

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION



1

## Employment and Unemployment

### •Why Unemployment Is a Problem

- Unemployment results in
  - Lost incomes and production
  - Lost human capital
- The loss of income is devastating for those who bear it. Employment benefits create a safety net but don't fully replace lost wages, and not everyone receives benefits.
- Prolonged unemployment permanently damages a person's job prospects by destroying human capital.

<http://www.bls.gov/eag/eag.us.htm>

2

## Employment and Unemployment

### Current Population Survey

- The U.S. Census Bureau conducts a monthly population survey to determine the status of the U.S. labor force.
- The population is divided into two groups:

1. The **working-age population**—the number of people aged 16 years and older who are not in jail, hospital, or some other institution
2. People too young to work (under 16 years of age) or in institutional care

3

## Employment and Unemployment

The working-age population is divided into two groups:

1. People in the labor force
2. People not in the labor force

The **labor force** is the sum of employed and unemployed workers.

To be counted as unemployed, a person must be in one of the following three categories:

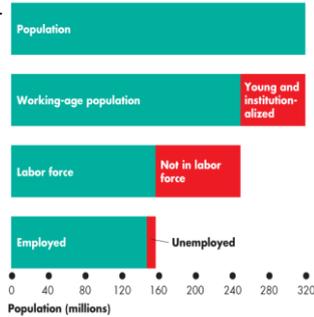
1. Without work but has made specific efforts to find a job within the previous four weeks
2. Waiting to be called back to a job from which he or she has been laid off
3. Waiting to start a new job within 30 days

4

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Employment and Unemployment

- The figure shows the labor force categories. In June 2014:
- Population: 318 million
- Working-age population: 248 million
- Labor force: 156.0 million
- Employed: 146.3 million
- Unemployed: 9.7 million



5

## Employment and Unemployment

### The Unemployment Rate

- The **unemployment rate** is the percentage of the labor force that is unemployed.
- The unemployment rate is  $(\text{Number of people unemployed} \div \text{labor force}) \times 100$ .
- In June 2014, the labor force was 156 million and 9.7 million were unemployed, so the unemployment rate was 6.2 percent.
- The unemployment rate increases in a recession and reaches its peak value after the recession ends.

$$\text{Unemployment Rate} = \frac{\text{Number of People Unemployed}}{\text{Labor Force}} \times 100$$

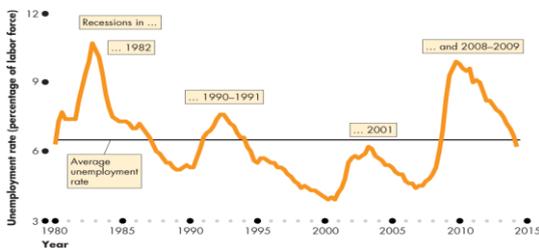
6

## Employment and Unemployment

- The figure shows the unemployment rate: 1980–2014.
- The unemployment rate increases in a recession.

<http://www.bls.gov/eag/eag.us.htm>

[https://www.google.com/publicdata/explore?ds=usunemployment&met=unemployment\\_rate&tidm=true&q=chart+us+unemployment+rate](https://www.google.com/publicdata/explore?ds=usunemployment&met=unemployment_rate&tidm=true&q=chart+us+unemployment+rate)



7

## Employment and Unemployment

### The Employment-to-Population Ratio

- The **employment-to-population ratio** is the percentage of the working-age population who have jobs.
- The employment-to-population ratio is  $(\text{Employment} \div \text{Working-age population}) \times 100$ .
- In June 2014, the employment was 146.3 million and the working-age population was 248 million.
- The employment-to-population ratio was 59 percent.

$$\text{Employment-to-population ratio} = \frac{\text{Employment}}{\text{Working-age population}} \times 100$$

8

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Employment and Unemployment

### The Labor Force Participation Rate

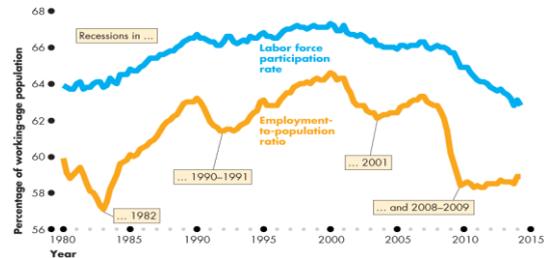
- The **labor force participation rate** is the percentage of the working-age population who are members of the labor force.
- The labor force participation rate is  $(\text{Labor force} \div \text{Working-age population}) \times 100$ .
- In June 2014, the labor force was 156 million and the working-age population was 248 million.
- The labor force participation rate was 62.9 percent.

$$\text{Labor force participation rate} = \frac{\text{Labor Force}}{\text{Working age population}} \times 100$$

9

## Employment and Unemployment

The figure shows that the labor force participation rate and the employment-to-population ratio both trended upward before 2000 and downward after 2000.



