Macroeconomics II ECON 6140 (Second Half)

Lecture 1

Course Introduction

Cornell University

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What is macroeconomics?

Things macroeconomists sometimes think about

- ~~Growth~~
- Business cycles
- ~~Fiscal~~ and monetary policy
- ~~Inequality and heterogeneity~~
- Efficiency
- Dynamic decisions
- ~~Information and uncertainty~~
- General equilibrium

Macroeconomic modeling

Most macro models are simplified versions of reality using

- Aggregation
- Rationality
- Equilibrium
- Mathematics

Why do we need simple models?

- Simple models allows us to understand economic mechanisms

A good modeler finds the right simple model for a given question

This course

Theoretical framework: New Keynesian business cycle model

- Representative household that work and consume goods
- Firms that produce heterogeneous goods and have some market power
- Monetary policy authority that sets nominal interest rates

What will we use the model for?

- Learn to manipulate a (linearized) business cycle model
- Study stabilization policy and welfare
- Vehicle to learn tools and strategies for relating models to data

Business Cycles

Business cycles: What are they?

"Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises : a cycle consists of expansions occurring at **about the same time in many economic activities**, *followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle."*

Burns and Mitchell (1946)

Business cycles: What are they?

Comovement across macro aggregates

- Simultaneous increases (or decreases) in GDP, employment, consumption and investment

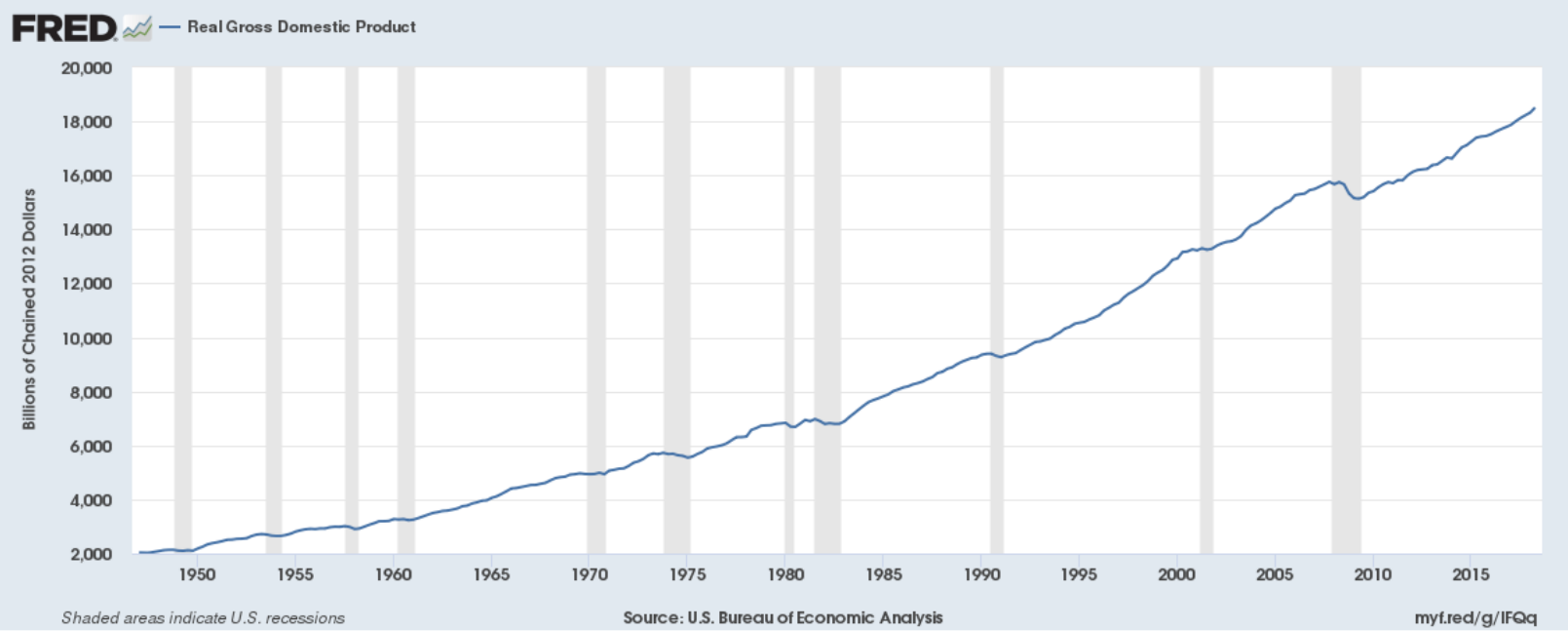
Comovement across broad sectors of the economy

