LSE EC1B5 Macroeconomics

Handout 7

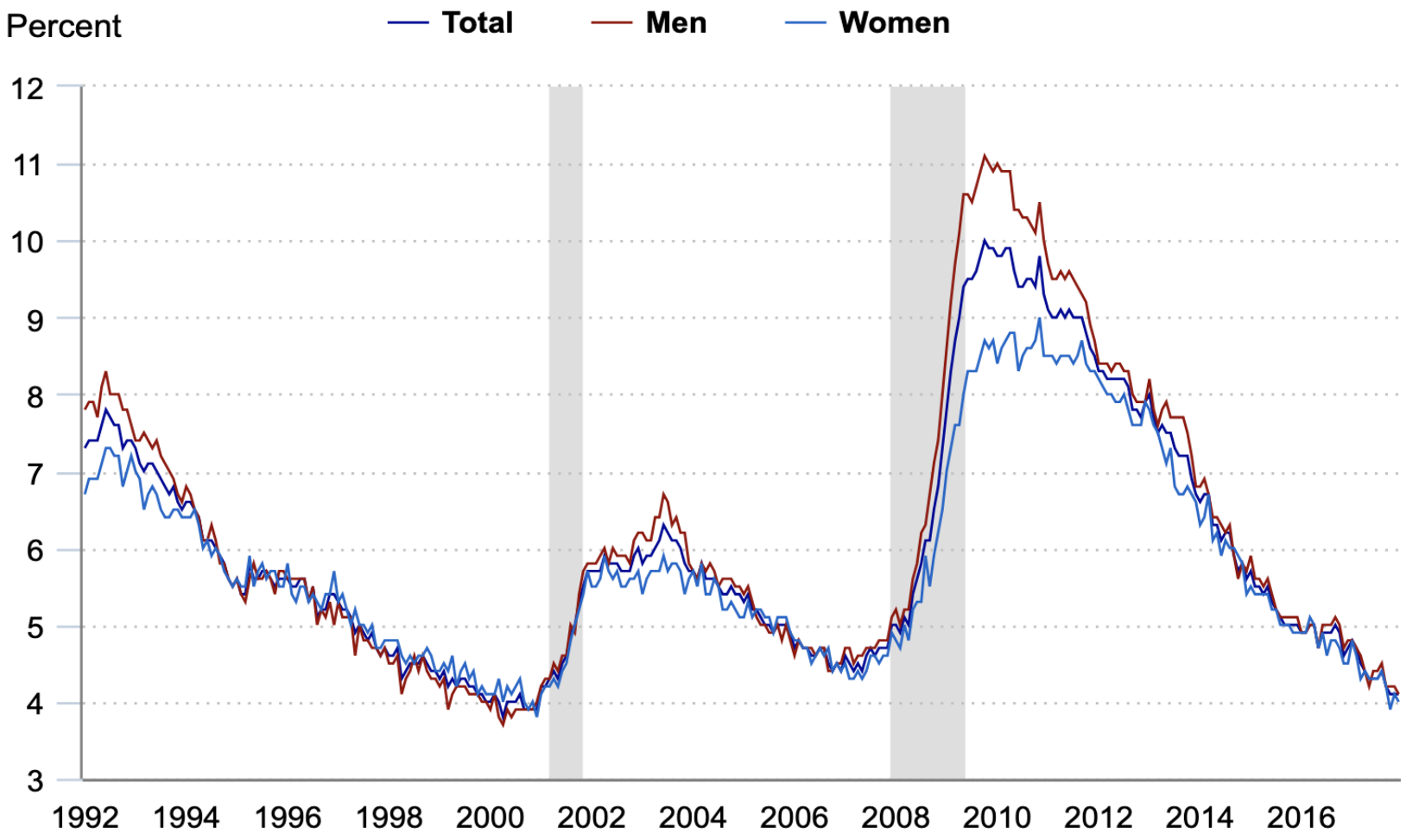
Labour Market

Key Ideas

1. Potential workers fall into three categories: employed, unemployed, and not in the labor force.
2. Labour force participation rate and unemployment rate
3. Equilibrium in a competitive labour market is given by the intersection of the labour supply and labour demand curve.

