AP Macroeconomics Notes

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Economic Schools of Thought

Basic Economic Concepts

Scarcity

Economics is the study of how people, firms, and societies use their scarce productive resources to best satisfy their unlimited material wants.

Factors of Production:

1) Labor: human effort and talent, physical and mental
2) Land/Natural Resources: any resource created by nature
3) Physical Capital: human-made equipment
4) Entrepreneurial Talent: the effort and know-how to put the other resources together in a productive venture

Economic models simplify the interactions that occur in an economy.

- Assume economic agents are rational and have an incentive to make decisions in their self-interest and that everything is held constant (ceteris paribus, or for "all else equal")

Positive Analysis: analytical thinking about objective facts and cause-and-effect relationships that are testable
Normative Analysis: subjective thinking about values and morals or a course of action one should take

Opportunity Costs and the Productions Possibility Curve

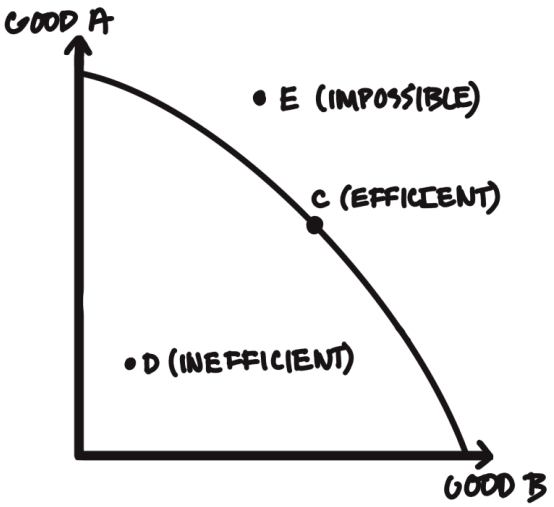
Opportunity Cost: the value of the next best alternative to any decision you make
Opportunity Cost = $(Y_1 - Y_1) / (X_1 - X_2)$

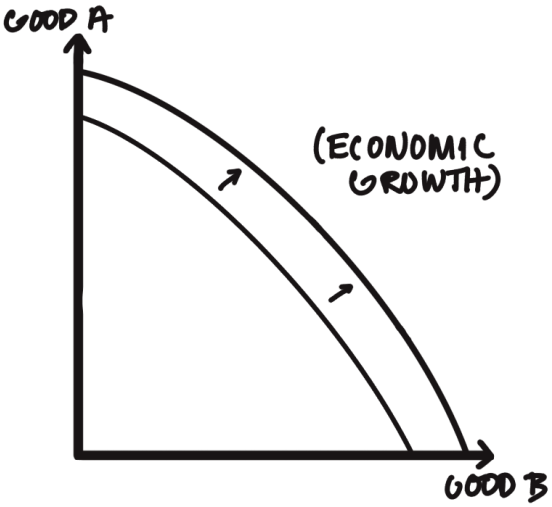
Productions Possibilities Curve (PPC): a graphical model used to show the tradeoffs associated with allocating resources between the production of two goods

- Contains all the possible combinations of two goods that could be produced

Economic Situation	Graphical Representation
Increasing Opportunity Costs: when the OC of a good increases as the output of the good increases	PPC curve that is bowed out from the origin
Constant Opportunity Cost: when the OC of a good remains constant as the output of the good increases	PPC curve that is a straight line
Decreasing Opportunity Costs: when the OC of a good decreases as the output of the good increases	PPC curve that is bowed in from the origin
Efficiency: full employment of resources in production	Point on the PPC

Inefficiency: underemployment of any of the factors of production	Point on the interior of the PPC
Growth: increase in an economy's ability to produce goods and services (caused by an increase in quantity or quality of resources or technological advancements)	PPC shift outward
Contraction: decrease in output due to the under-utilization of resources	Place on PPC shifts to a point inside of PPC





Comparative Advantage and the Gains from Trade

Product specialization according to comparative advantage, not absolute advantage, results in exchange opportunities that would lead to consumption opportunities beyond the PPC.

Absolute Advantage: when an agent can produce more of a good than another given the same resources
Comparative Advantage: when an agent can produce a good at a lower opportunity cost than another

Consumption Possibility Frontier: represents what countries participating in international trade can consume

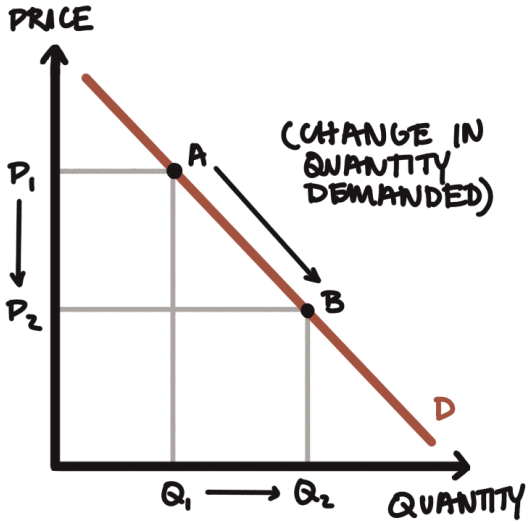
Whether or not a nation is a net exporter or a net importer depends on the difference between the world price and the domestic price.

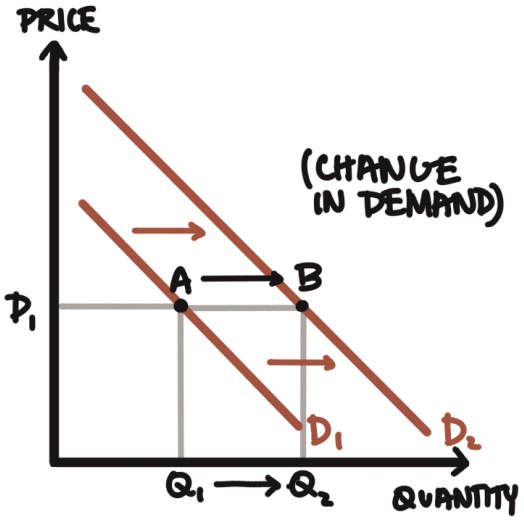
- If the world price is greater than the domestic price, then the nation becomes an exporter.
- If the world price is less than the domestic price, then the nation becomes an importer

Demand

The law of demand states there is an inverse relationship between price and quantity demanded, leading to a downward-sloping demand curve.