- Simultaneous increases (or decreases) in construction, manufacturing, services, etc

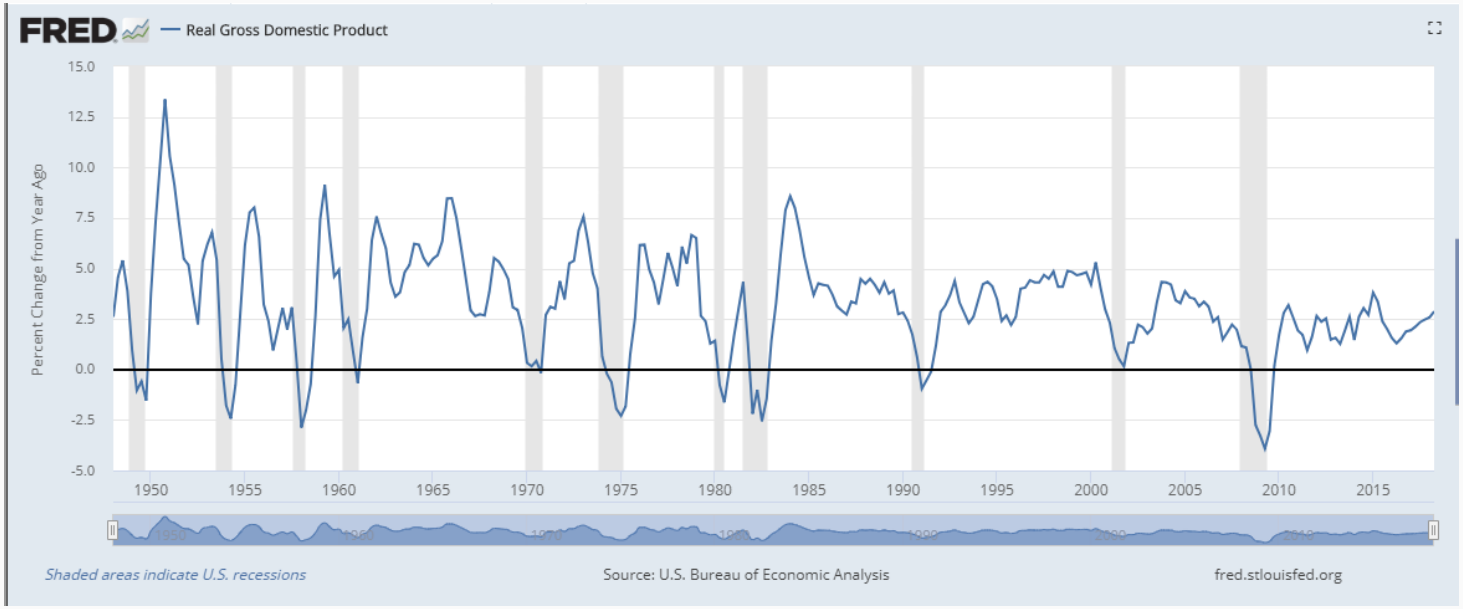
Are business cycles *cyclical*? Probably not.

Business Cycles in the U.S.