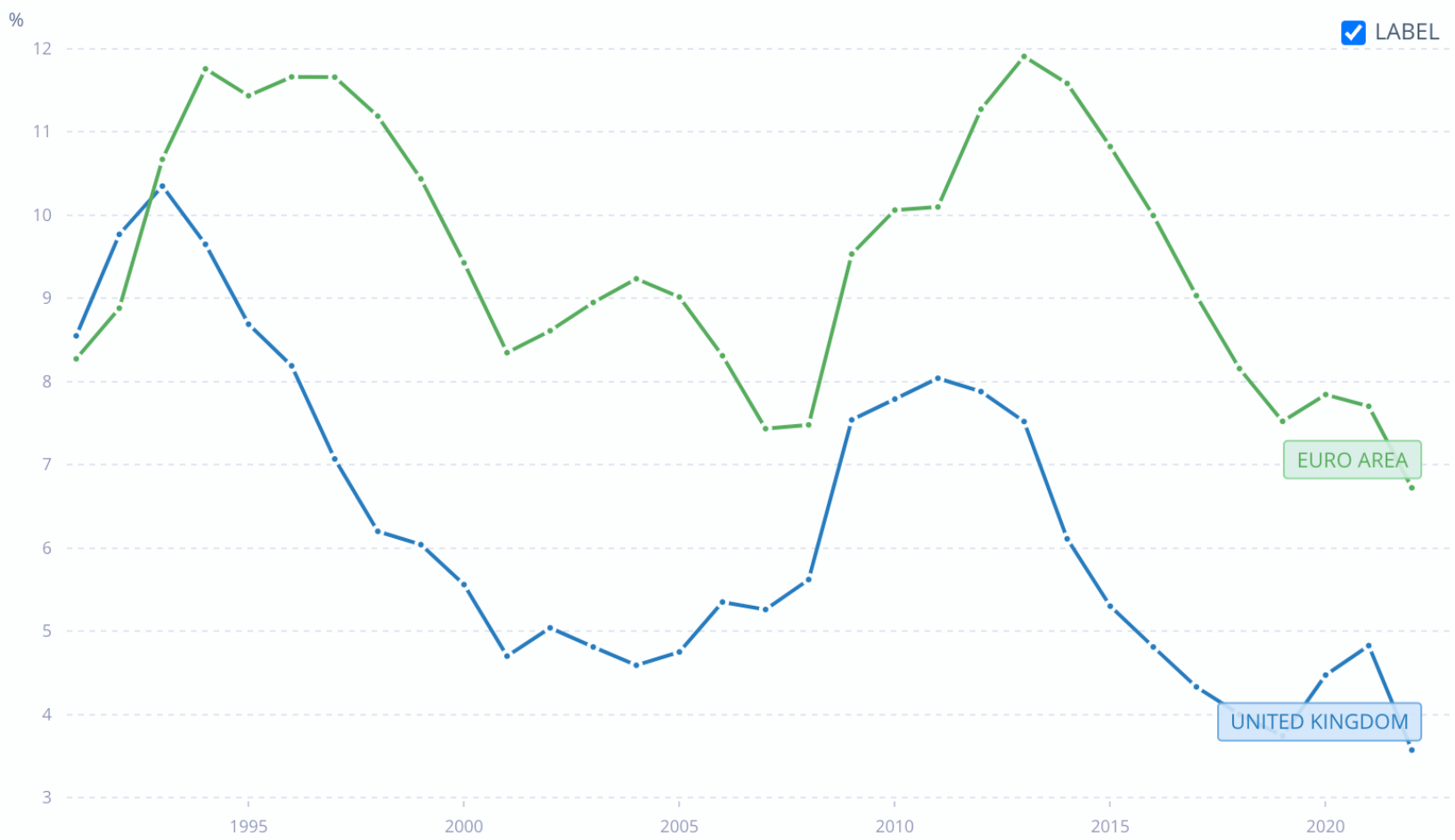
Unemployment during Recessions

Figure 1. Unemployment rates, by gender, seasonally adjusted, 1992–2017



Click legend items to change data display. Hover over chart to view data.
Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Unemployment Rate



Data: International Labour Organization (1991-2022)