Economic Situation	Graphical Representation
Demand: all of the quantities of goods and services that buyers would be willing to pay at all possible prices	Demand Curve: a graph that shows the relationship between price and quantity demanded
Change in Demand: when buyers are willing to pay a different quantity at all given price points	Shift of the entire demand curve
Quantity Demanded: the specific amount that buyers are willing to purchase at a given price	X-axis value in a demand curve, given the y-axis value (price)
Change in Quantity Demanded: a movement among the demand curve caused by a change in price	Shift to another point on the demand curve





Determinants of Demand: external factors that cause the demand curve to shift (TRIBE)

1) Tastes and preferences
2) Related goods (substitute and complementary)
3) (Consumer) Income (normal and inferior goods)
4) (Number of) Buyers
5) Expectations for the future

Substitute Goods: goods that can replace each other

- When the price of a good increases, demand for its substitute increases

Complement Goods: goods that tend to be consumed together

- When the price of a good increases, demand for its complement decreases

Normal Goods: increased income results in increase in the demand curve
Inferior Goods: higher levels of income produce a decrease in the demand curve

Consumption Smoothing; how people try to optimize their lifetime standard of living

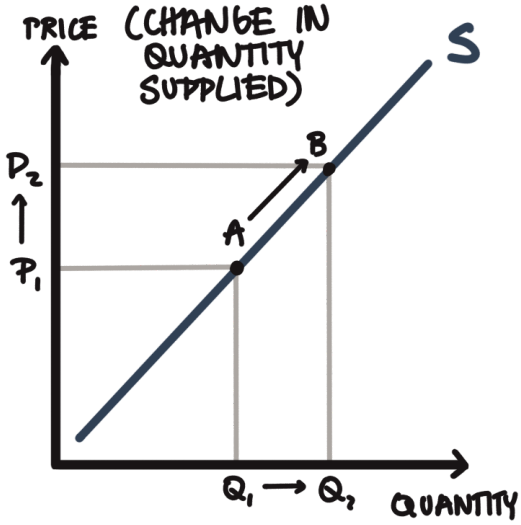
- Expectations of higher income in the future leads to more spending in the present

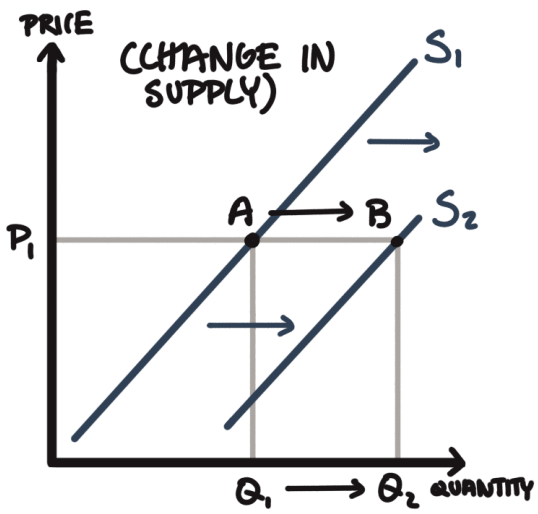
NOTE: When the price of a good changes (and all other factors remain constant), the consumer moves along the fixed demand curve. When one of the external factors changes, the entire demand curve shifts.

Supply

The law of supply states there is a positive relationship between price and quantity supplied, leading to an upward-sloping supply curve.

Economic Situation	Graphical Representation
Supply: all of the quantities of goods and services that sellers would be able to produce and sell all possible prices	Supply Curve: a graph that shows the relationship between price and quantity supplied
Change in Supply: when sellers are willing to produce and sell a different quantity at all given price points	Shift of the entire supply curve
Quantity Supplied: the specific amount that sellers are willing to produce and sell at a given price	X-axis value in a supply curve, given the y-axis value (price)
Change in Quantity Supplied: a movement among the supply curve caused by a change in price	Shift to another point on the supply curve





Determinants of Supply: external factors that affect supply (ROTTEN)

1) Resource costs: cost of inputs used to produce good
2) Other goods' prices (substitutes in production and joint products)
3) Taxes, subsidies, and government regulation
4) Technology or productivity level
5) Expectations among suppliers
6) Number of sellers in the market

Joint Products: when the production of one good makes the other available

NOTE: When the price of a good changes (and all other factors remain constant), the producer moves along the fixed supply curve. When one of the external factors changes, the entire supply curve shifts.

Market Equilibrium, Disequilibrium, and Changes in Equilibrium

Market Economy (capitalism): where economic decisions are guided by the interaction of producers and consumers

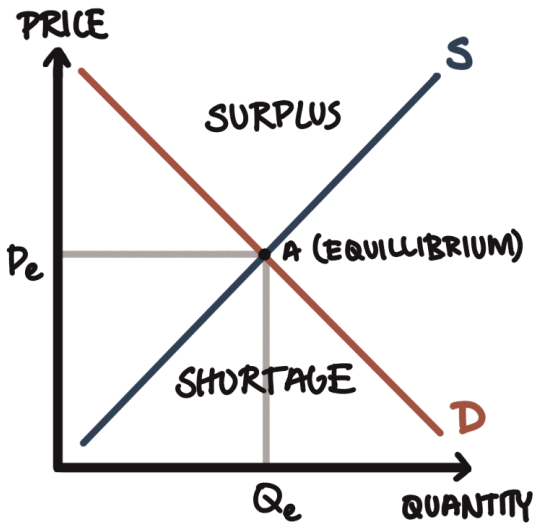
- Based upon the fundamentals of private property, freedom. self-interest, and prices

Capitalism: individuals and firms control the resources in the economy
Socialism: the government controls some resources in the economy
Communism: the government controls all resources in the economy

In a competitive market, demand for and supply of a good or service determines the equilibrium price, or the market clearing price.

