

## Unit 3.3 Macroeconomic Models

### *Unit Overview*

### 3.3 Macroeconomic models

- Aggregate demand - components
- Aggregate supply
  - >>short-run
  - >>long-run (Keynesian versus neo-classical approach)
- Full employment level of national income
- Equilibrium level of national income
- Inflationary gap
- Deflationary gap
- Diagram illustrating trade/business cycle

Blog posts: "AD/AS Model"



Blog posts: "Business cycle"



Blog posts: "The Multiplier Effect"



## Macroeconomic Models

### Aggregate Demand

**Aggregate demand:** *A curve that shows the total amounts of nation's output that buyers collectively desire to purchase at each possible price level. There is an inverse relationship between a nation's price level and the amount of output demanded.*

**Determinants of AD:** *The total demand for a nation's goods and services can be broken into four types*

- Consumption
- Investment
- Government spending
- Net Exports (X-M)

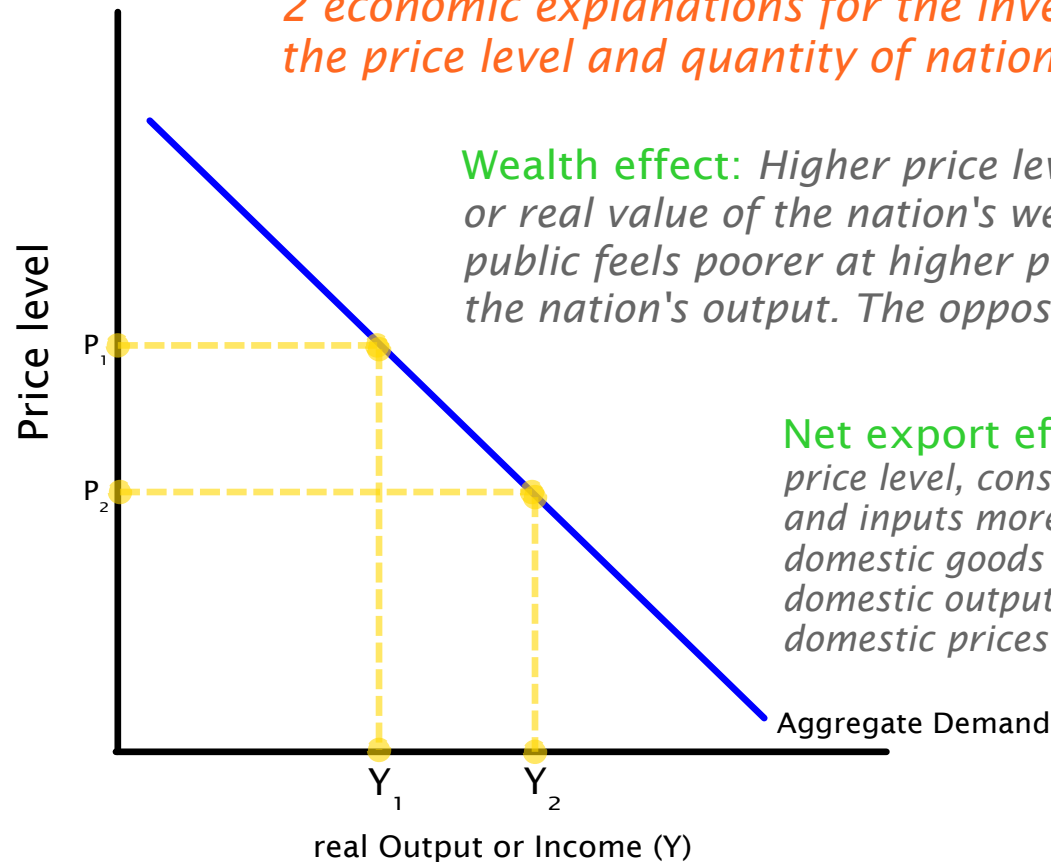
A change in one of the four expenditures above will cause the aggregate demand curve to *shift*. The distance between the old AD and the new AD represents the amount of new spending, plus the **multiplier effect**

**the Multiplier Effect:** *when a change in spending in the economy multiplies itself through successive rounds of new consumption spending. The ultimate change in output (GDP) will be greater than the initial change in spending.*

## Macroeconomic Models Aggregate Demand

Why does Aggregate Demand slope downwards?

*2 economic explanations for the inverse relationship between the price level and quantity of national output demanded:*



**Wealth effect:** Higher price levels reduce the purchasing power or real value of the nation's wealth or accumulated savings. The public feels poorer at higher price levels, thus demand less of the nation's output. The opposite is true for lower price levels.

**Net export effect:** With an increase in the domestic price level, consumers and firms find foreign goods and inputs more attractive, thus substitute imports for domestic goods and inputs, thus the quantity of domestic output demanded decreases. Vis versa when domestic prices decrease.

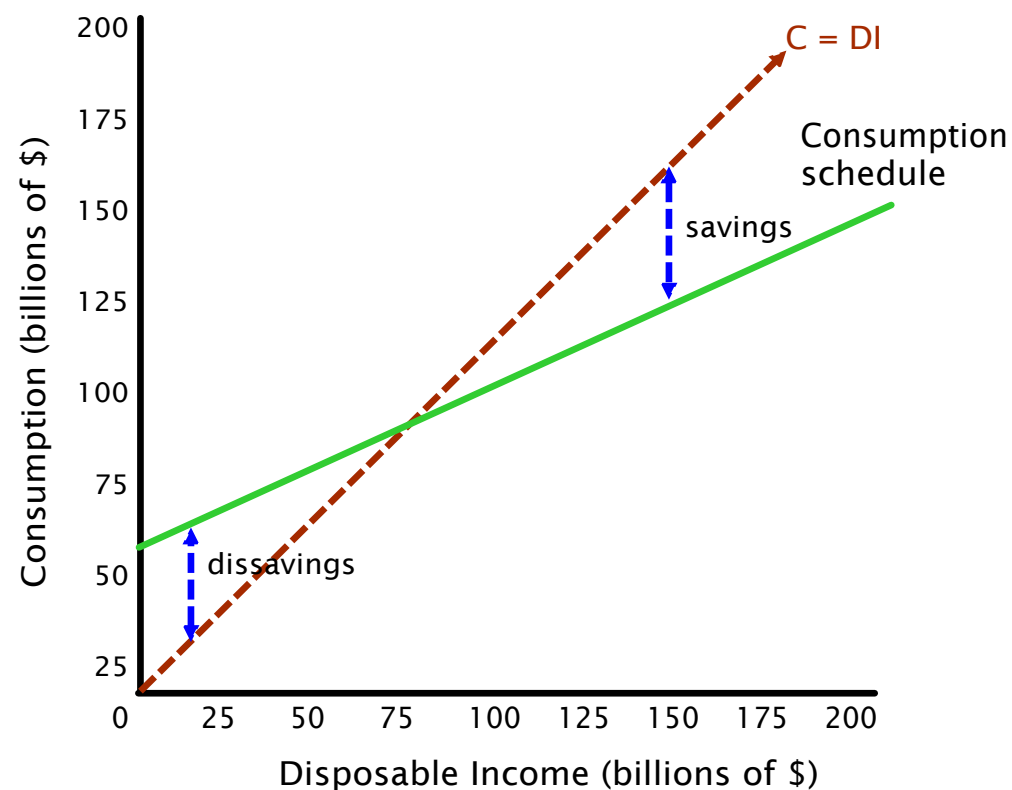
## Macroeconomic Models

### Aggregate Demand

#### Determinants of aggregate demand: CONSUMPTION vs. SAVINGS

The consumption schedule: shows the relationship between disposable income and consumption.

- the 45 degree line represents  $DI=C$ , if households were to consume 100% of their DI at every level of DI.
- At very low disposable incomes, households tend to consume more than their DI, meaning savings is negative.
- At very high disposable incomes, the marginal propensity to consume tends to decrease since households have acquired all the necessities and many of the luxuries they desire, then are now able to save more.
- Data from the US seems to refute the theory presented by the Consumption schedule, since savings in the US has decreased as disposable income increased



## Macroeconomic Models

### Aggregate Demand - Consumption

#### Consumption:

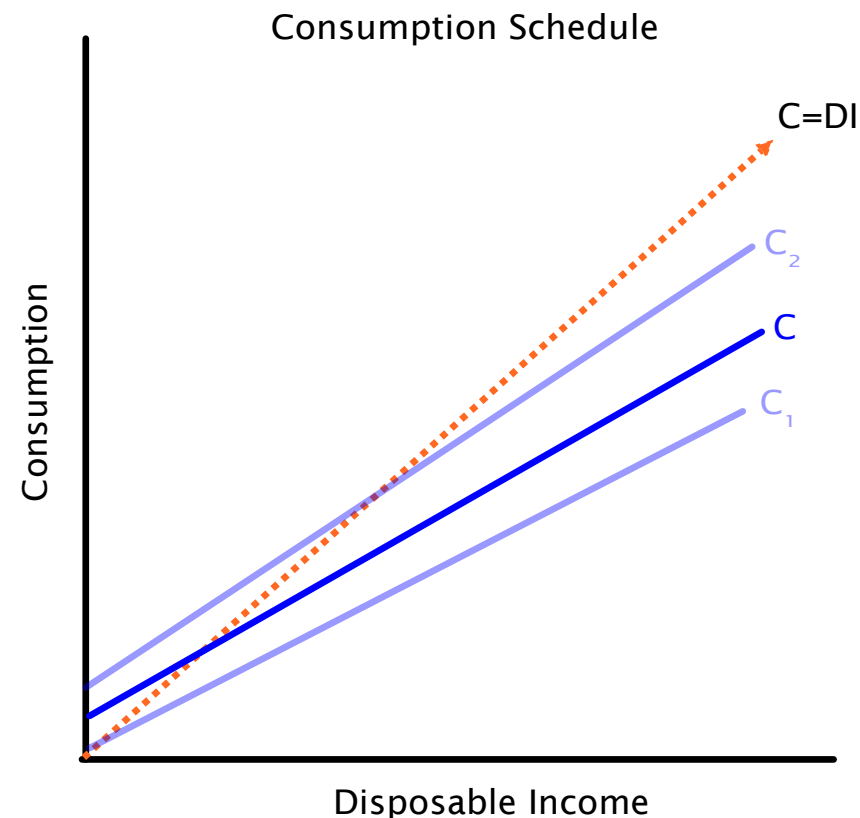
What determines the level of consumption in a nation?

