

Basic Concepts

ECONOMICS: The study of how limited productive resources are efficiently allocated in a world of unlimited wants.

SCARCITY: WANTS EXCEED RESOURCES

We want more than we are capable of getting.

MICROECONOMICS: deals with specific economic units and a detailed consideration of these individual units.

MACROECONOMICS: Deals either with the economy as a whole or the basic subdivision or aggregates such as government, household, or business sectors, which make up the economy.

OPPORTUNITY COSTS: The amount of other products which must be foregone or sacrificed to obtain some amount of any given product. Ex: In order to have more pizzas we must give up robots. The opportunity of pizzas is therefore robots.

OPPORTUNITY COST: The best alternative forgone. This takes into consideration all types of opportunity costs rather than just production costs. Ex. Study or go on a date

Factors of Production (AKA: Resources)

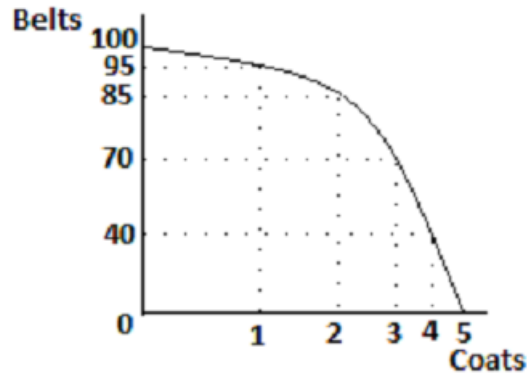
- 1) Land: This includes the land and its natural resources
- 2) Labor: This includes all services of people used in production except Entrepreneurial ability, which will be discussed later.
- 3) Capital: This is all the things used in production. (Notice that money is not capital!!!)
- 4) Entrepreneurship: This is the person responsible for taking the first three and combining them into a product or service. He is also the one who bears the risk of the undertaking.

Production Possibilities Curve (Production Possibilities Frontier)

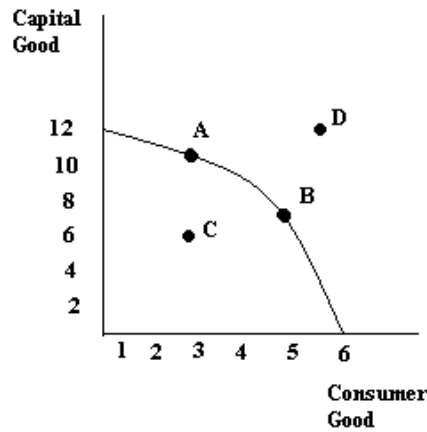
- 1) Fixed Resources:
- 2) Fixed Technology:
- 3) Two Products: (Usually one capital good and one consumer good)
- 4) We are achieving economic efficiency:

EFFICIENCY: Resources are devoted to goods most wanted by society and producing in the least costly way.

1. Given the following PPF, if you are producing 1 coat, what is the opportunity cost of producing a 2nd coat?

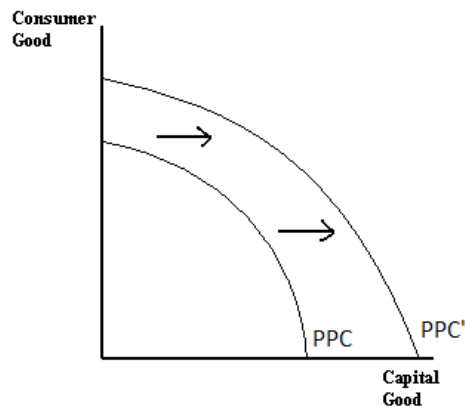


2. On the following PPC, what does a point inside the curve represent?
3. What is the significance of a point outside the PPF?



One thing a society must decide is if it wants to produce more goods that will help it advance or more goods that it can consume now. Should we produce at A, B, C or D?

Suppose that additional resources (land, labor, capital and entrepreneurial ability) was found. (In other words the economy is expanding.) HOW WOULD THIS AFFECT OUR PPC?



The same is true for technological advancements and improvements in human capital.

Absolute and Comparative Advantage

Input vs. Output:

Output problems state that you get a certain amount of product out of a given input. Examples miles per gallon, pieces of gum per dollar...

Input problems state that it takes a certain amount of input to get a given product. Examples are hours to do a job, apples to make a pie

Absolute Advantage:

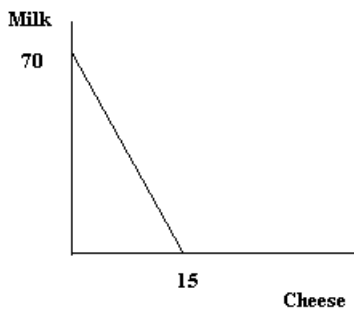
For Output problems you look at if one nation (individual/company) can produce more output with the same resources as the other.

For Input Problem: you look at who uses the least amount of input to get the output.

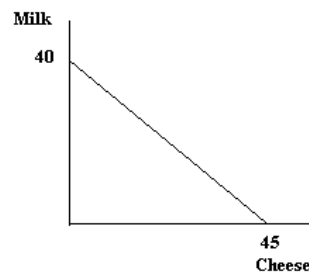
Examples:

Output: (Tons produced per hour)

	Milk	Cheese
Ted	70	15
Nancy	40	45



Ted



Nancy

Who has the absolute advantage in milk? In cheese?

For Input Problem: you look at who uses the least amount of input to get the output.

Input: (hours to build)

	Car	Tank
Company X	2	2
Company Z	3	1

Who has the absolute advantage in car production? In tank production?

Comparative Advantage

Comparative Advantage: One nation (individual/company) can produce a good at a lower opportunity cost than the other.

Output method: The person with the lowest opportunity cost should produce that good.

Output: (Tons produced per hour)

	Milk	Cheese
Ted	70	15
Nancy	40	45

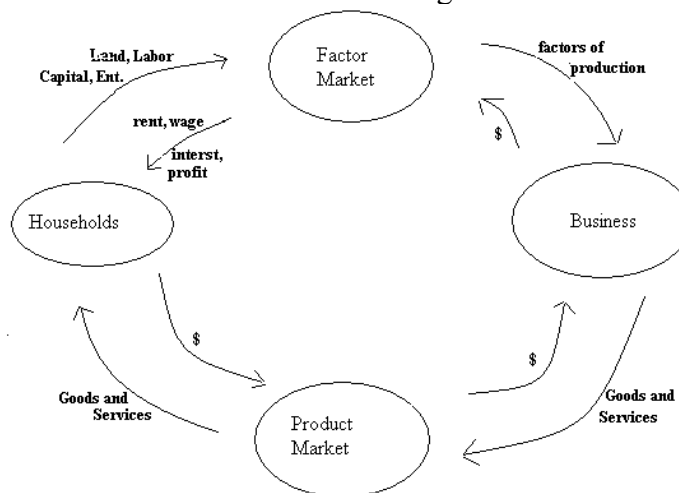
Input Method: Convert to an output problem and then determine who has the lowest opportunity cost.

Input: (hours to build)

	Car	Tank
Company X	2	2
Company Z	3	1

When one has the absolute advantage in one product and the other has the absolute advantage in the 2nd product they will always have the comparative advantage in those products.

Circular Flow Diagram:



Supply and Demand

Law of Demand –

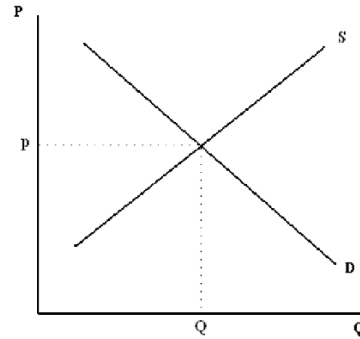
Law of Supply –

Price Ceiling: The maximum legal price a seller may charge for a product or service. Ex: rent control.

Ceilings allow people to purchase G&S at a lower price than they would have otherwise been able to get it for.

A price ceiling is below the equilibrium point.

A ceiling keeps the price low and does not allow the market to drive the price up. This keeps buyers in the market that would have otherwise gotten out. At that price the quantity supplied and the quantity demanded cannot reach equilibrium. **This create a shortage in the market.**

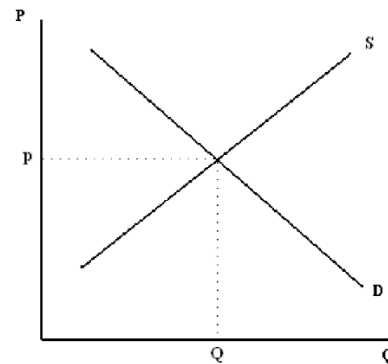


Price Floors: The minimum legal price a seller may charge for a product or service. Ex: minimum wage (Workers are the seller and businesses are the buyers.)

