

Lecture 1

Introduction

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Introduction

This Lecture gives a short introduction to the broad approach taken in this course.

→ *What is modern (advanced) macroeconomics all about?*

- Modern macroeconomics seeks to explain the aggregate economy using theories based on strong microfoundations
- This contrasts with traditional approaches to macroeconomics which investigated relations between macroeconomic aggregates w/o such foundations

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- Modern macroeconomics describes the economy as a **dynamic stochastic general equilibrium (DSGE)** system, reflecting the collective outcomes of decisions taken by purposefully (often: *rationally*) behaving individuals
- Individual decisions relate to the present and the future. Hence, an intertemporal or **dynamic** (as opposed to a *static*) perspective is needed
- Individual decisions are confronted with changes in exogenous variables or shocks. Hence, models are often specified as **stochastic** (as opposed to *deterministic*)
- Individual decisions are coordinated through various markets which are interdependent. Hence, a **general** (as opposed to a *partial*) approach is needed

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- The economy is viewed as being continuously in equilibrium, in the sense that, given available information, individuals make decisions that appear optimal to them
- Of course, errors can occur and decisions which seem ex ante sensible may ex post be wrong. But it is assumed that individuals don't make persistent mistakes
- In sum, errors can be attributed to information gaps and unanticipated events. This view is consistent with a strong focus on **equilibrium** dynamics (as opposed to situations of *disequilibrium*)

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- In sum, all these important features (ie: *dynamic, stochastic, general, equilibrium*) are captured by the **DSGE**-label
- In this course, we will most of the time abstract from stochastic elements. Hence, the somewhat weaker **DGE**-label will most of the time do the job

'Microfounded macroeconomics':

- Individual decisions are understood to be consistent with the maximization of some measure of current and future expected **welfare**
- Individual decisions are subject to a number of explicitly stated **constraints** (and the details can vary from model to model!):
 - **endowments** (time, individual skills etc.)
 - **budget constraints**
 - **technology**
 - **information sets and expectation formation** (ie issues like: informational advantages of the government vis-à-vis the private sector?, rational expectations?, adaptive expectations ?, learning algorithms used by the private sector?)

'Microfounded macroeconomics':

- Decisions of economic agents relate to
 - goods and services
 - labor
 - various types of assets, ie physical assets (like the capital stock, durable consumption goods, housing) and financial assets (money, bonds, equity)
- Decisions, in economic terms, can be taken by:
 - private households
 - firms
 - government authorities (like the Treasury or the Central Bank)

'Microfounded macroeconomics':

→ Broadly speaking and somewhat simplifying...:

- Households decide over consumption, labour supply and various asset holdings
- Firms determine the supply of goods and services, labor demand, investment (physical, financial) and the use of profits
- The government determines various expenditures, transfers, and taxes, provides base money and issues government debt

'Some Implications of the micro-foundations of macroeconomics':

- Many of the parameters which describe the preference structure of individuals and enter the above mentioned constraints are '**deep structural parameters**', in the sense that they cannot be changed by government policies (unless, of course, one talks directly about policy parameters like taxes or transfers)
- **Modern macroeconomics**, through identifying and respecting deep structural parameters, provides a broad framework for analyzing the effects of policy changes and government interventions
- **Traditional macroeconomics**, because of its typically backward-looking focus on mere statistical relationships between aggregate variables, was conceptually not well equipped to predict the effects of policy changes

Modern macroeconomics offers an integrated approach for the analysis of **business cycle** and **growth** features

- **Growth models** are often deterministic and analyze the sources of long-run trend growth of economic variables like GDP or consumption
- **Business cycle** models are stochastic and analyze short-run fluctuations of the economy around the trend to various shocks (which can be permanent or temporary, anticipated or unanticipated, real or nominal, demand or supply, domestic or foreign etc.)

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→ Why is an integrated approach for the analysis of **business cycle** and **growth** features advantageous?

- **Empirically**, it is often not straightforward to see (in particular in real time!) what is a trend as opposed to a cyclical component of the observed time paths of aggregate variables
- **Conceptually**, the overall focus on equilibrium forces implies that **short- and long-run equilibrium** features should not be analyzed within different frameworks. In the short-run, the economy may certainly differ from its long-run equilibrium position. However, the short-run equilibrium position will change and over time, assuming stable dynamics, it will approach the long-run equilibrium.
- In sum, both types of approaches share the same microfoundations and it is typically the pragmatic choice of the researcher which model features he or she wants to emphasize, depending on whether the focus is on short-run or long-run features

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Modern macroeconomics takes it seriously that most decisions have a strong **forward-looking component**

- In response to unforeseen shocks it can well be misleading to extrapolate the reactions of agents from past observations
- This introduces an interesting distinction between economics and natural sciences: because people look forward when making decisions there may exist profitable opportunities for others to manipulate strategically the information on which these decisions are based
- Inanimate natural sciences, like physics or chemistry, do not have such a forward-looking component and therefore do not have this strategic dimension

Origin of modern macroeconomics:

- The origin of modern macroeconomics goes back to the work of the nobel laureates Robert Lucas (1975) and Finn Kydland and Edward Prescott (1982)
- The first influential textbook treatment used at an undergraduate level goes back to Robert Barro's book on Macroeconomics (1984)
- Initial contributions were made by economists who expressed dissatisfaction with demand-side oriented policies in (traditional) Keynesian spirit
- But over time this has changed...

Origin of modern macroeconomics:

- ...For example, Olivier Blanchard and Stanley Fisher, two prominent macroeconomists with roots in Keynesian economics, wrote an influential textbook, called 'Lectures in Macroeconomics', back in 1989.
- This book uses methods of modern macroeconomics, but it stresses that equilibrium deviations from socially optimal outcomes can be costly, because of coordination failures and possibly slow market forces during the return to full employment levels in response to adverse shocks
- Hence, macroeconomists like Blanchard and Fisher accept the methodological virtues of modern macroeconomics without giving up their scepticism towards pure supply-side economics

Where do we stand now?

- The conceptual foundations of modern macroeconomics are by now widely shared by most macroeconomists, irrespective of whether arguing in (New)-Classical or (New)-Keynesian spirit
- There is wide-spread agreement that the 'toolbox' has significantly improved in recent decades. Most policymaking institutions actively use medium and large-scale DSGE models for forecasting and policy simulations
- However, in terms of substance, the debate on how much government interventions are needed, under which precise circumstances and in which areas goes on
- Moreover, it will be exciting to see how the most recent global crisis (which was by far the worst since the Great Depression of the late 1920's) will affect the paradigm of (modern) macroeconomics

Sequence of topics to be covered:

→ **Introduction**

→ **The centralized economy – basic features** (*Main reference: Wickens*)

→ **The centralized economy - extensions** (*Main reference: Wickens*)

→ **Economic Growth** (*Main reference: Romer*)

→ **The decentralized economy** (*Time permitting*)

Moreover, there will be two self-contained lectures which introduce advanced technical concepts:

→ **Solving linearized systems of difference equations with backwardlooking and forwardlooking variables** (*Technical Session I*)

→ **Value function solutions** (*Technical Session II*)

Literature:

Farmer, R., Macroeconomics of Self-fulfilling Prophecies, 2nd edition, MIT Press, 1999.

Ljungqvist, L. and Sargent, T., Recursive Macroeconomic Theory, 3rd edition, MIT Press, 2012.

Romer, D., Advanced Macroeconomics, 3rd edition, McGraw-Hill, 2006.

Wickens, M., Macroeconomic Theory, A Dynamic Equilibrium Approach, 2nd edition, Princeton University Press, 2012.