

OUTLINE — October 23, 2017

- Measuring Unemployment and Inflation, continued
- Concept of Macroeconomic Equilibrium
 - Keynesian Cross
 - "Unemployment Equilibrium"
 - Effect of being a service economy
- Consumption Spending & Its Determinants
 - Saving
 - Consumption Spending Depends upon . . .

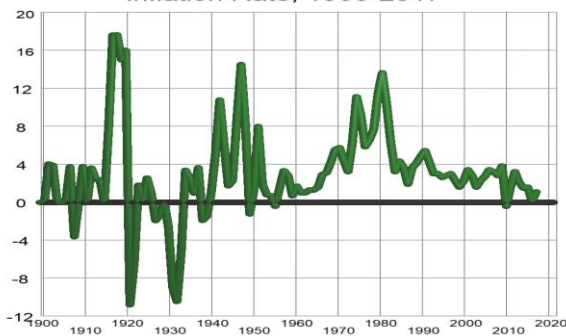
PS 3 due 10/23 – 10/24 in section
Courses reading quiz due Tuesday night 11:59 pm
Midterm 2 : Wed., Nov 1, 7-8:30 pm

The Unemployment Problem

- Discouraged workers
 - 146,000 in Sept 2017
- Underemployed workers
 - Part-time (<35 hrs/week) & want full-time: 5.1 million in Sept 2017
- Neither group included in unemployment rate
 - "U-6 unemployment rate" in Sept 2017 was 8.3%

Unemployment Inflation Macro Equilibrium Consumption

Inflation Rate, 1900-2017



Measuring Prices

- Measures average price of a mix of goods and services
- No units . . . Just a number
- CPI -- Consumer Price Index
 - Uses "typical urban market basket" from base period
 - Base period is 1982-84
- GDP Deflator (or, GDP Price Index)
 - Uses all goods & services produced from that year
 - 1998 index uses 1998 quantities; 2016 index uses 2016 quantities
 - Base year is 2009

Unemployment Inflation Macro Equilibrium Consumption

“Typical Market Basket”

Item	Share of total
Food	14 %
Energy	7 %
Goods other than food & energy	19 %
Shelter	34 %
Medical care	7 %
Transportation services	6 %
Other services	14 %

Unemployment Inflation Macro Equilibrium Consumption

Inflation Rate with CPI

$$\text{CPI}_{\text{Sept 2017}} = 246.8$$

$$\text{CPI}_{\text{Sept 2016}} = 241.4$$

Inflation rate =

Core CPI = CPI Excluding food & energy:

$$\text{Core CPI in Sept 2016} = 248.7$$

$$\text{Core CPI in Sept 2017} = 252.9$$

Unemployment Inflation Macro Equilibrium Consumption

What determines unemployment?

- Output (GDP) → Employment → Unemployment
- So key question: what determines how much output firms produce?
- **Key assumption** of Keynesian Model:
 - *Businesses change how much output they are producing only when they experience or anticipate changes in demand*
 - That is, businesses respond to aggregate demand
 - Aggregate demand = $C + I + G + EX - IM$
 - Businesses maximize profit, not employment

Unemployment Inflation **Macro Equilibrium** Consumption

Macroeconomic Equilibrium

- We say:
 - The economy is in “macroeconomic equilibrium” when total output (GDP) equals aggregate demand (C+I+G+EX-IM)
- Equilibrium isn’t a policy goal; it’s where the economy takes itself
- If AD is not changing, then firms have no incentive to change output between one period and the next

Unemployment Inflation **Macro Equilibrium** Consumption

Moving to A New Equilibrium

- Why would businesses change how much output they are producing?
 - Because there's an actual or anticipated change in demand for their goods and services
 - Increase in aggregate demand? Produce more output
 - Decrease in aggregate demand? Produce less output

Unemployment Inflation **Macro Equilibrium** Consumption

Adjustment Process

- How do they know demand changed?
 - For businesses selling services:
 -
 - For businesses selling goods:
 -
- Demand falls unexpectedly?
 -
- Demand rises unexpectedly?
 -