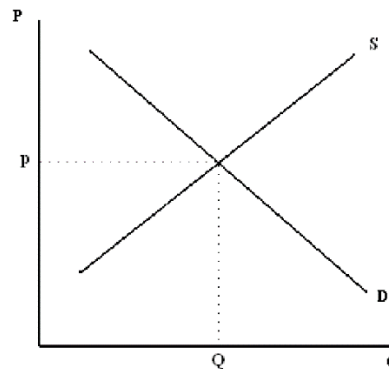
Floors allow people to purchase G&S at a higher price than they would have otherwise been able to get it for.

A price floor is above the equilibrium point.

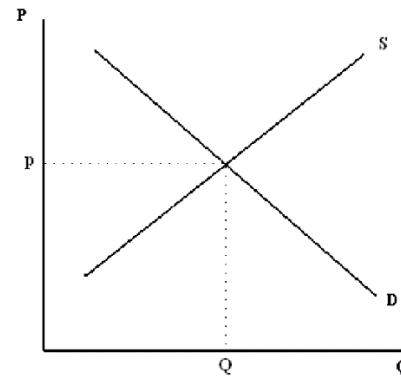
A floor keeps the price high and does not allow the market to drive the price down. This keeps sellers in the market that would have otherwise gotten out. At that price the quantity supplied and the quantity demanded cannot reach equilibrium. **This create a surplus in the market.**



Consumer Surplus: the difference between the market price and the maximum price the consumer would pay to obtain that unit.



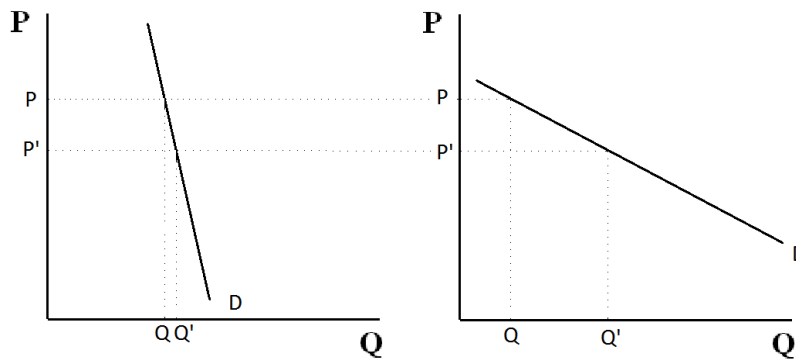
Producer Surplus: the difference between the market price and the minimum price the producer would be willing to take for the product.



Elasticity

The responsiveness, or sensitivity, of consumers to a change in the price of a product is measured by the concept of **Price elasticity of demand**.

Simply put, if consumers respond (relatively) to a change in price it is said to be elastic. If they do not respond (relatively) to a change in price the product is said to be inelastic.



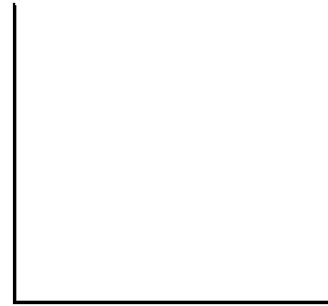
Inelastic demand curve

Elastic demand curve

There are four things that go into determining the elasticity of a demand curve.

- 1) **Luxuries versus necessities.** This is what we have been discussing. Your quantity demanded for heart surgery will not change much with the change in price.
- 2) **Availability of substitutes.** The greater the number of substitute the more elastic the product.
- 3) **Proportion of income.** The greater the price of a good relative to one's budget, the greater the elasticity of demand.
- 4) **Time:** The longer the time period the more elastic a demand curve becomes.

A good is **perfectly inelastic** when there will be no change in quantity demanded no matter what the % change in price. ex. Medicine



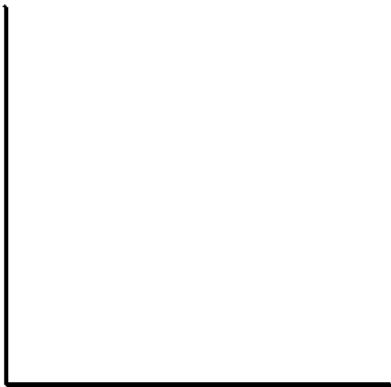
A good is **perfectly elastic** when there is a major change in quantity demanded when there is a small % change in the price



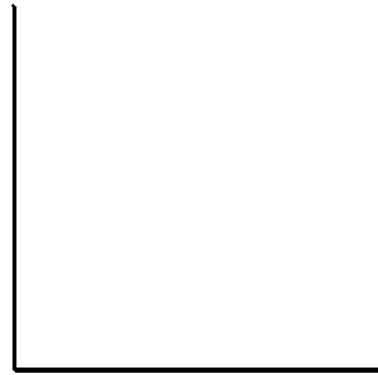
Exchange Rates

Exchange rates are based on supply and demand for money. It is just another market. When we buy goods from other countries we actually pay in their currency. This means that if their price level goes down we will demand more of their products. If we demand more of their products we need more of their currency. This means an increase in the demand for their currency.

Foreign exchange rate: the price of one currency in terms of another.

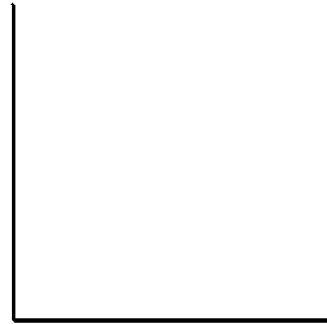


appreciation: an increase in the value of a currency in terms of other currencies.

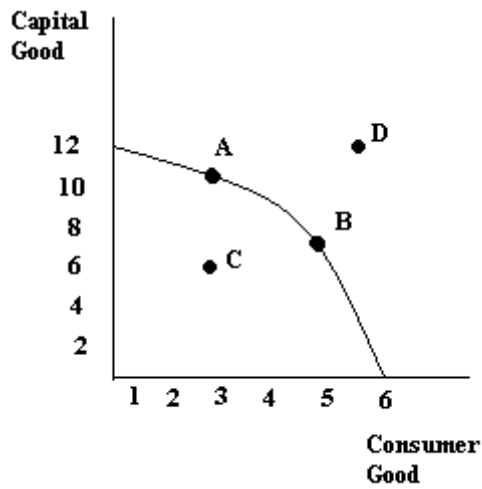


depreciation: a decrease in value of a currency in terms of other currencies.

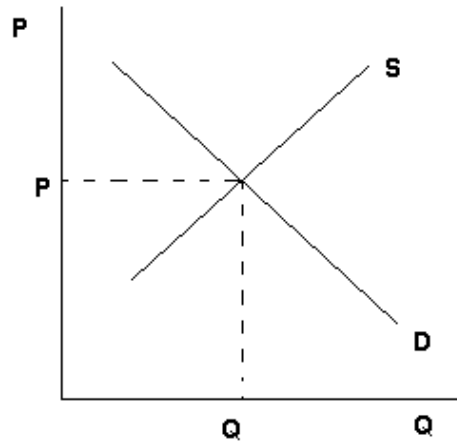
If we have an increase in the demand for European products we have an increase in the demand for Euro's. This means the price of a Euro goes up and the foreign exchange value of the dollar has decreased.