10

## Employment and Unemployment

### Other Definitions of Unemployment

- The purpose of the unemployment rate is to measure the underutilization of labor resources.
- The BLS believes that the unemployment rate gives a correct measure.
- But the official measure is an imperfect measure because it excludes
  - Marginally attached workers
  - Part-time workers who want full-time jobs

11

## Employment and Unemployment

### Marginally Attached Workers

- A **marginally attached worker** is a person who currently is neither working nor looking for work but has indicated that he or she wants and is available for a job and has looked for work sometime in the recent past.
- A **discouraged worker** is a marginally attached worker who has stopped looking for a job because of repeated failure to find one.

12

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Employment and Unemployment

### Part-Time Workers Who Want Full-Time Jobs

- Many part-time workers want to work part time, but some part-time workers would like full-time jobs and can't find them.
- In the official statistics, these workers are called *economic part-time workers* and they are partly unemployed.

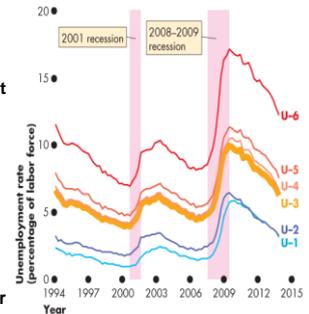
### Most Costly Unemployment

- All unemployment is costly, but the most costly is long-term unemployment that results from job loss.

13

## Six Alternative Measures

- U-1: Those unemployed for 15 or more weeks
- U-2: Unemployed job losers
- U-3: The official unemployment rate
- Broader measures are
- U-4: U-3 + Discouraged workers
- U-5: U-4 + Marginally attached workers
- U-6: U-4 + Part-time workers who want full-time jobs
- All measures increase together in recession.



14

## Unemployment and Full Employment

Unemployment can be classified into three types:

- Frictional unemployment
- Structural unemployment
- Cyclical unemployment

**Frictional unemployment** is unemployment that arises from normal labor market turnover.

- The creation and destruction of jobs requires that unemployed workers search for new jobs.
- Increases in the number of people entering and reentering the labor force and increases in unemployment benefits raise frictional unemployment.
- Frictional unemployment is a permanent and healthy phenomenon of a growing economy

15

## Unemployment and Full Employment

**Structural Unemployment** is unemployment created by changes in technology and foreign competition that change the skills needed to perform jobs or the locations of jobs.

- Structural unemployment lasts longer than frictional unemployment.

**Cyclical Unemployment** is the higher than normal unemployment at a business cycle trough and lower than normal unemployment at a business cycle peak.

- A worker laid off because the economy is in a recession and is then rehired when the expansion begins experiences cyclical unemployment.

16

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Unemployment and Full Employment

"Natural" Unemployment is the unemployment that arises from frictions and structural change when there is no cyclical unemployment.

- Natural unemployment is all frictional and structural unemployment.
- The **natural unemployment rate** is natural unemployment as a percentage of labor force.

**Full employment** is defined as the situation in which the unemployment rate equals the natural unemployment rate.

- When the economy is at full employment, there is no cyclical unemployment or, equivalently, all unemployment is frictional and structural.

17

## Unemployment and Full Employment

The natural unemployment rate changes over time and is influenced by many factors.