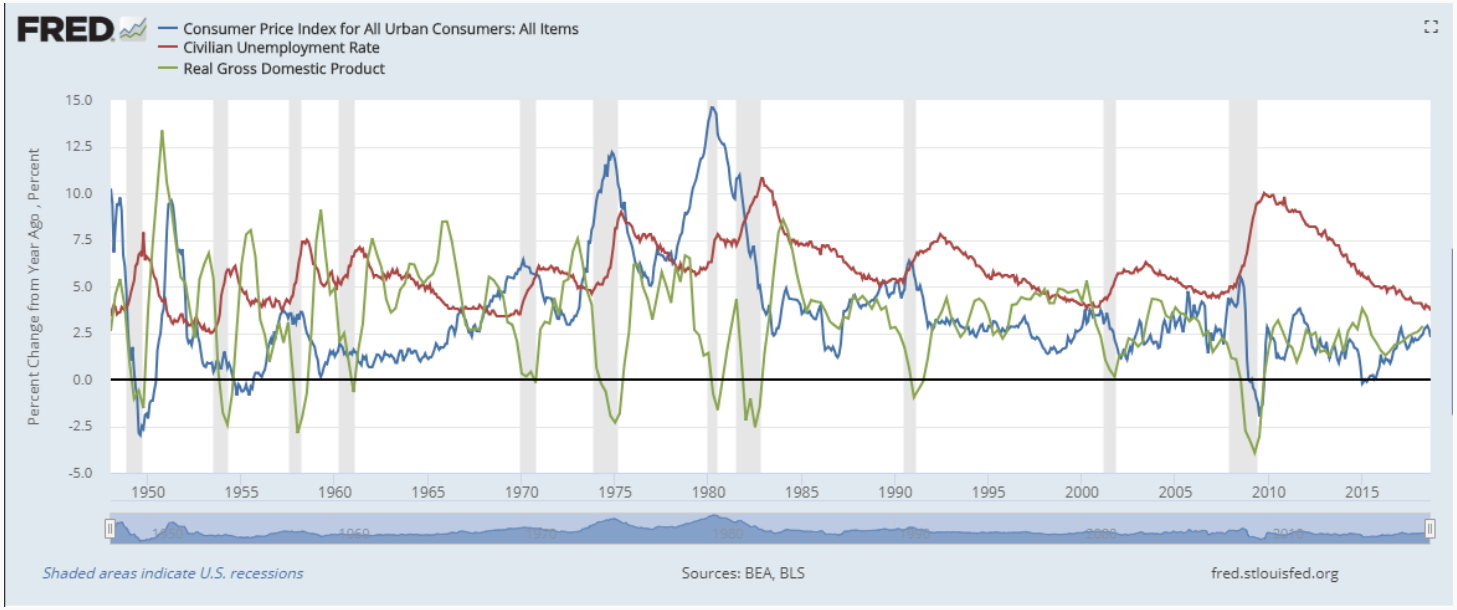
Real GDP over time



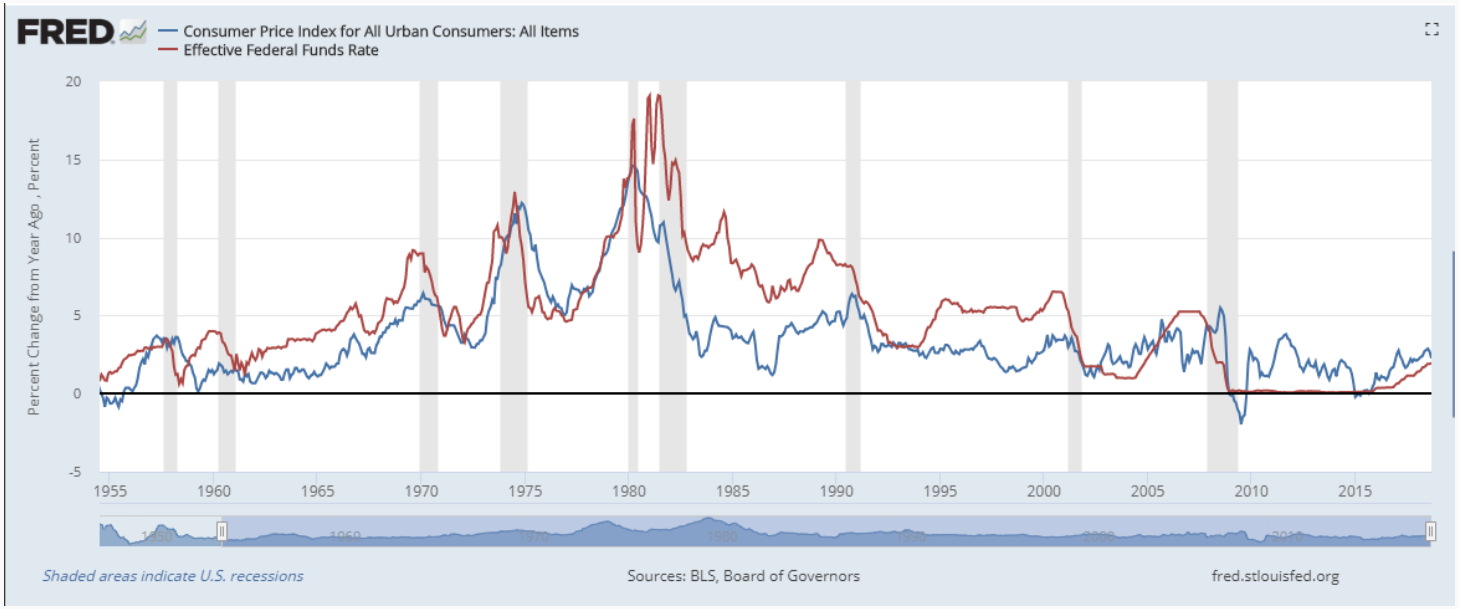
Real GDP growth rates



Comovement of inflation, unemployment and GDP



Inflation and the Federal Funds Rate



Course Outline

Lecture 2: A classical monetary model

Basic set up:

- A representative household that works and consumes
- Firms produce goods using labor
- Flexible prices and monetary neutrality

RBC model without capital

Lecture 3: A basic New Keynesian model I

Imperfectly competitive markets:

- Monopolistic competition
- CES demand systems

Understanding why market outcomes are not efficient

Lecture 4: A basic New Keynesian model II

Sticky prices

- Calvo pricing and the New Keynesian Phillips Curve
- Monetary non-neutrality

Sticky prices $\Rightarrow$ monetary policy has real effects

Lecture 5: Solving linear rational expectations models

How can we write endogenous variables as functions of exogenous variables and model parameters?

- Method of undetermined coefficients
- Iterative projections based methods
- Stable-unstable decoupling

Rational expectations equilibrium $\Rightarrow$ Solving by imposing **model consistent** expectations

Lecture 6: Monetary policy and welfare

Fluctuations, welfare, efficiency

- Micro founded welfare criteria
- Level, composition and production efficiency

Coherent (but simple) framework to study what policy should achieve

Lecture 7: Policy trade-offs

