

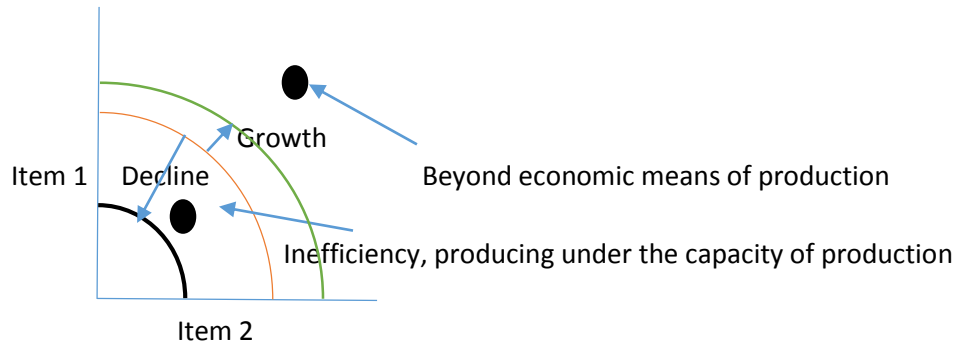
AP Macroeconomics Studyguide

Basic Terms for Economics

- **Economics:** the study of how scarce resources are used to satisfy unlimited wants.
- **Resources:** we never have enough to satisfy all of our wants.
- **Scarcity:** the lack of a product or resource.
- **Shortage:** a short term lack of a product or resource.
- **Necessities:** goods which satisfy basic human needs.
- **Luxuries:** goods which consumers want, but don't need
- **Consumer Goods:** products used for immediate consumption. For example: cars, food, toys.
- **Producer Goods:** products used to make consumer goods. For example: hammer and cranes.
- **Three Factors of Production:**
 - o **Land:** natural resources such as trees, water, or minerals
 - o **Labor:** mental and physical labor such as autoworkers or scientists.
 - o **Capital:** factories, machines (producer goods), and money.
- **Rational Self Interest:** economists believe that people choose options that give them the greatest satisfaction. People use available information, weigh costs and benefits, and make a self-interested choice.
- **Macroeconomics:** macroeconomics is the study of the economy as a whole.
- **Positivist Economics:** focus on measurable outcomes.
- **Normative Economics:** the question of what we should do. The analysis of the economy as an ethical value judgment.

Production Possibilities Curves and Tradeoffs

- Production Possibility Curve (PPC) and Tradeoffs

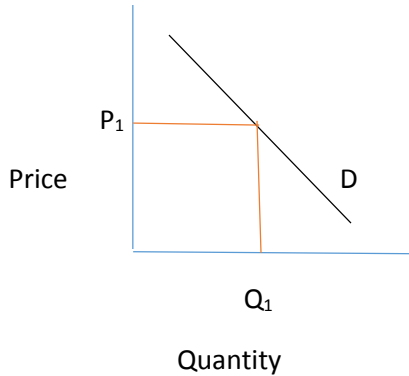


- o The Production Possibility Curve shows the tradeoff between spending projects or production of one good to another.
- o A shift on the PPC signifies either economic growth or economic decline.
- o Some Assumptions of the Production Possibilities Curve:
 - 1. Resources are fully employed.
 - 2. Production takes place over a specific time period.
 - 3. The resource inputs, in both quantity and quality, used to produce the goods are fixed over this time period.
 - 4. Technology does not change over this time period.
- o Why do we care about Tradeoffs?

- There is a scarce amount of resources available so decisions are needed to be made to maximize utility of said resources.
 - The costs of doing one thing over the other is considered the opportunity cost. The opportunity cost is the value of the foregone good, or the next best alternative.
- How does the curve shift?
 - There are two key factors:
 - 1. Change in the amount of productive resources in the economy.
 - 2. Changes in technology and productivity.
- Adam Smith
 - Key arguments:
 - Division of labor means that production is more efficient
 - People should pursue self-interests because competition is good since it means cheaper products.
 - The government should keep its hands off the economy
 - This is also known as laissez faire
 - Invisible Hand – profits drive the economy with self-interests.
 - Free trade is crucial – nations benefit by specializing in production of goods and by trading for items that they are less efficient in producing.
 - Therefore, it would be logical to let countries do what they do best for what they need.
- Two types of advantages in free trade:
 - Absolute:
 - Economists look at the amount of labor hours/costs it will take to produce a product.
 - Comparative:
 - **Theory of Comparative Advantage:** even nations with absolute advantages still benefit from trade. Both nations trading would benefit from trading products if they specialized in items that they have the lowest opportunity cost to produce.
- Calculating Opportunity Costs
 - The opportunity cost of a product is:
 - Opportunity Cost =
$$\frac{\text{Forgone Good (The Other Good)}}{\text{Good You Are Calculating Opportunity Costs For}}$$

Basic Microeconomics Supply and Demand

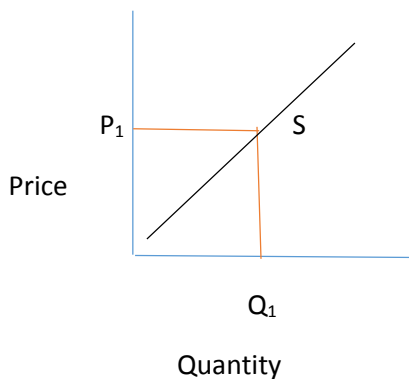
- Demand
 - Definition: the willingness and ability for consumers to pay for goods and services.
 - Law of Demand:
 - As prices go up, the demand goes down
 - As prices go down, the demand goes up
 - The Graph



- Factors that Influence the Shifts in Demand:
 - Non-price factors like people's tastes shifts the curve.
 - **Substitute products**, or products that replace another product, can find an increase demand or a decrease in demand depending on the costs of the product that it is substituting.
 - **Complementary products**, or products that go with another product, can find an increase in demand if the product it complements has an increase of demand.
 - **The Income Effect**: as consumers' incomes fluctuate, so does the level of demand.
 - Increase in wages increase the demand for goods
 - Decrease in wages decrease the demand for goods
 - Population shifts can also effect the level demand for a product.
 - Future expectations of prices can lead to a change in the demand for goods.

