

## Unit 3.5 Unemployment and Inflation

### Unit Overview

### 3.5 Unemployment and inflation

#### Inflation

Definitions of inflation and deflation

Costs of inflation and deflation

Causes of inflation

- cost push
- demand pull

excess monetary growth

#### Unemployment

Full employment and underemployment

Unemployment rate

Costs of unemployment

Types of unemployment

- structural
- frictional
- seasonal
- cyclical/demand-deficient
- real wage

>>Measures to deal with unemployment

Higher level only:

*Methods of measuring inflation*

*Problems of the methods of measuring inflation*

*Phillips curve*

- *short-run*

- *long-run*

*Natural rate of unemployment (NRU)*

*Non-Accelerating Inflation Rate of Unemployment (NAIRU)*

**Blog posts: "Unemployment"**



**Blog posts: "Inflation"**



**Blog posts: "Phillips Curve"**



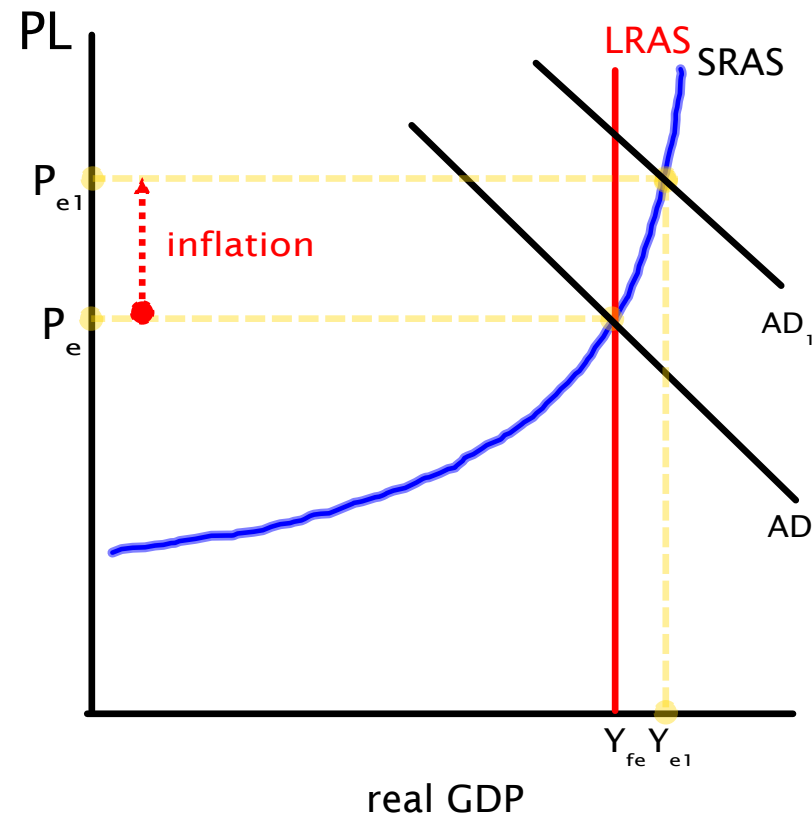
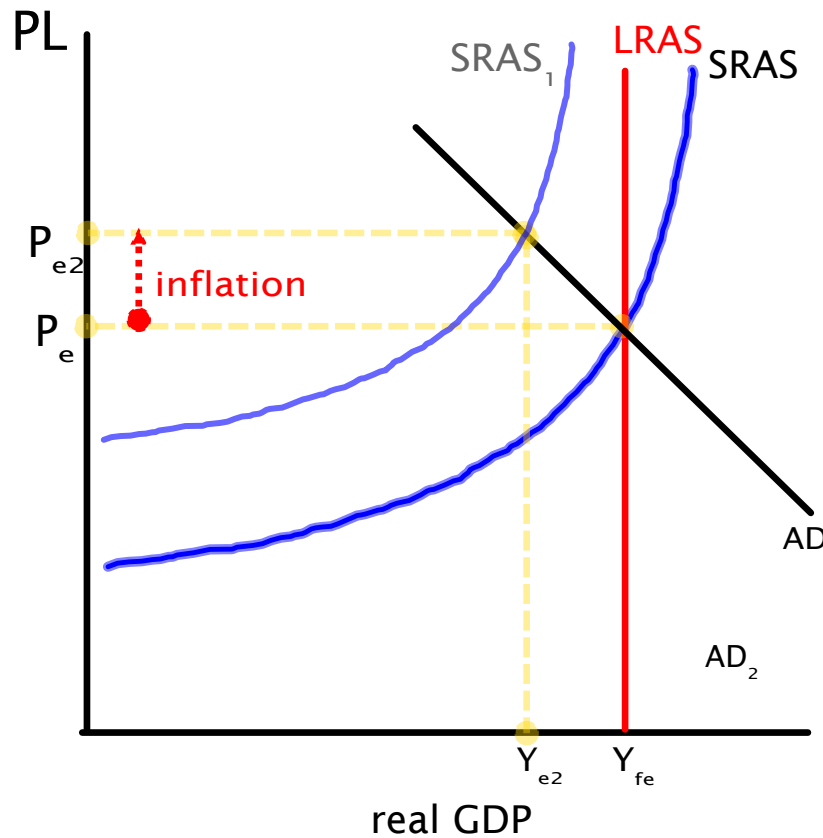
## Inflation and Unemployment

*Types of inflation*

Inflation: defined as a general increase in the price level over a period of time.

Cost-push inflation is caused by an increase firms costs due to rising input prices (wages, raw materials, energy, etc...)