Multi-dimensional policy objectives, single instrument

- Cost-push shocks
- Discretion vs commitment

Policy cannot always achieve all goals simultaneously

Lecture 8: Sticky wages

Modeling business cycles when wages do not fully adjust

- Monetary policy design with sticky wages

How does optimal monetary policy change when both prices and wages are sticky?

Lecture 9: Unemployment

Unemployment: Not everybody who wants to work may find work

- Monetary policy when there is unemployment

How does the presence of unemployment change monetary policy and welfare?

Lecture 10: State Space Models and the Kalman filter

- Linear models in state space form
- Estimating latent states using the Kalman filter

Lecture 11: Calibration and matching moments

- Calibration
- Matching moments and indirect inference

How do we choose parameter values for a model?

Lecture 12: Likelihood based estimation

- Numerical optimization
- Models as likelihood functions

Which parameter values make the model fit the data best?

Admin

- Office hours: Thursdays 4.30-6pm
- Email Address: pkn8@cornell.edu
- Grades will be based on the final exam (60%) and 4 homework assignments ($4 \times 10\%$).
- I will use Canvas to post course material

References

Main textbook for the New Keynesian framework

- Gali, Jordi, *Monetary Policy, Inflation, and the Business Cycle*, Princeton University Press 2015.

Articles and lecture notes will also be used.