Why does the level of consumption compared to disposable income decrease as disposable income increases?

What factors could cause a shift in a nation's consumption schedule up (to  $C_2$ )?

What could shift a nation's consumption schedule down (to  $C_1$ )?

Assume this nation started at  $C$ . What would happen to Aggregate Demand as the nation moves to  $C_1$ ?  $C_2$ ? Explain



## Macroeconomic Models

### *Aggregate Demand - Consumption*

Determinants of aggregate demand: CONSUMPTION is determined by the following factors

**Wealth:** *When value of existing wealth (real assets and financial assets) increases, households increase C and decrease S. When wealth decreases, C decreases and S increases.*

**Expectations:** *of future prices and incomes. If households expect prices to rise tomorrow, then today C will shift up, S down. If we expect lower income in the future, then C will likely shift down and S shift up, as households choose to save more for the hard times ahead.*

**Real Interest Rates:** *Lower real interest rates lead to more C, less S and vice versa.*

**Household Debt:** *When consumers increase their debt level, they can consume more at each level of DI. But if Debt gets too high, C will have to shift down as households try to pay off their loans.*

**Taxation:** *Increase in taxes shifts BOTH C and S curves downwards. Decrease in taxes shifts both C and S curves upwards. This will be covered more when we discuss Fiscal Policy.*

Changes in any of these factors increase or decrease Consumption, shifting the Aggregate Demand curve

## Macroeconomic Models

### Aggregate Demand - Consumption

#### Determinants of aggregate demand: CONSUMPTION vs. SAVINGS

Observations about consumption:

- *The greater a household's disposable income, the less likely it will be to consume all of it. In other words, the more likely it will be to SAVE.*

>>The relationship between disposable income and consumption is summarized by:

*“households increase their consumption spending as their DI rises and spend a larger proportion of a small DI than of a large DI.”*

Line		1999	2000	2001	2002	2003	2004	2005	2006	2007
<b>Derivation of personal saving from the NIPAs:</b>										
1	<b>Personal income</b>	7,802.4	8,429.7	8,724.1	8,881.9	9,163.6	9,727.2	10,301.1	10,983.4	11,667.3
2	Less: Personal current taxes	1,107.5	1,235.7	1,237.3	1,051.8	1,001.1	1,046.3	1,209.1	1,354.3	1,483.3
3	<b>Equals: Disposable personal income (DPI)</b>	6,695.0	7,194.0	7,486.8	7,830.1	8,162.5	8,680.9	9,092.0	9,629.1	10,184.0
4	Less: Personal outlays	6,536.4	7,025.6	7,354.5	7,645.3	7,987.7	8,499.2	9,047.4	9,590.3	10,131.7
5	<b>Equals: Personal saving</b>	158.6	168.5	132.3	184.7	174.9	181.7	44.6	38.8	52.3

Source: <http://www.bea.gov/>

Blog posts: "Consumption"



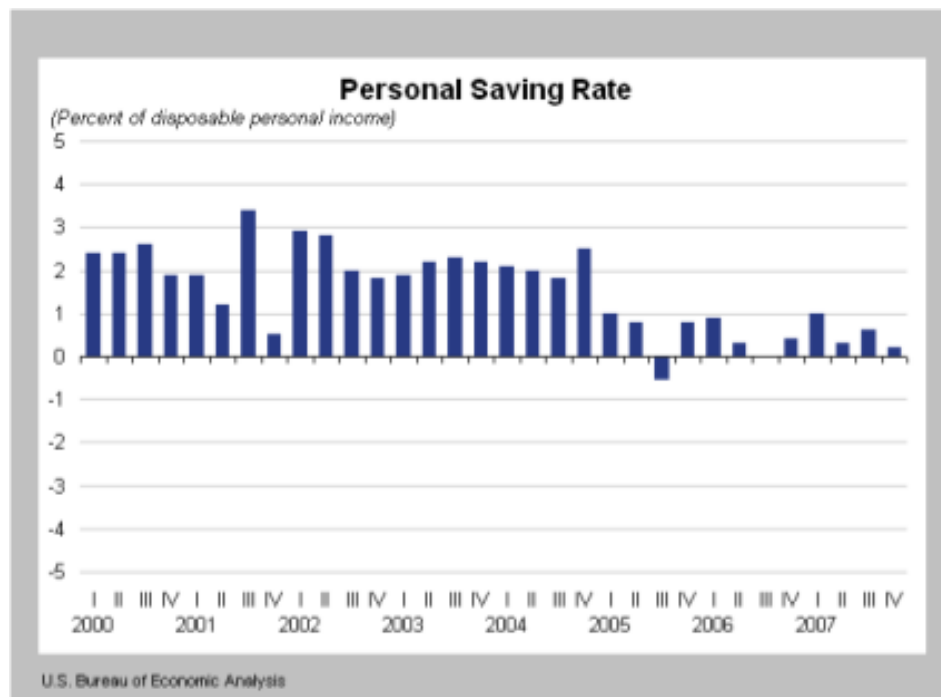
## Macroeconomic Models

### Aggregate Demand - Consumption

#### Determinants of aggregate demand: CONSUMPTION vs. SAVINGS

Does the data for the US support the theory that at higher incomes the marginal propensity to consume decreases?

- Between 1999 and 2007 US GDP (national income) increased from \$7.8 trillion to \$11.7 trillion.
- At the same time, savings rates fluctuated between 2%-3% then in the last three years fell close to 0%



Blog posts: "Savings"



## Macroeconomic Models

### *Aggregate Demand - Investment*

Investment: Refers to the expenditures by firms on new plants, capital equipment, inventories...

Like all economic decisions, a firm's decision to invest is a COST and BENEFIT decision.

**Costs of investment:** *the Interest rate charged by the bank on a loan to buy new capital*

**Benefit of investment:** *the expected rate of return the investment will earn for the firm.*

To invest or not to invest:

- *If a firm's expected rate of return is greater than the real interest rate, a firm will invest, adding to the overall level of spending in the economy.*
- *If the real interest rate is greater than the expected rate of return on an investment, the firm will NOT invest, reducing the overall level of spending in the economy.*

## Macroeconomic Models

### *Aggregate Demand - Investment*

Determinants of aggregate demand: INVESTMENT is determined by the following factors

Real interest rates and expected rate of return: there is an inverse relationship between real interest rates and the level of investment in the economy

- *Profit-maximizing firms will only invest in new capital if the expected rate of return on an investment is greater than the real interest rate.*
- *If a firm expects the return on an investment to be 5% and the real interest rate is 3%, the firm will invest. If expected returns are 5% and real interest rate is 7%, the firm will not invest.*

Investor confidence, influenced by:

- *Expectations of future sales and business conditions*
- *Technology: increases the productivity of capital, thereby encouraging new investment*
- *Business taxes: higher taxes decrease the expected return on new capital, discouraging new investment*
- *Inventories: the existence large inventories will discourage new investment*
- *Degree of excess capacity: If firms can easily increase output because they are producing below full capacity, they will be less likely to invest in new capital*