Demand-pull inflation is caused by "too much demand chasing too few goods and services"



## Inflation and Unemployment

### *Costs of inflation*

Inflation's effects on the economy: *Inflation is one of the "evils" in macroeconomics. In fact, price level stability is one of the three main goals of macroeconomic policy. Inflation's effects include:*

- **Loss of purchasing power:** As prices rise and incomes do not, people are becoming *poorer* in real terms. Real income is nominal income minus inflation. An inflation rate of 10%, for example, accompanied by no change in nominal incomes would mean the average household was 10% poorer at the end of the year than at the beginning.
- **Loss of savings:** Savers are negatively effected by inflation. If you put \$1000 in the bank at 5% interest today, but there is inflation of 10% in the next year, then you will have actually *lost 5% of your savings*. The *real interest rate* is the nominal interest rate minus the rate of inflation.
- **Higher interest rates for borrowers:** In times of high inflation, banks will raise the interest rates they charge borrowers. A lender charging 4% interest when there is inflation of 6% will actually be paid back in money worth 6% *less than* the money originally lent. To maintain profits, banks must charge a higher nominal interest rate than the rate of inflation, making it more costly for firmst and households to borrow financial capital.
- **Effect on international competitiveness:** High inflation at home makes domestic output less attractive to foreigners, and imports more attractive to domestic consumers. This could move a country's trade balance towards deficit.

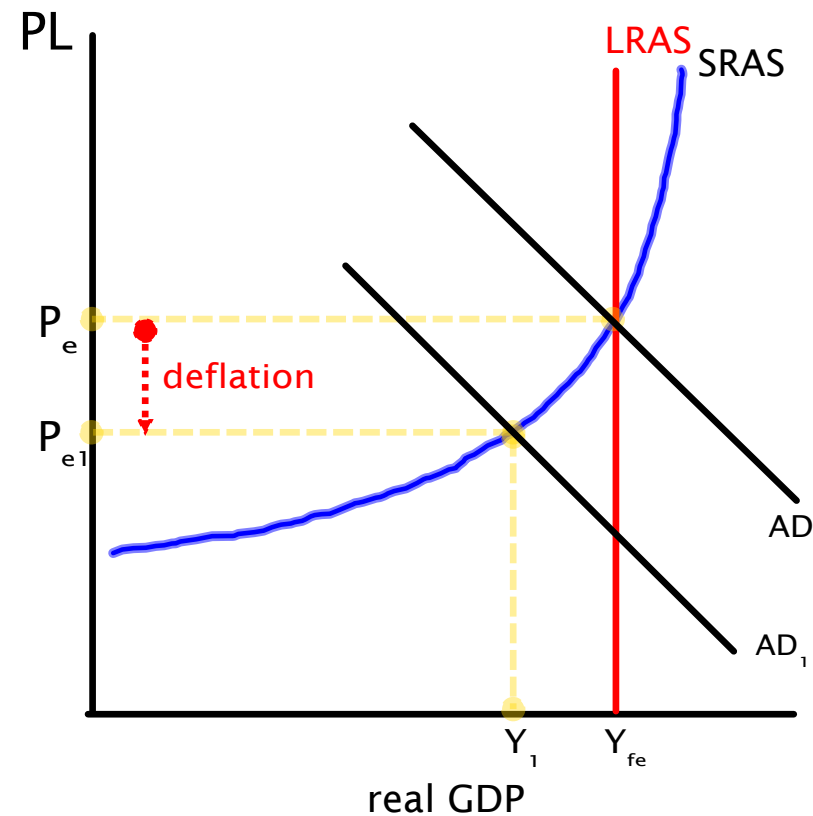
## Inflation and Unemployment Deflation

Deflation: defined as a decrease in the level of prices in the economy.

Falling prices sound good, but they are NOT! Here's why:

- **Unemployment:** Low demand for goods and services means firms must lay off workers.
- **Delayed consumption:** With the expectation of future price decreases, households will increase savings and decrease spending. This could lead to a *deflationary spiral*.
- **Declining investment:** If firms expect less demand for their output in the future, they'll invest less now, which could result in slower economic growth.
- **Cost to borrowers:** The real debt burden of borrowers increases as the price level falls. Bankruptcies result as borrower's incomes fall while the value of the money they must pay back increases.

Demand-deficient deflation is caused by weak overall demand in the economy (C, I and Xn)



Inflation and Unemployment  
*Deflation*

Discussion Questions:

- What problem is the US economy facing today, inflation or deflation?

What types of policies are the US government using to try to avoid this problem?

- How do the US's macroeconomic problems affect other countries?

Article research:

- 1) Research: With a partner, go online to find one good article relating to either inflation or deflation.
- 2) While reading the article, discuss and attempt to identify the causes of price level instability.
- 3) Using an AD/AS diagram, illustrate the causes and effects of the price level instability as described in the article.
- 4) Share your article and analysis with the class

## Inflation and Unemployment

### *Unemployment*

Types of unemployment: Unemployment is defined as the percentage of the labor force out of work. The labor force is made up of 16-65 year olds who are employed or seeking employment.

**Frictional:** Describes workers "in between jobs". When someone with marketable skills moves from one job to another. Usually three months or less.

**Seasonal:** Describes workers who work at jobs that are seasonal in nature. Examples include fruit pickers, migrant workers, resort employees, etc...

**Structural:** When workers lose their jobs due to the changing macroeconomic structure of the economy. Factory workers who lose their jobs due to automation are structurally unemployed. Structural unemployment is difficult to overcome for those who experience it, but may be evidence of a healthy economy, since often those who are structurally unemployed are less skilled.

**Cyclical:** Workers who lose their job due to a recession caused by weak aggregate demand are cyclically unemployed. Cyclical unemployment is a sign of a struggling economy. The nearly 10% unemployment in the United States in 2009 is a result of recession and the changing structure of the US economy.

Frictional +  
Seasonal +  
Structural UE  
= Natural Rate of  
Unemployment  
(NRU)

## Inflation and Unemployment *the Unemployment / Inflation Tradeoff*

Review: What are the three main macroeconomic goals?

