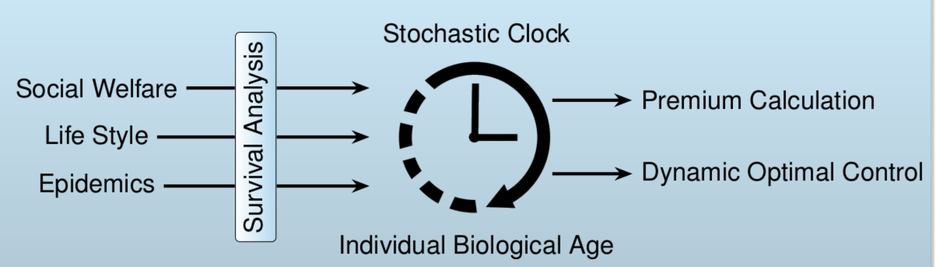
- Study novel models related to the problem of pollution management.
- Analyze effect of sources of uncertainty on the optimal pollution reduction policy.

Potential Dissertation Topics. *Optimal Reduction of Pollution under Probabilistic, Bayesian and Knightian Uncertainty; Pollution Management via "Energiewende": Theoretical Models and Empirical Analysis*

C5. Activity-based Life Insurance Modeling

Christiane Fuchs, Max Nendel, and Maren Diane Schmeck

- Dynamically evolving factors influence individual survival probabilites; model biological age via a stochastic clock steered by an activity rate which captures such uncertainty.
- Formulate, analyse and empirically test mortality models accounting for these specifications.
- Premium calculation based on non-linear subordinators and dynamic optimal control problems as life-cycle models and hedging of longevity risk.



Potential Dissertation Topics. *Activity-based Stochastic Mortality Models; Survival Analysis in Life Insurance; Nonlinear Lévy Processes in Life Insurance*