- Supply

- **Definition**: the quantity of goods that producers will supply at various prices.
- **The Law of Supply**:
 - As prices go up, the quantity supplied will increase
 - AS price goes down, the quantity supplied will decrease.
 - The Law of Supply holds true because businesses are motivated by profits.
- The Graph:

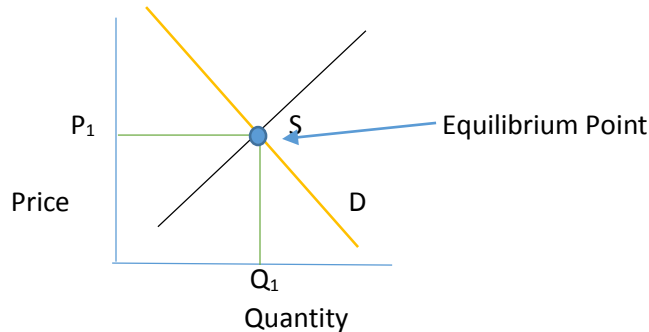


- Factors that Influence the Shifts in Supply:

- The Price of Inputs: When the cost of land, labor, tax/tariff, and capital change in the process of production.
- High costs of input reduce the amount supplied whereas low costs of input increase the amount supplied.
- Technological improvements make the production process more efficient and thus increases the level of supply
- An increase in the amount of sellers or businesses in a market will lead to an increased level of supply. The converse of this is also true.
- Increase of quotas, tariffs, and taxes influence supply as well:
 - Higher taxes increase costs and reduce supply
 - Lower taxes decrease the costs of production and increase the supply.

- Equilibrium

- Definition: The point where the supply curve and the demand curve intersects.
 - This is also known as the Market Clearing Price
- The Graph:

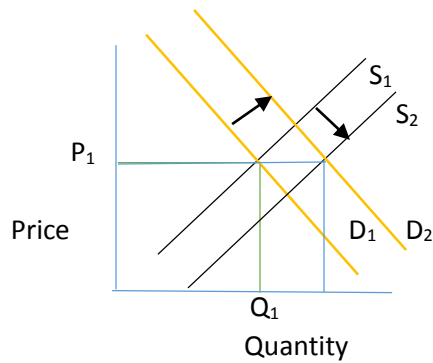


- Goods and Utility and How That Effects Demand and Supply:

- **Normal Goods:** products for which the demand increases when the income of people increase. This also applies conversely when the income lowers.
- **Inferior Goods:** products that decrease in demand, even when the income of people rise.
- **Diminishing Marginal Utility:** As a person increase consumption of a product, there is a decline in the marginal utility that person gets from consuming each additional product.
- **Diminishing Marginal Returns:** This happens when a factor of production is increased and at some point, each additional unit produced will decline. For example, adding more workers when production is near 100% will decrease marginal output.

- Indeterminate Shifts in Supply and Demand:

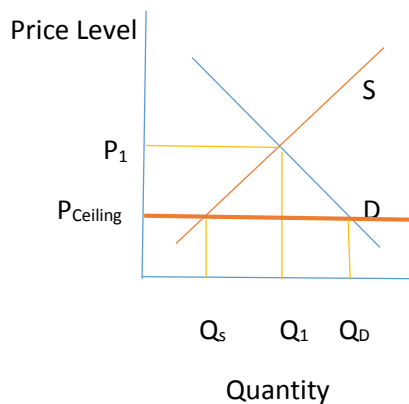
- When both the supply and the demand curves move simultaneously, the movement of prices and quantities can be indeterminate because we don't know which one is more decisive than the other.
- Example of the Indeterminate Graph Shift:



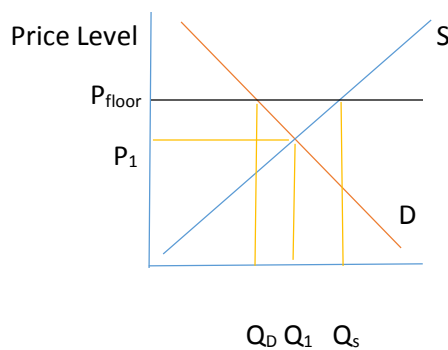
Government Policy and Macroeconomics

- Price Adjustments

- **Price Ceiling:** A government policy which sets the legal maximum price that may be charged for that good. Ceilings cause a shortage in the good.



- **Price Floor:** A government policy that sets the minimum price that can be charged for a product. Price floors lead to a surplus in the goods.



- Externalities and Government Action

- **Negative Externalities:**
 - Definition: The negative costs paid by society for a private exchange.
 - The government can fix this with higher standards, taxation, or fines which would increase the cost of production for the negative product.
 - For example: The emission of CO_2 by a coal power plant.
- **Positive Externalities:**

- Definition: The positive costs paid by society for a private exchange.
 - The good may be under produced, so the government can subsidize or implement tax breaks to reduce the costs of producing the good.
 - For example: The production of electric cars to reduce emissions.
- Unemployment
 - Impacts:
 - Lower income, poverty, and social problems like divorce and alcoholism.
 - Unemployment also means that resources are underutilized and the output of society is also decreased.
 - Definition: Those that are in the civilian labor force who are looking for work but cannot find a job.
 - Who is in the Civilian Labor Force?