Unemployment Inflation **Macro Equilibrium** Consumption

Macroeconomic Equilibrium

- The macroeconomy is in equilibrium when
 - Output = Aggregate Demand
 - $GDP = AD$
 - $Y = AD$
 - $Y = C + I + G + (EX - IM)$

Unemployment Inflation **Macro Equilibrium** Consumption

Keynesian Cross Diagram



Unemployment Inflation **Macro Equilibrium** Consumption

Algebra of Equilibrium

Suppose $AD = 400 + 0.8Y$ What's equilibrium Y ?
 Units? $AD = \$400 \text{ billion/year} + 0.8Y$

Unemployment Inflation **Macro Equilibrium** Consumption

Movement along vs Shift



Unemployment Inflation **Macro Equilibrium** Consumption

Solving for Equilibrium

$C = 500 + 0.9 \cdot YD$
 $TR = 100$
 $TA = 300$

$$Y = C + I + G + EX - IM$$

$I = 500$
 $G = 200$
 $EX = 100$
 $IM = 200$

Unemployment Inflation **Macro Equilibrium** Consumption

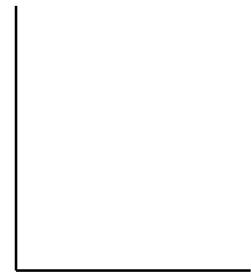
Unemployment Equilibrium

Y_E (equilibrium output)

Y_{FE} (full employment output)

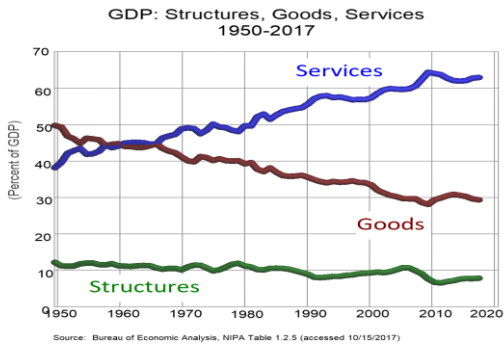
Unemployment Equilibrium =
 When the economy is in
 equilibrium ($Y = Y_E$) but
 there is an unemployment
 problem ($Y_E < Y_{FE}$)

$$\text{Output Gap} = Y_{FE} - Y_E$$



Unemployment Inflation **Macro Equilibrium** Consumption

Services dominate Goods



Unemployment Inflation **Macro Equilibrium** Consumption

Effect of Being a Service Economy

- Only goods can be produced ahead of demand
 - Think about economy at the trough of business cycle
 - Optimistic that economy will recover soon?
 - Produce more goods now, in anticipation of demand
BUT can't produce services ahead of demand
 - More services?
 - more need to wait for actual increase in demand → slower recovery
- Thus: More services? Slower recovery

Unemployment Inflation **Macro Equilibrium** Consumption

Definitions: Consumption & Saving

- **Consumption**
 - Household (and nonprofit organizations) spending for final goods and services
- **Saving**
 - Any use of disposable income other than consumption
- **Saving rate**

Unemployment Inflation **Macro Equilibrium** Consumption

Personal Saving Rate, 1950-2017



Unemployment Inflation **Macro Equilibrium** Consumption

Consumption Spending

- C depends upon
 - YD
 - wealth
 - interest rates (i)
 - credit availability
 - expectations

Unemployment Inflation Macro Equilibrium **Consumption**

Consumption Spending

- $C = f(\text{YD, wealth, } i, \text{ credit availability, expectations})$
- But can only graph in 2 dimensions . . .

Unemployment Inflation Macro Equilibrium **Consumption**

Consumption



Unemployment Inflation Macro Equilibrium **Consumption**

Shift of Consumption



Unemployment Inflation Macro Equilibrium **Consumption**

Marginal Propensity to Consume

- $mpc =$
- For the economy as a whole, $mpc < 1$
- $\Delta C =$

Unemployment Inflation Macro Equilibrium **Consumption**

Equilibrium



Unemployment Inflation **Macro Equilibrium** Consumption