

Welcome and Overview

Adrien Auclert (Stanford University)

Paris Dauphine Minicourse

January 2024

- This is the Dauphine Minicourse on Heterogeneous-Agent Macro
- Three days: Jan 12 (today), Jan 15 (Monday), Jan 19 (Friday)
- Two sessions per day: 1:45pm-3:15pm and 3:30pm-5pm

Workshop objectives

- 5 lectures and 2 tutorials covering:
 1. HANK: fiscal and monetary policy (in closed economies)
 2. Solution methods for GE models with heterogeneous agents

Workshop objectives

- 5 lectures and 2 tutorials covering:
 1. HANK: fiscal and monetary policy (in closed economies)
 2. Solution methods for GE models with heterogeneous agents
- By the end of the workshop, you should know how to:
 - Set up and calibrate the steady state of a heterogeneous agent model
 - Get its first-order impulse responses to aggregate shocks
- I'm assuming prior background in dynamic programming and NK models
- We'll use the **sequence-space-jacobian toolbox** to automate the hard steps. I'll teach you how to use it, as well as what's going on in the background.

Applications of the heterogeneous agent modeling framework

- Huge potential for het agent macro beyond HANK:
 - Price setting, financial frictions, firm dynamics, banking industry dynamics, search models of the labor market, the money market...

Applications of the heterogeneous agent modeling framework

- Huge potential for het agent macro beyond HANK:
 - Price setting, financial frictions, firm dynamics, banking industry dynamics, search models of the labor market, the money market...
 - Previous generation of these models have tended to:
 - focus on steady states
 - use tricks to “get rid of the distribution”
- no longer any need to do either!

Applications of the heterogeneous agent modeling framework

- Huge potential for het agent macro beyond HANK:
 - Price setting, financial frictions, firm dynamics, banking industry dynamics, search models of the labor market, the money market...
- Previous generation of these models have tended to:
 - focus on steady states
 - use tricks to “get rid of the distribution”

→ no longer any need to do either!
- Instead, can focus on key new questions for the field, eg:
 - when does heterogeneity matter?
 - what micro moments are important for aggregate outcomes?

Applications of the heterogeneous agent modeling framework

- Huge potential for het agent macro beyond HANK:
 - Price setting, financial frictions, firm dynamics, banking industry dynamics, search models of the labor market, the money market...
- Previous generation of these models have tended to:
 - focus on steady states
 - use tricks to “get rid of the distribution”

→ no longer any need to do either!
- Instead, can focus on key new questions for the field, eg:
 - when does heterogeneity matter?
 - what micro moments are important for aggregate outcomes?
- Exciting and fast growing literature. I’m looking forward to your answers!

The sequence-space jacobian: a method and a philosophy

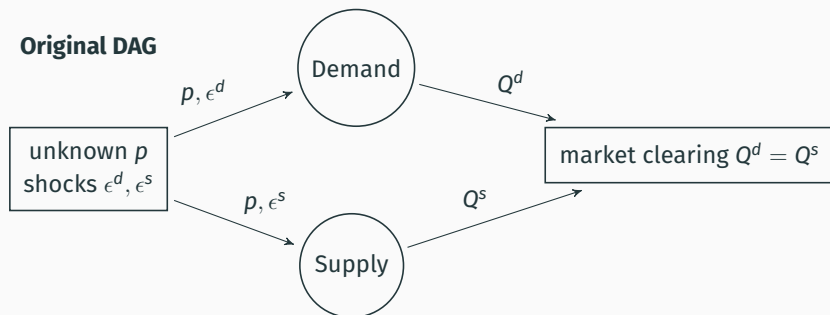
- SSJ is not just a solution method, but also a modeling philosophy

The sequence-space jacobian: a method and a philosophy

- SSJ is not just a solution method, but also a modeling philosophy
- Basic idea is to organize models into “blocks” that represent behavior of (possibly het.) agents, and interact in GE via small set of aggregates
- We'll often arrange these blocks into Directed Acyclic Graph (“DAG”).
Helpful to solve model, think about causality in GE, do decompositions, etc

The sequence-space jacobian: a method and a philosophy

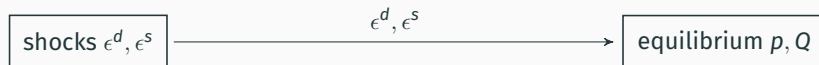
- SSJ is not just a solution method, but also a modeling philosophy
- Basic idea is to organize models into “blocks” that represent behavior of (possibly het.) agents, and interact in GE via small set of aggregates
- We'll often arrange these blocks into Directed Acyclic Graph (“DAG”).
Helpful to solve model, think about causality in GE, do decompositions, etc



The sequence-space jacobian: a method and a philosophy

- SSJ is not just a solution method, but also a modeling philosophy
- Basic idea is to organize models into “blocks” that represent behavior of (possibly het.) agents, and interact in GE via small set of aggregates
- We'll often arrange these blocks into Directed Acyclic Graph (“DAG”).
Helpful to solve model, think about causality in GE, do decompositions, etc

Solved model



- Schedule, syllabus, lecture notes, and tutorials posted at:
<http://web.stanford.edu/~aaucclert/dauphinemini/>
- Please come to tutorials with your laptops
- Please ask questions in class or during breaks!
- Let's dive in!