1) Price level stability

2) Full-employment

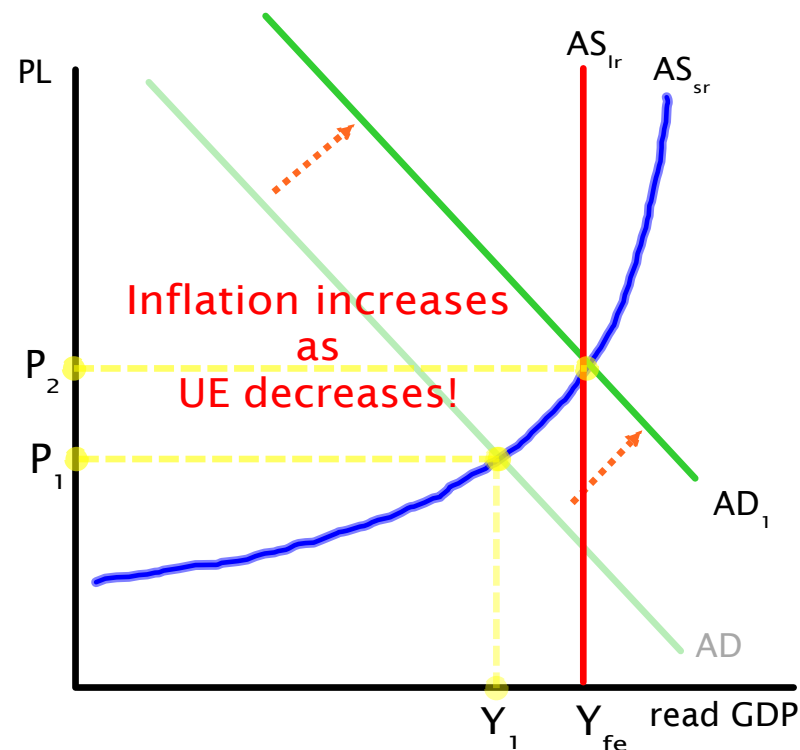
3) Economic growth

Both low inflation and low unemployment are major goals.  
But are they compatible?

### The Unemployment/Inflation Tradeoff

At  $Y_1$  the economy is in recession due to weak AD.

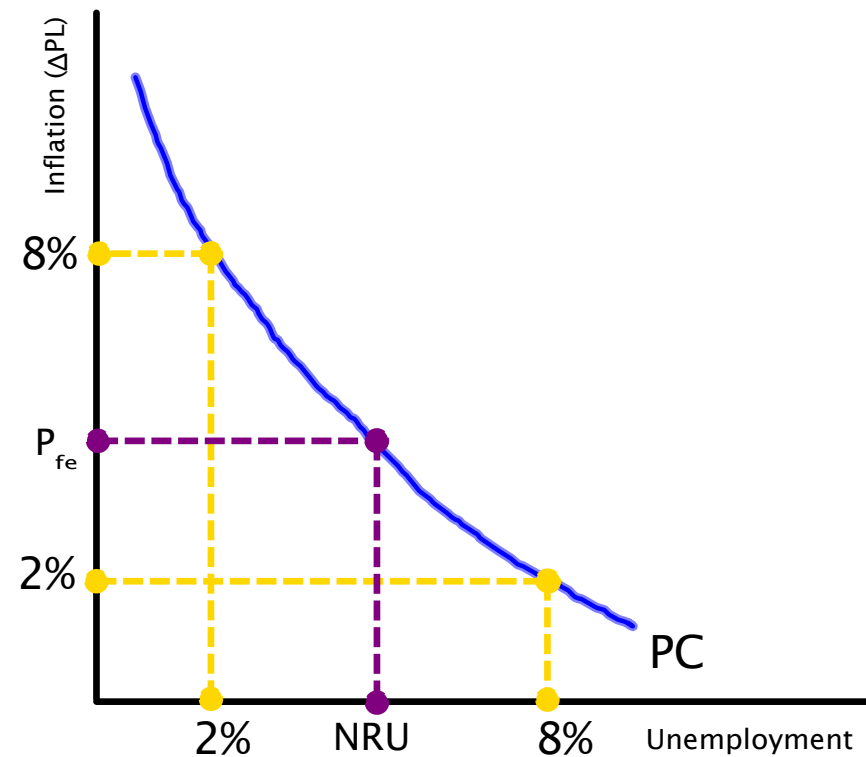
- Policymakers wish to increase spending to reduce unemployment.
- Expansionary policy is successfully used to increase AD to  $AD_1$ .
- Unemployment declines as output returns to  $Y_{fe}$ .
- The price level increases due to new consumer demand for goods and services.



## Inflation and Unemployment *the Phillips Curve*

### Graphing the inflation/unemployment relationship: the Phillips Curve

- In the short-run, there is an inverse relationship between the price level and the unemployment rate
- When AD is weak, unemployment will increase and there is downward pressure on prices.
- When AD is strong, unemployment falls and there is upward pressure on prices as the economy approached full-employment.
- When economy is at equilibrium, UE will be stable at the Natural Rate of Unemployment

