

OUTLINE — October 23, 2019

- 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 . . .

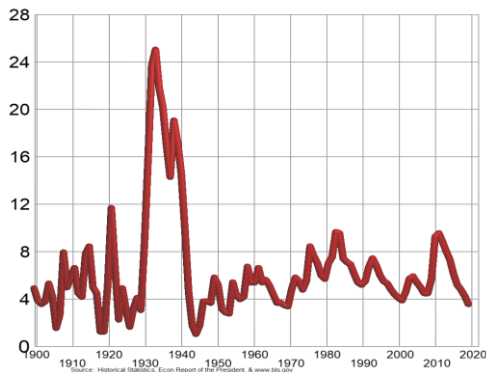
PS3 due Gradescope & bcourses, Thursday 10/24 at 8 pm
bCourses quiz due Sunday 10/27 at 11:59 pm
Midterm 2 on Wednesday, Nov 6, 7 - 8:30 pm

Types of unemployment

- Frictional
- Seasonal
- Structural
- Cyclical
- Hidden

Unemployment Inflation Macro Equilibrium Consumption

Unemployment Rate, 1900 - 2018



Sept '19 unemployment rate = 3.5%

If policy goal is "unemployment rate ~4 %," are these differences between groups consistent with that goal?

White	3.2%	16-19 yrs old	12.5%
African-American	5.5%	20+ years old	3.3%
Hispanic	3.9%		
Asian	2.5%	HS grads, no college	3.6%
		BA or more	2.0%

Unemployment Inflation Macro Equilibrium Consumption

The Unemployment Problem

- Discouraged workers
 - 151,000 people in Sept 2019
- Underemployed workers
 - Part-time (<35 hrs/week) & want full-time: 4.4 million (2.7% of labor force) in Sept 2019
- Neither group included in unemployment rate
 - "U-6 unemployment rate" in Sept 2019 was 6.9%

Overview of Macro GDP = C + I + G + EX - IM Unemployment Inflation

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

Item in "typical market basket"	% 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

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 2012

Unemployment Inflation Macro Equilibrium Consumption

Inflation Rate with CPI

$$\text{CPI}_{\text{Sept 2019}} = 256.8$$

$$\text{CPI}_{\text{Sept 2018}} = 252.4$$

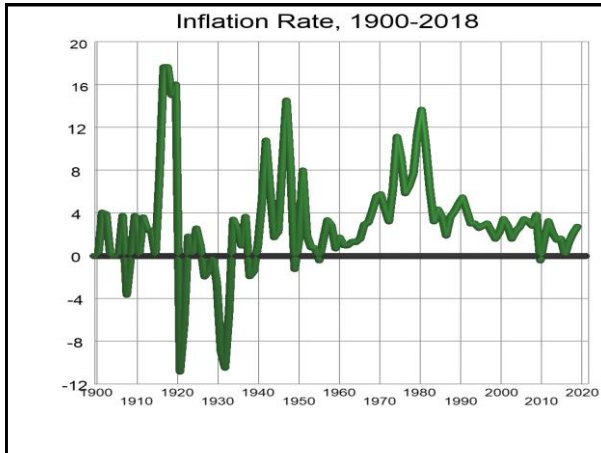
Inflation rate =

Core CPI = CPI Excluding food & energy:

$$\text{Core CPI in Sept 2019} = 264.5$$

$$\text{Core CPI in Sept 2018} = 258.4$$

Overview of Macro GDP = C + I + G + EX - IM Unemployment Inflation



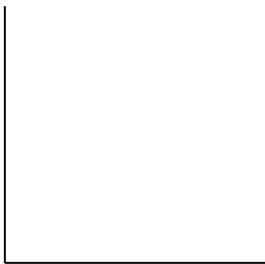
Recall: Economic Models

- Models are how economists answer questions
- Each model is characterized by
 1. Question
 2. Simplifications or Abstractions
 3. Assumptions about Behavior
- Change assumption → Change model
- To evaluate policy, compare policy's results with the **counterfactual** (what result would have been in absence of policy), not with the past
- Formulate the counterfactual by using models

Measures of Macroeconomy **Macro Models** Gross Domestic Product $GDP = C + I + G + EX - IM$

Pre-1930s Model: “The” Labor Market

- Which assumptions are not valid?



Measures of Macroeconomy **Macro Models** Gross Domestic Product $GDP = C + I + G + EX - IM$

What Determines Unemployment?

- John Maynard Keynes
- *Unemployment* is determined by
 employment which is determined by
 output produced which is determined by
 aggregate demand for output
- Key idea:
 Someone will hire you if they can sell what you produce

Measures of Macroeconomy **Macro Models** Gross Domestic Product $GDP = C + I + G + EX - IM$

What determines unemployment?

- **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 time period and the next

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

Solving for Equilibrium

$C = 500 + 0.9 \cdot YD$	$Y = C + I + G + EX - IM$
$TR = 100$	
$TA = 300$	

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

Unemployment Inflation **Macro Equilibrium** Consumption

Equilibrium?

$C = 100 + 0.9 \cdot YD$	$Y = C + I + G + EX - IM$
$TR = 50, TA = 150$	
$YD =$	
$C =$	
$I = 100$	
$G = EX = IM = 0$	

Unemployment Inflation **Macro Equilibrium** Consumption

Unemployment Equilibrium

Before Keynes, "unemployment means economy-wide labor market is out of equilibrium"

Keynes: nope. Not so.

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 ($Y_E < Y_{FE}$)

Output Gap = $Y_{FE} - Y_E$

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

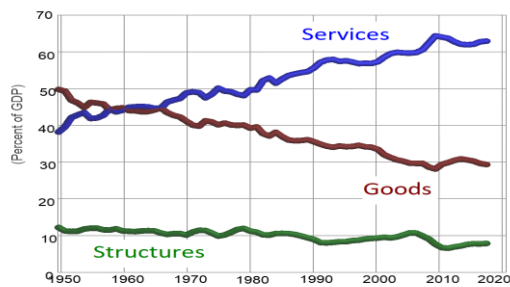
Movement along AD vs Shift of AD



Unemployment Inflation **Macro Equilibrium** Consumption

Services dominate Goods

GDP: Structures, Goods, Services
1950-2017



Source: Bureau of Economic Analysis, NIPA Table 1.2.5 (accessed 10/15/2017)

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

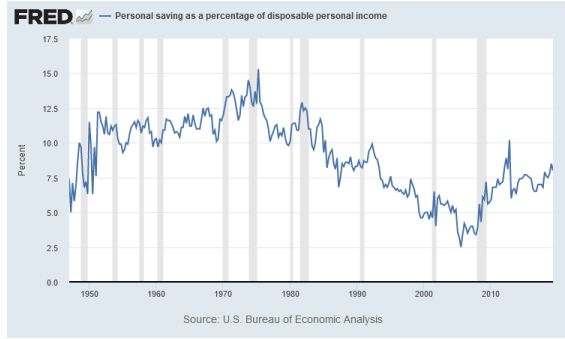
Definitions: Consumption & Saving

- **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, 1950-2019



Unemployment Inflation Macro Equilibrium **Consumption**

Consumption Spending

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

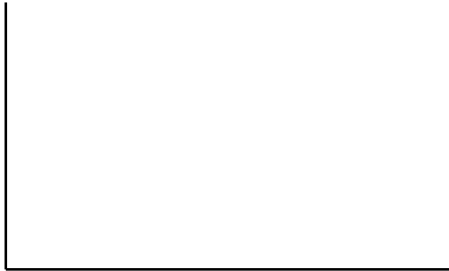
Unemployment Inflation Macro Equilibrium **Consumption**

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**