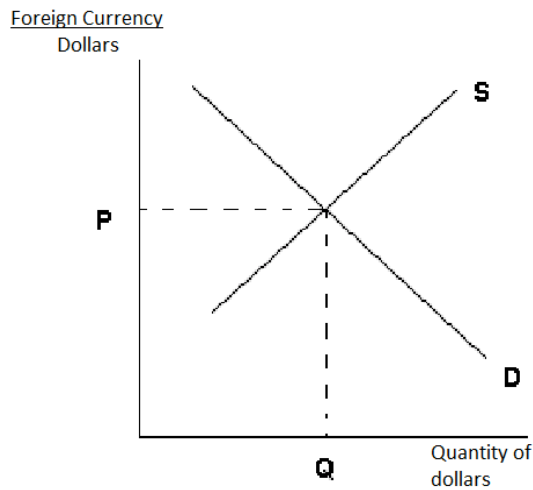
Essential “graphs” in Economics



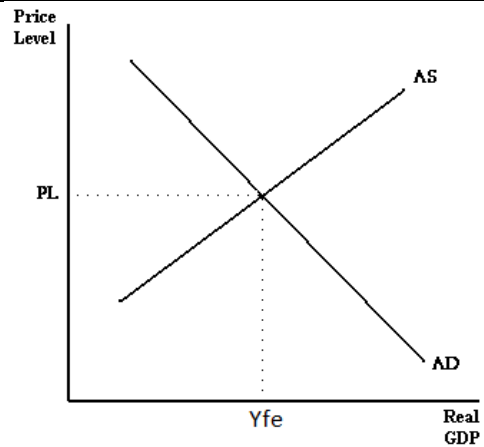
Production Possibilities Frontier



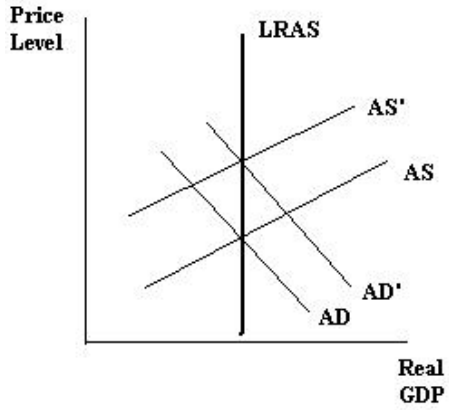
Supply and Demand



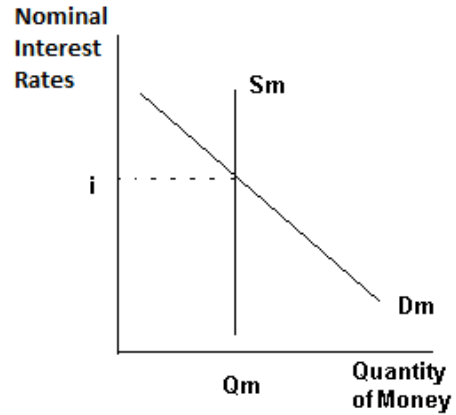
Foreign Exchange Market



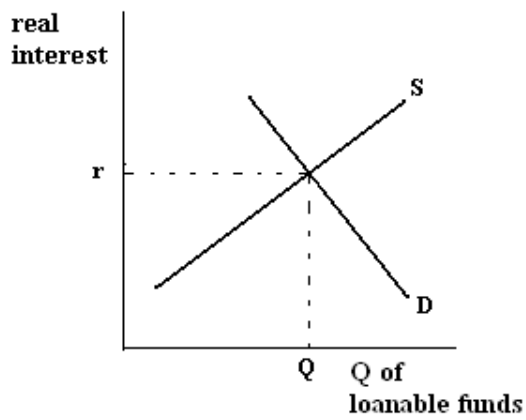
Aggregate Supply and Aggregate Demand



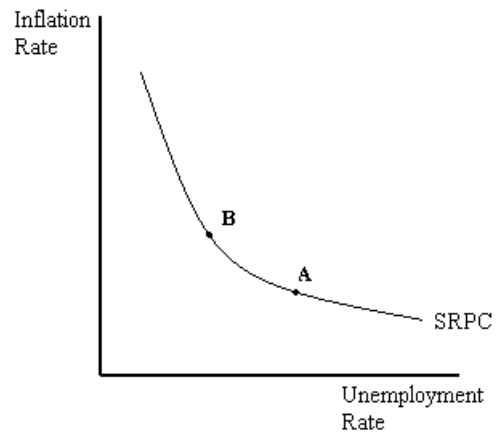
Long Run Aggregate Supply



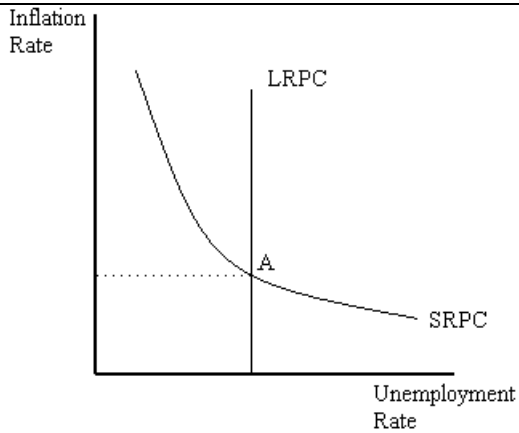
Money Market



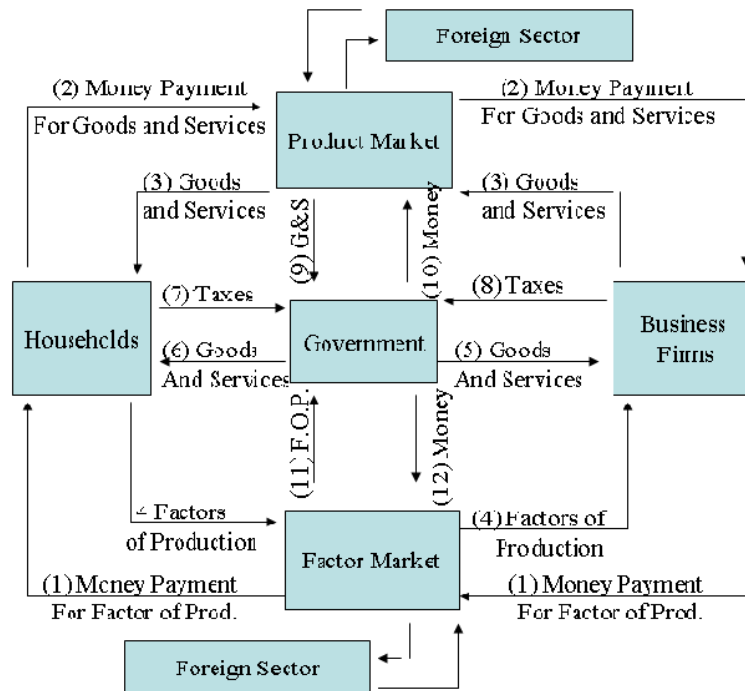
Loanable Funds Market



Short Run Phillips Curve



Long Run Phillips Curve



Honorable Mention Graph: Circular Flow Diagram

GROSS DOMESTIC PRODUCT

Gross Domestic Product: value of the total goods and services **produced** within the boundaries of the United States, whether by American or foreign supplied resources. These resources do not have to be sold in that year.

- 1) GDP is a monetary measure: the reason for this is so that we can compare apples and oranges.
- 2) intermediate goods: are used in production and **are not counted in GDP**.
- 3) GDP excludes non-production transactions such as

Problems with GDP:

- Does not measure underground economy.
- Does not measure goods bartered.
- Does not measure goods produced and sold at home unless this is reported.

GDP is the combination of $C + I + G + X_n$

Nominal GDP: the total dollar value of all goods and services produced in a given year.

Product	<u>Year 1 Q</u>	<u>Year 1 P</u>	<u>Year 2 Q</u>	<u>Year 2 P</u>
Apples	10	\$1	12	\$1.50
Bananas	6	\$.50	10	\$1

In year 1 the nominal GDP is
 $(10 \times \$1) + (6 \times .50) = \$10 + \$3 = \13

What is the nominal GDP for Year 2?

Real GDP: the total value of all final goods and services produced in a given year, calculated using the prices of a selected base year.

Another way of looking at real GDP is to calculate today's output at base year prices.

What is the real GDP for year 2 if year 1 is the base year?

When you compare that to the nominal GDP from year one you can see that real only increased by \$4. It looked like we produce a lot more but in fact we did not. The nominal GDP increased to \$28 but real GDP did not increase by as much.

Real GDP per capita is actually the best way to compare economies.

Prices are important because that is how we measure GDP.

Price Index: measures the combined price of a particular collection of goods and services, called a **market basket**, in a given period relative to the combined price of an identical or similar group of goods and services in a reference period (base year).

$$\text{PI} = \frac{\text{price of market basket in a given year}}{\text{price of same basket in the base year}} \times 100 \quad * \text{ In the base year the index will always be 100}$$

Examples: CPI, PPI

When comparing things like wages, gas prices, GDP... you need to adjust for inflation to find out how much they actually changed.