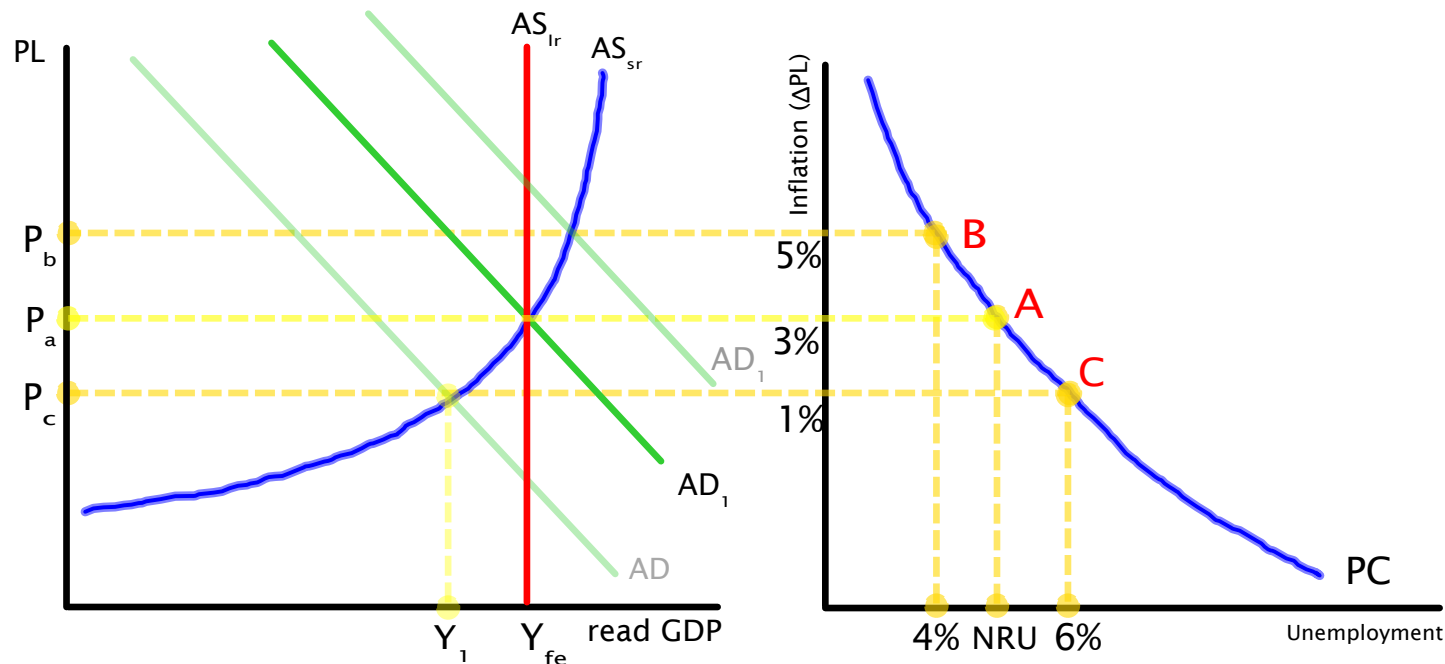


## Inflation and Unemployment *the Phillips Curve*

**AD/AS and the Phillips Curve:** Assume the economy is at full employment, with an inflation rate of 3% and an unemployment rate of 5% (NRU). The economy is at point A on its Phillips Curve.

When aggregate demand increases, price levels rise, output increases, causing unemployment to fall, and the country moves from point A to point B on the PC.

When AD falls, there is downward pressure on the price level and the fall in output means fewer workers are needed. Inflation falls and unemployment increases, moving from point A to C on the PC. **In the short-run, there is a trade-off between unemployment and inflation!**



***Inflation increases as Unemployment decreases!***

## Inflation and Unemployment *the Phillips Curve*

Question: What could cause the PC to shift out from PC to PC<sub>1</sub>? In other words, what could cause an increase in both unemployment AND inflation?

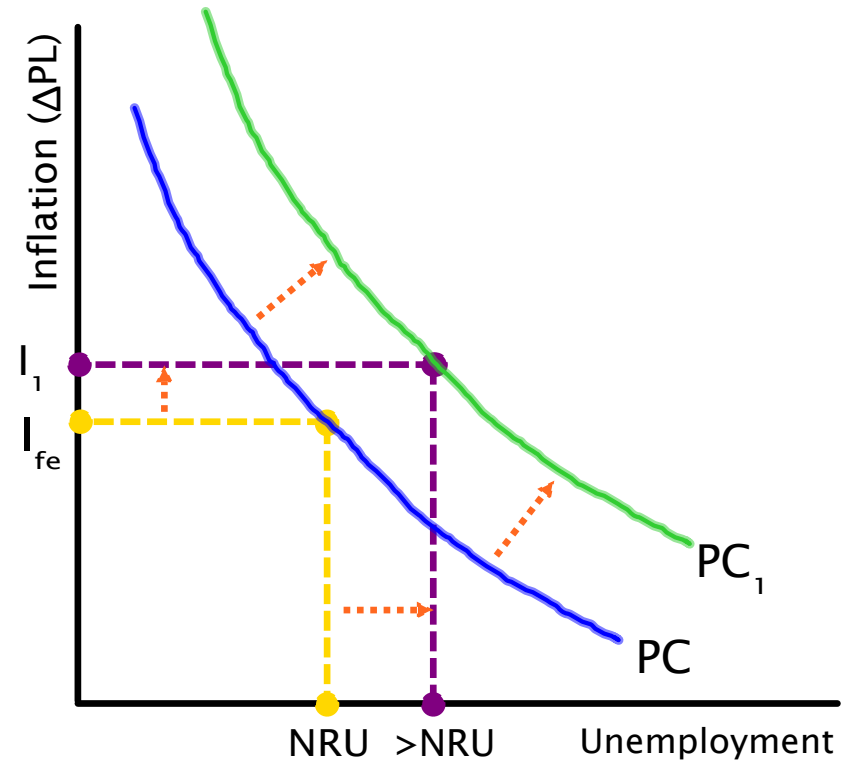
Answer: Stagflation

- A leftward shift of the SR Aggregate Supply curve will cause both unemployment and inflation to increase simultaneously.
- The Phillips Curve will shift to the right
- The economy will experience UE greater than the NRU and higher than desired rates of inflation.

