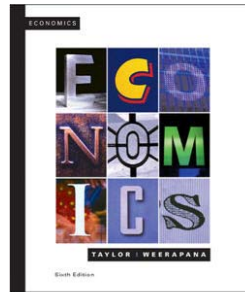


Economics 202
Principles Of Macroeconomics

Professor Yamin Ahmad

Lecture 7

- Labor Market Indicators
- Jobs, Wages and Unemployment
- Measuring the Price Level:
 - The Consumer Price Index



Big Concepts

- Labor Market Indicators:
 - Unemployment Rate
 - Labor Force Participation Rate
 - Employment to Population Ratio
- Unemployment Classifications:
 - Frictional Unemployment
 - Structural Unemployment
 - Cyclical Unemployment
- Price Indices: CPI
- Measuring Inflation

Note: These lecture notes are incomplete without having attended lectures

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Jobs and Wages

- Population Survey
 - The U.S. Census Bureau conducts monthly surveys to determine the status of the labor force in the United States.
- The population is divided into two groups:
 - The **civilian working-age population**—the number of people aged 16 years and older who are not in jail, hospital, or other institution.
 - People too young to work (less than 16 years of age) or in institutional care.

Note: These lecture notes are incomplete without having attended lectures

3

Civilian Working Age Population

The civilian working-age population is divided into two groups:

- People in the labor force
- People not in the labor force
- The **labor force** is the sum of employed and unemployed workers.

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Unemployment Category

To be considered unemployed, a person must be:

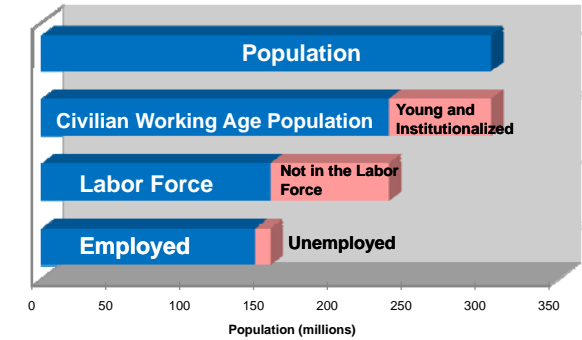
- without work and have made specific efforts to find a job within the past four weeks, or
- waiting to be called back to a job from which he or she was laid off, or
- waiting to start a new job within 30 days.

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Composition of Employment

- Figure 2 shows the population Labor force categories as of November 2008.



Source: US Census Bureau; Bureau of Labor Statistics

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Three Labour Market Indicators

- The **unemployment rate** is the percentage of the Labor force that is unemployed.
- The unemployment rate is $(\text{Number of people unemployed} / \text{Labor force}) \times 100$.
- The unemployment rate typically reaches its peaks during or after the end of a recession.

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Three Labor Market Indicators

- The **labor force participation rate** is the percentage of the working-age population that is in the Labor force.
- The labor force participation rate is $(\text{Labor force} / \text{Working-age population}) \times 100$.
- The labor force participation rate has increased from 59 percent in the 1960s to 66 percent in 2008.
- The labor force participation rate for men has declined, but for women has increased.

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Three Labor Market Indicators

- The labor force participation rate falls during recessions as **discouraged workers**—people available and willing to work but who have not made an effort to find work within the last four weeks—leave the labor force.

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Three Labor Market Indicators

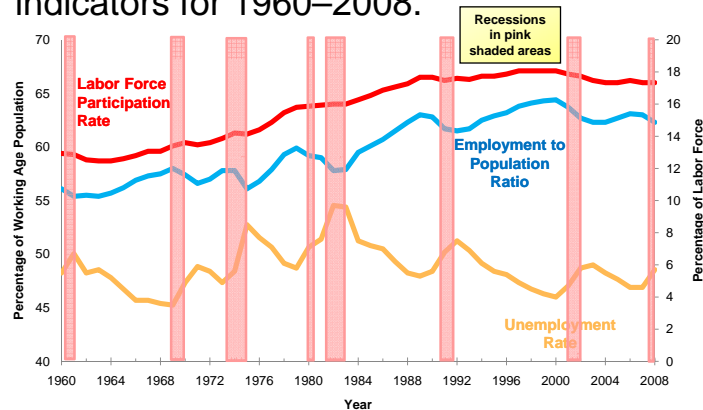
- The **employment-to-population** ratio is the percentage of working-age people who have jobs.
- The employment-to-population ratio is $(\text{Number of people employed} / \text{Working-age population}) \times 100$.
- The employment-to-population ratio has increased from 55 percent in the early 1960s to approximately 62 percent in 2008.
- The employment-to-population ratio has declined for men and increased for women.