Real = Nominal/PI * 100

For example: Real wages = Nominal Wages/PI * 100, Real GDP = Nominal GDP/PI * 100

GDP Deflator: reflects the price of goods and services but not the quantities. In other words, it will show how much prices have changed without worrying about changes in quantity.

GDP deflator = Nominal GDP/Real GDP x 100

Example: if Nomial GDP is \$600 and Real GDP is \$350 you get
 $600/350 \times 100 = 171$. That means prices have increased 71 percent.

Inflation: a rising general level of prices. (The opposite would be deflation.) Inflation makes the money in your pocket worth less.

Nominal value of dollar is the actual value. The real value is what it can buy. If I give you a dollar today and you save it until next year its real value will be less than its nominal value if inflation occurred.

Anticipated Inflation: inflation rate that we believe will occur

Unanticipated Inflation: inflation rate that comes at a surprise.

Unanticipated Inflation hurts those that lend money (fixed rate loan is getting paid back with inflated money that buys less.

Nominal rate of interest: rate expressed in today's dollars.

Real rate of interest: nominal rate of interest minus the anticipated rate of inflation.

Real i = nominal i - inflation

Business Cycle:

Peak: business activity has reached a temporary maximum.

trough: recession or depression is at its lowest level

recovery: output and employment expand toward full employment

recession: period of decline in total output, income, employment, and trade, lasting six months or longer.

depression: severe and prolonged recession

Unemployment:

Frictional Unemployment:

Structural Unemployment:

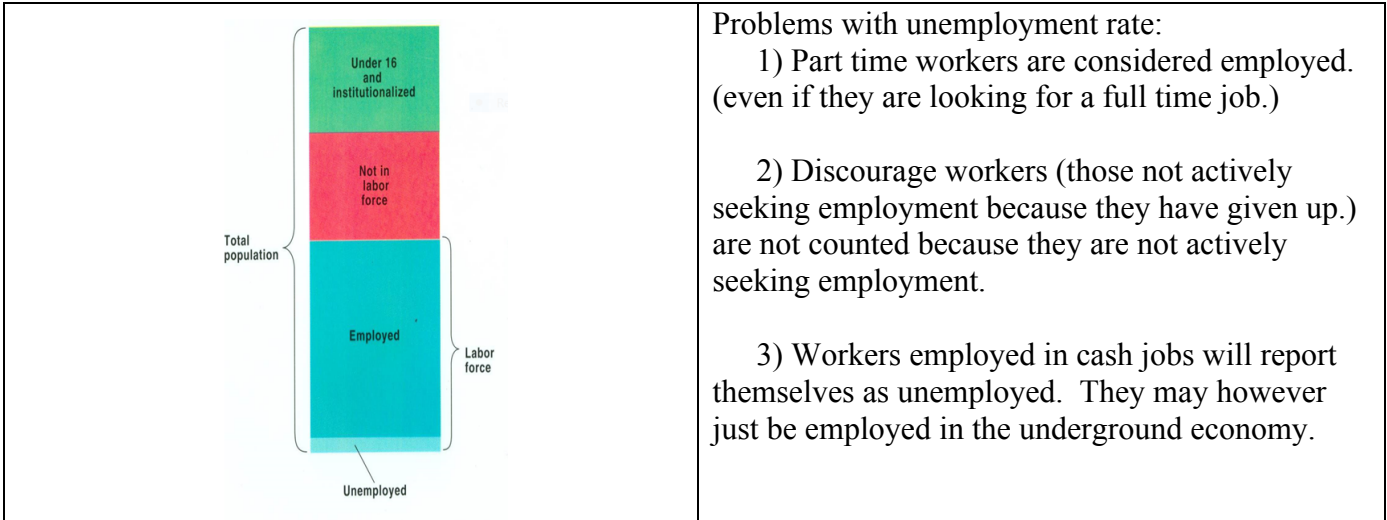
Cyclical Unemployment:

Seasonal Unemployment:

Natural Rate of Unemployment: frictional and structural unemployment.

FULL EMPLOYMENT IS NOT 0. THERE ARE ALWAYS PEOPLE LOOKING FOR JOBS.

To find the unemployment rate you must not even consider those people under 16, those people institutionalized and those people not in the labor force (work in the home, in school, retired, have no desire to work...)



Aggregate Demand and Aggregate Supply

A single product supply and demand model does not explain

- 1) Why prices rise or fall in general
- 2) What determines aggregate (combined) output
- 3) What determines changes in level of aggregate output.

In order to look at it from a macro level we must combine the prices and equilibrium quantities of all goods. This is the aggregate (combined)

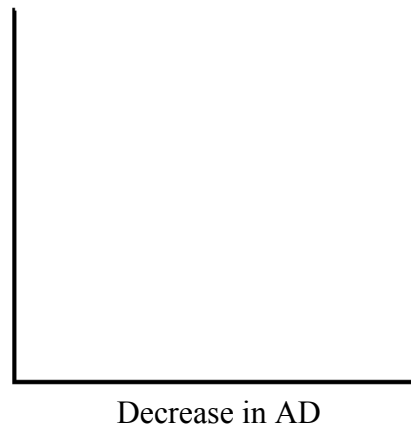
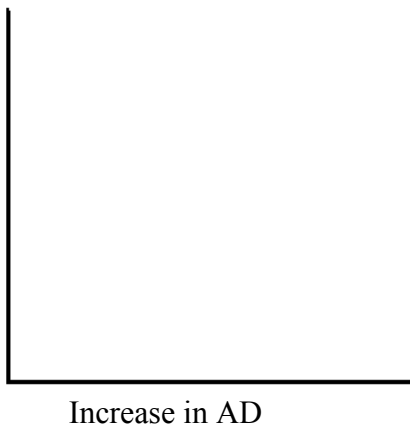
Aggregate Demand: is a **schedule** which shows the various amounts of goods and services (Real Domestic Output, Real GDP) which consumers, businesses, governments and foreign buyers collectively will desire to purchase at each price level (CPI, PPI...).

This is the same thing as saying the amount of GDP that all buyers in an economy will buy at all possible levels of prices. Price levels are measured as price indexes.



The lower the price level, the greater the output level.

Determinants of Aggregate Demand



What causes AD curve to shift? (change in AD v. change in quantity of real output demanded)

AD = C + I + G + X_n. Anything that changes any of these variables changes AD.

1) Change in **consumer spending** caused by changes in

a) consumer wealth: When people have less money to save. This causes the curve to shift to the left. (decrease in AD)

b) consumer expectations: If people think that their future income will decrease or that inflation will decrease (it will be cheaper to buy later) they will spend less now. AD curve shifts left.

c) Consumer indebtedness: If people have spent a lot in the past and are in debt they are going to spend less now. This will shift the curve to the left.

d) Taxes (Fiscal Policy): If taxes increase the people have less money and will then spend less. AD shifts to the left

e) interest rates (monetary policy): When interest rates increase AD decreases

2) Change in **investment spending (I)**: businesses changing spending on capital goods will affect AD curve.

a) Interest Rates: Increase in interest rates will decrease AD (Business will buy less capital goods).

b) profit expectations on Investment projects: If the business foresees profits for investment they will increase demand for capital goods. This will shift the AD curve.

c) Business Taxes: Increase business taxes will lead to a decrease in investment spending and the AD curve will shift to left.

d) technology: new technology increases investment spending.

3) Change in **government spending (G)**: Increased government spending will increase AD.

4) Change in **net exports (X_n)**: $X_n = eX_{\text{ports}} - iM_{\text{ports}} = (X - M)$

a) income abroad: Increase in foreign demand will cause an increase in AD for U.S.

b) Exchange Rates: If the dollar becomes worth less (depreciates) in terms to another currency other nations can purchase our dollars to purchase our goods. (X increases) At the same time we can't purchase as much of their currency so we purchase less of their goods. (M decreases) $X_n = X - M$ so X_n increases. AD will increase.

Aggregate Supply: is a schedule, showing the level of real domestic output available at each possible price level.