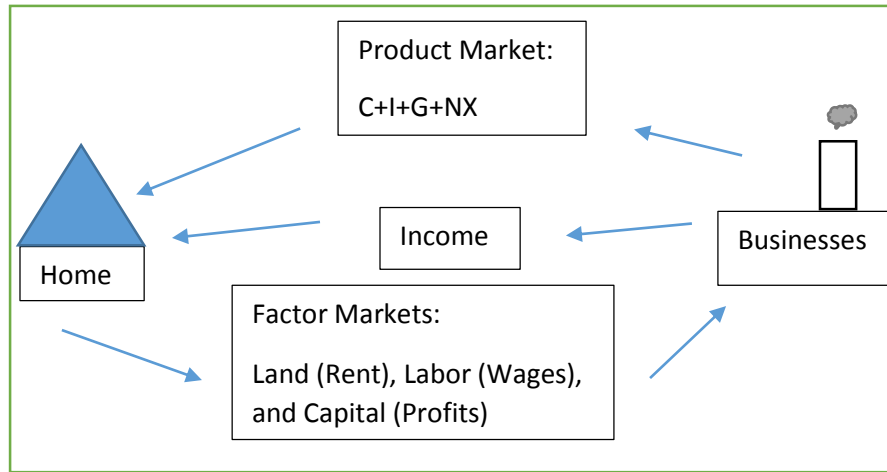
YES, PART OF LABOR FORCE	NO, NOT PART OF LABOR FORCE
Private Sector Job Workers	Military Personnel
People working public sector jobs	People taking care of the home unpaid
Unemployed people actively seeking for work	High school students under 18 working part time
	Those working under the table
 - Calculating the Unemployment Rate:
 - *Unemployment Rate:* $\frac{\text{Unemployed}}{\text{Workforce}} \times 100\%$
 - Different Types of Employment:
 - Underemployed: Those that have jobs, but will work part time or below their skill level.
 - Discouraged Workers: Those that have given up looking for jobs. Note: **They are not in the labor force.
 - Overemployed: Those that are working two jobs or over 40 hours per week.
 - Different Types of Unemployment:
 - **Frictional:** Temporary unemployment of workers that are moving from one job to the next.
 - **Seasonal Unemployment:** those that are employed for a specific season and are now unemployed. For example: Farm Workers.
 - **Structural Unemployment:** Unemployment due to the decline of industries so that the skill levels that these workers possess render useless for employment. For example: the collapse of the steel industry leaves steel workers unable to find jobs that require the ability to use the computer.
 - **Cyclical Unemployment:** Unemployment due to job loss caused by a recession.
 - Full and Natural Rate of Employment:
 - There will always be those that are unemployed due to frictional unemployment.
 - The natural rate of unemployment excludes cyclical unemployment and includes frictional and structural unemployment.
- Inflation and Deflation

- Inflation:
 - Definition: A short term rise in prices of a specific commodity.
 - Impacts: It reduces the purchasing power of the consumer as the dollars in their pocket are worth less.
- Deflation:
 - Definition: A short term decrease in prices of a specific commodity.
 - Impacts: It increases the purchasing power of the consumer as the dollars in their pocket are worth more. It also hurts the producers.
- The Consumer Price Index:
 - Definition: The government uses the Consumer Price Index (CPI) to measure the change in basic consumer prices over time using a market basket, or the price of essential commodities.
 - Formula:
 - $$CPI = \frac{\text{Current Prices}}{\text{Base Prices}} \times 100$$
 - Using the CPI to find the Inflation Rate:
 - $CPI - 100 = \text{inflation rate \%}$
- Anticipated and Unanticipated Inflation:
 - **Anticipated Inflation:** The rate of inflation that consumers, the government and business believe will occur.
 - **Unanticipated Inflation:** It causes problems as prices rise or decline more than expected. Unanticipated inflation helps debtors and hurt banks and other money lenders.
- Inflation and Interest Rates:
 - Definition: The nominal interest rate is the price of borrowing money in current dollars.
 - Real Interest Rate:
 - Formula:

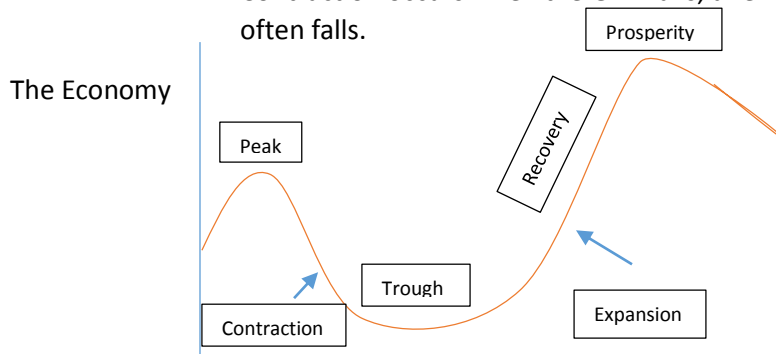
$$\text{Real Interest Rate} = \text{nominal interest rate} - \text{anticipated rate of inflation}$$
- GDP, or Gross Domestic Product
 - Definition:
 - $GDP = \text{Consumption} + \text{Government Spending} + \text{Investment} + \text{Net Export}$
 - Per Capita GDP:
 - The amount of GDP produced in a country per person
 - Formula:
 - $$\frac{GDP}{\text{Population}}$$
 - This allows economists to compare between nations and populations.
 - Per capita GDP does not tell us about the income distribution of the society.
 - GDP Deflator:
 - Formula:
 - $$GDP \text{ Deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$
 - GDI, or Gross Domestic Income
 - Formula:

- $GDI = \text{Wages} + \text{Profits} + \text{Rents}$

- Say's Law: The Relation Between GDP and GDI
 - Definition: Supply creates its own demand
 - Producing goods generates the demand to purchase other goods.



- Impacts of GDP Increase:
 - Growth of GDP may bring negative externalities like pollution which adversely effects the quality of life of a people.
 - Economic growth does not mean a fairly distributed income to poor sectors of society.
 - Economic growth has the potential of increasing the standard of living for a nation's citizens.
- Economic Growth and The Business Cycle
 - Causes of Economic Growth:
 - Productivity increase via labor increase.
 - Increased savings will allow growth in the future of a country.
 - Growth and improvements in technology
 - Increase Research and Development and Innovation
 - Increase investment in human capital.
 - An open economy.
 - Population Growth and Immigration.
 - Expansion and Contraction Cycles:
 - Expansion occurs when the GDP grows, unemployment falls, and prices tends to rise.
 - Contraction occurs when the GDP falls, unemployment rises and prices often falls.