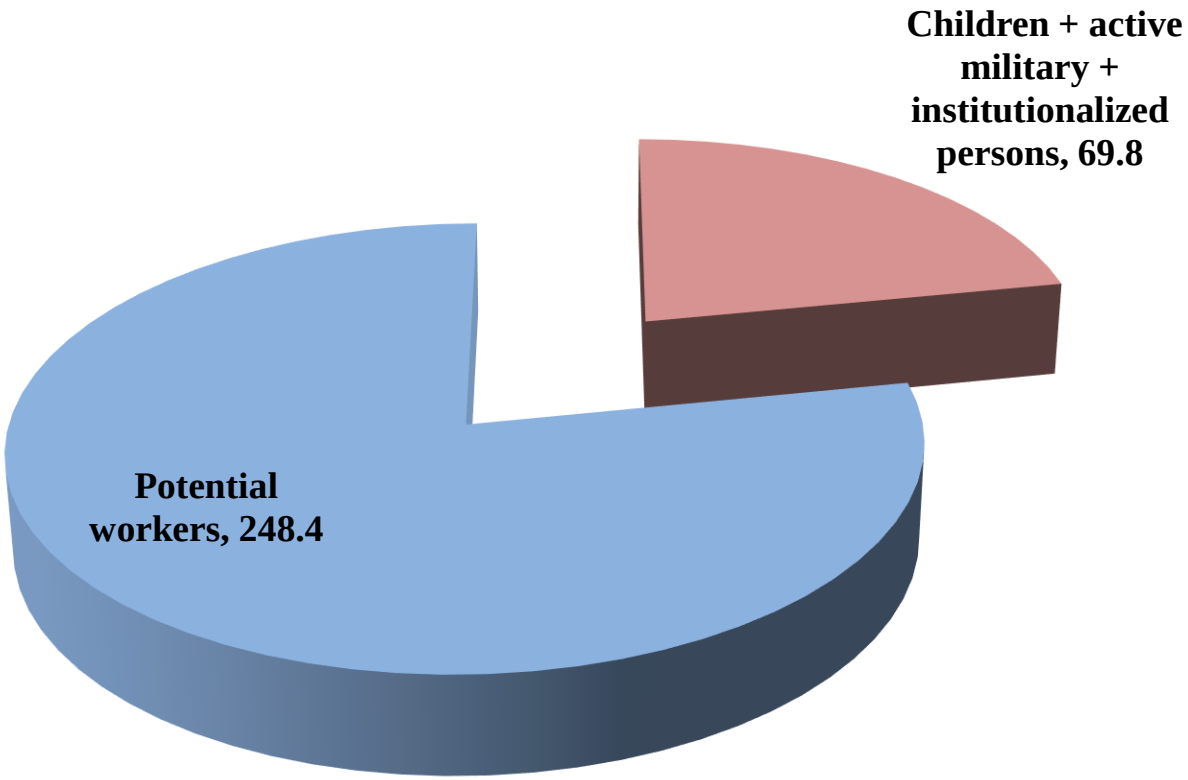
Measurement

Four important measures

- Total population = **potential workers** + the rest
- Potential workers = **labour force** + the rest
- Labour force = **unemployed** + **employed**

Note: potential workers is also called “civilian non-institutional population over certain age or “working age population”

Potential Workers in the U.S.
Bureau of Labor Statistics, September 2014



Potential Workers/ Working Age population

- In the U.S., potential workers = everyone in the general population except:
  - Children under 16 years
  - Active military personnel
  - Institutionalized persons

- According to International Labor organization, the *working age population* comprises all persons above 15, but this varies from country to country and some countries also apply a maximum age limit (e.g. 15-64).

Employed, Unemployed and "Not in the Labour Force"

Potential workers are divided into three categories:

1. **Employed** persons hold a paid full-time or part-time job.

2. **Unemployed** persons are without a job and are actively searching for job.