Increase in AS



Decrease in AS

Determinants of Aggregate Supply:

1) Change in input prices:

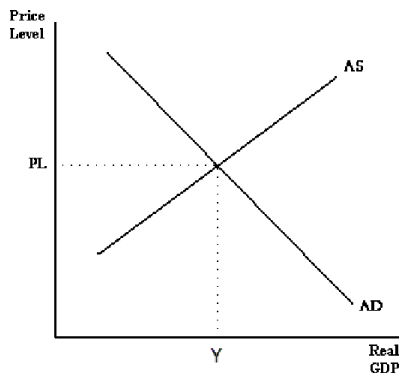
- a) availability of resources: (land, labor, capital and entrepreneurship) if these resources are more expensive the production costs increase and AS will decrease (shift left)
- b) price of imported resources: If the prices increase the AS curve will decrease

2) Changes in productivity: (technology)

Productivity = real output/input. If per unit cost decrease the companies become more productive and therefore will be willing to supply more. A shift in AS to the right.

3) Change in legal-institutional environment:

- a) Business taxes and subsidies: Higher taxes lead to increase unit costs. This means the AS will decrease (shift left)
- b) Government Regulation: Increase government regulations will lead to increased production costs. This will mean a decrease in AS.



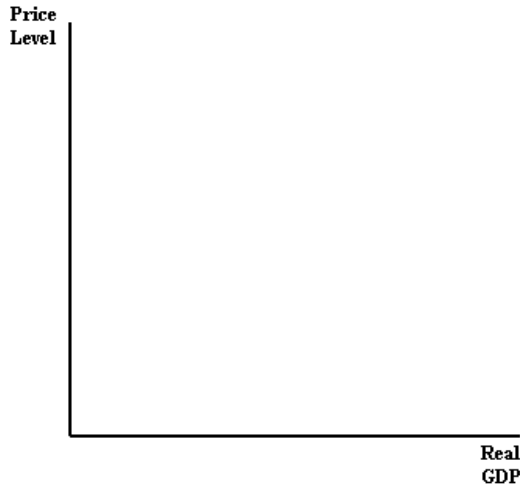
Equilibrium: situation in which there are no forces that will produce change among the variables considered.

An increase in aggregate demand pulls up the price level. We call this demand-pull inflation

A decrease in aggregate supply pulls up the price level. This is called cost push inflation. It is also called stagflation.

When GDP changes you can relate this to changes in unemployment. A decrease in output (Real GDP) means that unemployment went up. Sometimes will say that employment went down. These are the same things.

Long Run Aggregate Supply: (Rational Expectationist theory)



Cost of inputs are responsive to changes in the price level. If the prices of things go up the workers realize that their wages can no longer buy what they used to. They demand a raise.

When they do this increases the cost of doing business. This will shift the AS curve back to the left. In the long run the AS curve will be a vertical line because of this responsiveness to price changes.

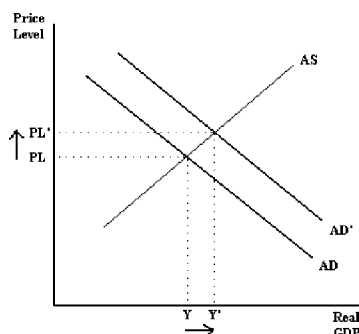
1. Something happens to increase AD.
2. Workers see that prices have risen and demand rises. This shifts AS to the left.
3. AS shifts so that the net effect is that prices rise but output does not increase.

The long run AS curve is a vertical line indicating the amount of goods and services a nation can produce using all of its productive resources as efficiently as possible.

The Long Run AS curve is at full employment.

The LRAS curve also assumes that the nation is using all of the productive technologies available to it. In this manner it is similar to the productive possibilities curve. **The LRAS curve moves outward when there is economic growth, but it is still a vertical line.**

Phillips Curve



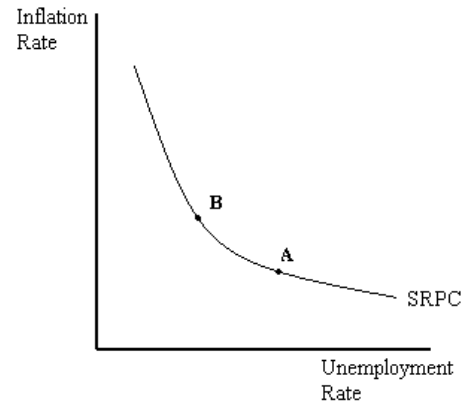
Looking at an AS/AD curve you can see what happens when a change in AD occurs.

The faster AD grows the faster inflation will grow. As output increases unemployment decreases. A slower growth in AD causes a slower growth in inflation and a slower growth in unemployment.

If you put inflation and unemployment together, you find that high inflation goes hand in hand with low unemployment and vice versa.

If the AD curve shifts real far to the right, we have big time inflation. This means big time increase in employment. With this knowledge we can build a Phillips Curve.

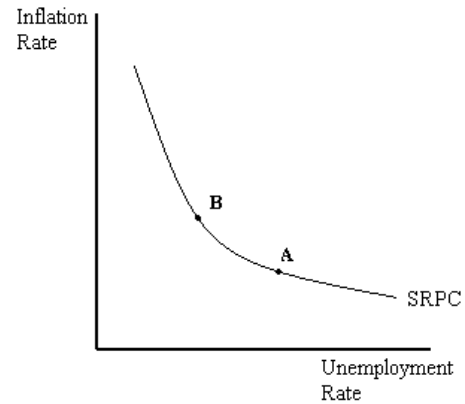
It shows the inverse relationship between price level and unemployment rate.



The Phillips Curve implies that it is impossible to achieve full employment without inflation.

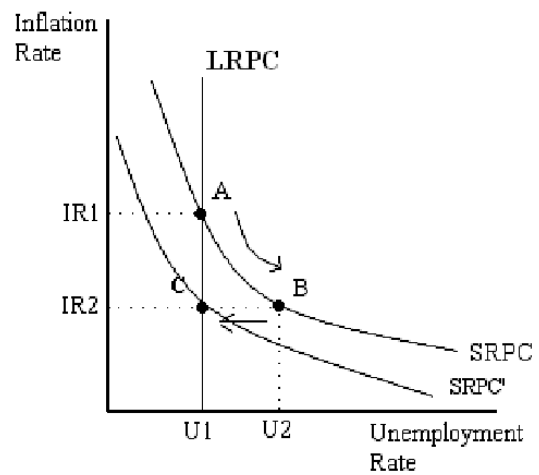
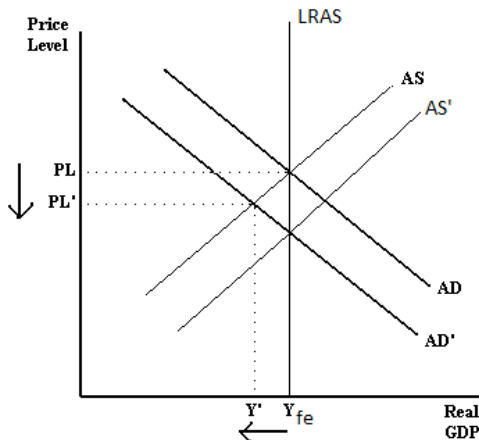
How then do we explain stagflation with the Phillips Curve?

We derived the Phillips curve with changes in AD. A change in AS will shift the Phillips curve.



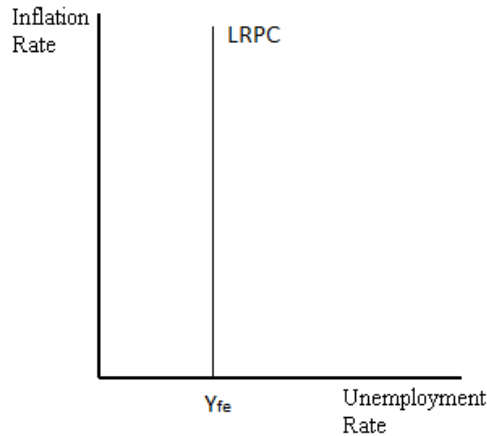
The Rational Expectations Theory:

If AD increases when we are at full employment. (Move down the Phillips Curve) Workers (and other resources) will demand higher wages. This causes the AS to shift back to its original location. (Shift the Phillips Curve)



The net result is that prices go up but GDP (unemployment) stay the same. This is the **long run Phillips Curve**. The economy will gravitate to the natural rate of unemployment. This is what makes the Phillips curve vertical in the long run.

How do we show a shift in the Long run Phillips curve?



FISCAL POLICY

Fiscal Policy: all the spending, taxing, and borrowing activities of the national government aimed at moving AD in a direction that permits output, employment, and price level goals to be met.

EXPANSIONARY FISCAL POLICY: Used when a recession exists. (These will move the government toward a deficit.)

- 1) increased government spending
- 2) lower taxes
- 3) a combination of these.