Factors that could cause stagflation:

- sharp increases in fuel costs
- rising food prices
- weak currency

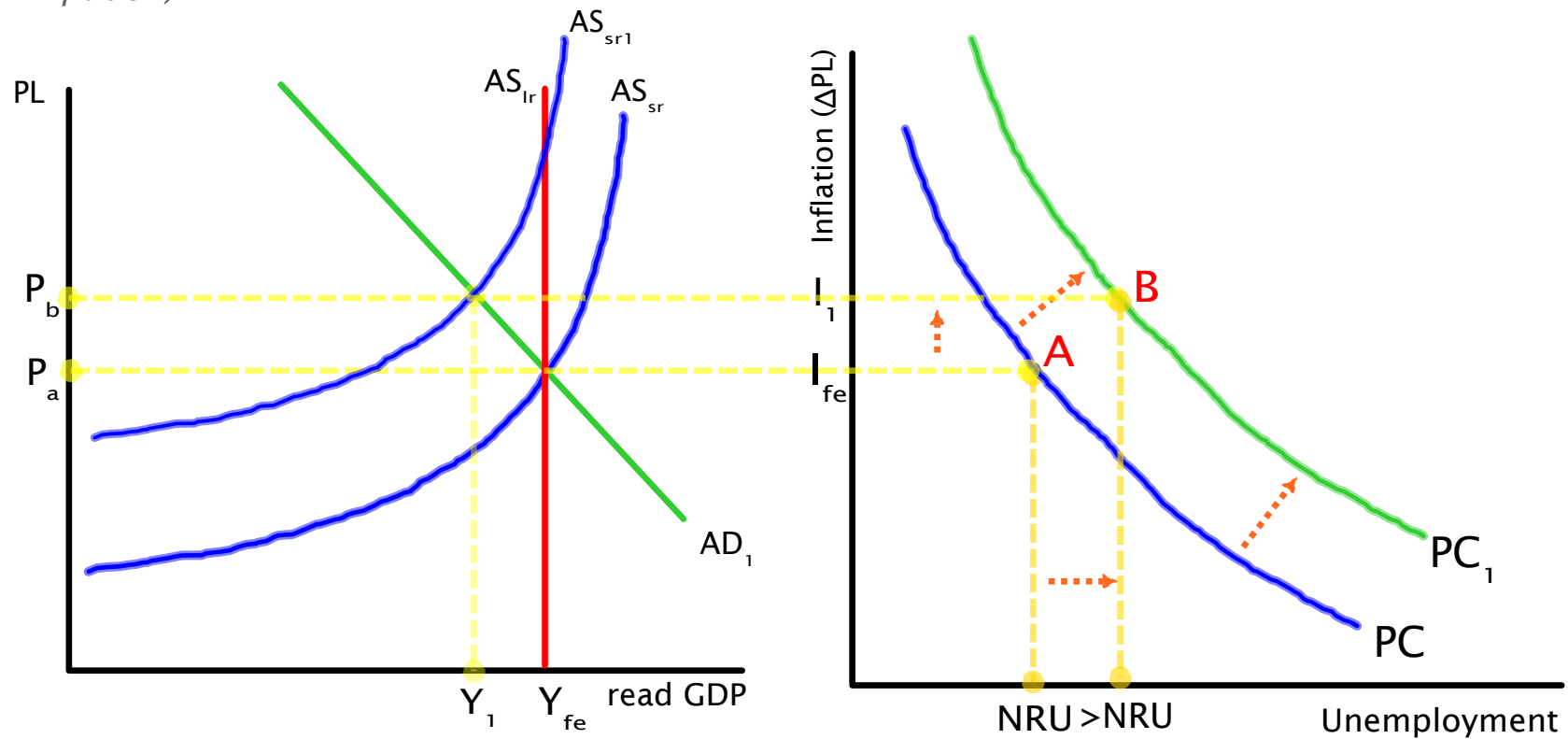
SOUND LIKE ANY COUNTRY YOU KNOW?!



## Inflation and Unemployment the Phillips Curve

**AD/AS and the Phillips Curve:** *Assume the economy starts at full employment.*  
 When aggregate supply decreases, price levels rise and output falls causing unemployment to increase.

When AS falls, there are upward pressures on the price level and on unemployment. This is shown in an outward shift of the Phillips Curve, and known as **STAGFLATION** (stagnant growth combined with inflation)

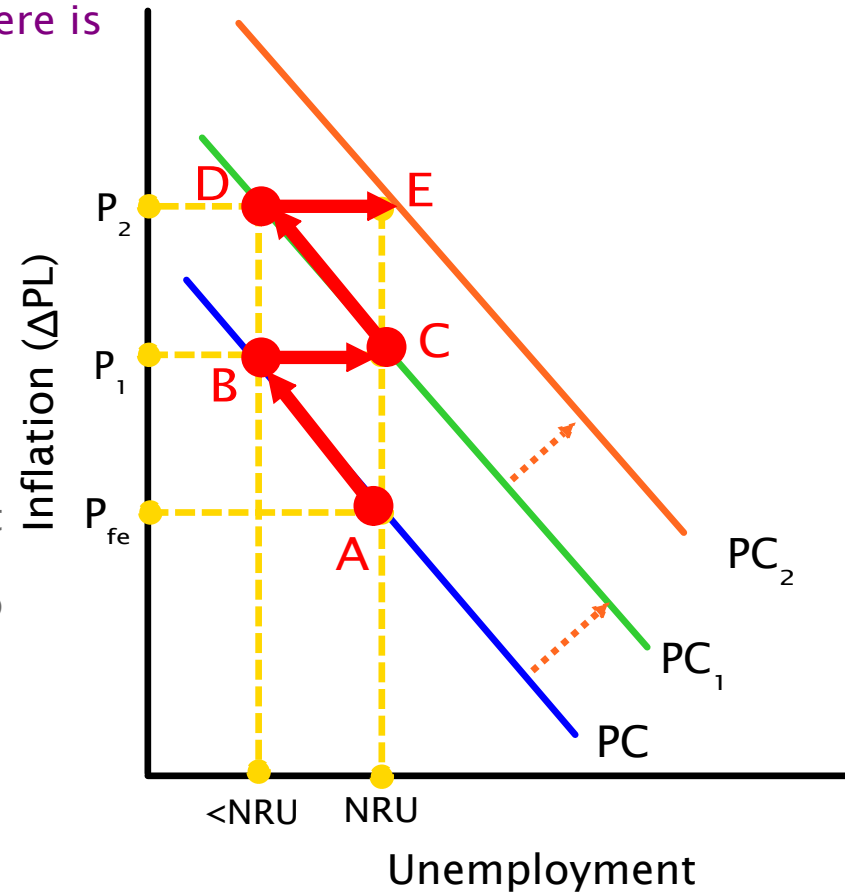


## Inflation and Unemployment *the Phillips Curve - SR to LR*

What happens to the Phillips Curve when there is an increase in spending and AD shifts out?