- Key factors are
  - The age distribution of the population
  - The scale of structural change
  - The real wage rate
  - Unemployment benefits

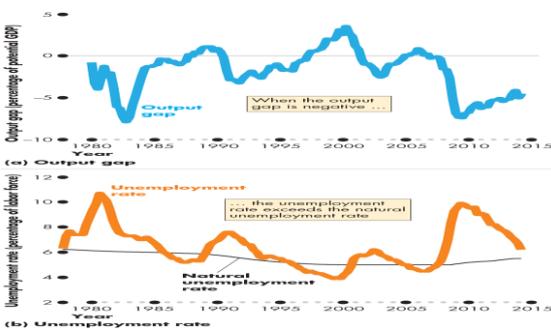
### Real GDP and Unemployment Over the Cycle

- **Potential GDP** is the quantity of real GDP produced at full employment.
- **Potential GDP** corresponds to the capacity of the economy to produce output on a sustained basis.
- **Real GDP minus potential GDP** is the output gap.
- **Over the business cycle, the output gap fluctuates and the unemployment rate fluctuates around the natural unemployment rate.**

18

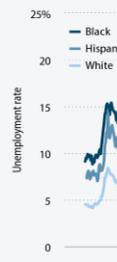
## Unemployment and Full Employment

The figures show the output gap and ...  
the fluctuations of unemployment around the natural rate.



## Unemployment by Race

Unemployment rate of workers age 16 and older by race and ethnicity, 1973–2014



Source: Bureau of Labor Statistics' Current Population Survey, public data series

ECONOMIC POLICY INSTITUTE

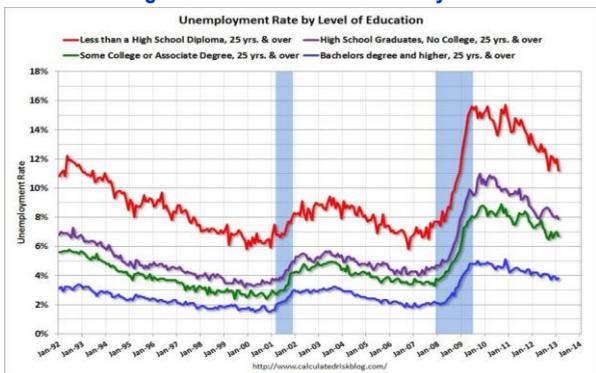
<http://www.stateofworkingamerica.org/charts/unemployment-by-race-and-ethnicity/>

<http://www.bls.gov/data>

20

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## The Gap in Unemployment Rates Between Those With a Bachelor's Degree and Others is Wider Today Than in 1992.



21

## Price Level, Inflation, and Deflation

- The **price level** is the average level of prices and the value of money.
- A persistently rising price level is called **inflation**.
- A persistently falling price level is called **deflation**.
- We are interested in the price level because we want to
  1. Measure the inflation rate or the deflation rate
  2. Distinguish between money values and real values of economic variables.

**What is disinflation?**

22

## Why Inflation and Deflation Are Problems

- Low, steady, and anticipated inflation or deflation is not a problem.
- Unpredictable inflation or deflation is a problem because it
  - Redistributes income and wealth
  - Lowers real GDP and employment
  - Diverts resources from production
- Unpredictable changes in the inflation rate redistribute income in arbitrary ways between employers and workers and between borrowers and lenders.
  - At its worse, inflation becomes **hyperinflation**—an inflation rate that is so rapid that workers are paid twice a day because money loses its value so quickly.

23

## Consumer Price Index

- **Consumer price index (CPI)**
  - Market basket
  - 300 goods and services
  - Typical urban consumer
  - 2 year updates

$$\text{CPI} = \frac{\text{Price of the Most Recent Market Basket in the Particular Year}}{\text{Price estimate of the Market Basket in 1982-1984}} \times 100$$

**The next slides show how a CPI is calculated.**

24

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

In order to properly measure the rate of inflation or deflation it is necessary establish a base year from which to make a comparison. Once the base is established, future (or past) price level changes can then be compared to this base.

The easiest way see this is to look at how the consumer price index or CPI is calculated. The formula for CPI is:

$$CPI = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$$

$P_0$  is the price of the good in time period 0.  
 $Q_0$  is the quantity of the good in time period 0.  
 $P_1$  is the price of the good in time period 1.

Suppose your were given a shopping list of a number of different items (or a basket of items) and told to find out how much it would cost to purchase this basket at a given point in time.

In time period 0 you purchase a market basket which includes:

2 haircuts at 2.50 per haircut = 5.00  
 4 shirts at 10.00 per shirt = 40.00  
 10 apples at .50 per apple = 5.00

Total cost = 50.00

25

One year late (time period 1) you go out and purchase the same market basket.