CONTRACTIONARY FISCAL POLICY: Used when demand-pull inflation is present. (These will move the government toward a surplus)

- 1) Decreased government spending
- 2) higher taxes
- 3) a combination of these.



MPC AND THE MULTIPLIER

After paying taxes people are left with their disposable income (DI). They spend some of it and they save some of it. Saving is that part of disposable income not spent so it too depends on DI.

As DI increases consumption increases. As we make more and more money we tend to spend more and more.

Bottom line:

C increases as Y increases

C increases less than Y increases

S increases as Y increases

Consumption (C) + Savings (S) = Disposable Income (DI)

MPC = change in consumption/change in income

MPS = change in savings/change in income.

$$MPC + MPS = 1$$

Level of Output	Consumption	Savings	MPC	MPS
\$370	\$375	-5	.75	.25
390	390			.25
410	405		.75	

Business consume through investment (I).

There are **two determinants** for Investment:

1. Expected Rate of Net Profit:
2. The **Real** Interest Rate:

The Real Interest Rate is the financial cost that the business must pay to borrow money to purchase real capital (machinery...)

KEYNESIAN MULTIPLIER

Assume an initial injection into the economy of \$1000. This could come from anywhere but to make it clear, lets say it is \$1000 in Investment spending. Assume an MPC of .80

<u>Additional Income</u>	<u>Change in Consumption</u>
1000	800
800	640
640	512
512	408
408	.
.	.
.	.
5000	4000

Multiplier = $1 / (1 - MPC)$ THEY MUST MEMORIZE THIS FORMULA

$MPC + MPS = 1$ this means $1 - MPC = MPS$

The multiplier is usually shown with changes in I, However, it also works for changes in C, G, AND X_n .

Balanced-budget multiplier:

If the government wants to maintain a balance budget it will only spend what it takes in from taxes. If this occurs the net effect on GDP will be equal to the amount of government spending.

Ex. $MPC = .75$: Therefore multiplier = $4 (1 / 1 - .75)$

Because of the multiplier the consumers do not decrease their consumption by the total amount of the tax. This means that the change in GDP will be equal to the tax.

MONETARY POLICY

Functions of Money:

- 1) Medium of Exchange: It must be able to be used to buy goods and services.
- 2) Measure of Value: It must be capable of being a measurement as to the relative worth of a good or service.
- 3) Store of Value: You can hold it without worrying about it spoiling.

M1 = Currency + Checkable Deposits

Currency: Coins and Paper Money

Paper money is actually Federal Reserve Notes.

Checkable Deposits: the largest component of M1

M2 = M1 + savings accounts + small time deposits + money market deposit accounts + money market mutual funds

M3 = M2 + large time deposits

Equation of Exchange $MV = PQ$

M = supply of money

V = velocity of money (number of times a year that a dollar is spent on final G & S).

P = price level (average price of each unit of output)

Q = physical volume of G & S produced.

MV is the amount spent by consumers

This is the same as the total $C + I + G + X_n$

PQ is the amount received by sellers.

This is the same as **nominal GDP** (current output at current prices)

Balance Sheet: a statement of assets and claims summarizing the financial position of a firm or bank at some point in time.

A balance sheet must always balance. Every asset is claimed by someone.

net worth: the claims of the owners against the firm's assets

liabilities: claims of the non-owners.

$$\text{Assets} = \text{net worth} + \text{liabilities}$$

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Cash	100,000	Demand Deposits	100,000

If someone comes into the bank and deposits \$100 into their checking account. What happens to the balance sheet? What happens to the money supply?

Banks are required to keep a legal reserve (reserve). These reserves are based on a specified percentage (reserve ratio) set by the Federal Reserve.

Reserves are calculated as a percentage of Demand Deposits. For Example if the reserve ratio is 20% and we have \$100,000 in demand deposits we have to keep \$20,000 as reserves.

The amount by which the banks actual reserves exceed its required reserves is called excess reserves.

actual reserves - required reserves = excess reserves MEMORIZE THIS!!!

$$\$100,000 - \$20,000 = \$80,000$$

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	20,000	Demand Deposits	100,000
Excess Reserves	80,000		

**** You must be able to compute all of these numbers. It is the excess reserves that allow a bank to create money. ****

Fractional reserve system of banking

This bank is allowed to loan out an amount equal to its excess reserves. When it does, it is creating money. There is now another \$80,000 in the economy. Banks only keep a fraction of their reserves back.

Sample Balance Sheet with RR=20%

Assets		Liabilities
Required reserves	\$2,000	Demand Deposits \$10,000
Excess reserves	\$0	Owner's equity \$10,000
Customer loans	\$8,000	
Government securities (bonds)	\$7,000	
Building and fixtures	\$3,000	

The required reserves are not there for the banks to draw on if a run occurs. Instead the required reserves are there so that the Fed can control the amount of money the bank lends.

If banks find their reserves to be low they can borrow from other banks reserves (the Federal funds market). This is temporary situation (overnight) and interest must be paid equal to the **Federal funds rate**.

Multiple-Deposit Expansion

We know that each individual bank can only loan money equal to its excess reserves. This means it can only create money equal to its excess reserves. Yet when we combine all the banks we will see that they can create an amount in excess of their combined reserves.

- 1) assume that the reserve ratio is 20%.
- 2) assume each bank exactly meets the reserve ratio.
- 3) assume all loans are made to one individual and that check is deposited in another bank.
- 4) No money is "held" by the households.

Start with \$100,000 that is deposited in bank A. (\$100,000 bill)

Deposit	Loans (Money Created)
100,000	80,000
80,000	64,000
64,000	51,200
51,200	40,960
40,960	32,770
32,770	26,210
.	.
.	.
.	.
Total is \$500,000	Total is \$400,000

We find that the initial \$80,000 dollars in reserves produced \$400,000 dollars in new money. That is a multiple of 5.

Money Multiplier (m) = 1/ Required Reserve Ration (RR)

In this case $m = 1/.20 = 5$

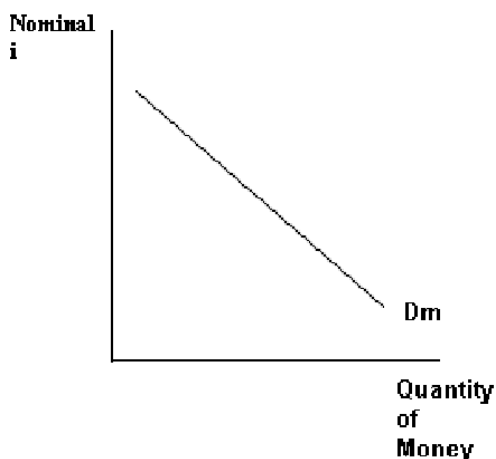
Demand for money

i is nominal not real

Dt: transaction demand: we need money to make day to day purchases (transactions). The larger the nominal GDP (total value of G & S in the economy) the larger the Dt. For simplification purposes we must assume that Dt is independent of interest rates. Therefore the Dt is a vertical line.



Da: asset demand: When money is not being held it can be put into interest earning accounts. The money that is held is Da. The Da is inversely related to interest rates. When the interest rates increase the opportunity cost of holding money is too great so people will put their money in investments.



$$D_m = D_t + D_a$$

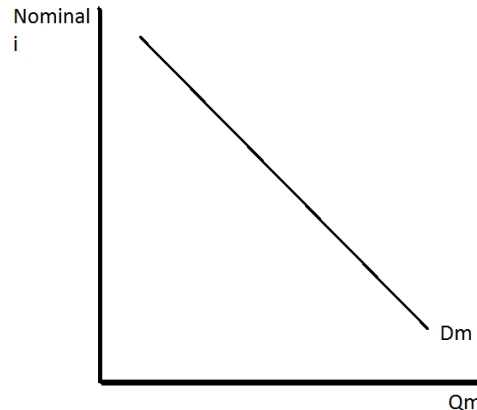
Like all curves, D_m can shift.

1. **Changes in Price Level.** If things become more expensive, people demand more money. In fact, if price level increases by 10% the D_m will shift to 10% to the right. This makes sense because people need that much more money to buy products.

2. **Changes in GDP:** Since people hold money to purchase goods, when GDP increases the D_m increases because unemployment decreased more people purchasing goods so more people holding money.