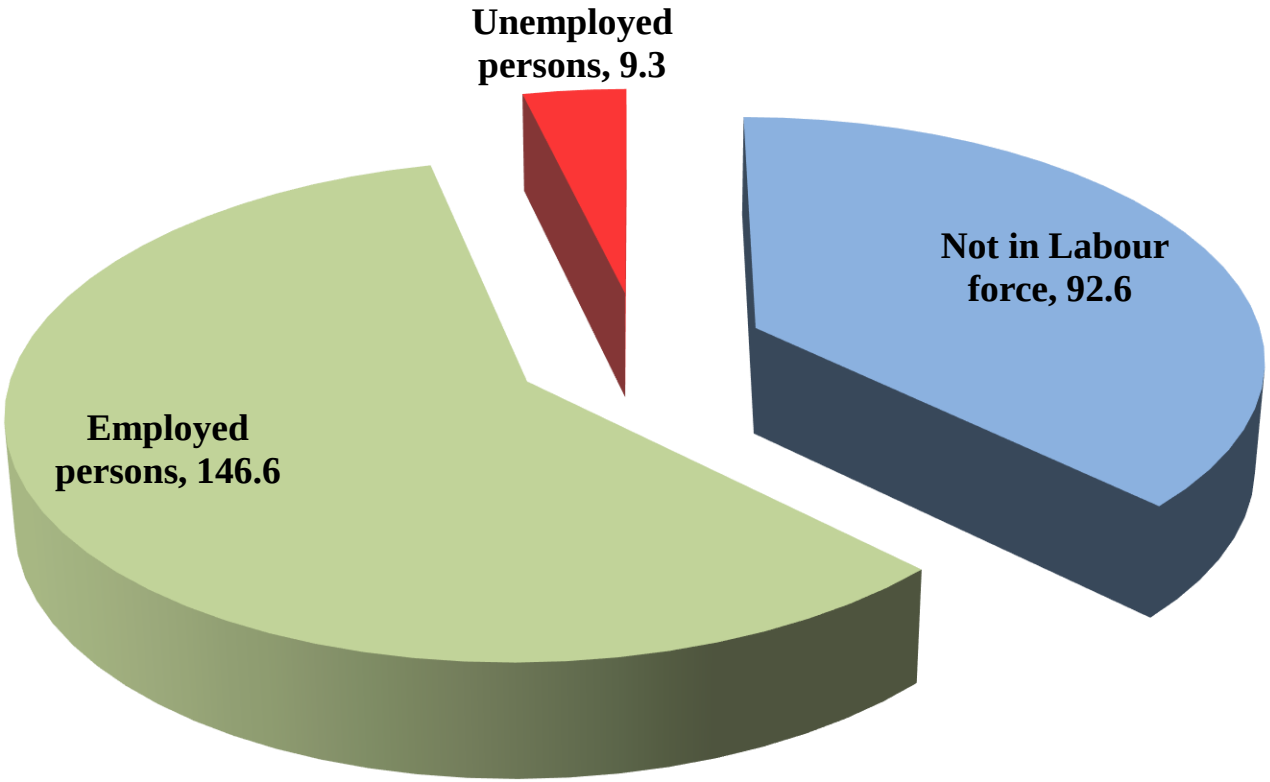
3. **Not in labor force** persons are without a paid job and *not* actively searching for one.

Employed, Unemployed and Not in the Labour Force

What is the classification of each of these people?

- Unionized electrician
- Part-time coffee-shop barista
- Former auto worker seeking new employment
- Former auto worker collecting disability
- Full-time college student
- Retired grandmother
- Stay-at-home father

Employed, Unemployed and Not in the Labour Force in the U.S. Bureau of Labor Statistics, September 2014