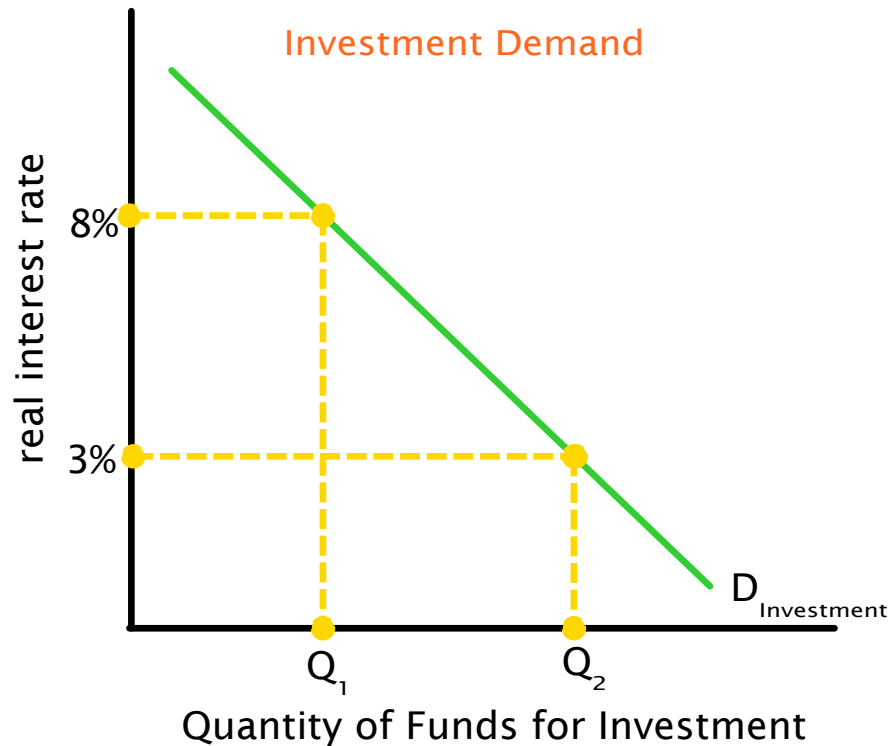
Blog posts: "Investment"



## Macroeconomic Models

### Aggregate Demand - Investment

Determinants of aggregate demand: INVESTMENT is determined by the following factors



With a real interest rate of 8%, few firms will want to invest in new capital as there are very few investments with an expected rate of return greater than 8%

When real interest rates are 3%, the quantity of funds demanded for investment is much higher, since there are more projects with an expected rate of return greater than 3%

Firms will only invest if they expect the returns on the investment to be greater than the real interest rate (marginal benefit must be greater than the marginal cost)

**Implication of Investment Demand:** *If a government or central bank can influence the real interest rate in the economy, then they can influence the level of private investment by firms and thus aggregate demand*

**Macroeconomic Models**  
*Aggregate Demand - Exports*

Determinants of aggregate demand: EXPORTS are determined by the following factors

**Incomes abroad:** *As incomes in nations with which a nation trades increase, demand for the country's exports will increase, shifting Aggregate demand out.*

**Exchange rates:** *A weakening of a country's currency relative to other currencies will make its exports more attractive, increasing its net exports and shifting aggregate demand out.*

**Tastes and preferences:** *If foreign tastes and preferences shift towards a nation's products, exports will increase, shifting aggregate demand out.*

**Blog posts: "Exports"**



**Macroeconomic Models**  
*Aggregate Demand - Government spending*

Determinants of aggregate demand: GOVERNMENT SPENDING changes in the following situations.

*Fiscal policy: Changes in government spending and/or taxation aimed at increasing or decreasing aggregate demand*

**Expansionary fiscal policy:** *A decrease in taxes and/or an increase in government spending.*

- Used in times of weak aggregate demand, high unemployment and falling output.
- Public sector spending (G) is needed to replace the fall in private sector spending (C, I, Xn)
- Expansionary effect of fiscal policy depends on the size of the spending multiplier. The greater proportion of new income households use to consume domestic output, the greater the expansionary effect of a tax cut or an increase in government spending

**Blog posts: "Fiscal policy"**

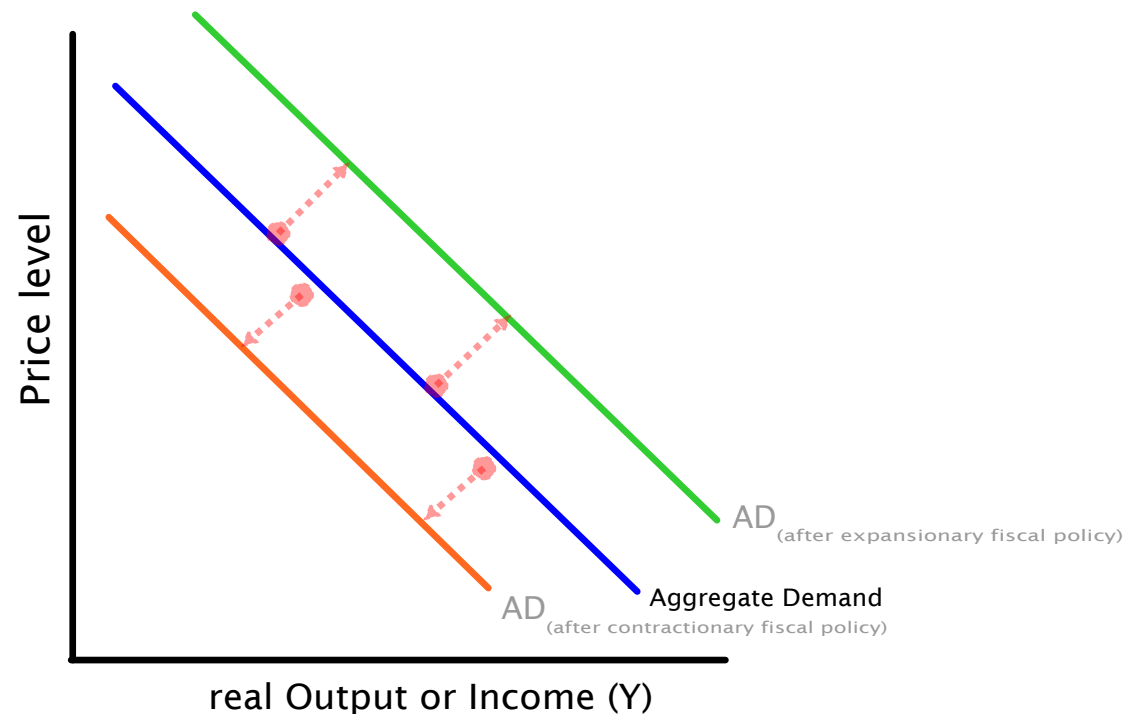


## Macroeconomic Models

### Aggregate Demand - Government spending

**Contractionary fiscal policy:** An increase in taxes and/or a decrease in government spending aimed at decreasing aggregate demand.

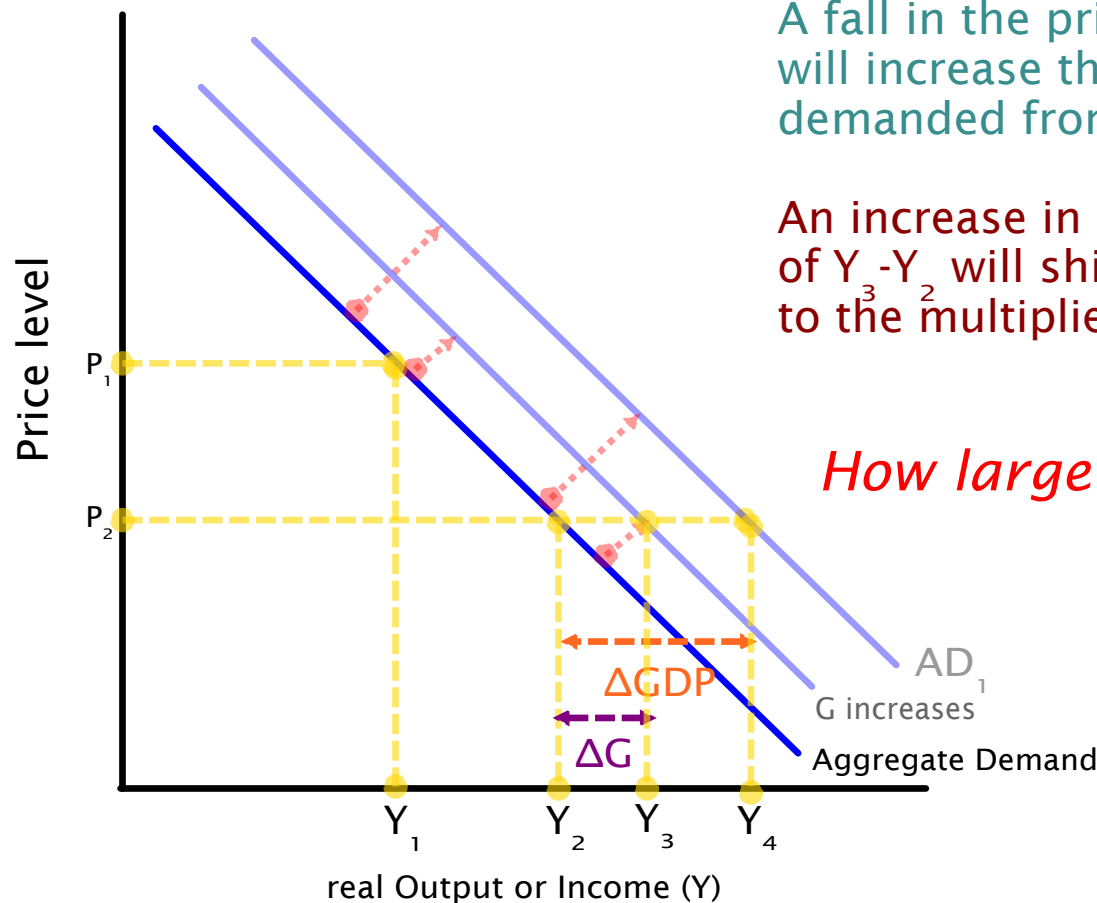
- Used in times of "over-heating" economy characterized by inflation and an unemployment rate below the NRU (natural rate of unemployment)