Time period 1

2 haircuts at 3.50 per haircut = 7.00  
 4 shirts at 11.25 per shirt = 45.00  
 10 apples at .40 per apple = 4.00

Total cost = 56.00

As shown, the market basket which cost 50.00 in time period 0 costs 56.00 in time period 1. It is important to note that the index looks at the price of a market basket of goods, not just one good's price.

In general form, to calculate the CPI in any given year, other than the base year which is always equal to 100, the following formula is used:

$$CPI = \frac{\text{Cost of Market Basket in given year}}{\text{Cost of Market Basket in base year}} \times 100.$$

Using a little bit of algebra,  
 $\frac{56.00}{50.00} \times 100 = \frac{1.12}{1} \times 100 = 112$

Since the base is 100, the index, 112, can be interpreted as what costs 100 in time period 0 will cost 112 in time period 1.

26

## Another Example of the CPI Calculation

- In a simple economy, people consume only oranges and haircuts.
- The CPI basket is 10 oranges and 5 haircuts.
- The table also shows the prices in the base period.
- The cost of the CPI basket in the base period (2014) was \$50.
- Table 5.1(b) shows the fixed CPI basket of goods in the new period (2015).
- The cost of the CPI basket at current-period prices is \$70.

What is the CPI in 2015 if base year is 2014?

TABLE 5.1 The CPI: A Simplified Calculation

(a) The cost of the CPI basket at base-period prices: 2014

CPI basket			
Item	Quantity	Price	Cost of CPI Basket
Oranges	10	\$1.00	\$10
Haircuts	5	\$8.00	\$40
Cost of CPI basket at base-period prices			<u>\$50</u>

(b) The cost of the CPI basket at current-period prices: 2015

CPI basket			
Item	Quantity	Price	Cost of CPI Basket
Oranges	10	\$2.00	\$20
Haircuts	5	\$10.00	\$50
Cost of CPI basket at current-period prices			<u>\$70</u>

27

## Price Level, Inflation, and Deflation

- Remember, the CPI is calculated using the formula:
- $CPI = (\text{Cost of basket at current-period prices} \div \text{Cost of basket at base-period prices}) \times 100.$
- Using the numbers for the simple example,
  - $CPI = (\$70 \div \$50) \times 100 = 140.$
- The CPI is 40 percent higher in the current period than it was in the base period.

28

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Price Level, Inflation, and Deflation

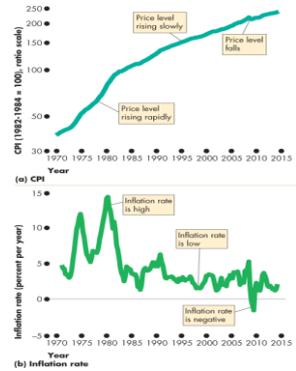
### Measuring the Inflation Rate

- The major purpose of the CPI is to measure inflation.
- The **inflation rate** is the percentage change in the price level from one year to the next.
- The inflation formula is:
- Inflation rate =  $[(\text{CPI this year} - \text{CPI last year}) \div \text{CPI last year}] \times 100$ .

29

## Price Level, Inflation, and Deflation

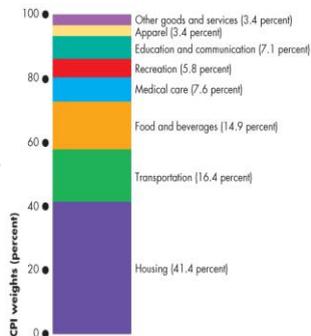
- The figure shows the relationship between the price level and the inflation rate.
- The inflation rate is high when the price level is rising rapidly and low when the price level is rising slowly. Negative when the price level is falling.



30

## Price Level, Inflation, and Deflation

- The figure illustrates the CPI basket.
- Housing is the largest component.
- Transportation and food and beverages are the next largest components.
- The remaining components account for 27.3 percent of the basket.