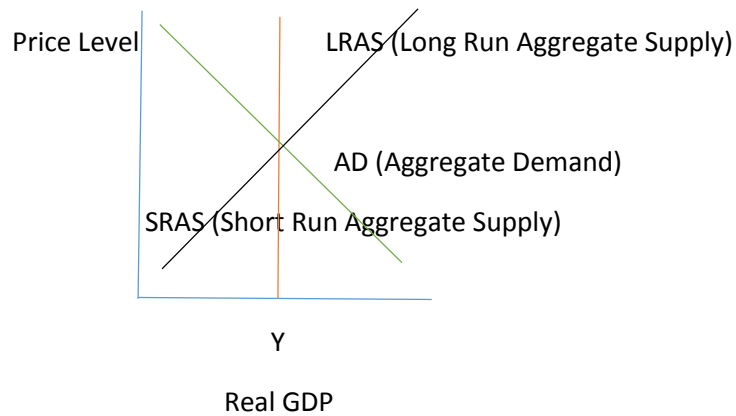


- The Macro Model

- Aggregate Demand:

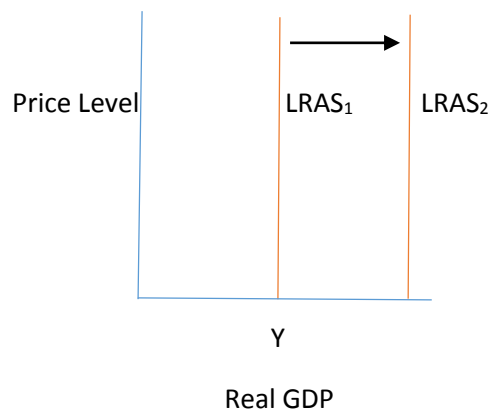
- $AD = \text{Consumption} + \text{Investment} + \text{Government Spending} + \text{Net Exports}$
 - Increased aggregate demand leads to demand pull inflation. This is common during times of economic growth. What occurs is an increase in price levels without an increase in RGDP.
 - Decrease in aggregate demand would lead to a lower price level.

- Graph:



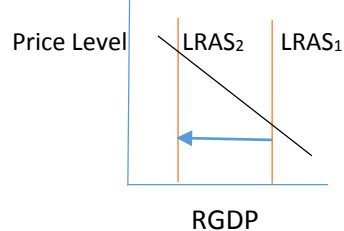
**The LRAS represents an economy where all inputs: land, labor and capital are used to full efficiency

- Growth in the Economy Within the Macro Model

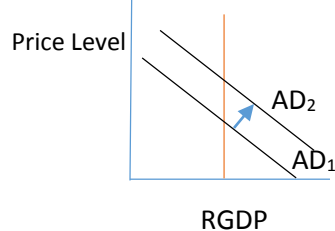


- Supply Shock and Demand Pull Inflation

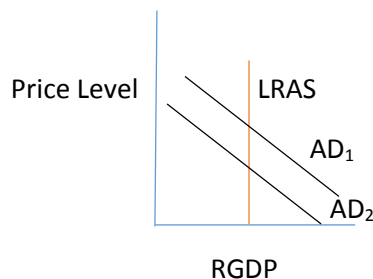
Supply Shock (Cost Push Inflation)



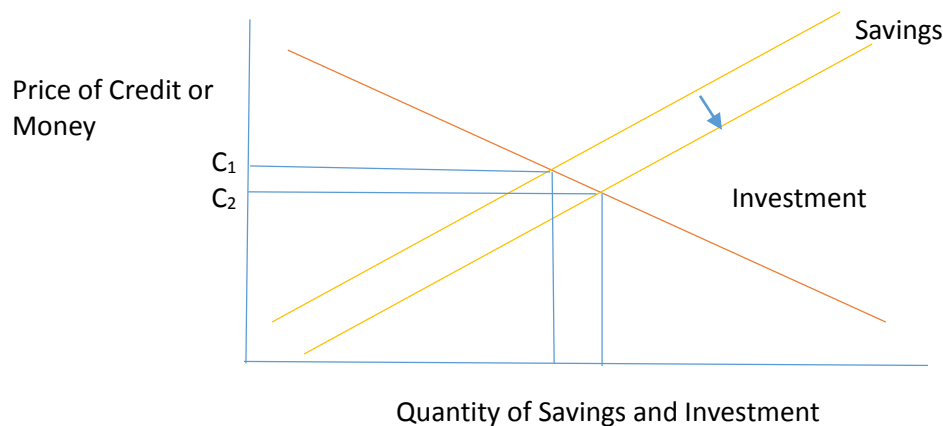
Demand Pull Inflation



- Effects of Movements in the Macro Model:
 - **Interest Rate Effect:** Price rise means the value of money goes down, therefore, the demand to borrow money increases and drives up interest rates. If interest rates fall, the prices will also fall.
 - **Open Economy Effect:** If the price levels go up, our net exports drop. If our price levels drop, then our exports increase. Change in prices lead to a change in RGDP.
 - **Wealth Effect aka Real Balance Effect:** If price level rises, people's purchasing power goes down and if price levels fall, people's purchasing power goes up.
- The Classical Model
 - Assumptions:
 - Pure competition exists
 - Wages and prices are flexible
 - People act on their own self interest
 - People don't have money illusion, meaning that they understand nominal vs. real value
 - Problems in the economy are temporary and will correct themselves.
 - Graph:

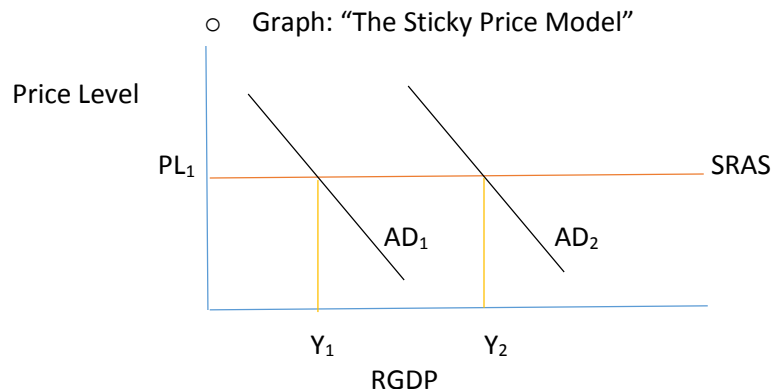


- Saving and Investment
 - When people save money, there is a leakage in the circular flow and planned consumption can fall short of real GDP. Classical economists argue that dollars saved will be matched by business investment equally.