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Jobs and Wages

- Three Labor Market Indicators
 - Figure 3 shows the three Labor market indicators for 1960–2008.

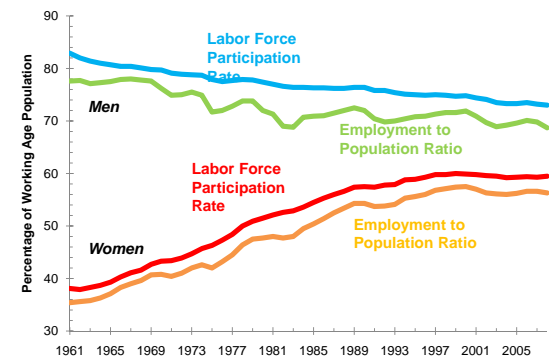


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Jobs and Wages

- Figure 4 shows the changing face of the Labor market participation rates and employment-to-population ratios for males and females separately.



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Exercise:
Compute labor force statistics

U.S. adult population by group, June 2006

Number employed	=	144.4 million
Number unemployed	=	7.0 million
Adult population	=	228.8 million

Use the above data to calculate

- the labor force
- the number of people not in the labor force
- the labor force participation rate
- the unemployment rate

Note: These lecture notes are incomplete without having attended lectures

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Wages

- Real Wage Rate
 - The **real wage rate** is the quantity of goods and services that can be purchased with an hour's work.
 - One way to calculate the real wage rate is to take the money (or nominal) wage rate and divide by the price level, e.g. the GDP deflator.

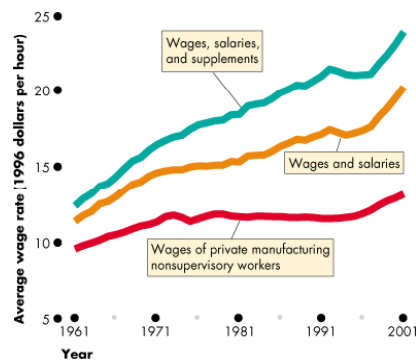
- Three measures are:
 - Hourly earnings in manufacturing
 - Total wages and salaries per hour
 - Total wages, salaries, and supplements per hour

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Jobs and Wages

- Figure 5 shows the three measures of real wage rates for 1961–2001.



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The Anatomy of Unemployment

Three types of people are unemployed:

- **Job losers**—workers who have been laid off or fired and are searching for new jobs.
- **Job leavers**—workers who have voluntarily quit their jobs to look for new ones. Job leavers are the smallest fraction of the unemployed.
- **Entrants and reentrants**—people entering the Labor force for the first time or returning to the Labor force and searching for work.

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The Anatomy of Unemployment

People end a spell of unemployment for two reasons:

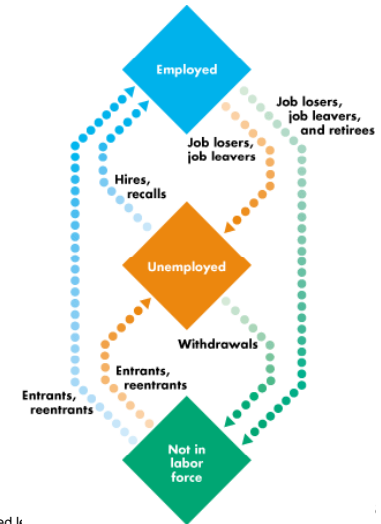
- Hired or recalled workers gain jobs.
- Discouraged unemployed workers withdraw from the Labor force.

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Unemployment and Full Employment

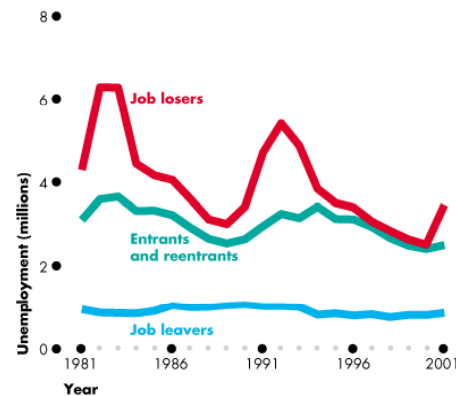
- Figure 6 illustrates the Labour market flows between the different states.



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Unemployment and Full Employment

- Figure 7 shows unemployment by reason, 1961–2001.
 - Job leavers are the smallest group.
 - Job losers are the largest and the most cyclical group.