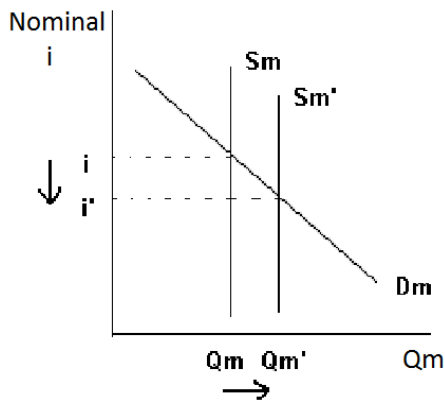
3. **Changes in income of population.** People spend more money when they have more money. As incomes increase the demand for money increases because people want to hold more money to spend.

Supply of Money (S_m)

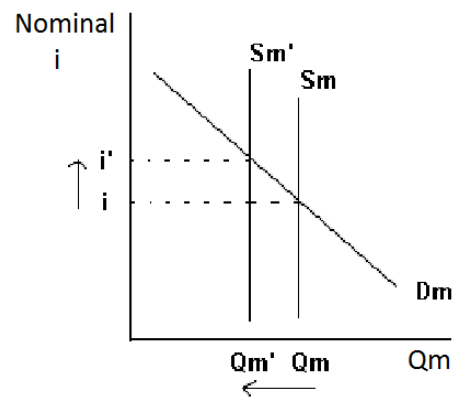


When you add in the vertical supply of money to the D_m you can get equilibrium. (S_m is vertical because the supply should be constant at interest rates)

Three major Tools of the Fed



Expansionary Monetary Policy



Contractionary Monetary Policy

1) Open Market Operations: the buying and selling of securities. This is the most important control of the Fed.

When the Fed buys bonds they are **putting money into the economy that did not exist before** that so money supply goes up by that amount plus the money created by banking system.

- Fed can buy and sell directly from banks and it directly increases the reserves of the commercial banks.
- Fed can buy from individuals and the individuals end up putting the money in their banks which increases the bank reserves.
- Fed can purchase from the US Government and that money is spent and finds its way in the hand of individuals who put it in the bank and bank reserves increase.

*** In all cases the lending ability of the member banks increase. ***

Bonds are a fixed maturity investment that pays a fixed dividend each period. The investor will then get back his original investment unless the company goes out of business. **See Curriculum Module for a lesson on this.**

The lower the price of a bond the higher the yield (interest earned).

\$50 interest payment on a \$1000 bond = $50/1000 = 5\%$ yield

\$50 interest payment on a \$800 bond = $50/800 = 6.25\%$ yield.

If the S_m decreases people will sell bonds to get cash. When they sell bonds the price drops and the yield goes up. Competition in the market will cause interest rates to go up.

2) The Reserve Requirement: The Fed influences the banks ability to lend through the reserve requirement.

If the fed increases the reserve requirement they take away part of the banks excess reserves. This takes away the banks ability to create money.

Changing the reserve requirement does two things:

- 1) It affects the size of excess reserves. (Actual-Required = Excess)
- 2) It changes the size of the multiplier. (1/RR)

3) The Discount Rate: The Fed loans money to banks if they are in need of money. The rate of interest that they charge is the discount rate.

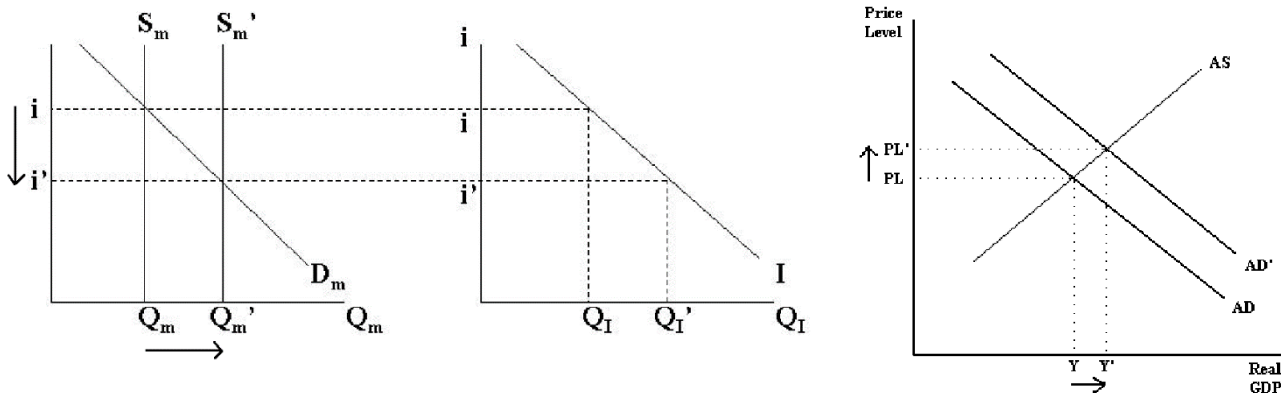
If the economy is faces with unemployment and deflation the Fed can increase the supply of money. To do this they have three possibilities. (These are called **Easy Money Policies**)

- 1) Buy securities:
- 2) Reduce the Reserve Ratio:
- 3) Lower the Discount Rate:

If the economy is faced with excess production and inflation the fed can decrease the supply of money. To do this they have three possibilities. (These are called **Tight Money Policies**)

- 1) Sell Securities
- 2) Increase the Reserve Ration
- 3) Raise the Discount Rate:

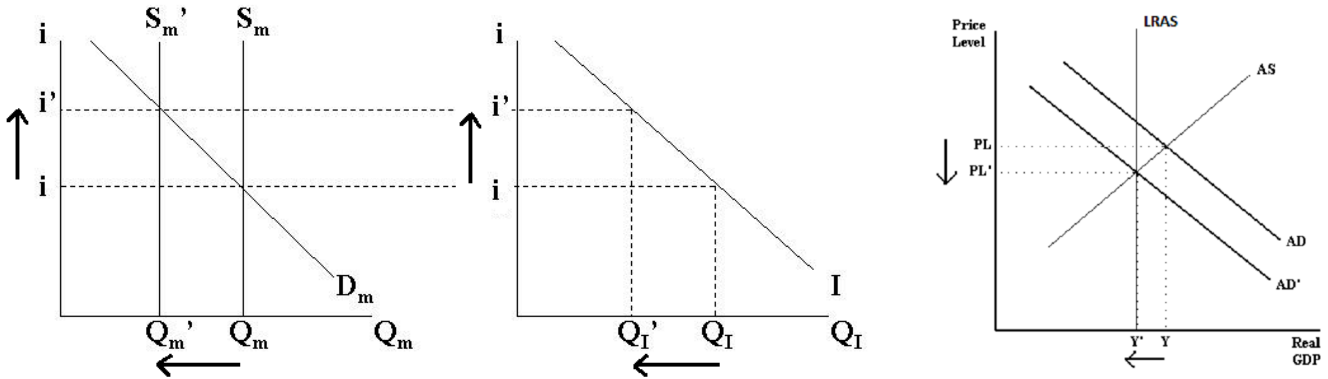
How it works:



Expansionary Monetary Policy (Easy Money)

Increase in S_m causes nominal interest rates to fall. Investment (and Consumption) is sensitive to interest rates so it increases. Since Investment is a component of AD, AD increases.

If interest rates decrease you will have an increase in the Investment demand (as well as interest rate sensitive consumption.) Business buy more capital goods. (People buy more cars and houses... at lower interest rates.)



Contractionary Monetary Policy (tight money)

Value of a dollar = $1/\text{price level}$ (index based on set year)

The price level: is a reciprocal relationship that exists between the general price level and the value of the dollar. As inflation goes up the dollar becomes worth less.

This has nothing to do with exchange rates!!!

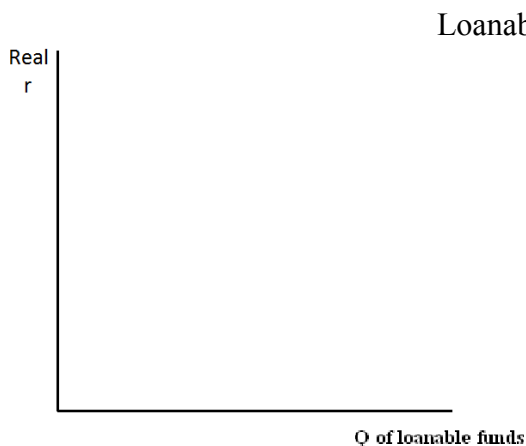
If the Fed got sloppy and allowed too much money out in the economy inflation would result. (Remember $MV=PQ$)

This would mean the dollar would be worth less. If too much money got out into the economy the value of money would collapse. Money is nothing more than our belief that the government will maintain its value.

