# Introduction to Dynamic Stochastic General Equilibrium Modeling (DSGE)

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# Topics Covered

- Background
- Solution logic of DSGE models
- Installation of Dynare
- Getting to know Dynare
- Real business cycle (RBC) and New Keynesian (NK) models

# Chapter 1: Introduction on DSGE Model

- Course Introduction
- Development of DSGE models
- Typical constructions of DSGE Models
- Macroeconomic database: Macro Model Databse (MMB)

# Chapter 2: Solution Logic of DSGE Models

- First-order solution of DSGE models
  - First-order solution logic
  - Log-linearization
  - State space representation of linear models
  - BK method
  - Schur method
  - Uhlig (1999) method
- Second-order solution of DSGE: Dynare solution logic
  - Taylor approximation based on perturbation: Schmitt-Grohé and Uribe (2004).
  - Curse of dimensionality and deterministic equivalence.
  - How to compute steady-state values?
  - How to calibrate parameters for exogenous technological shocks: persistence and volatility

# Chapter 3: Introduction to Dynare

- Install Dynare
- Configure Dynare
- Running and editing Dynare Files
- Managing multiple versions of Dynare
- Getting help

# Chapter 4: Advanced Dynare

- A simple example
- Classification and writing standards of dynare variables
- Basic syntax of Dynare
- Methods for inputting model equilibrium conditions: level, log-level
- Storage, calling, and listing of variables
- Compilation of Dynare files
- Connection between Dynare solution representation and state-space representation
- Analysis and calling of solution results
- Stochastic simulation with stoch_simul
- Impulse response function (IRF)
- Introduction to parameter estimation

# Chapter 5: RBC Model and NK Model with Price Stickiness

- RBC Model
  - CIA (Cash-in-Advance)
  - MIU (Money-in-Utility)
- NK Model
  - Sticky price setting
  - Price dispersion
  - Flexible price model
  - Analysis of two types of inefficiencies (distortions)
  - Dynare code and IRF analysis
  - Comparison of price and quantity Rules (for monetary policy)
- Medium-scale DSGE Models