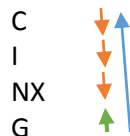


- Price of credit (interest rate) ensures that they demand and supply of credit are equal.

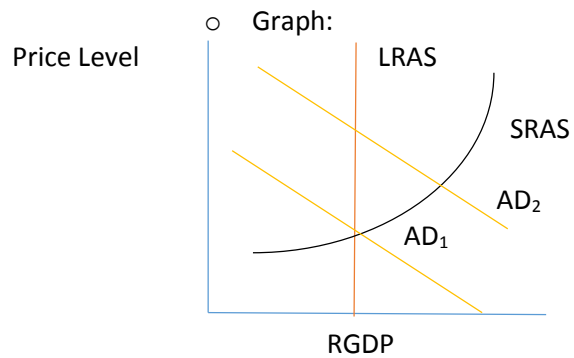
- Unemployment and the Classical Model
 - Unemployment would cause wage rates to fall to the point where unemployed workers will be hired under the classical model.
 - In the Classical Model, people aren't unemployed for long periods of time as the model would eventually shift towards full employment once more.
- The Keynesian Model
 - Assumptions:
 - Keynes argued that wages weren't as flexible as the classical model suggested due to labor unions and contracts.
 - Keynes argued that the minimum wage sets up the price floor.
 - He also argued that changes in aggregate demand don't change the price level.



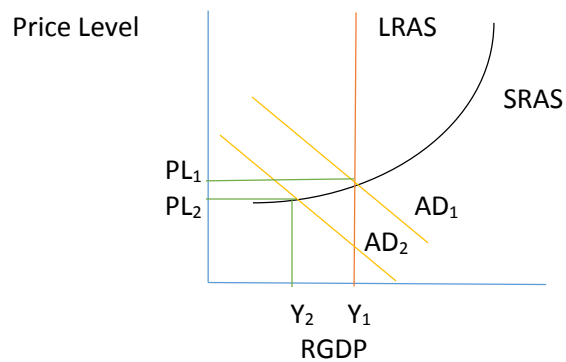
- Aggregate Demand and RGDP Under the Keynesian View
 - Any change in aggregate demand will change RGDP, thus the RGDP is demand determined.
 - Under the Keynesian view, change in RGDP does not lead to a change in the price level.
 - In a depressed economy, increased spending can increase output without raising prices.
 - Government spending would inevitably raise the Net Export, Consumption, and Investment.



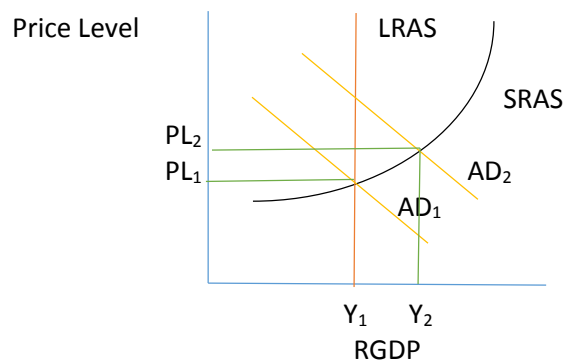
- The Modern SRAS
 - New Modified Assumptions:
 - Price and RGDP can increase together
 - Prices can have adjustments
 - SRAS can exceed full employment.
 - Any change in the endowments of factors of production will cause both the SRAS and LRAS to shift.
 - How the Aggregate Supply Increases:
 - Discovery of raw materials, increased competition, reduced trade barriers, reduced business regulation, decreased business tax, and reduction to the input price.
 - Short lived events will only shift SRAS, not LRAS



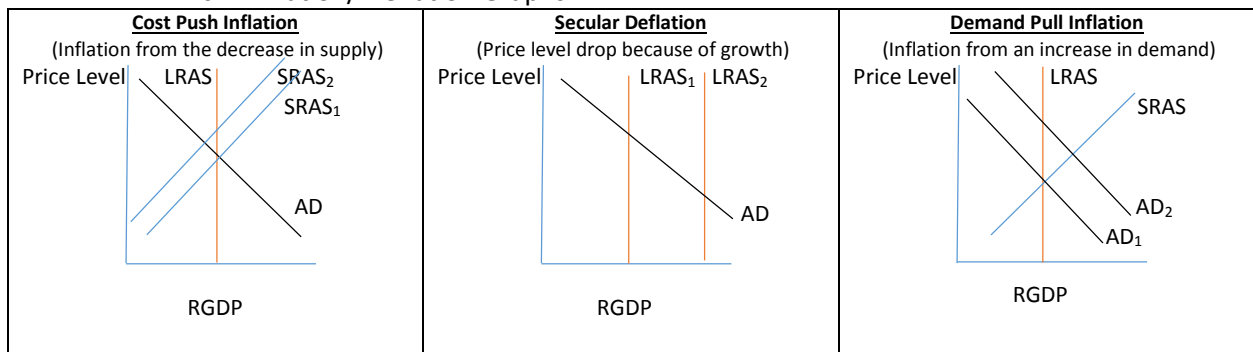
- Contractionary (Recessionary) Gap:



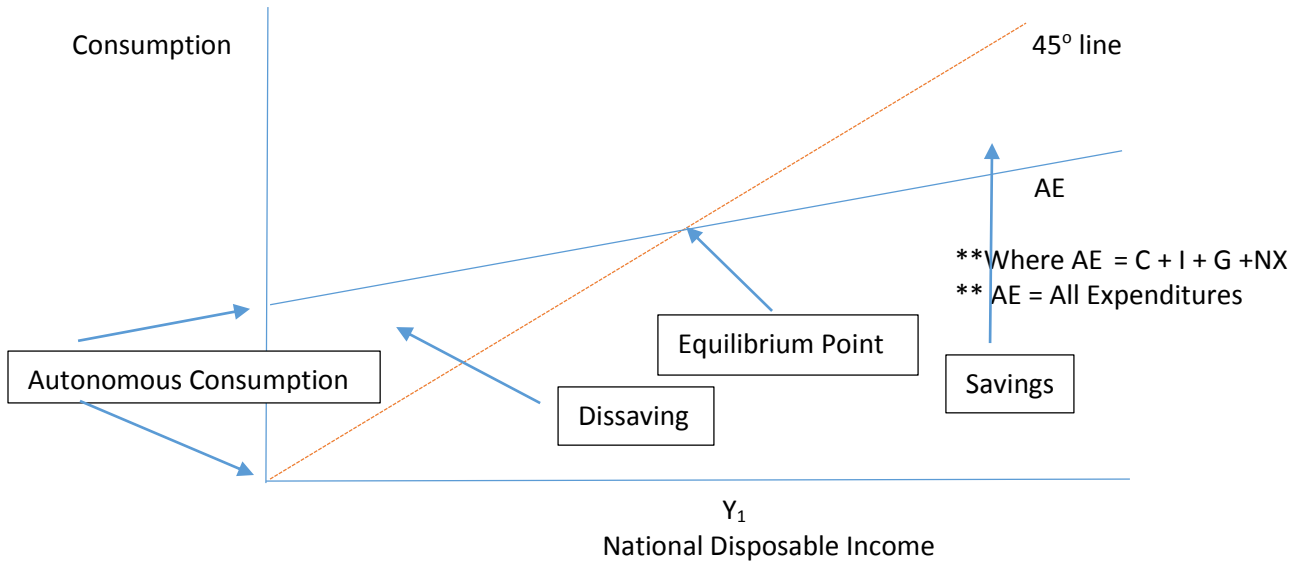
- Inflationary (Expansionary) Gap:



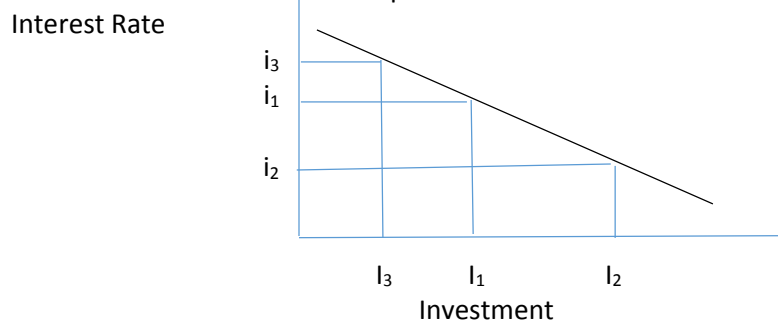
- Inflation/ Deflation Graphs



- Average Propensity to Consume and Save
 - $Average\ Propensity\ to\ Consume = \frac{Real\ Consumption}{Real\ Disposable\ Income}$
 - $Average\ Propensity\ to\ Save + Average\ Propensity\ to\ Consume = 1$
 - $Average\ Propensity\ to\ Save = \frac{Real\ Savings}{Real\ Disposable\ Income}$
- Marginal Propensity to Consume and Save
 - $Marginal\ Propensity\ to\ Consume = \frac{\Delta Real\ Consumption}{\Delta Real\ Disposable\ Income}$
 - $Marginal\ Propensity\ to\ Save = \frac{\Delta Real\ Savings}{\Delta Real\ Disposable\ Income}$
 - $Marginal\ Propensity\ to\ Save + Marginal\ Propensity\ to\ Consume = 1$
- Keynesian Multiplier
 - Definition: The ratio of change in equilibrium level of real national income to the change in autonomous expenditures.
 - Multiplier Equation:
 - $Multiplier = \frac{1}{1-MPC} = \frac{1}{MPS}$
- Keynesian Income Model



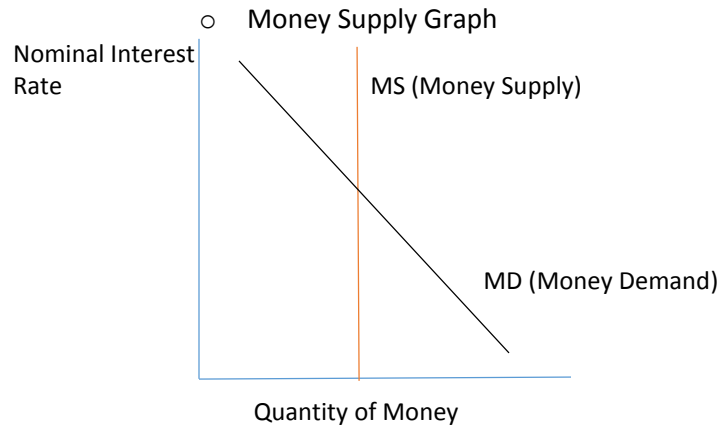
- Investment and Keynes
 - Investment is one of the component of consumption.
 - When the interest rates are low, investment increases, and the converse is true as well.
 - There is a downward slope in the investment curve.
 - Graph:



- Causes of Investment Shifts:
 - Future expectations of sales by business people
 - Change in the productivity in technology.
 - Increase or decrease in taxes.
 - Impacts of Increased Investment:
 - Increased investment leads to increased consumption, increased RGDP, and increased national income.
 - Inventory and Investment
 - If consumers decrease the purchase of a good, then firm will slow down production which would lead to decreased RGDP.
 - If the business senses that their inventory is short, then they will hire and increase production, increasing RGDP.
- Government Spending and Keynes
 - It is considered autonomous (not determined by levels of disposable income.)
 - Government spending is a major part of the US' GDP
- Foreign Sector and Keynes:
 - Net Exports = exports – imports
 - Trade surpluses (exports more than imports) would lead to an increase in RGDP
 - Trade deficits (imports more than exports) would lead to a decrease in RGDP
 - The foreign sector is also considered autonomous spending
- Fiscal Policy
 - Goals:
 - Sustained economic growth as measured by our GDP
 - The GDP is the total amount of goods and services produced in the US each year.
 - Lowering inflation in the United States
 - Full employment
 - Fiscal Policy:
 - Definition: The attempt by the government to meet specific economic goals such as increasing GDP, lower inflation, and lower unemployment. Fiscal policy includes increases or decreases in taxes and spending that is carried out by the Congress.
 - Main tools for Fiscal Policy: Taxation and Government Spending.
 - Stimulatory or Expansionary Fiscal Policy (Used during economic downturn)
 - 1. Increase government spending
 - Impact: Increases aggregate demand
 - 2. Cut taxes
 - Impact: Stimulate consumer spending and business investment.
 - Contractionary Fiscal Policy (Used during economic growth to lower inflation)
 - 1. Cut government spending
 - Impact: Decreases aggregate demand
 - 2. Increase Taxes

- Impact: Reduces purchasing power of consumers and business investment.
- Tax Multiplier
 - Formula:
 - $Tax\ Multiplier = \frac{MPC}{MPS}$
 - Tax cuts and government spending increase aggregate demand during a recession.
 - Keynesians believe that government spending is more powerful than tax cuts.
 - This is true because a portion of the tax cut income will be saved whereas government spending is subject to the multiplier.
- Automatic Stabilizers
 - Unemployment compensation for workers laid off during a recession. This allows the government to provide income to maintain consumption.
 - The progressive tax policy allows for a decrease in government taxes during recessions and increase in government taxes during economic expansion as incomes go down during downturns and increase during upswings.
- Deficit Spending Impacts
 - Keynesian Belief:
 - Deficit during the recession will be paid off with surpluses during economic growth.
 - Classical Critique:
 - There is a fear that government spending would lead to the crowding out of private investment and would lead to more economic problems.
- Types of Annual Budgets:
 - Deficit: When government spends more than it takes in.
 - Surplus: When the government has more revenue than it spends.
 - Balanced: When revenue is equal to payments for programs.
- Money and Monetary Policy
 - Money
 - Definition of Money:
 - A medium of exchange that sellers will accept.
 - A unit of accounting to place a specific price on products.
 - A storage of value that can be set aside for future purchases.
 - A liquid asset that could be used for a variety of transactions.
 - M1 Money:
 - Currency, coins, checking accounts, traveler's checks. **Note that credit card is not money.
 - M2 Money:
 - Near money such as savings deposits, CD's, money markets.
 - M3 Money:
 - CD's over 100,000 dollars and Euro dollars held by Americans.
 - The Federal Reserve
 - Independent of the branches of the government.
 - The Functions of the Fed:
 - The Fed provides a system of check clearing.

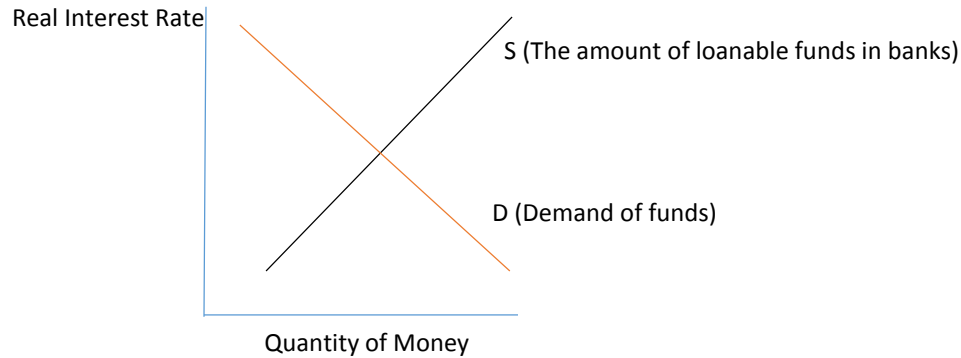
- The Fed holds reserves of banks.
- The Fed supervises member banks.
- The Fed is the lender of last resort.
- The Fed regulates the money supply.



○ Monetary Policy

- Expansionary Monetary Policy (during economic downturn):
 - The Federal Reserve can raise the money supply in 3 ways:
 - Buy bonds on the open market which infuses cash into the money supply.
 - Lower the discount rate, which is the interest rate that the Fed charges member banks.
 - Lower the Reserve Rate, which is the amount that banks must keep and not loan out.
- Contractionary Monetary Policy (during economic growth):
 - The Federal Reserve can decrease the money supply in 3 ways:
 - Sell bonds on the open market
 - Raise the discount rate, which is the interest rate that the Fed charges member banks.
 - Raise the Reserve Rate, which is the amount that banks must keep and not loan out.
- The Money Multiplier
 - $Money\ Multiplier = \frac{1}{Reserve\ Rate}$
 - When bonds are sold, it is negative
 - When bonds are bought, it is positive.
- Discount and Federal Funds Rates
 - **Discount Rate:** The interest rate at which the Fed charges member banks to borrow money
 - **Federal Funds Rate:** The interest rate at which banks borrow each other's reserves.
 - If the government reduces the Federal Funds Rate, banks borrow less.