- Unemployment will decrease below NRU,
- Price level will increase  
**Phillips Curve moves from A to B**
  
- With rising inflation, workers will begin demanding higher wages.
- Wages are a resource cost, so when they increase AS will shift to the left
- Leftward shift of AS restores full-employment output
- Higher resource costs cause the price level to increase  
**Phillips Curve moves from B to C**

*If AD increases again, the process will repeat itself: Rising prices lead to higher wages which leads to AS shifting in, UE returning to NRU, and price level increasing ever higher*



## Inflation and Unemployment *the Long-run Phillips Curve*

the Long-run Phillips Curve: In the long-run, there is NO tradeoff between inflation and unemployment.

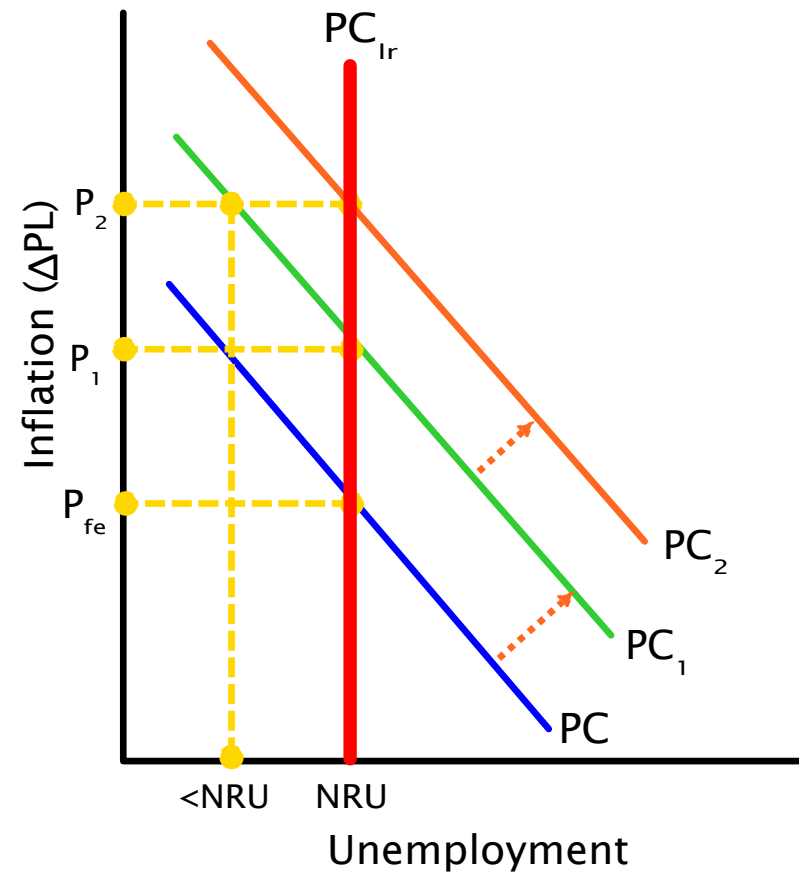
Understanding the LR PC:

As AD increases, UE will decrease in the short-run, when wages are fixed.

In the long-run, wages and other resource costs are variable, and will adjust to the higher price level, causing AS to shift left

Output will always return to the full-employment level, and unemployment to the NRU.

Consequently, in the long-run, *there is no tradeoff between unemployment and inflation!*



The Long-run Phillips Curve is vertical at the Natural Rate of Unemployment.

## Inflation and Unemployment

### *Evaluating the Phillips Curve*

Is the Phillips Curve valid? *Until the 1970's data tended to support the SR Phillips Curve model, indicating there was a tradeoff between UE and inflation. But with the onset of the 1970's stagflation, the tradeoff came into question.*

**What is stagflation?** *When BOTH UE and inflation increase, while growth slows or becomes negative.*

**What caused stagflation?** *Oil embargoes and inflexible labor markets of the 1970s resulted in higher costs of production for firms.*

**What impact did stagflation have on the Phillips Curve?** *the SR PC appeared to shift out as both inflation and UE increased.*