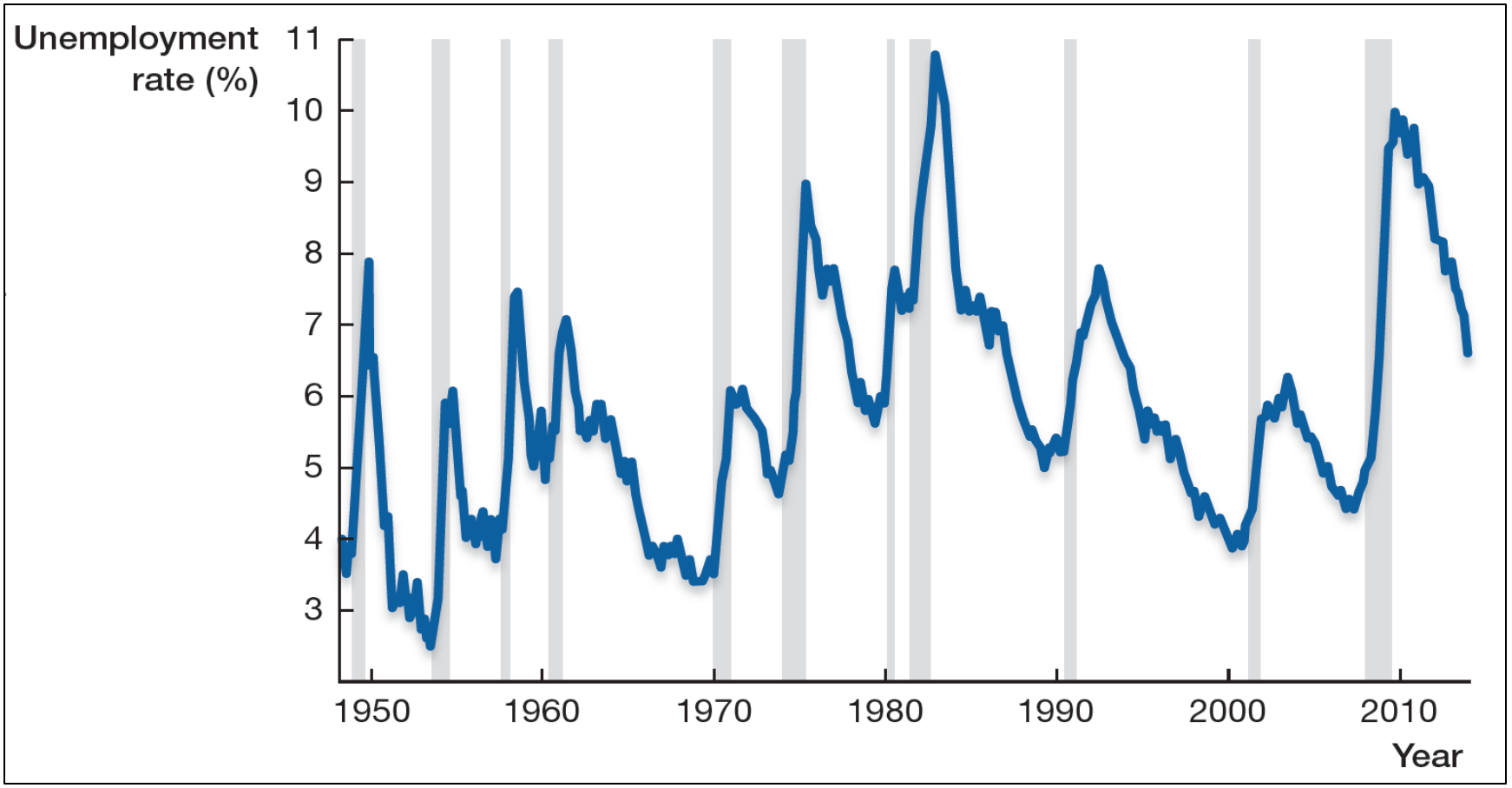
Labour Force Participation Rate and Unemployment Rate

$$\text{Labor force} = \text{Employed} + \text{Unemployed}$$

$$\text{Unemployment rate} = 100\% \times \frac{\text{Unemployed}}{\text{Labor force}}$$

$$\text{Labor force participation rate} = 100\% \times \frac{\text{Labor force}}{\text{Potential workers}}$$

The U.S. Unemployment Rate in history: 1948-2014



Example 1: Labour Force Participation Rate and Unemployment Rate

United States (in millions)	**Sep-08**	**Sep-14**
National Population	305.9	318.2
Children + active military + institutionalized persons	71.5	69.8
Potential workers	234.4	248.4
Not in Labour force	79.8	92.6
Labour force	154.6	155.8
Employed persons	145.1	146.6
Unemployed persons	9.5	9.3
Labor force population rate =	___._%	___._%
Unemployment rate =	___._%	___._%

Example 2: Labour Force Participation Rate and Unemployment Rate

Example 2: Consider a different situation, an alternative that economists call a *counterfactual*.

Calculate the unemployment rate today and in September 2008 if labor force participation had stayed the same.

Example 2: Labour Force Participation Rate and Unemployment Rate

Calculate the *counterfactual* unemployment rate:

United States (in millions)	**Sep-08**	**Sep-14**
National Population	305.9	318.2
Children + active military + institutionalized persons	71.5	69.8
Potential workers	234.4	248.4
Not in Labour force	79.8	**84.4**
Labour force	154.6	**164.0**
Employed persons	145.1	146.6
Unemployed persons	9.5	**17.5**
Labor force population rate =	66.0%	**66.0%**
Unemployment rate =	6.1%	___._%

Interpretation of Unemployment Rate

- During the great recession, unemployment rate in the U.S. increased from 5% (in December 2007) to a peak of 10% in 2009.
- Example 1 shows that the official unemployment rate has reduced to 6% by 2014, suggesting U.S. labour market has recovered. Many have argued this is an illusion and this is shown in Example 2.