Equilibrium: when prices has adjusted until quantity demanded is equal to quantity supplied

- Equilibrium Price (Market Clearing Price): the price in a market where quantity demanded is equal to quantity supplied
- Equilibrium Quantity: the quantity demanded and supplied at equilibrium price



Disequilibrium: when quantity supplied is not equal to quantity demanded; there is either a shortage or a surplus

- Shortage: when the quantity demanded is greater than the quantity supplied
- Surplus: when the quantity supplied is greater than the quantity demanded

Changes in the determinants of supply and/or demand result in a new equilibrium price and quantity

- Shifts Demand: TIRES (Tastes, Income, Related Prices, Expected Prices, Size of Market)
- Shifts Supply: POISE (Productivity, Other Goods, Input Prices, Size of Market, Expected Prices)

Change	Change in Price	Change in Quantity
Demand (↑)	P (↑)	Q (↑)
Demand (↓)	P (↓)	Q (↓)
Supply (↑)	P (↓)	Q (↑)
Supply (↓)	P (↑)	Q (↓)
Demand (↑), Supply (↑)	P (↕)	Q (↑)
Demand (↑), Supply (↓)	P (↑)	Q (↕)
Demand (↓), Supply (↑)	P (↓)	Q (↕)
Demand (↓), Supply (↓)	P (↕)	Q (↓)

Economic Indicators and the Business Cycle

The Circular Flow and GDP

An economy's performance can be measured by different indicators such as gross domestic product (GDP), the inflation rate, and the unemployment rate.

Net Domestic Product (NDP): the market value of final goods and services within the geographical borders of a country in a given year, after adjusting for depreciation of capital
NDP = GDP - Depreciation of Capital

Gross Domestic Product (GDP): the market value of final goods and services within the geographical borders of a country in a given year
GDP = National Income + Depreciation−Subsidies + Net Income of Foreigners

Expenditures Approach: calculates GDP by adding up all spending on final goods and services in a country

$Y = C + I + G + X - M$

- GDP (Y)
- Consumption (C): spending by households (excludes spending on new housing)
- Investment (I): spending by businesses on capital and inventory, or current spending in order to increase output or productivity later
- Government Spending (G): spending by all government entities on goods and services (excludes transfer payments)
- Exports (X): goods and services produced in a country that are purchased in other countries
- Imports (M): goods and services produced in another country but are purchased in your country

Income Approach: calculates GDP by adding up all the income earned within the borders of a country in a given year

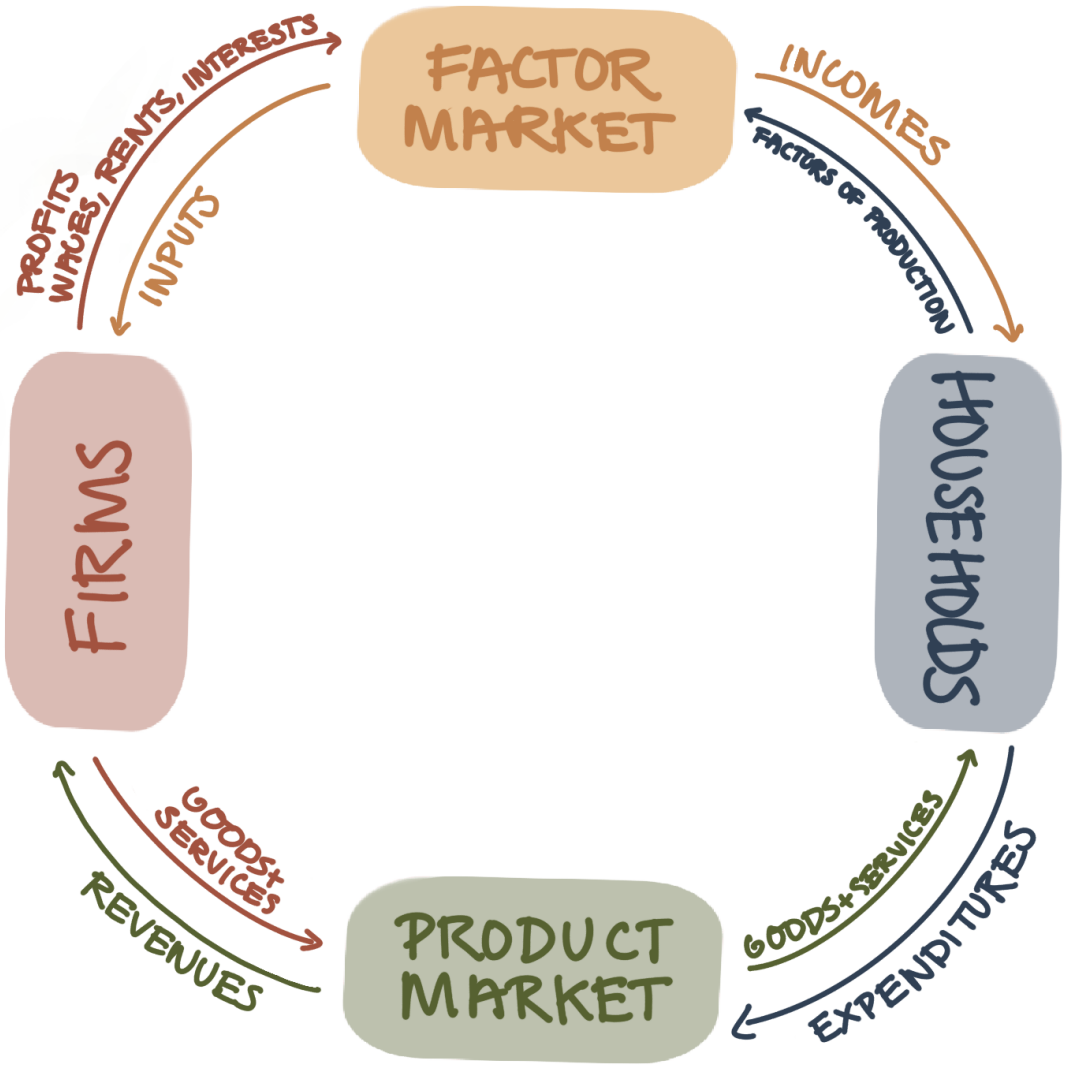
$Y = w + i + r + p$

- Wages (w): earned from labor
- Interest (i): earned on capital
- Rent (r): earned on land
- Profits (p): earned on entrepreneurial talent