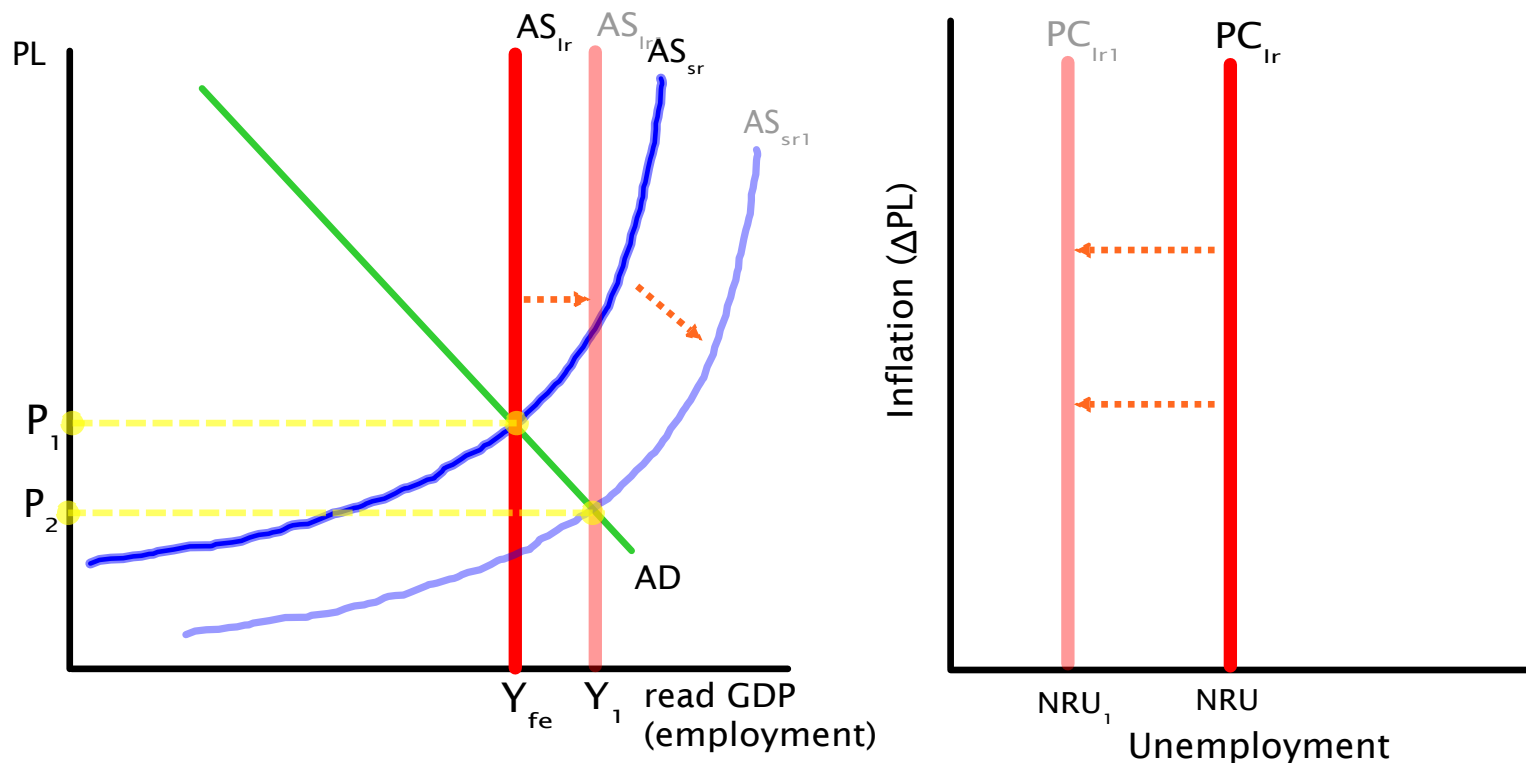
**Does unemployment always return to the NRU (or Non-accelerating inflation rate of unemployment: NAIRU)?** *The neo-classical economists led by Milton Friedman argued that there was no long-run tradeoff between unemployment and inflation. Just as the long-run AS curve is vertical at full-employment GDP, the Phillips Curve is correspondingly vertical at the NAIRU (NRU).*

**Is an economy's unemployment doomed to always return to some set level?** *NO! The implication of the LR PC is not that UE will always be at the same NRU, rather that demand-side policies are ineffective at decreasing UE in the long-run. SUPPLY-SIDE policies, however, can lower the UE in the long-run. More productive, lower cost resources will shift LRAS out, and the LR PC to the left.*

## Inflation and Unemployment

### Evaluating the Phillips Curve

Supply-side expansion and the Phillips Curve: *Expansionary supply-side policies lead to a more productive workforce, more efficient resources, and lower costs to firms and an outward shift of the LRAS, which is consistent with a lower natural rate of unemployment. An outward shift of LRAS results in a leftward shift of the LRPC.*



Unit 3.6 Distribution of Income  
*Unit Overview*

3.6 Distribution of income

- \* Direct taxation
- \* Indirect taxation
- \* Progressive taxation
- \* Proportional taxation
- \* Regressive taxation
- \* Transfer payments

Blog posts: "Income distribution"

Blog posts: "Laffer Curve"

Blog posts: "Taxes"

Higher level only:

- \* Laffer curve
- \* Lorenz curve and Gini coefficient

## Distribution of Income

### *Taxes in the Macroeconomy*

The role of taxes in the Macroeconomy: *Taxes are a fact of life. In fact there are only two sure things in life: "Death and Taxes"*

**Taxes and the Distribution of Income:** Governments tax the public and firms to raise revenue which it redistributes through spending on public goods and services. The degree to which a tax is redistributive in nature depends on the type of tax and its **progressivity**.

**Transfer payments:** These are one means by which tax revenue (and national income) is redistributed. Various less fortunate members of society may receive transfer payments. Examples include: unemployment benefits, welfare for the poor, government provided health care for the poor and elderly, subsidies to producers and state child care benefits

**Types of Taxes:** There are two broad categories of taxes

**Direct taxes:** *These are taxes placed directly on the income, revenues and profits of households and firms. They must legally be paid by all participants in the economy.*

**Indirect taxes:** *These are taxes placed on goods and services, and are thereby paid indirectly to the government through consumers' purchases. Indirect taxes are known in different places as Value Added Tax (VAT), Goods and Services Tax (GST) or simply Sales Tax. The tax rate may be standard for all goods and services, or in the case of an excise tax, may vary depending on the particular good or service.*

## Distribution of Income

### Taxes in the Macroeconomy

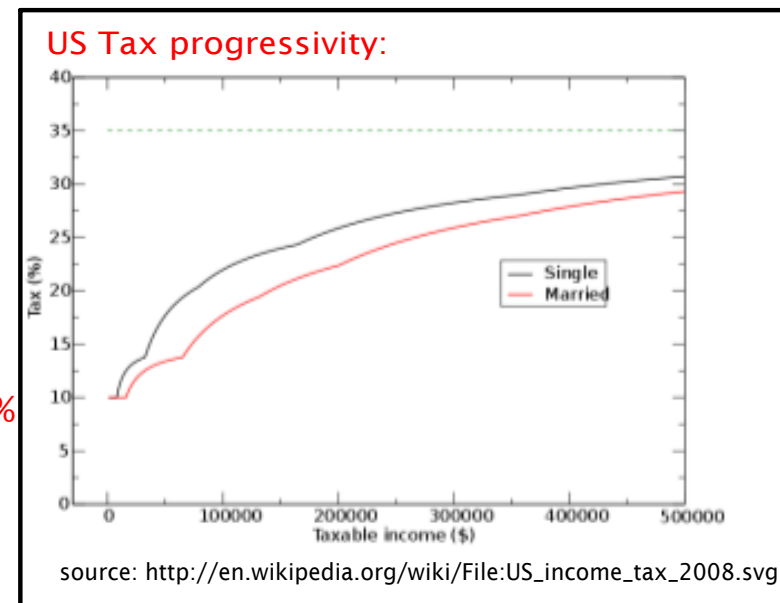
Types of Taxes, continued: Direct and indirect taxes have different effects on the incomes of rich and poor. Some taxes place larger burdens on the incomes of the rich, while others place larger burdens on the poor.