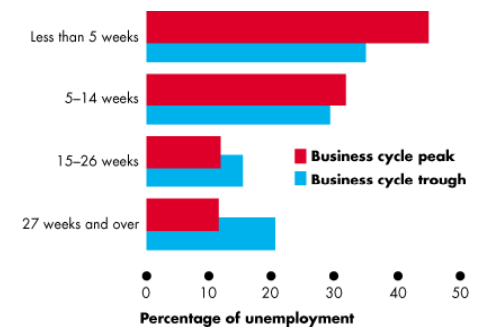


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Unemployment and Full Employment

- The duration of unemployment increases during recessions. Figure 8 shows unemployment by duration close to a business cycle peak in 2000...
 - ... and close to a trough in 1992.



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Types of Unemployment

Unemployment can be classified into three types:

- Frictional
- Structural
- Cyclical

Types of Unemployment

- **Frictional unemployment** is unemployment that arises from normal Labour market turnover.
- The creation and destruction of jobs requires that unemployed workers search for new jobs.
- Increases in the number of young people entering the Labour force and increases in unemployment benefit payments raise frictional unemployment.

Types of Unemployment

- **Structural unemployment** is unemployment created by changes in technology and foreign competition that change the match between the skills necessary to perform jobs and the locations of jobs, and the skills and location of the Labour force.
- **Cyclical unemployment** is the fluctuation in unemployment caused by the business cycle.

Full Employment

- **Full employment** occurs when there is no cyclical unemployment or, equivalently, when all unemployment is frictional or structural.
- The unemployment rate at full employment is called the **natural rate of unemployment**.
- The natural rate of unemployment is estimated to have been around 6 percent on the average in the United States, but during the 1990s, the natural unemployment rate fell below 6 percent.

Real GDP and Unemployment Over the Cycle

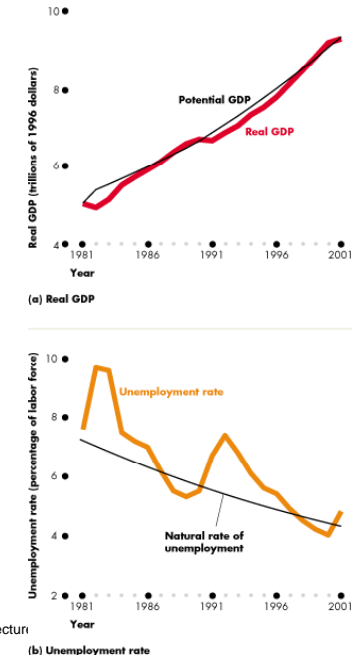
- **Potential GDP** is the quantity of real GDP produced at full employment.
- It corresponds to the capacity of the economy to produce output on a sustained basis; actual GDP fluctuates around potential GDP with the business cycle.

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Unemployment and Full Employment

- Figure 10 shows real GDP and the unemployment rate...
- ...and estimates of potential GDP and the natural unemployment rate for 1981–2001.



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Measuring the Price Level

- A **price index** expresses the “current” cost of a basket of goods and services as a percentage of (or, relative to) the cost of the same basket during some “base period.”
- A **Laspeyres** price index uses the quantities of the base period as the underlying basket.
 - E.g. CPI
- A **Paasche** price index uses the quantities of the current period as the underlying basket– so, the basket changes every period.
 - E.g. Old GDP Deflator Series calculated using “Base Year Methodology”

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Price Indices continued...

- For time periods after the base period, Laspeyres indexes tend to overstate inflation
- Paasche indexes tend to understate inflation.
- **Fisher’s** “ideal” index, is the (geometric) average of the Laspeyres and Paasche indexes
 - E.g. GDP deflator series using Chain Weighted Methodology

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The Consumer Price Index

- The price level is the “average” level of prices and is measured by using a price index.
- The **consumer price index**, or **CPI**, measures the average level of the prices of goods and services consumed by an urban family.

Note: These lecture notes are incomplete without having attended lectures

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Reading the CPI Numbers

- The CPI is defined to equal 100 for the **reference base period**.
- The value of the CPI for any other period is calculated by taking the ratio of the current cost of a market basket of goods to the cost of the same market basket of goods in the reference base period and multiplying by 100.

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The Consumer Price Index

Constructing the CPI involves three stages:

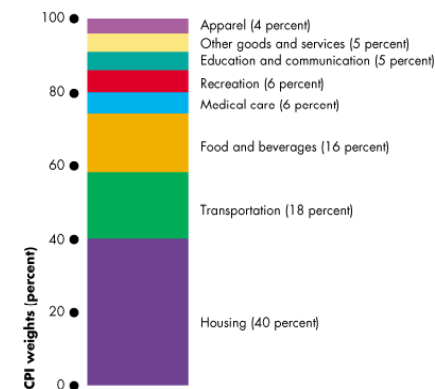
- Selecting the CPI basket
- Conducting a monthly price survey
- Using the prices and the basket to calculate the CPI

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The Consumer Price Index

- Figure 11 illustrates the CPI basket.
- Housing is the largest component.
- Transportation and food and beverages are the next largest components.
- The remaining components account for only 26 percent of the basket.