## Macroeconomic Models

### Aggregate Demand - Government Spending

A movement along the AD curve versus a shift in Aggregate demand



A fall in the price level from  $P_1$  to  $P_2$  will increase the quantity of output demanded from  $Y_1$  to  $Y_2$

An increase in government spending of  $Y_3 - Y_2$  will shift AD out by  $Y_4 - Y_2$  due to the multiplier effect

*How large is the multiplier effect?*

*The size of the "spending multiplier" depends on the marginal propensity to consume of a nation's households*

## Macroeconomic Models

### *Aggregate Demand - Government Spending*

**The Government Spending Multiplier:** *Tells us how much a change in government spending will affect aggregate demand. An particular increase in G will lead to a GREATER increase in AD.*

#### Rationale:

- If a government spends money on a project such as new weapons or infrastructure, income is created for households and firms.
- A proportion of this new income will be spent on new goods and services, creating yet more new income for households and firms.
- The initial change in government spending results in a larger change in aggregate demand since new income is earned, spent, earned and spent again.
- At each stage of new spending, a proportion is saved (or used to buy imports or pay off past debts), therefore the multiplier is limited by the society's marginal propensity to consume and marginal propensity to save.
- The greater proportion of new income that is spent on domestically produced goods and services, the larger the multiplier will be.

**Macroeconomic Models**  
*Aggregate Demand - Government Spending*

The size of the spending multiplier depends on society's Marginal Propensity to Consume

**Marginal Propensity to Consume** = The proportion of any *change in income* used to consume domestically produced output

$$\text{MPC} = \Delta\text{Consumption} / \Delta\text{Income}$$

**Marginal Propensity to Save** : The proportion of any *change in income* saved,

$$\text{MPS} = 1 - \text{MPC}$$

$$\text{MPC} + \text{MPS} = 1$$

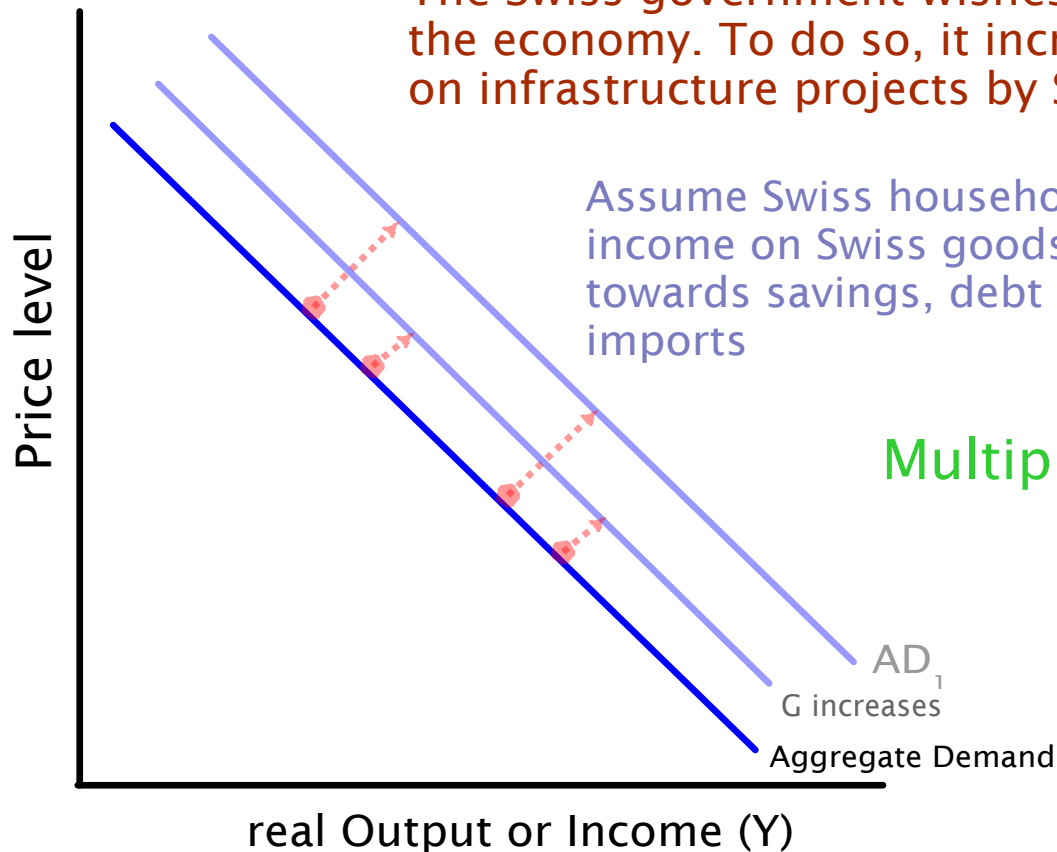
Spending Multiplier =  $\frac{1}{1 - \text{MPC}}$  or  $\frac{1}{\text{MPS}}$

## Macroeconomic Models

### Aggregate Demand - Government Spending

Example of the spending multiplier effect:

The Swiss government wishes to stimulate spending in the economy. To do so, it increases government spending on infrastructure projects by SFR 10b



Assume Swiss household tend to spend 40% of new income on Swiss goods and services, while 60% goes towards savings, debt repayment and purchase of imports

$$\text{Multiplier} = \frac{1}{.6} = 1.67$$

An initial change in spending of SFR 10b will result in an increase in Switzerland's GDP of SFR 16.7b

Blog posts: "The Multiplier Effect"



## Macroeconomic Models

### Aggregate Demand - Government Spending

**Fiscal Policy (government changing taxes and spending):** *Used to combat recessions like that in the US. In early 2008 the US government used the following fiscal policies*

Fiscal Policy Action	Effect on AD
<p><b>Tax rebates to 137 million people.</b> <i>A rebate of up to \$600 would go to single filers making less than \$75,000. Couples making less than \$150,000 would receive rebates of up to \$1,200. In addition, parents would receive \$300 rebates per child.</i></p>	<p>Lower taxes mean higher disposable income, which means more consumption, shifting AD out, increasing output and reducing unemployment</p>
<p><b>Business tax breaks.</b> <i>The bill would temporarily provide more generous expensing provisions for small businesses in 2008 and let large businesses deduct 50% more of their assets if purchased and put into use this year.</i></p>	<p>Lower business taxes increase the expected rates of return on investments, shifting investment demand out, increasing I, shifting AD and AS out (since there's more capital), increasing GDP and reducing unemployment</p>
<p><b>Housing provisions.</b> <i>The bill calls for the caps on the size of loans that may be purchased by Fannie Mae (FNM) and Freddie Mac (FRE, Fortune 500) to be temporarily raised from the current level of \$417,000 to nearly \$730,000 in the highest cost housing markets.</i></p> <p><i>It also calls for an increase in the size of loans that would be eligible to be insured by the Federal Housing Administration.</i></p>	<p>Since real estate is a major source of wealth for Americans, anything the gov't can do to increase demand for new homes will lead to an increase in home values, thus household wealth, a determinant of consumption. Higher home prices cause more consumption, stronger AD, more output and less unemployment</p>

## Macroeconomic Models

### *Aggregate Supply*

Discussion question: *"In order to achieve economic growth, all a nation has to do is stimulate aggregate demand by encouraging consumption, investment, government spending and exports"*

**TRUE OR FALSE?**

- Evaluate this statement
- Do increases in AD always result in economic growth?
- What else must be considered in determining the equilibrium level of national output and income in the macroeconomy?

*Aggregate Supply: the total amount of goods and services that all industries in the economy will produce at every given price level. Represents the sum of the supply curves of all the industries in the economy.*

## Macroeconomic Models

### *Aggregate Supply*

#### Aggregate Supply: The Keynesian vs. Classical debate

Background to the Classical view of the AS curve: During the boom era of the Industrial Revolutions in Europe, Britain and the United States, governments played a relatively small role in the macroeconomy. Economic growth was fueled by private investment and consumption, which were left largely unregulated and unchecked by government. When labor unions were weak and minimum wages and unemployment benefits were unheard of, wages fluctuated depending on market demand for labor. When spending in the economy was strong, wages were driven up and firms restricted their output in response to higher costs, keeping output near the full employment level. When spending in the economy was weak, firms lowered workers' wages without fear of repercussions from unions or government requiring minimum wages. Flexible wages meant labor markets were responsive to changing macroeconomic conditions, and economies tended to correct themselves in times of excessively weak or strong aggregate demand.

The Classical view of aggregate supply held that left unregulated, a weak or over-heating economy would "self-correct" and return to the full-employment level of output due to the flexibility of wages and prices. When demand was weak, wages and prices would adjust downwards, allowing firms to maintain their output. When demand was strong, wages and prices would adjust upwards, and output would be maintained at the full-employment level as firms cut back in response to higher costs.