Interpretation of Unemployment Rate

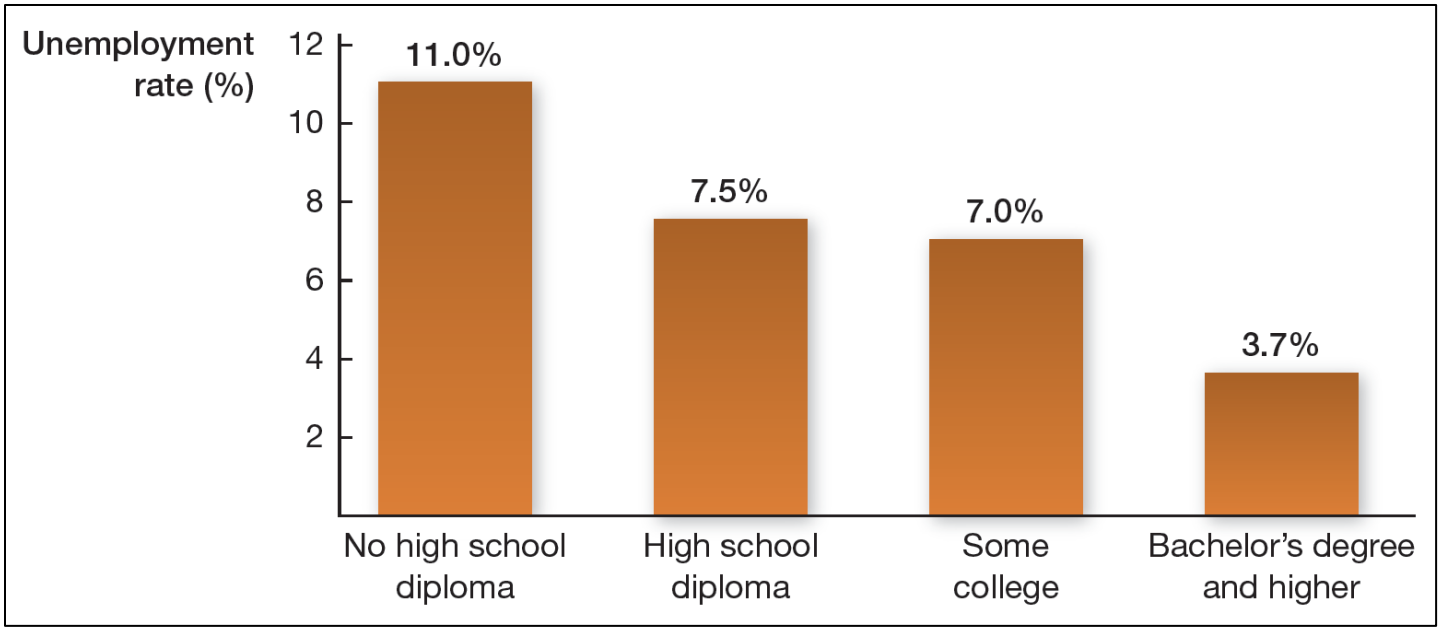
- Example 2 shows that the main reason that unemployment rate seems so low in 2014 was because of the decrease in participation rate from 66% to 62.7%, i.e. there is less people "*actively looking for work in the prior four weeks*."

- This drop is due to the "discouraged worker", those have searched for work within the past twelve months, but haven't searched within the last four weeks *specifically because* they didn't think any jobs were available. So they are now counted as "not in the labour force"

Interpretation of Unemployment Rate

- The concern over the "discouraged worker" is especially relevant during the great recession the long-term unemployment rate (those that are unemployed for 27 weeks or longer) has increased from 1% to the peak of 4.4%.
- Some economists have argued that an alternative measure "*jobless rate*" (including the discourage worker) is a better measure of the status of labour market.

Unemployment Rates for Different Educational Groups
U.S. BLS, age 25 and over



Opportunity cost of time
– market vs. home production

Labour Market

The **labour market** is where the equilibrium real wage and quantity of labor are determined.

The **demand for labour** is determined by firms that want to maximize *profits*.

The **supply of labour** is determined by workers who want to maximize *utility*.

Labour Demand Curve

Firms seek to maximize *profits*.

A firm will hire as long as the marginal benefit is greater than or equal to the additional cost.