Value-Added Approach: calculates GDP by adding up all of the value added to intermediate goods at various stages in production

- Final Goods and Services: the goods and services that are purchased by agents in their final form for their intended final use
- Intermediate Goods: goods that are used in the production of a final product

The Circular Flow Diagram illustrates how the expenditures approach and the income approach must equal each other, with goods and services flowing in one direction and income flowing the other direction in a closed loop. It shows the interactions among households, firms, and government in markets.



Limitations of GDP

Although GDP is commonly used to measure a country's economic performance and well-being, it has its limitations, including:

- *Exclusion of non-market transactions*
- Exclusion of underground market transactions
- Failure to account for or represent the degree of income inequality
- Failure to indicate whether the nation's rate of growth is sustainable
- Failure to account for the negative externalities imposed on the environment
- Treating the replacement of depreciated capital as new capital

Unemployment

Unemployment: when people are not working but are actively looking for work

1) Frictional Unemployment: occurs when someone new enters the labor market or switches jobs
2) Structural Unemployment: occurs as a result of fundamental, underlying changes in the economy that create job loss for skills that are no longer in demand
3) Cyclical Unemployment: jobs that are gained and lost as the business cycle improves and worsens (associated with recessions and expansions)

Seasonal Unemployment: emerges as the periodic and predictable job loss that follows the calendar

Full Employment Real Output: the amount of output that is produced in a country when that economy is using all of its resources efficiently
Natural Rate of Unemployment (NRU): the employment rate that exists when an economy is producing at full employment output

- Consists of frictional and structural unemployment
- Gradually changes over time because of changes in labor force characteristics

Okun's Law: for every one percentage point increase in the unemployment rate above the natural rate, output falls by two to three percentage points

Eligible Population: the number of people that could work

- Anyone 16 years or older who is not institutionalized and not in the military

Labor Force: the number of people who want to work
LF = # Employed + # Unemployed
Labor Force Participation Rate (LFPR): the percentage of the eligible population that is in the labor force
LFPR = (LF / Eligible Population)×100%

Employed: paid at least one hour per week
Unemployed: people who could work, want to work, but aren't working
Unemployment Rate (UR): the percentage of the labor force that is unemployed
UR = (# Unemployed / LF)×100%

- Deviation from NRU is cyclical unemployment
- Understates the level of joblessness because it excludes the underemployed (people with a part-time job who want a full-time one) and discouraged workers (people who want to work but have given up actively looking for work)

Dishonest workers who claim to be unemployed in order to receive unemployment benefits increase the UR

NOTE: The full employment output operates at the natural rate of unemployment, not 0% unemployment.

Price Indices and Inflation

Aggregate Price Level: a single number that summarizes all the prices in an economy and is usually represented by price indices
Price Index: a measure that calculates the changing cost of purchasing a particular and unchanging market basket (combination of goods) each year

Consumer Price Index (CPI): an index that calculates the cost of a market basket of goods purchased by the typical urban family
CPI = (Cost of base year market basket at current prices / Cost of base year market basket in base year prices)×100%
Real GDP = Nominal GDP / CPI (in hundredths)
%Δ Real GDP = %Δ Nominal GDP−%Δ CPI

- Measures the change in income a consumer would need in order to maintain the same standard of living over time under a new set of prices as under the original set of prices

If the market basket of the CPI is not adjusted for various effects, the CPI overstates the cost of living

- Substitution bias shows that when the prices of goods go up, people tend to substitute those goods for similar, cheaper goods but CPI assumes that the basket of goods never change
- Goods evolve and new products are created while others become extinct
- Some goods gain in quality and price increases as a result of that should not be counted towards inflation

Inflation reduces the purchasing power (what actually could be bought with money) of the dollar.
Real Income = Nominal income / CPI (in hundredths)

Inflation Rate: the pace at which the overall price rate is increasing in percent from one period to the next
Inflation Rate = (New CPI−Old CPI) / Old CPI × 100%
Inflation Rate = (New GDP deflator −Old GDP deflator) / Old GDP Deflator×100%

- Determined by calculating the percentage change in a price index, such as CPI or the GDP deflator

Inflation: a sustained increase in the overall price level in an economy that occurs when the inflation rate is positive
Deflation: a sustained decrease in the overall price level in an economy that occurs when the inflation rate is negative
Disinflation: a slowing of the rate of inflation that occurs when the inflation rate decreases from year to year
Creeping Inflation: remains steading at a low rate for a long period
Galloping Inflation: unsteady (inflation rate is >10% per year) and grows monthly
Hyperinflation: very rapid price increases where the inflation rate is >50% per year

Real Variables: variables that are adjusted for the rate of inflation and represents the true value of things
Nominal Variables: variables that have not been adjusted for the rate of inflation

Costs of Inflation

Unexpected inflation arbitrarily redistributes wealth from one group of individuals to another group, such as lenders to borrowers.