**Progressive tax:** This is a tax that increases in rate as one's income rises, the proportion of the income that goes towards the tax increases. Most income taxes are progressive. Progressive taxes are redistributive because they place the lightest burden on the lowest income earners.

**Regressive tax:** A tax which as income rises, the proportion of income paid in tax decreases. Indirect taxes are regressive. For example:

- Price of laptop: **\$1000**
- Sales tax: **10%**
- Amount of tax: **\$100**
- Tax rate on a consumer who earns \$10,000 = **0.1%**
- Tax rate on a consumer who earns \$50,000 = **0.02%**

*The higher income consumer is paying a lower proportion of his income in tax*



**Proportional tax:** Sometimes called a "flat tax", a proportional tax is one which all income levels pay the same percentage of income in tax. This has been proposed in many countries to replace progressive income taxes. Advocates consider proportional taxes to be more "fair" since they do not "punish" the hard work of high income earners.

## Distribution of Income

### *Evaluating Taxes and Income Re-Distribution*

Supply-side (Neo-classical) vs Demand-side (Keynesian) views: Not surprisingly, the different schools of economic thought have different views on the role taxes should play in the economy.

**Supply-side argument:** Low taxes are necessary to assure an incentive to work, invest, and save.

- Supply-siders are anti-tax
- Supply-siders believe that taxes discourage productivity and efficiency, since workers get to save less of their hard-earned income.
- Taxes discourage investment since firms get to keep less of their profit.
- Lower motivation to work and invest will lead to slow increases in productivity, thus stifle the outward shift of AS, keeping prices high and growth sluggish.
- Supply-siders believe that lower tax rates may, in some cases, lead to higher tax revenues.

### History of the supply-side view:

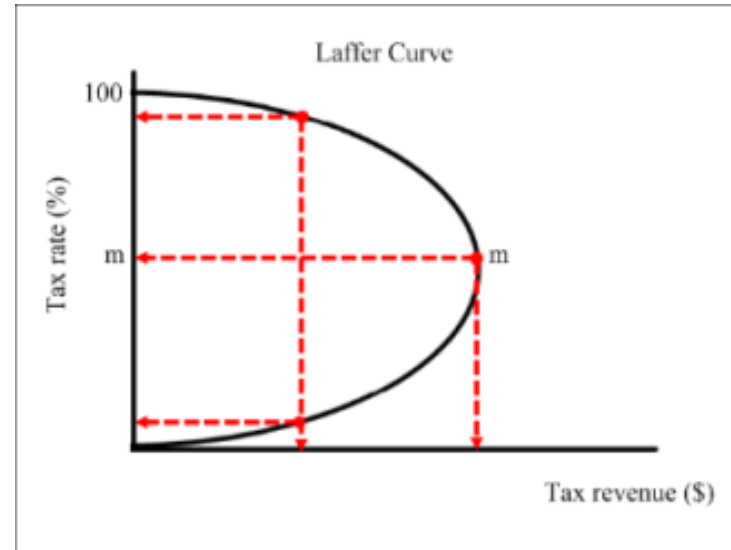
- Promoted by economist Arthur Laffer, worked for Regan administration.
- Regan cut personal income taxes by 25% over three years
- Lower tax rates tend to result in higher tax revenues only after about a 5-6 year period. In other words, the tax cuts themselves probably don't account for the increases in revenue, rather a combination of demand-side effects of the tax cut and increases in productivity and output due to new technologies.

## Distribution of Income

### *Evaluating Taxes and Income Re-Distribution*

The Laffer Curve: Illustrates the supply-siders' view that higher taxes could lead to lower tax revenue

- Originally sketched on a napkin by Arthur Laffer to help a reporter understand his theory.
- Shows that 100% tax rate, nothing would get produced so there's ZERO tax revenue.
- As the marginal tax rate declines, there is more of an incentive for firms to produce and workers to seek employment since they now get to keep more of their income. As a result, lower taxes cause incomes and tax revenue to rise.
- At some point, further decreases in taxes will cause tax revenue to decline as firms and workers keep more and more of their income.
- At 0% taxes, clearly tax revenue = \$0



Read and discuss the following articles on supply-side economics:

[Blog post: "Hey, what are you Laffing at? The relationship between tax rate and tax revenue"](#)



[Blog post: "Supply - side economists: lower taxes, more growth, more tax revenue!"](#)



## Distribution of Income

### *Evaluating Taxes and Income Re-Distribution*

The Demand-side view: Generally demand-side Keynesians envision taxes playing an important role in government's managing of the macroeconomy

**During expansion:** *During periods of rapid economic growth and rising AD, income and indirect taxes should be raised to avoid inflation and "tame the business cycle".*

**During recession:** *When demand in the economy is weak, taxes should be slashed to increase disposable income and firms' profits so as to encourage consumption and investment.*

**In the case of market failure:** *Markets sometimes fail to allocate resources efficiently. In the case of an overallocation of resources towards demerit goods, corrective taxes can help achieve efficiency in the market. On the other hand, say neo-classical economists, policymakers will only interfere with the efficient function of markets when taxes are imposed.*

**Fairness in income distribution:** *Many economists view the inequalities visible among various classes of society as unfair and see taxes and welfare payments as a means of achieving equity and fairness to the harsh reality of the unfettered free market forces that can result in large gaps between the rich and the poor.*