**Classical economics depends on flexible wages and prices**

## Macroeconomic Models

### Aggregate Supply

#### Aggregate Supply: The Keynesian vs. Classical debate

Background to the Keynesian view of the AS curve: John Maynard Keynes was an English economist who represented the British at the Versailles treaty talks at the end of WWI. Keynes argued that the Allies should invest in the reconstruction of Germany and opposed the reparations being forced upon Germany after the war. When the Allies insisted on forcing Germany to pay reparations, Keynes walked out on the Versailles talks. If they had listened to Keynes, the Allies could have potentially avoided the second World War.

Keynes believed that during a time of weak spending (AD), an economy would be unable to return to the full-employment level of output on its own due to the *downwardly inflexible* nature of wages and prices. Since workers would be unwilling to accept lower nominal wages, and because of the role unions and the government played in protecting worker rights, the only thing firms could do when demand was weak was decrease output and lay off workers. As a result, a fall in aggregate demand below the full-employment level results in high unemployment and a large fall in output.

To avoid deep recession and rising unemployment after a fall in private spending (C, I, X<sub>n</sub>), a government must fill the "recessionary gap" by increasing government spending. The economy will NOT "self-correct" due to "sticky wages and prices", meaning there should be an active role for government in maintaining full-employment output.

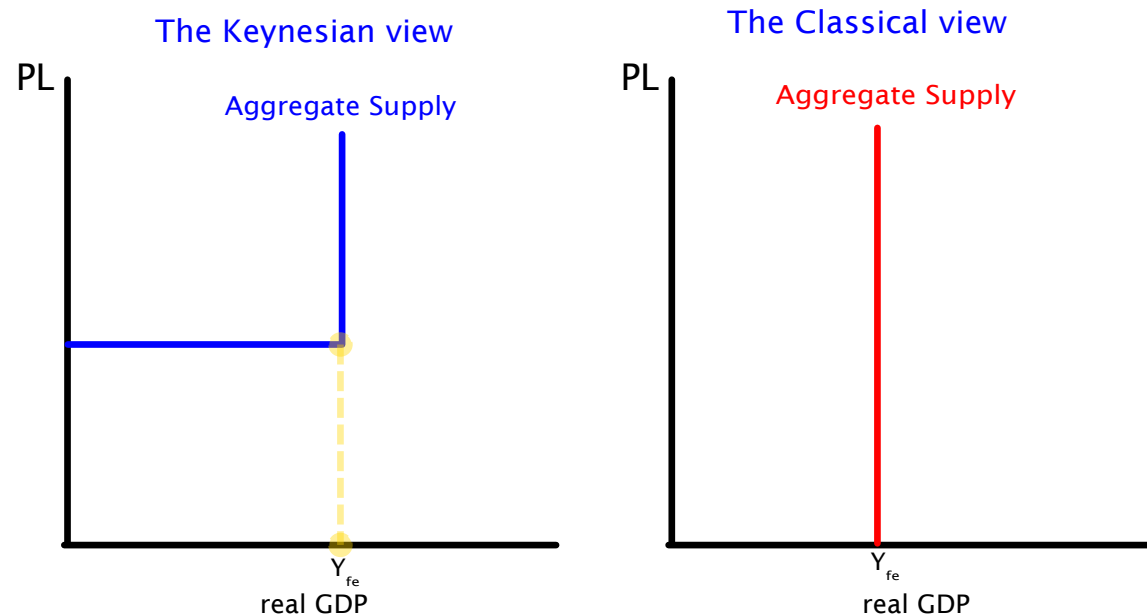
#### So which theory is right, Classical or Keynesian?

*There is evidence supporting both flexible wage and sticky wage theories. Wages tend to adjust downward very slowly during a recession and upward slowly during inflation, which is why changes in government spending and taxes (fiscal policy) or interest rates (monetary policy) are usually needed to help correct unemployment and inflation.*

## Macroeconomic Models *Aggregate Supply*

### Aggregate Supply: The Keynesian vs. Classical debate

The SR and LR aggregate supply curves on the previous two pages represent a reconciliation between two competing theories of the shape of a country's AS curve.



Shifts in AD: Assume the economy in equilibrium ( $AD=AS$ ) at full-employment output. What happens to output, employment and the price level if AD falls in the Keynesian model versus in the Classical model?

Blog posts: "Keynesian economics"



Blog posts: "Classical economics"



## Macroeconomic Models

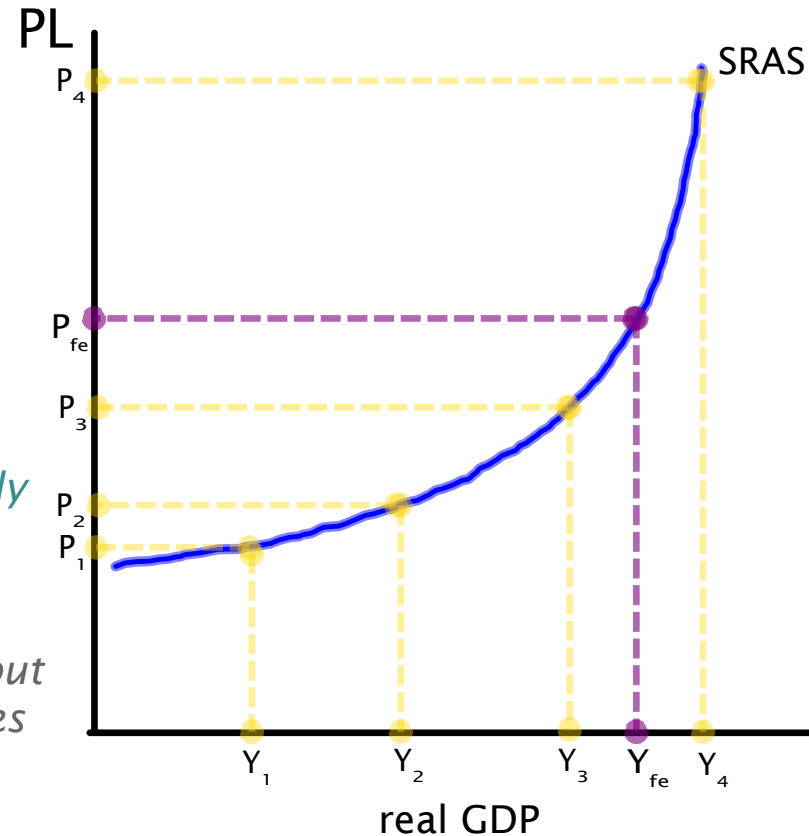
### Aggregate Supply

#### The Short-run aggregate supply curve:

- *Slopes upwards because at higher prices, firms respond by producing a greater quantity of output*
- *As price level falls, firms respond by cutting back on output*

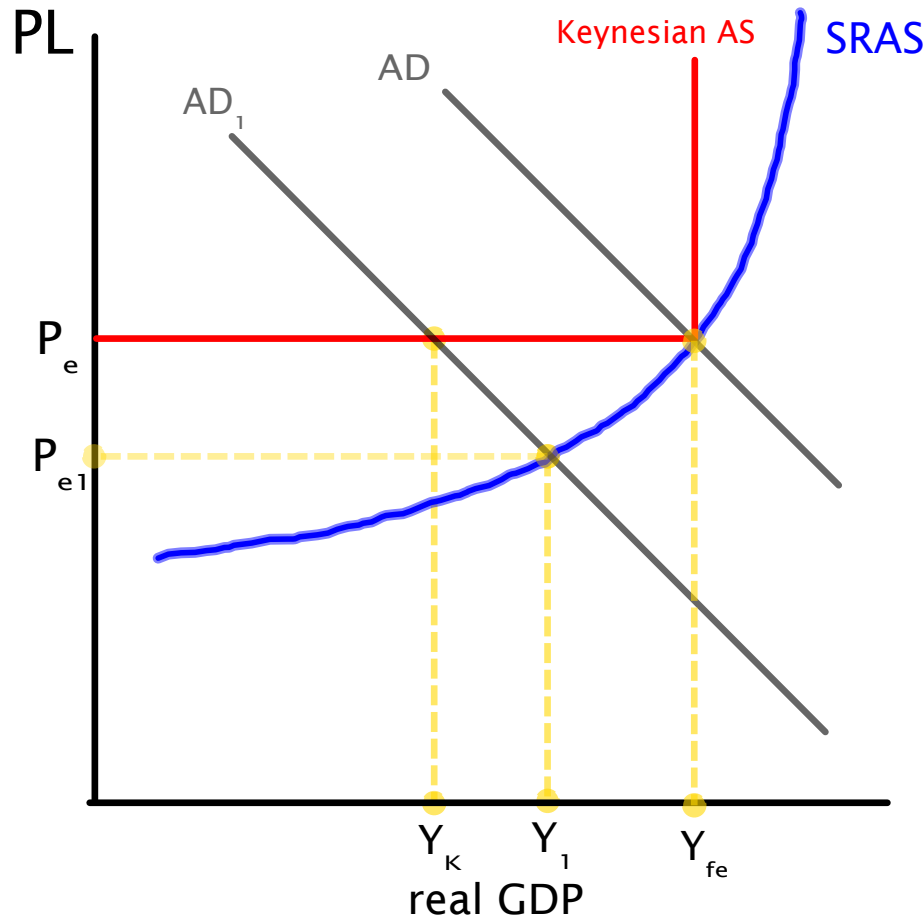
*The slope of the SRAS: the SRAS is relatively flat at low levels of Y and relatively steep at high levels of Y, BECAUSE:*

- *At low levels of output (when UE is high), firms are able to attract new workers without driving up wages and other costs, thus prices rise gradually as firms increase output*
- *At high levels of output, when resources in the economy are more fully employed, firms find it costly to increase output as they must pay higher wages and other costs. Increases in output are accompanied by greater and greater levels of inflation as an economy approaches and passes full employment*



## Macroeconomic Models *Aggregate Supply*

The IB and AP view of Aggregate Supply: reconciles the philosophical differences between the horizontal Keynesian AS and the vertical Classical AS.