Lender: an agent who makes money available to another agent with the agreement that the money would be repaid (usually with interest)

- Hurt by unanticipated inflation because the money they get paid back has less purchasing power than the money they loaned out
- Benefit from unanticipated disinflation and deflation

Borrower: an agent that has received money from another agent with the agreement that the money would be repaid (usually with interest)

- Benefit from unanticipated inflation because the money they pay back is worth less than the money they borrowed
- Hurt by unanticipated disinflation and deflation

Other groups that win or lose from unexpected inflation:

- Employees and employers
- Fixed income recipients
- Savers

Expected inflation has little impact because banks add an inflation factor on the real rate of interest to create a nominal rate of interest.
Nominal Interest Rate = Real Interest Rate + Expected Rate of Inflation

Real V. Nominal GDP

GDP Deflator: deflates nominal GDP to create real GDP
GDP Deflator = (Cost of current year market basket as current prices / Cost of current year market basket at base year prices)×100%

Nominal GDP: the value of current production in current prices
Nominal GDP = Real GDP×GDP Deflator (in hundredths)

- Measures how much is spent on output

Real GDP: nominal GDP adjusted for changes in price levels
Real GDP = Nominal GDP / GDP Deflator (in hundredths)

- Measures how much is produced
- Calculated using constant prices (prices from a base year) instead of the current prices used in nominal GDP

NOTE: There are two approaches to adjusting nominal GDP to get real GDP: 1) using the same prices every year (CPI) or 2) using the GDP deflator. CPI uses a base year market basket in its calculations, while the GDP deflator uses a current year market basket. Calculating real GDP by weighting final goods and services by their prices in a base year (CPI) can lead to an overstatement of real GDP growth because the prices of some goods decrease over time. Therefore, this method overstates growth in real GDP because it makes it seem like goods make up a bigger share of spending than they really do.

Business Cycles

The economy fluctuates between periods of expansion and contraction in the short run, but economic growth can occur in the long run.

Business cycles: fluctuations in aggregate output and employment because of changes in aggregate supply and/or aggregate demand
Business Cycle Model: shows the increases and decreases in a nation's real GDP over time

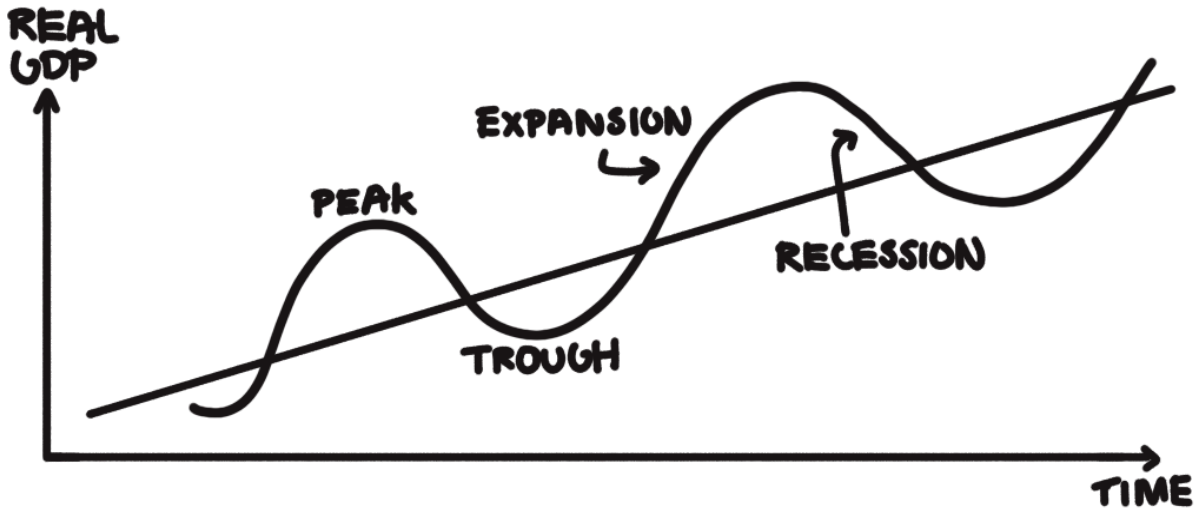
Phases of the business cycle:

- Expansion: real GDP is increasing
- Recession: real GDP is falling

Depression: a deep and prolonged recession
Recovery: when GDP begins to increase following a contraction and trough during the business cycle and continues until real GDP returns to its long-run potential level

Turning Points of the business cycle:

- Peak: top of the cycle where output has stopped increasing and begins to decrease
- Trough: bottom of the cycle where output has stopped decreasing and begins to increase



The output gap is the difference between actual and potential output in the business cycle.

Economic Situation	Graphical Representation
Potential Output: the level of output an economy can produce when it is producing at full employment and experiences only its natural rate of unemployment	Long-run growth trend (usually upward sloping straight line)
Positive Output Gap: the difference between actual and potential GDP when an economy is producing more than full employment output	UR is less than NRU and the economy is operating outside of its PPC
Negative Output Gap: the difference between actual and potential output when an economy is producing less than full employment	UR is greater than NRU and the economy is operating inside its PPC

National Income and Price Determination

Aggregate Demand

Economists use the aggregate demand–aggregate supply model to represent the relationship between the price level and aggregate output in an economy and to illustrate how output, employment, and the price level respond to macroeconomic shocks.

Aggregate Demand: a graphical model that shows the inverse relationship between all spending on domestic output and the aggregate price level of that output

- Measures, for any price level, the sum of consumption spending, investment spending, government spending, and net exports
- Components are identical to components used to calculate real GDP using the expenditures approach (consumption, investment, government spending, net exports)

Change in Aggregate Demand: a shift of the entire AD curve that occurs due to a change in one of the categories of AD that is not in response to a change in price level
Movement along AD: a change in the amount of output that occurs due to a change in price level

Because AD is the sum of C, I, G, and (X−M), any change in these components results in a shift in AD.