Nominal Interest rates are the stated rates.

Real Interest rates are adjusted for inflation.

Real Interest Rate = Nominal – inflation rate.



Loanable funds market

S loanable funds comes from people who have extra income they want to save and lend out.

D loanable funds comes from households and firms that wish to borrow to make investments.

This is Real i because the assumption is that people borrow to purchase capital goods so the returns are real

Based on this you have to consider the things that can shift the S1f (peoples willingness to put funds in the banks) and the D1f (households and businesses willingness to borrow those funds).

For example:

A decrease in taxes will entice people to save more funds. This will shift the S1f to the right.

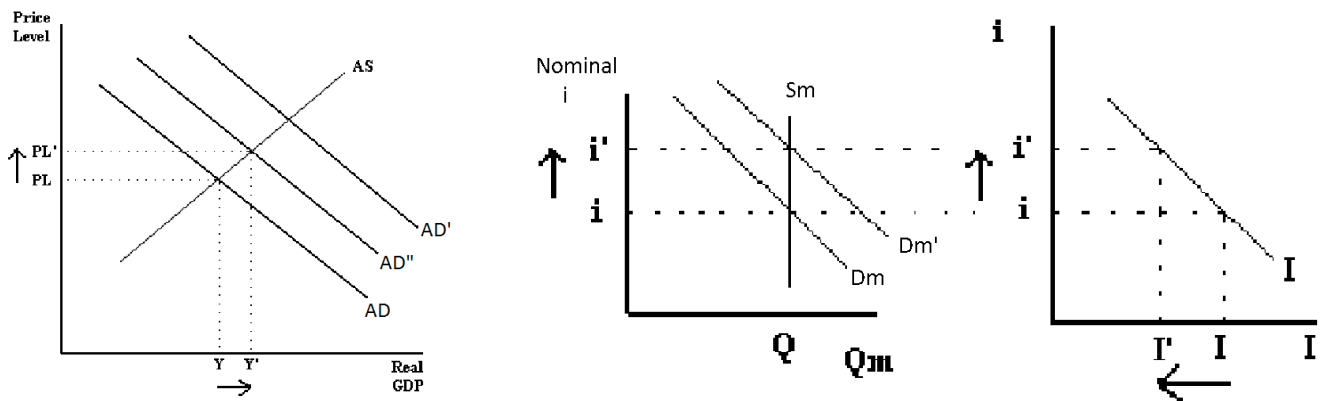
An increase in the S_m will give people more money so they will save more funds. Increase in S1f

An increase in business confidence will cause business to want to purchase more capital goods. This will increase D1f.

Crowding out effect: One problem we encounter in Fiscal policy is the crowding out effect.

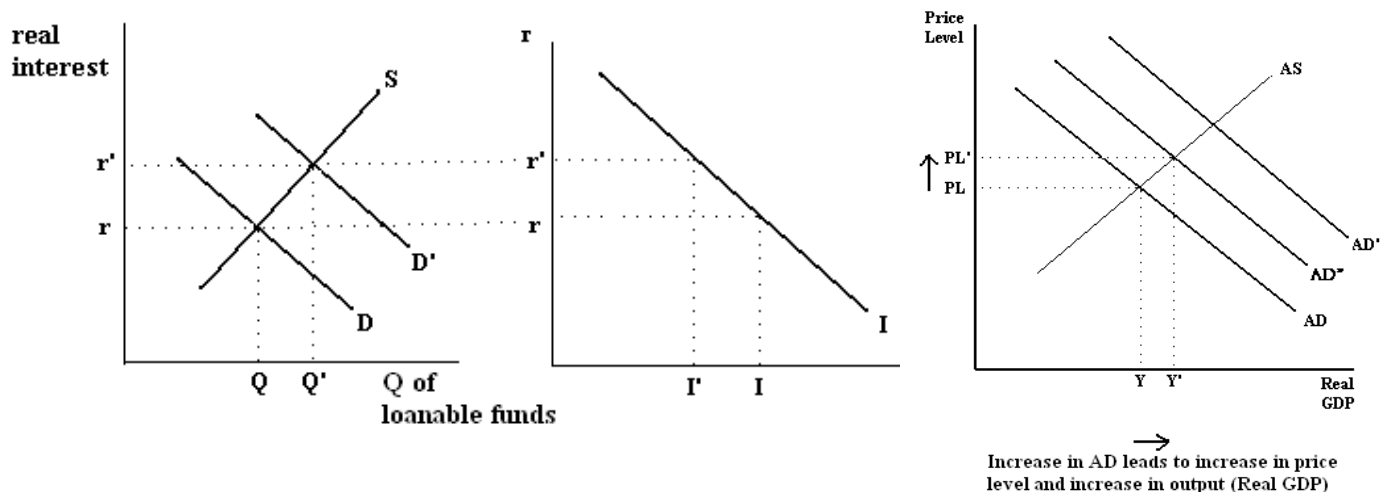
If the economy is in a recession and the government decides to expand what happens. AD increases this will in turn increase output. The problem is that it will also increase the interest rates because there is an increase in demand for money. This increase in interest rates will then drive out investment spending.

There are several ways to show this!

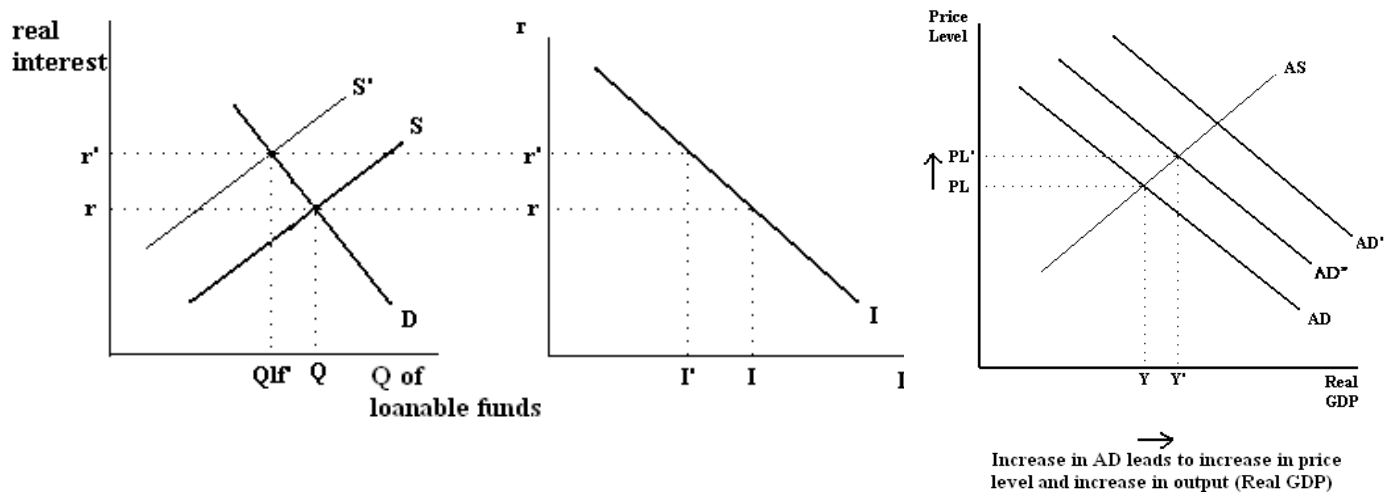


In the above example, the government entered the money market and increased the Demand for money. This drove up interest rates. The initial fiscal policy pushed AD from AD to AD'. However, since the interest rates were driven up by the government borrowing some Investment was crowded out of the economy. That means AD actually only increases to AD''.

Since the Government is just another player in the loanable funds market, you can also show this in the loanable funds market from the demand side.



Here the Government entered the market and increased the Demand for loanable funds. This drove up interest rates and crowded out investment.



Here you have another way of showing the crowding out effect. You are using the loanable funds market. You get a decrease in S loanable funds because the Government has entered the market and sucked the funds out of the market.

When there is a change in anything that increases AD (for example G spending increases) this leads to an increase in the demand for money. This causes that curve to shift to the right and thereby raising interest rates and causing investment to be driven out...

BALANCE OF TRADE – study your notes on the topic