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The Consumer Price Index

- The CPI basket is based on a Consumer Expenditure Survey.
- The current CPI is based on a 1993-95 survey, although the reference base period is still 1982-84.
- Every month, BLS employees check the prices of 80,000 goods and services in 30 metropolitan areas.
- The CPI is calculated using the prices and the contents of the basket.

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The Consumer Price Index

- For a simple economy that consumes only oranges and haircuts, we can calculate the CPI.
- The CPI basket is 10 oranges and 5 haircuts.

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			\$50

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The Consumer Price Index

- This table shows the prices in the base period.
- The cost of the CPI basket in the base period was \$50.

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			\$50

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The Consumer Price Index

- This table shows the prices in the current period.
- The cost of the CPI basket in the current period is \$70.

Item	Quantity	Price	Cost of CPI basket
Oranges	10	\$2.00	\$20
Haircuts	5	\$10.00	\$50
Cost of CPI basket at base period prices			\$70

Note: These lecture notes are incomplete without having attended lectures

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The Consumer Price Index

The CPI is calculated using the formula:

- $\text{CPI} = (\text{Cost of basket in current period} / \text{Cost of basket in base period}) \times 100$.
- Using the numbers for the simple example, the CPI is $\text{CPI} = (\$70 / \$50) \times 100 = 140$.
- The CPI is 40 percent higher in the current period than in the base period.

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Measuring Inflation

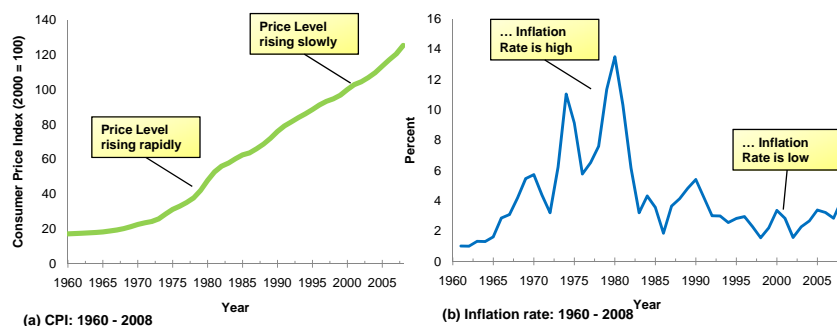
- The main purpose of the CPI is to measure inflation.
- The **inflation rate** is the percentage change in the price level from one year to the next.
- The inflation formula is:
 - $\text{Inflation rate} = [(\text{CPI this year} - \text{CPI last year}) / \text{CPI last year}] \times 100$.

Note: These lecture notes are incomplete without having attended lectures

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The Consumer Price Index

- Figure 12 shows the CPI and the inflation rate, 1960–2008.



(a) CPI: 1960 - 2008

(b) Inflation rate: 1960 - 2008

Note: These lecture notes are incomplete without having attended lectures

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Exercise: *Compute the CPI*

Basket contains 20 pizzas and 10 compact discs.

Prices:

	pizza	CDs
2002	\$10	\$15
2003	\$11	\$15
2004	\$12	\$16
2005	\$13	\$15

For each year, compute

- the cost of the basket
- the CPI (use 2002 as the base year)
- the inflation rate from the preceding year

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Biases in the CPI

The CPI may overstate the true inflation for four reasons:

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

Note: These lecture notes are incomplete without having attended lectures

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The Consumer Price Index

- **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, the price level may be biased higher.
- Similarly, if they are cheaper than the goods they replace, but not yet in the CPI basket, they bias the CPI upward.
- **Quality change bias** Quality improvements generally are neglected, so quality improvements that lead to price hikes are considered purely inflationary.

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The Consumer Price Index

- **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.

Note: These lecture notes are incomplete without having attended lectures

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The Consumer Price Index

- A Congressional Advisory Commission estimated that the CPI overstates inflation by 1.1 percentage points a year.
- The bias in the CPI distorts private contracts, increases government outlays (close to a third of government outlays are linked to the CPI), and biases estimates of real earnings.
- To reduce the bias in the CPI, the BLS will undertake consumer expenditure surveys more frequently and revise the CPI basket every two years.

Note: These lecture notes are incomplete without having attended lectures

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