1) Consumer Spending (C): changes depending on consumer wealth
    - Increases when households have more money
    - Increases when households are more optimistic about the future
    - Increases due to expectations of inflation or shortages in the future
2) Investment Spending (I): changes depending on the profitability of investments
    - Increases when the cost of borrowing is low
    - Increases when firms are optimistic about the future profitability
3) Government Spending (G): can directly or indirectly affect AD
    - Increases when government spending on goods and services increase
    - Increases (C) when taxes decrease and transfer payments increase
    - Increases when the money supply increases
4) Net Exports (X−M): changes depending on the amount of goods a country sells and buys from foreign consumers
    - Increases when foreign consumers have more disposable income and X(↑)
    - Increases when foreign consumers prefer your goods over others and X(↑)
    - Increases when the exchange rate between your currency and foreign currency falls and M(↓)

Why we expect real GDP to increase in response to a decrease in price level, and vice versa:

1) Real Wealth Effect: what occurs when a change in price levels lead to a change in consumer spending
    - PL decreases ⟶ real wealth increases ⟶ consumption increases ⟶ real GDP increases
2) Interest Rate Effect: what occurs when a change in price level leads to a change in interest rates and interest sensitive spending
    - PL decreases ⟶ money kept in banks increases ⟶ interest rates decreases ⟶ investments and interest-sensitive consumption increases ⟶ real GDP increases
3) Exchange Rate Effect: when a change in price levels of one country leads to other countries purchasing more of that country's goods
    - PL decreases ⟶ prices relative to other countries decreases ⟶ exports increases ⟶ real GDP increases

Multipliers

Multiplier Effect: when a change in autonomous spending leads to a much larger change in real GDP than the initial change
Change in Autonomous Spending: changes in spending that happen in response to something other than an increase in income

Marginal Propensity to Consume (MPC): the proportion of any additional income that is spent
MPC = change in spending / change in income
Marginal Propensity to Save (MPS): the proportion of any additional income that is saved
MPS = 1−MPC

Disposable Income (DI): what consumers have left over once they have paid out their net taxes
DI = Gross Income (Consumption + Saving)−Net Taxes (Taxes Paid− Transfers Received)

Consumption Function shows that Consumption = Autonomous Consumption + MPC(DI)
Saving Function shows that Savings = Autonomous Saving + MPS(DI)
If consumption is greater at all levels of disposable income, saving must be lower, and vice versa. The only exception is the case of a change in taxes and transfers.

Determinants of Consumption and Saving:

- Wealth: when the value of accumulated wealth increases, consumption function shift upward and the savings function shifts downward
- Expectations: an expectation of higher future price levels or certainty about future income increases consumption and decreases saving
- Household Debt: consumption increases with debt, but decreases as households accumulate too much debt
- Taxes and Transfers: a change in taxes impacts both consumption and saving in the same direction

Expenditure Multiplier: quantifies the size of the change in aggregate demand as a result of a change in any of the components of aggregate demand
Expenditure Multiplier = 1 / (1−MPC) = ΔGDP / ΔSpending

Tax Multiplier: quantifies the size of the change in aggregate demand as a result of a change in taxes
Tax Multiplier = −MPC / (1−MPC)

The tax multiplier is smaller than the spending multiplier because the spending multiplier begins to work as soon as there is a change in autonomous spending. The tax multiplier must first go through a person's consumption function as disposable income. In that first round of spending, some of those injected dollars are leakages in the form of savings.

- Tax multiplier is always a degree of magnitude less than the spending multiplier

Final Impact on GDP = Multiplier×Autonomous change

NOTE: The transfer payment multiplier is the same as the tax multiplier, except it is positive.

Short-Run Aggregate Supply

The short-run is a period in which the price of at least one factor of production cannot change. In the macroeconomic short-run, the price of goods and services are changing in their respective markets, but input prices have not yet adjusted to those product market prices.

Short-Run Aggregate Supply (SRAS): a graphical model that shows the positive relationship between aggregate price level and amount of aggregate output supplied in the economy

Three stages of SRAS:

- Stage 1: The economy is in a recession with low production; there are many unemployed resources. Increasing output puts a little pressure on input costs and subsequent minimal increase in the aggregate price level. The first stage is almost a horizontal line.
- Stage 2: Available resources are harder to find and input costs begin to rise. If price levels increase faster than input costs, producers have an incentive to increase output. AS is upward-sloping.
- Stage 3: Firms cannot find unemployed inputs and input costs and price levels rise much more sharply. The curve is almost vertical.

Determinants of SRAS (SPITE):

1) Subsidies for business: decreases the cost of production inputs
2) Productivity: increases supply as employees work more productively
3) Input prices: if input prices fall economy-wide, the SRAS curve increases
4) Tax policy: if supply-side taxes are lowered, SRAS curve increases
5) Expectations about inflation: if a good is expected to increase in price in the future, supply decreases in the present

Deregulation: if industry regulations are lessened, the SRAS curve increases
Political or environmental phenomena: wars and natural disasters can decreases SRAS

The supply curve slopes up because of the profit motive of individual firms, but SRAS slopes up because of sticky input prices (wages) and sticky output price (prices of goods).

1) Sticky Prices/Wages (Nominal Price Rigidity): the idea that some prices and wages are not fully flexible and cannot completely respond to changes such as inflation and deflation
2) Menu Costs: the idea that some firms may not change their prices when there is a change in price level because it is costly to do so

Moving along the SRAS curve, an increase in the price level is associated with an increase in output, which means employment must correspondingly rise. With the labor force held constant, unemployment will fall. So, there is a short-run trade-off between inflation and unemployment.

Long-Run Aggregate Supply

The long-run is a sufficient period of time for nominal wages and other input prices to change in response to a change in price level. In the macroeconomic long-run. input prices have enough time to fully adjust to market forces.