Marginal benefit $\geq$ Marginal cost

Labour Demand Curve

The marginal benefit is *the value of the marginal product of labour*—the increase in revenue resulting from hiring an additional worker.

The marginal cost is the *market wage*.

Labour Demand Curve

A profit-maximizing firm will hire the amount of labor that makes the value of the marginal product of labour equal to the market wage.

Value of the marginal product of labour	=	Market wage

Question: How many cooks will the firm hire?

We need to calculate total revenue first:

Number of Cooks	Total Meals Produced	Price per Meal	Total Revenue
1	4	$10	
2	7	$10	
3	9	$10	
4	10	$10	

Labour Demand Curve

Question: How many cooks will the firm hire?

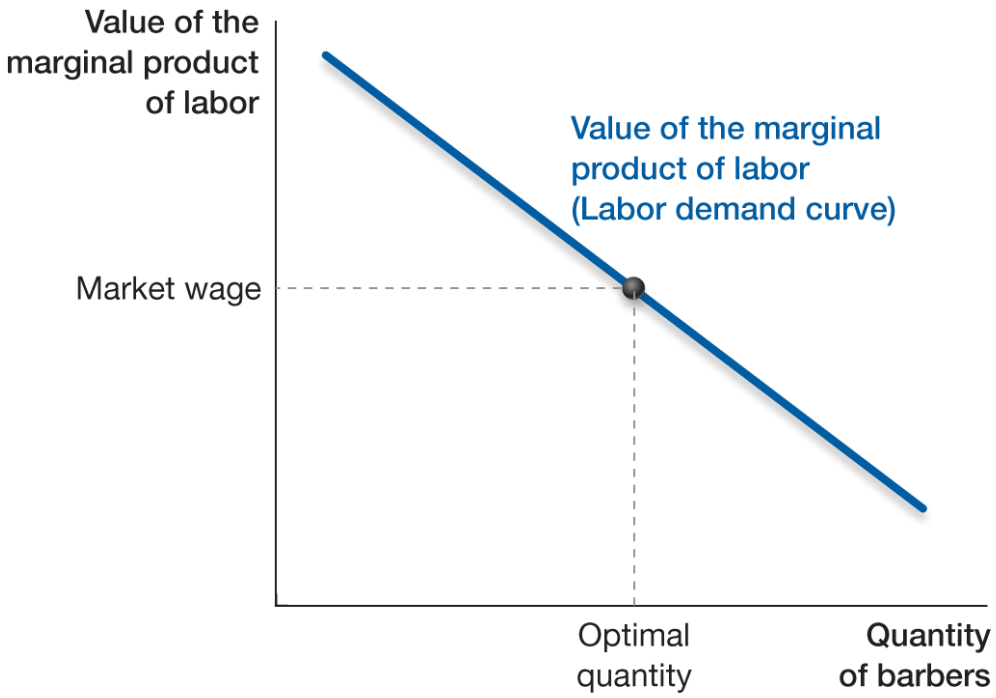
Number of Cooks	Total Revenue	Value of the Marginal Product of Labour	Market Wage
1	$40		$20
2	$70		$20
3	$90		$20
4	$100		$20

Labour demand curve

A curve that depicts the relationship between the quantity of labour demanded and the wage.

The labour demand curve is the value of the marginal product of labour because profit-maximizing firms hire workers until that value equals the wage.

Labour Demand Curve



The labour demand curve slopes downward because the marginal product of labour diminishes as more labour is used.

Shift in Labour Demand Curve

The labor demand curve shifts when a change in any of the following occurs:

1. Demand for the good or service
2. Technological progress and high productivity
3. Input prices of capital, and land

Labour Supply Curve

- You have learnt in Michaelmas Term that the labour supply curve is derived from "Household Behaviour" – choice between consumption and lesiure (or non-market work).
- An increase in real wage (relative price of leisure to consumption) induces both substitution and income effects.
- The labour supply curve is upward-sloping when substitution effect is stronger than income effect.

Shift in Labour Supply Curve

The labor supply curve shifts when a change in any of the following occurs:

1. Tastes or preferences
2. Opportunity cost of time
3. Population and demographics

Equilibrium in the Labor Market

Equilibrium in a competitive labor market occurs at the intersection of the labor demand and labor supply curves.

At the equilibrium wage (w^*), the quantity of labor demanded is equal to the quantity of labor supplied.

Equilibrium in the Labor Market