Introduction and overview

- The Great Inflation and the fall of Keynesianism: 1965-1980
- The Great Moderation and the new Keynesian revival: 1985-2007
- The Global Financial Crisis and the Great Recession
  - Financial frictions
  - The zero lower bound, quantitative easing and exit strategies
  - Recessions and unemployment
Course requirements

- Class participation
- Problem sets
- Midterm: Thursday October 29
- Research paper
  - Outline due Nov. 5
  - Draft due Nov. 19
  - Fall paper due Dec. 8
- Class presentation: December 1st and 3rd
- Final exam: December 9, 12-3pm.


Discussion questions:

- What is the key distinction Mankiw makes between scientists and engineers?
- Have you taken courses that emphasize the science or engineering aspects of economics?
- Which do you think is more important? Why?
- What areas of convergence does Woodford identify?
- What areas of disagreement are there between mankiw and Woodford?

Read *Time*, Dec. 31, 1965, “The Economy: We are all Keynesians Now.”
Key variables: output, unemployment, inflation, and the interest rate.

“Gapology”:
- output relative to full employment
- unemployment relative to the natural rate
- inflation relative to target
- interest rate relative to its natural rate

Demand and supply structure
Nominal and wage rigidities.

- Firms adjust prices based on real marginal cost.

- A rise in the output gap increases employment, pushes up wages and prices of other inputs such as commodities.

- As real marginal cost rises, firms adjust prices and inflation rises.
Production function: Let \( y \) be output, \( x \) the output gap. Then
\[
y_t = a (1 - u_t)
\]
\[
y_t^* = a (1 - u_t)
\]
\[
x_t = -a (u_t - u_t^*).
\]

Inflation adjustment:
\[
\pi_t - \pi^T = \gamma x_t + E_t \left( \pi_{t+1} - \pi^T \right) + e_t.
\]

Combine these to obtain a Phillips Curve:
\[
\pi_t - \pi^T = -\gamma a (u_t - u_t^*) + E_t \left( \pi_{t+1} - \pi^T \right) + e_t.
\]
Expectations of future inflation important.

Assume for now that

\[ E_t \left( \pi_{t+1} - \pi^T \right) = \delta \left( \pi_t - \pi^T \right) \]

Phillips Curve is then

\[ \pi_t - \pi^T_t = -\alpha (u_t - u^*) + \left( \frac{1}{1 - \delta} \right) e_t, \]

where

\[ \alpha \equiv \frac{\gamma a}{1 - \delta} > 0. \]
Aggregate spending depends negative on the real interest rate:

\[ y_t = \varphi E_t y_{t+1} - \kappa r_t = \varphi E_t y_{t+1} - \kappa (i_t - E_t \pi_{t+1}) \cdot \]

\[ y^*_t = \varphi E_t y^*_{t+1} - \kappa r^*_t. \]

Combining these,

\[ x_t = \varphi E_t x_{t+1} - \kappa (i_t - E_t \pi_{t+1} - r^*_t). \]

\( r^*_t \) incorporates all those real factors (fiscal policy – expenditures and taxes, global influences, technology) that affect output.
Assume $E_t x_{t+1} = \eta x_t$ so

$$x_t = -\left( \frac{\kappa}{1 - \phi \eta} \right) (i_t - E_t \pi_{t+1} - r^*) = -\bar{\kappa} (i_t - E_t \pi_{t+1} - r^*).$$

Add monetary policy:

$$i_t - E_t \pi_{t+1} = r^* + \phi \left( \pi_t - \pi^T \right)$$

to obtain

$$x_t = -\bar{\kappa} \phi \left( \pi_t - \pi^T \right) + \bar{\kappa} (r_t^* - r^*).$$
Economics 100B in one easy lecture: Demand

- Add monetary policy:

\[ i_t - E_t \pi_{t+1} = \phi (\pi_t - \pi^T) \]

To obtain

\[ x_t = -\bar{\kappa} \phi (\pi_t - \pi^T) + \bar{\kappa} (r^*_t - r^*) \]

- Using the production function, \( x_t = -a (u_t - u^*_t) \),

\[ u_t - u^*_t = \left( \frac{\bar{\kappa} \phi}{a} \right) (\pi_t - \pi^T) - \left( \frac{\bar{\kappa}}{a} \right) (r^*_t - r^*) \]
Two equation system:

\[ \pi_t - \pi^T_t = - \left( \frac{\gamma a}{1 - \delta} \right) (u_t - u^*_t) + \left( \frac{1}{1 - \delta} \right) e_t, \]

\[ u_t - u^*_t = \left( \frac{1}{a} \right) \left( \frac{\kappa \phi}{1 - \phi \eta} \right) (\pi_t - \pi^T_t) - \left( \frac{1}{a} \right) \left( \frac{\kappa}{1 - \phi \eta} \right) (r^*_t - r^*), \]

Or

\[ \pi_t - \pi^T_t = -a_1 (u_t - u^*_t) + a_2 e_t, \]

\[ u_t - u^*_t = b_1 (\pi_t - \pi^T_t) - b_2 (r^*_t - r^*). \]
- Effects of an inflation shock.
- Effects of a real interest rate shock.
- Role of policy – \( \phi \).
- Role of expectations adjustment – \( \delta, \eta \).
The Qvigstad graph

CE Walsh (UCSC)
Macro topics
Fall 2015