Long-Run Aggregate Supply (LRAS): a graphical model that shows the relationship between price level and real GDP that would be supplied if all prices were fully flexible

- Vertical at the full-employment level of output because in the long run wages and prices fully adjust (producers won't respond to changes in price level by changing their output)
- Corresponds to the production possibilities curve (PPC) because they both represent maximum sustainable capacity (total output if all resources are fully employed)

Long-Run Shifts:

- Availability of resources: a larger labor force, larger stock of capital, or more widely available resources can increase the level of full employment
- Technology and productivity: better technology raises the productivity of both capital and labor and increase LRAS over time
- Policy incentives: national policies that provide incentives for a nation's labor force to work or encourage investment in capital and technology increase real GDP

Consequence of flexible long-run prices and wages is the lack of a long-run trade-off between inflation and unemployment

Equilibrium in the AD-AS Model

AD-AS Model: a graphical model used to understand economic fluctuations, which contains AD, SRAS, and LRAS

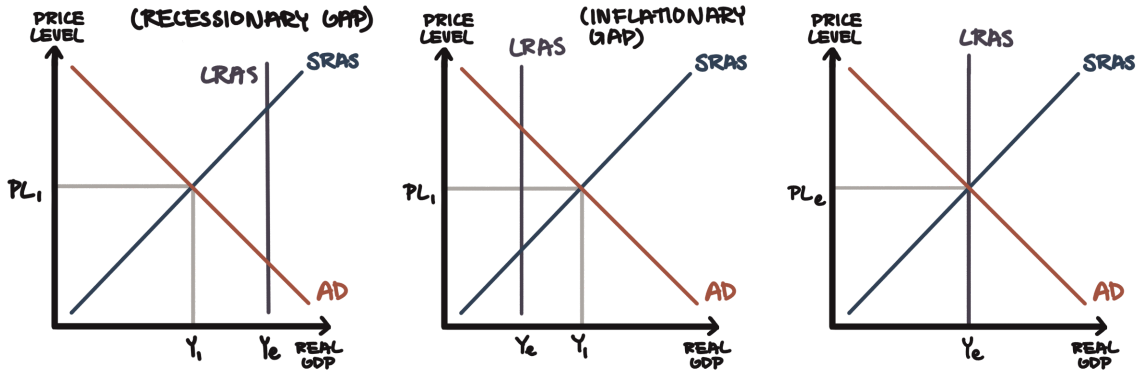
When the quantity of real output demanded is equal to the quantity of real output supplied, the macroeconomy is in equilibrium.

Short-Run Equilibrium: when the quantity of aggregate output supplied is equal to the quantity of aggregate output demanded

- Recessionary Gap: when the economy is in short-run equilibrium, but below the level of real GDP that corresponds to full employment
- Inflationary Gap: when the economy is in short-run equilibrium, but above the level of real GDP that corresponds to full employment

Long-Run Equilibrium: when the current output is equal to the full-employment level of real output

	Recessionary Gap (Negative Output Gap)	Expansionary Gap (Positive Output Gap)	Long-Run Equilibrium
AD-AS Model	LRAS to the right of short-run equilibrium point	LRAS to the left of short-run equilibrium point	LRAS intersects short-run equilibrium point
Business Cycle Model	Real GDP below natural GDP	Real GDP above natural GDP	Real GDP intersects natural GDP
PPC	Point inside PPC	Point outside PPC	Point on PPC



A recessionary or inflationary gap (a short-run equilibrium) will "self-correct" to a long-run equilibrium one enough time has passed for all prices to self-adjust

- Recessionary Gap Self-Correction: AD decreases → rGDP and PL decreases → SRAS increases (cost in factors of production decreases) → Recessionary Gap is closed and the economy is back to full employment output at a lower PL
- Inflationary Gap Self-Correction: AD increases → rGDP and PL increases → SRAS decreases (cost in factors of production increases) → Inflationary Gap is closed and the economy is back to full employment output at a higher PL

NOTE: Remember to label the axes of the AD-AS graphs with "Price Level" and "Real GDP" rather than "Price" and "Quantity."

Changes in the AD-AS Model in the Short Run

Shock: an unexpected change that will shift either the AD or the SRAS curve
Demand Shock: an unexpected change that shifts the AD

- A change in C, I, G, or NX results in a change in AD

Demand-Pull Inflation: result of AD shifting to the right relative to the AS curve

Demand Shock	Real GDP	Unemployment	Price Level
AD (↑)	rGDP (↑)	UR (↓)	PL (↑)
AD (↓)	rGDP (↓)	UR (↑)	PL (↓)

Supply Shock: an unexpected change that shifts the SRAS

- A change in SPITE results in a change in SRAS

Supply-Side Boom: when the SRAS curve shifts to the right; the price level falls, real GDP increases, and the unemployment rate falls
Stagflation: when the SRAS curve shifts to the left; inflation rises, real GDP falls. and the unemployment rate increases
Supply-Side/Cost-Push Inflation: when inflation results from an increase in resource cost that shifts SRAS to the left

Supply Shock	Real GDP	Unemployment	Price Level
SRAS (↑)	rGDP (↑)	UR (↓)	PL (↓)
SRAS (↓)	rGDP (↓)	UR (↑)	PL (↑)

Inflation can be caused by changes in aggregate demand (demand-pull) or aggregate supply (cost-push).

Long-Run Self-Adjustment

Long-Run Self-Adjustment: process through which an economy will return to full employment without government intervention

In the long run, in the absence of government policy actions, flexible wages and prices will adjust to restore full employment and unemployment will revert to its natural rate after a shock to aggregate demand or short-run aggregate supply.

AD Short-Run Shocks:

- Positive demand shock → output increases, unemployment decreases, inflation increases → real wage decreases → workers demand higher wages → cost of labor increases → SRAS decreases → output decreases, price level increases → full employment output (with higher price levels)

Temporary AS Short-Run Shocks:

- Negative supply shock → output decreases, unemployment increases, inflation increases → wage decreases → SRAS increases → output increases, price levels decrease → full employment output

Permanent AS Short-Run Shocks:

- Negative supply shock → LRAS shifts to the left → SRAS decreases → full employment output

Shifts in the long-run aggregate supply curve indicate changes in the full-employment level of output and economic growth.

Fiscal Policy

Fiscal and monetary policy have short-run effects on macroeconomic outcomes.