- Loanable Funds Graphs



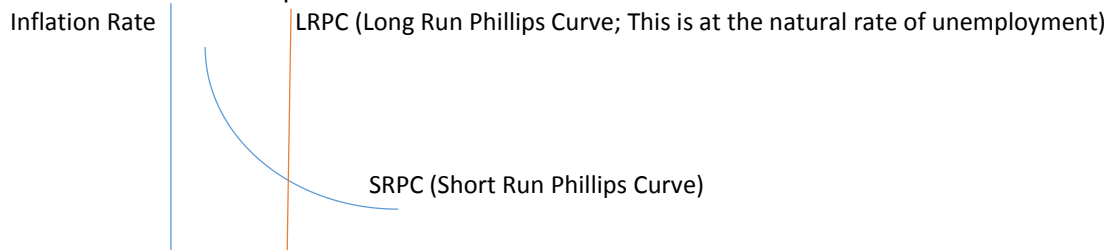
- The Equation of Exchange

- $MV = PQ$

- M = Actual Money Held by Public, V = Income Velocity (times the dollar is spent), P = Price Level, Q = RGDP (quantity of foods and services)
 - Usually we assume that the velocity of money and the RGDP are stable and do not change.

- Unemployment and Its Effects on Inflation:

- Phillips Curve:



- Natural Rate of Unemployment

- Economists argue that there is a tendency for the economy to go towards the natural rate of unemployment.
 - The natural rate is at the LRAS.
 - If the unemployment rate is higher than the natural rate, then the economy is in recession
 - If the unemployment rate is lower than the natural rate, then the economy is in expansion.
 - Wait Unemployment: Includes factors that keep the labor market from operating in a perfectly competitive market including union activities, government licensing, minimum wages and unemployment insurance.

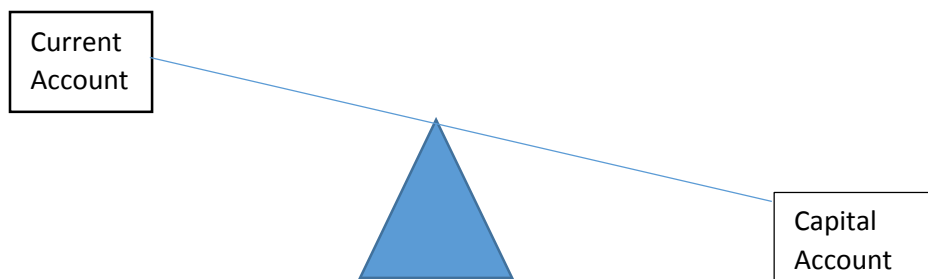
- International Macroeconomics:

- Trade Terms:

- Import Quota: a limit on the amount of a product that can be imported.
 - Import Tariff: a tax on a specified product.
 - Infant Industries: those industries just getting started.
 - Open Economy: an economy with foreign trade.

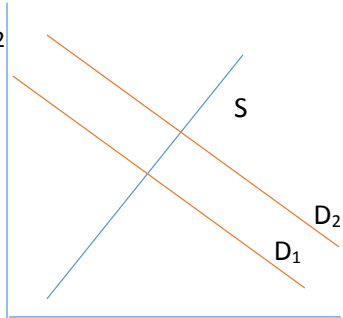
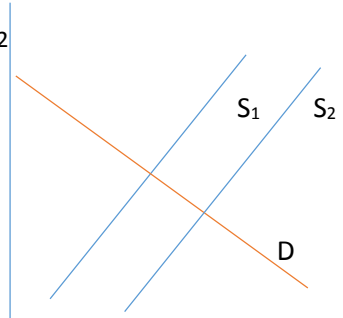
- Free Trade:

- Free Trade Pros:
 - Countries benefit from trading for good and services that they don't have.
 - Countries benefit by producing what they are most efficient in producing (Comparative Advantage).
 - US producers benefit from exporting items to foreign countries.
 - US consumers benefit from the lower costs of foreign products.
- Free Trade Cons:
 - Increase imports hurt domestic industries which leads to domestic unemployment.
 - Tariffs or quotas may be constituted to protect workers in the home country.
 - Tariffs or quotas may be used to protect infant industries.
 - Nations always want to maintain productive diversity.
 - Some nations dump products or restrict US imports.
- The Balance of Trade:
 - A nation's balance of trade = exports – imports.
 - Surplus:
 - Definition: A nation that exports more than imports will have a trade surplus.
 - Deficit:
 - Definition: A nation that imports more than exports will have a trade deficit.
 - Causes:
 - Exports may be inferior quality.
 - Country may not have many products to export.
 - A nation's currency may be overpriced, making imports cheaper.
 - A nation may have higher incomes than its trading partner.
 - Poorer nations cannot afford richer nation's products.
- The Balance of Payment:
 - Balance of Payment: An accounting of funds that flow into and out of a country comprised of the capital and the current account.
 - Current Account: a portion of payments comprised of the trade balance of goods and services.
 - Capital Account: A portion of the balance payments comprised of foreign purchases of US assets minus US purchase of foreign assets plus the change in official reserves.
 - $\text{Capital Account} + \text{Current Account} = 0$



- If we run a trade deficit, we have a deficit in the current account and a surplus in the capital account.
- Investments are part of the capital account, but income from the investments are part of the current account.

○ The Currency Exchange in Foreign Trade

<p>Currency Appreciation</p> <p>Currency 1 Per Currency 2</p>  <p>Quantity of Currency 2</p> <p>Effects on Trade:</p> <ul style="list-style-type: none"> - Worth more than other currencies - Imports are cheaper - Hurts exports, makes trade deficits, lowers GDP <p>Circumstances of Appreciation: When a country exports or sells goods to another country.</p>	<p>Currency Depreciation</p> <p>Currency 1 Per Currency 2</p>  <p>Quantity of Currency 2</p> <p>Effects on Trade:</p> <ul style="list-style-type: none"> - Worth less than other currencies - Makes exports stronger - Imports are more expensive, inputs for production bought abroad are more expensive <p>Circumstances of Depreciation: When a country imports or buys goods to another country.</p>
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○ Price Levels and Interest Rates in Net Exports

- High price levels discourage foreign investors from buying US products, leading to a drop in net exports.
- Lower price levels encourage foreign investors to buy US products, leading to an increase in net exports.
- Higher interest rates encourage investors to invest in the US, leading an increase in the capital account and reducing the net export.
- Lower interest rates discourage investors to invest in the US, leading a decrease in the capital account and increasing the net export.