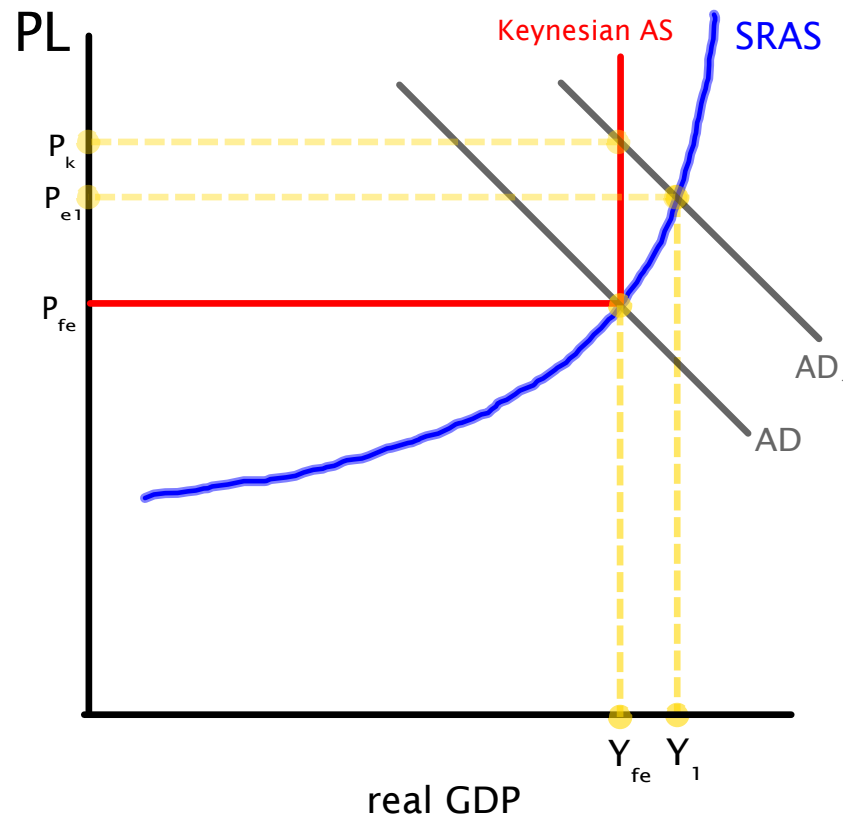
Below full-employment, AS is relatively elastic due to the downward pressure high UE puts on wages and prices, firms respond to falling demand by cutting back on output, but not as much as they would in the Keynesian model where wages are perfectly inflexible downwards.

$Y_K$  and  $P_e$ : the level of output that results from a fall in AD to AD1 assuming "sticky" wages and prices

$Y_1$  and  $P_{e1}$ : the level of output and price resulting from a fall in AD assuming some downward flexibility of wages and prices

## Macroeconomic Models *Aggregate Supply*

The IB and AP view of Aggregate Supply: reconciles the philosophical differences between the horizontal Keynesian AS and the vertical Classical AS.



Beyond full-employment, AS is relatively inelastic due to the upward pressure low UE puts on wages and prices. In order to increase output when demand increases beyond  $Y_{fe}$  firms must compete with other firms for workers by raising wages, forcing the price level in the economy up. Keynes's AS curve shows supply perfectly inelastic beyond  $Y_{fe}$ , whereas the SRAS show that output can increase beyond  $Y_{fe}$  but only at the cost of high inflation.

$Y_{fe}$  and  $P_k$ : the level of output that results from an increase in AD to  $AD_1$  assuming any increase in AD is absorbed by inflation due to the inability of firms to employ resources beyond the full-employment level

$Y_1$  and  $P_{e1}$ : the level of output and price resulting from an increase in AD assuming it takes time for wages to be bid up as the economy moves beyond full-employment

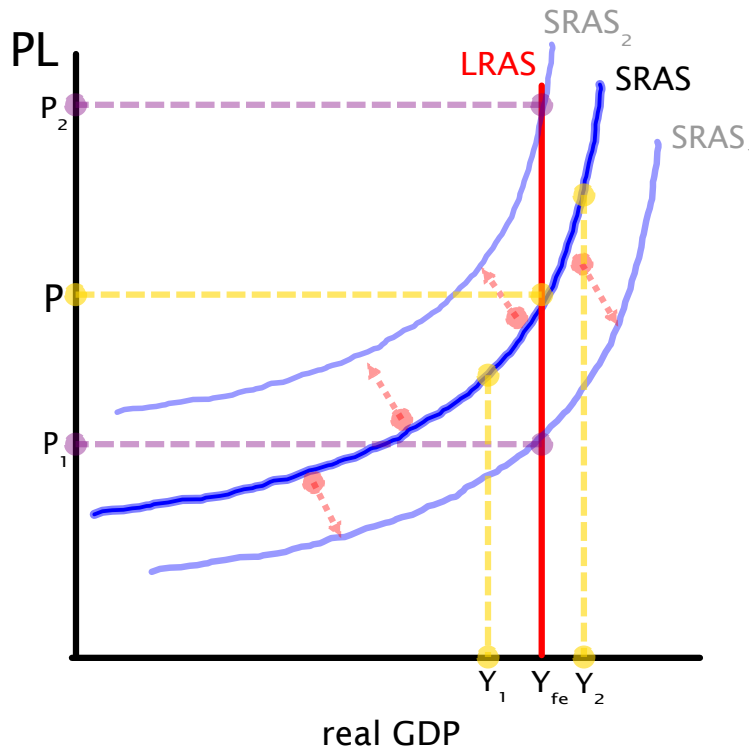
## Macroeconomic Models Aggregate Supply

### Aggregate supply: from short-run to long-run

In macroeconomics, the definitions of SR and LR are as follows:

- Short-run: *the fixed-wage and price period*
- Long-run: *the flexible-wage and price period*

Long-run aggregate supply is vertical at the full-employment level of national output, BECAUSE:



- At low levels of output when UE is high ( $Y_1$ ), wages tend to fall in the LR, lowering costs to firms. As costs of production fall, SRAS shifts out, UE decreases and output increases to the full-employment level.

- At high levels of output when UE is low ( $Y_2$ ), wages tend to increase, raising firms' costs of production, shifting SRAS to the left. Firms will lay off workers, decrease output until it returns to the full-employment level.

**Conclusions:** Assuming wages are more flexible in the long-run than in the short-run, output tends to return to the full-employment level as firms adjust their employment levels to the prevailing wage rates in the labor market.

## Macroeconomic Models

### Macroeconomic Equilibrium

Macroeconomic equilibrium: The price level and output that prevails in an economy at any given time, found by the intersection of AD and SRAS

Macroeconomic equilibrium can be:

**Beyond full-employment ( $Y_{e1}$  and  $P_{e1}$ )**

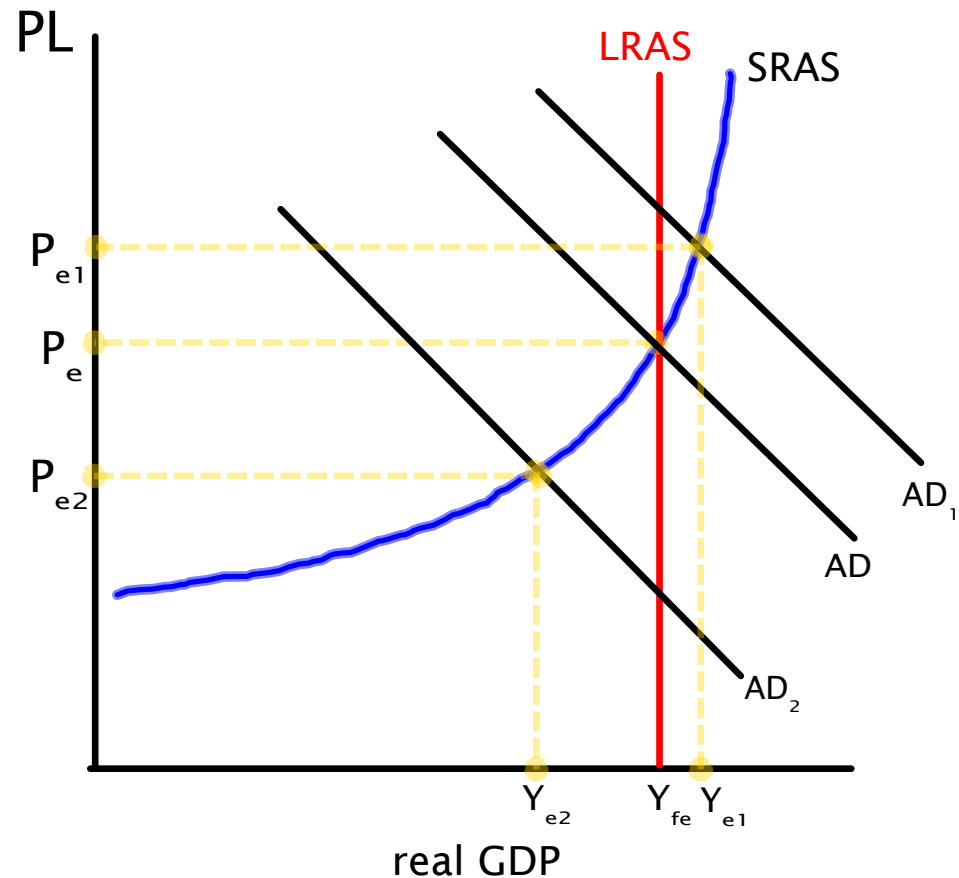
- *Characterized by very low unemployment (below the NRU)*
- *and very high inflation (due to the tight labor and resource markets)*

**Below full-employment ( $Y_{e2}$  and  $P_{e2}$ )**

- *Characterized by high unemployment,*
- *negative growth (recession)*
- *low or negative inflation (deflation)*

**At full employment ( $Y_{fe}$  and  $P_e$ )**

- *Characterized by stable prices (low inflation),*
- *Low unemployment (the NRU)*
- *Steady economic growth*



## Macroeconomic Models

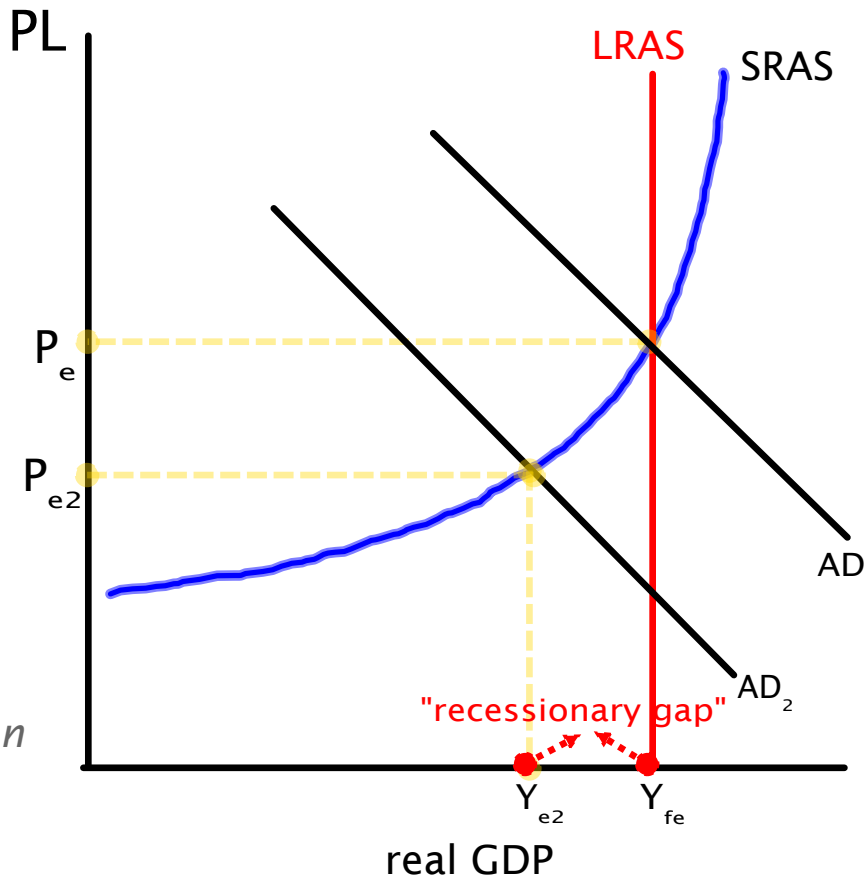
### Macroeconomic Equilibrium

Recession in the AD/AS diagram: Recession is defined as two sustained quarters of negative economic growth, characterized by a contraction in a nation's output of goods and services.

Recession can be caused by a fall in AD (a "demand deficient recession")

- Consumer spending, investment, or exports decrease, forcing firms to reduce their output
- Because they produce less output, firms need fewer workers, so unemployment increases
- Less demand for output puts downward pressure on prices. If demand remains weak for long enough, economy may experience deflation

Demand deficient recession creates a "recessionary gap" (also called a "deflationary gap"): The difference between equilibrium output and full-employment output.



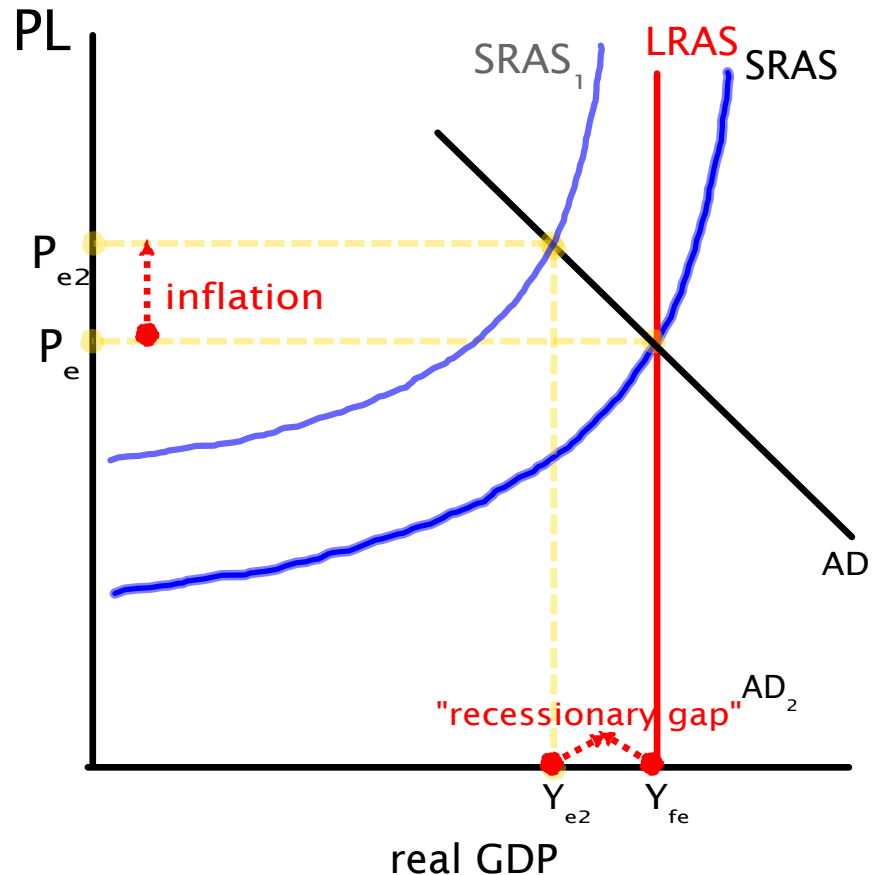
## Macroeconomic Models

### Macroeconomic Equilibrium

Recession in the AD/AS diagram: Recession is defined as two sustained quarters of negative economic growth, characterized by a contraction in a nation's output of goods and services.

Recession can be caused by a leftward shift of the SRAS curve (called a "supply shock")

- Firms' costs of production suddenly increase (could be due an increase in energy prices, a natural disaster, higher minimum wage, striking unions)
- Firms are able to employ fewer resources, reducing output and increasing unemployment
- Higher production costs are passed on to consumers in the form of higher prices. This type of inflation is called "cost push inflation"



A supply shock causes a recession, unemployment and inflation, also called "STAGFLATION" (stagnant growth combined with inflation)