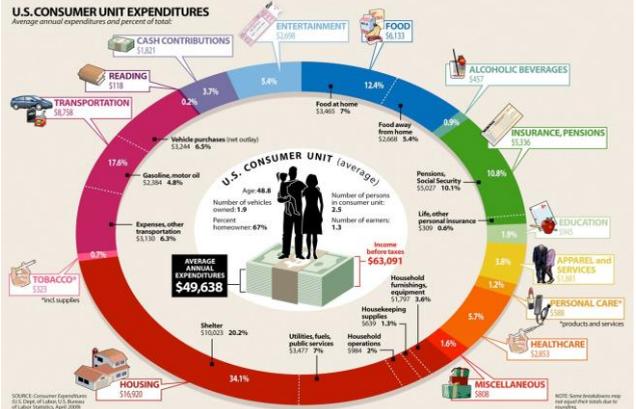


<http://www.bls.gov/cpi/#tables>

31

## Where Does the Money Go?

The Department of Labor's latest survey provides a detailed look into how the average U.S. consumer unit spends their annual paycheck.



# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Price Level, Inflation, and Deflation

### •The Biased CPI

–The CPI might overstate the true inflation for four reasons:

- New goods bias
- Quality change bias
- Commodity substitution bias
- Outlet substitution bias

33

## Price Level, Inflation, and Deflation

### New Goods Bias

▪New goods that were not available in the base year appear and, if they are more expensive than the goods they replace, they put an upward bias into the CPI.

### Quality Change Bias

▪Quality improvements occur every year. Part of the rise in the price is payment for improved quality and is not inflation.

▪The CPI counts all the price rise as inflation.

### Commodity Substitution Bias

▪The market basket of goods used in calculating the CPI is fixed and does not take into account consumers' substitutions away from goods whose relative prices increase.

### Outlet Substitution Bias

▪As the structure of retailing changes, people switch to buying from cheaper sources, but the CPI, as measured, does not take account of this outlet substitution.

34

## Alternative Price Indexes

### Personal Consumption Expenditure Deflator

•The PCE deflator equals

•  $(\text{Nominal consumption expenditure} \div \text{Real consumption expenditure}) \times 100$

•PCE deflator is a broader measure of the price level than the CPI because it includes all consumption expenditure.

### GDP Deflator

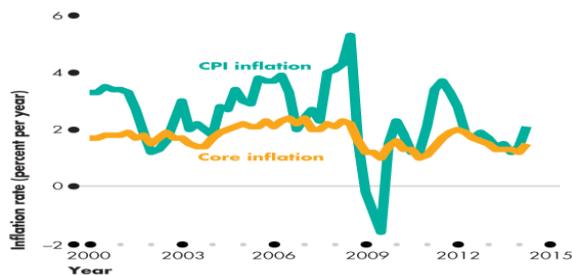
•GDP deflator is like the PCE deflator except it includes the prices of all goods and services that are counted in GDP.

35

## Core Inflation Rate

•The core inflation rate is the CPI inflation rate excluding the volatile elements (of food and fuel).

•The core inflation rate attempts to reveal the underlying inflation trend.



36

# CHAPTER 5 LECTURE - MONITORING JOBS AND INFLATION

## Inflation

### Annual Inflation Rates in the United States, 1970-2017



<http://www.usinflationcalculator.com>  
<http://www.tradingeconomics.com/united-states/inflation-cpi>

37

## Types of Inflation

- **Demand-pull inflation:** increases in aggregate demand outpace increases in aggregate supply.
- **Cost-push inflation:** increases in production costs cause firms to raise prices.
- **Hyperinflation:** extremely high rate of inflation.



38

## Problems with Inflation

- **Redistributive Effects**
  - Nominal and real income
  - Growth in nominal income vs. inflation rate
  - Anticipated vs. unanticipated inflation
- **Who is hurt by inflation?**
  - Fixed-income receivers
  - Savers
  - Creditors
- **Who is unaffected or not hurt by inflation?**
  - Flexible-income receivers
    - Cost-of-living adjustments (COLAs)
  - Debtors

39

## The Stock Market and Economic Indicators

- Stock prices and macro instability
- The market for stocks
- Volatile stock prices
- Wealth effect
- Investment effect
- Little impact on macroeconomy
- Stock market bubbles do have an impact
- Economic Indicators
  - **Leading Indicators**
    - A variable that fairly consistently changes before real GDP changes
  - **Coincident Indicators**
    - A variable that fairly consistently changes at the same time as real GDP changes [www.conference-board.org](http://www.conference-board.org)
  - **Lagging Indicators**
    - A variable that fairly consistently changes after real GDP changes

40