## Macroeconomic Models

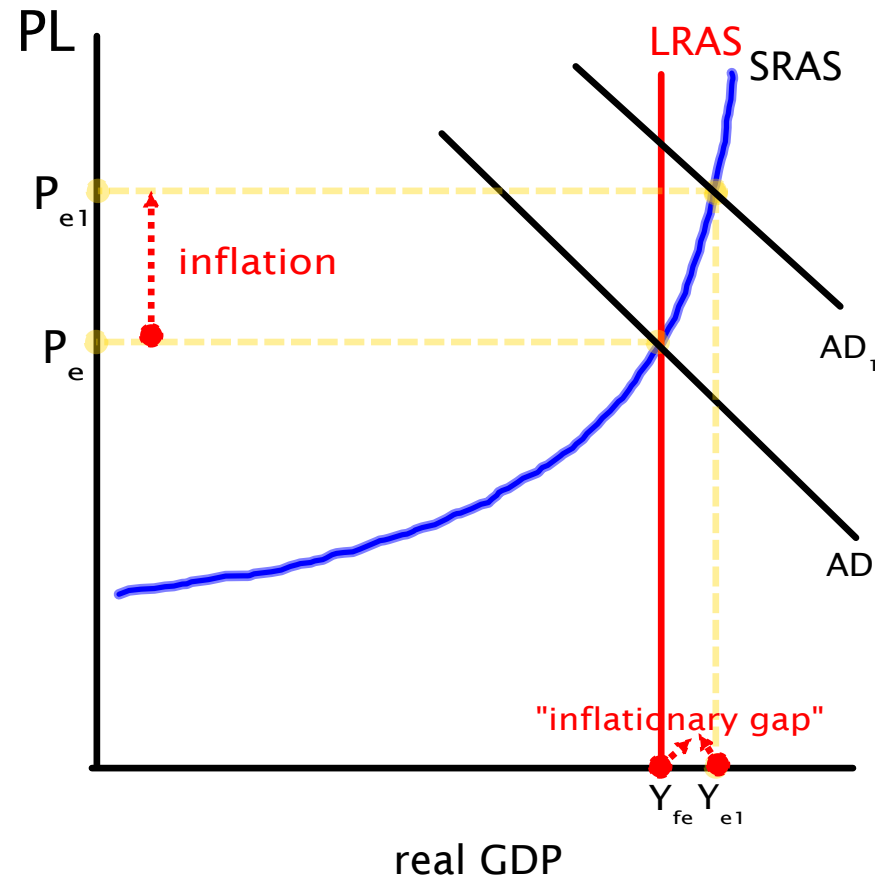
### Macroeconomic Equilibrium

Inflation in the AD/AS diagram: Inflation is defined as a general increase in the price level over a period of time.

Inflation can be either "cost-push" (as shown on the previous slide) or "demand pull"

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

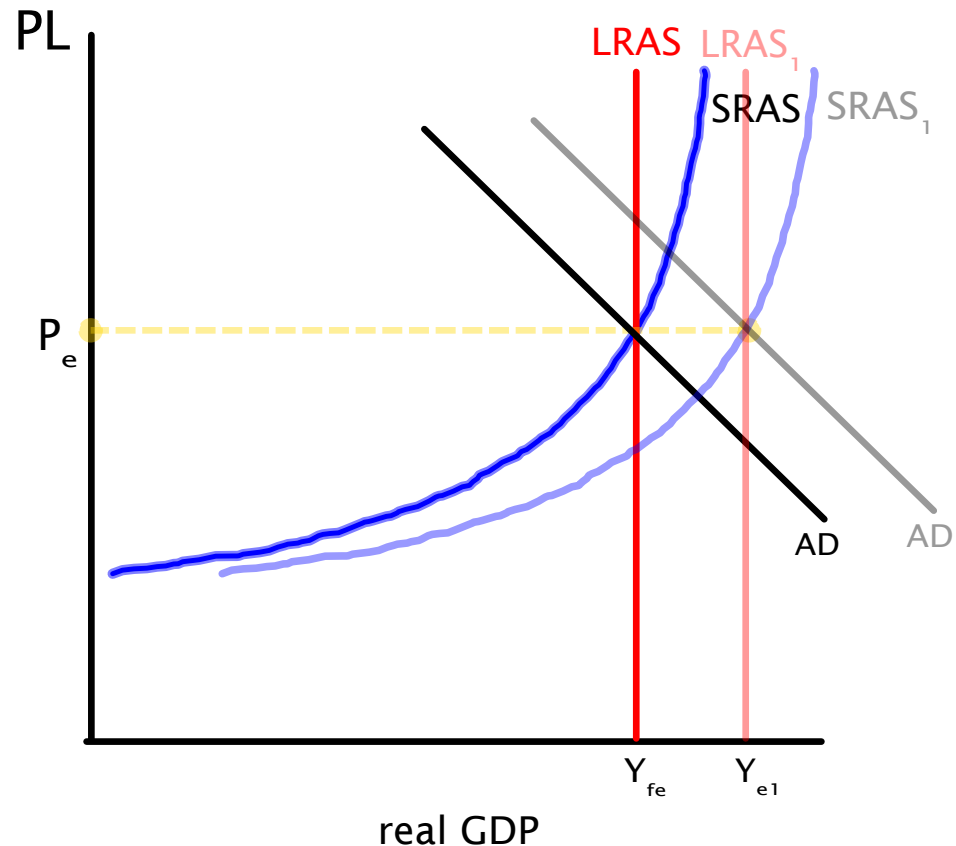
- *In the short-run, before wages have had time to adjust to the higher prices, the economy is able to produce beyond its full-employment level*
- *When there is demand-pull inflation, unemployment is below the NRU*
- *The difference between  $Y_{e1}$  and  $Y_{fe}$  is called the "inflationary gap"*



## Macroeconomic Models

### Macroeconomic Equilibrium

Economic growth in the AD/AS diagram: Economic growth is defined as a sustained increase in a nation's output of goods and services (or income) from year to year.



Economic growth can only be achieved through an increase in a nation's Aggregate Supply (from LRAS and SRAS to LRAS<sub>1</sub> and SRAS<sub>1</sub>) AND Aggregate Demand (from AD to AD<sub>1</sub>)

Growth can be achieved through:

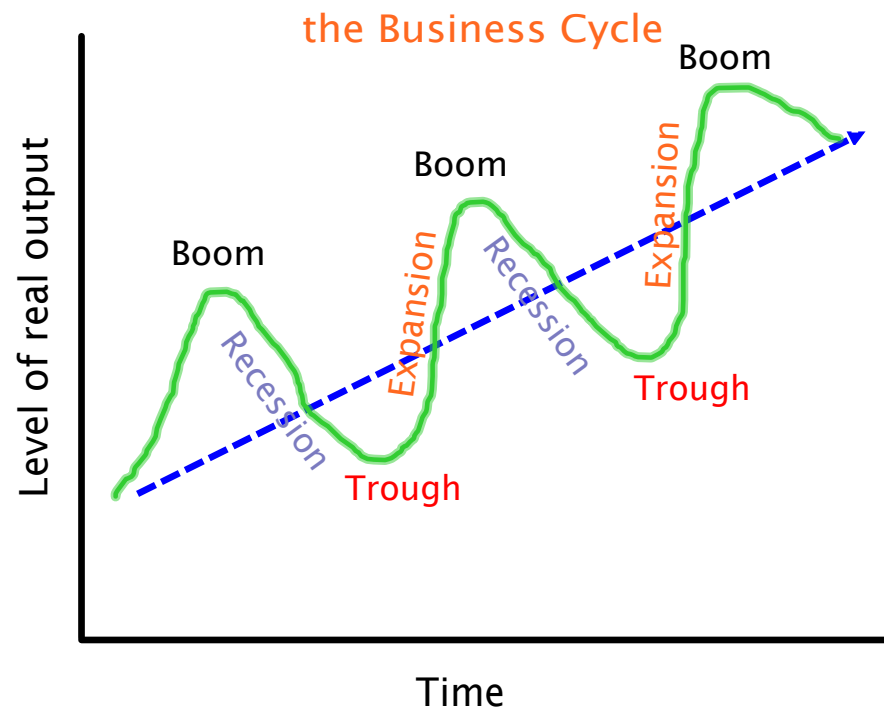
- *an increase in the quality (productivity) of productive resources*
- *an increase in the quantity of productive resources*
- *With an increase in AS, aggregate demand can increase without causing inflation*
- *Both the supply and the demand for a nation's goods and services must increase for economic growth to occur*

## Macroeconomic Models *the Business Cycle*

The business cycle reflects the boom and bust cycle observable in many nation's economies over the last century.

Four phases of the business cycle are identified over a several-year period:

1. A **boom** is when business activity reaches a temporary maximum with full employment and near-capacity output.
2. A **recession** is a decline in total output, income, employment, and trade lasting six months or more.
3. The **trough** is the bottom of the recession period.
4. **Recovery** is when output and employment are expanding toward full-employment level.



Theories about causation:

- **Major innovations** may trigger new investment and/or consumption spending.
- **Changes in productivity** may be a related cause.
- Most agree that **the level of aggregate spending** is important, especially changes on capital goods and consumer durables.
- **Cyclical fluctuations**: Durable goods output is more unstable than non-durables and services because spending on latter usually can not be postponed.

## Macroeconomic Models

### *Macroeconomic Equilibrium*

#### Quick Quiz:

Define Aggregate Demand:

- Rationale for the shape of the AD curve
- What factors will shift AD?

Define Aggregate Supply:

- Rationale for the shape of the SRAS curve:
- Rationale for the shape of the LRAS curve:
- What factors will shift AS?

Use an AD/AS diagram to illustrate each of the following:

- demand-pull inflation
- cost-push inflation
- spending multiplier
- demand-deficient recession
- stagflation
- unemployment
- economic growth

[ThinkEconomics](#) ~ The Aggregate Demand and Aggregate Supply Model



[ThinkEconomics](#): Macroeconomic Phenomena in the ADAS Model