Fiscal Policy: used by the government to achieve macroeconomic goals
Discretionary Fiscal Policy: a fiscal policy that requires an action by a government to occur (as opposed to automatic stabilizers)

- Tools include taxes, government spending, and government transfers
- Changes in government spending affect aggregate demand directly, and changes in taxes/transfers affect aggregate demand indirectly
- The government spending multiplier is greater than the tax multiplier

Lump-Sum Taxes: taxes that do not depend on the taxpayer's income

Transfer Payments: payments made to groups or individuals when no good or service is received in return

Expansionary Fiscal Policy: the use of fiscal policy to expand the economy by increasing aggregate demand and thus real GDP

- Used to fix recessions

Contractionary Fiscal Policy: the use of fiscal policy to contract the economy by decreasing aggregate demand and thus real GDP

- Used to fix booms (expansions)

Problem	Type of Policy	Tax Response	Gov't Spending Response
Negative Output Gap	Expansionary Fiscal Policy	Taxes (↓)	Gov't Spending (↑)
Positive Output Gap	Contractionary Fiscal Policy	Taxes (↑)	Gov't Spending (↓)

Government spending needed = (Size of gap / Spending multiplier)
Tax cut needed = (Size of gap / Tax multiplier)

Balanced Budget Multiplier: the spending multiplier that will exist when any change in government spending is offset by an equal change in taxes
BBM = 1 / (1−MPC) + −MPC / (1−MPC) = (1−MPC) / (1−MPC) = 1

Things can slow down a fiscal policy's implementation and effectiveness:

- Data Lag: the time it takes to collect data on the state of the economy
- Recognition Lag: the time it takes to realize that there is a problem
- Decision Lag: the time it takes to decide on a course of action
- Implementation Lag: the time it takes to put an action into practice

Automatic Stabilizers

Automatic Stabilizers: fiscal policy actions that require no action and will occur automatically based on the current phase of the business cycle

- Support the economy during recessions and help prevent the economy from being overheated during expansionary periods

Tax revenues decrease automatically as GDP falls, preventing consumption and the economy from falling further. Likewise, tax revenues increase automatically as GDP rises, slowing consumption and preventing the economy from overheating.

When the economy is in an inflammatory period, more households and firms fall into higher tax brackets and a larger percentage of income is taken as income tax.When the economy is in a recessionary period, more households and firms fall into lower tax brackets and a smaller percentage of income is taken as income tax. Income taxes increase when there is an expansion and decrease when there is a recession. This effect is amplified by a progressive tax system (a way of taxing that has higher tax rates at higher levels of income). Furthermore, net taxes increase with GDP because the need for transfer programs reduces.

Government policies, institutions, or agencies may also have social service programs whose transfer payments or income supports (payments that are received without the exchange of goods or services, such as welfare payments or unemployment compensation) act as automatic

stabilizers. Transfer payments increase when there is a recession and decrease when there is an expansion.

Financial Sector

Financial Assets

Money makes it possible to compare the value of goods and services, and interest rates provide a measure of the price of money that is borrowed or saved.

Financial System: the set of institutions that connect savers with borrowers
- Investment is equal to savings

Financial Intermediary: an institution that transfers the savings from individuals into financial assets (for the saver) and liabilities (for the borrower)

Liabilities: requirements to pay money in the future
- Includes deposits and borrowed reserves

Asset: any item of value that is expected to provide the holder some future benefit
- Includes required reserves, excess reserves that can be loaned out, loans

Financial Risk: when there is any uncertainty about the future value of an asset
Liquidity: how easily an asset converts to cash without a loss of purchasing power
- Cash and demand deposits are the most liquid forms of money

Rate of Return: the profit made from an asset expressed as a percentage

Demand Deposits: money kept in a bank

Bonds: certificate that promises the bondholders the principal amount, plus a specified rate of interest, with repayment on a specific maturity date

- Interest rates and bond prices have an inverse relationship because the opportunity cost of buying the bond is the interest that could've been earned in a savings account

Par Value or Face Value: the amount of money paid
Coupon Payment: semi-annual payment

Stock: represents a claim on the ownership of the firm (equity)

- Earns dividends (a portion of the profit a company makes)
- Ability to sell to someone else and will yield a return if stock has appreciated

Debt Financing: selling bonds to raise money for capital investment; commits corporation to interest payments, but does not relinquish shares of ownership
Equity Financing: selling stocks to raise money for capital investment; avoids debt but relinquishes control over the management and profits

The opportunity cost of holding money is the interest that could have been earned from holding other financial assets such as bonds.

Real Vs. Nominal Interest Rates

Lenders and borrowers establish nominal interest rates as the sum of their expected real interest rate and expected inflation. Interest paid on savings and interest charged on borrowing is designed to equate the value of dollars today with the value of future dollars.

Nominal Interest Rate: rate of interest paid for a loan
Nominal interest rate = Expected real interest rate + Expected inflation
Real Interest Rate: the nominal interest rate adjusted for inflation
Real interest rate = Actual inflation rate−Nominal interest rate

Fisher Effect: the idea that an increase in expected inflation drives up nominal interest rates, leaving the expected real interest rate unchanged

Definition, Measurement, and Functions of Money

Money: any asset that is accepted as a means of payment

Transactions Motive: when people hold money for the purpose of buying things
Liquidity Preference: the amount of wealth people want to keep in the form of cash in order to use as a medium of exchange

Attributes of Money:

1) Medium of Exchange: the ability for something to be used to purchase something else
    - Portability: easily transferred
    - Barter is difficult even with a double coincidence of wants
2) Store of Value: the ability to delay using money and save value for later
    - Fungibility: carry interchangeable value across place and time
    - Durability: hold value through time
3) Unit of Account: the ability to represent the value of an item
    - Divisibility: able to be broken into small units to make change

Monetary Base (M0/MB): the sum of currency in circulation and bank reserves
MB = Cash and coins in circulation + Bank reserves

- Only part of MB (currency in circulation) is counted in the money supply

Money Supply: the total amount of money in an economy that fulfills the transactions motive

- Measured using monetary aggregates M1 or M2
- M1: assets that can be directly used to carry out the transaction motive of money
  M1 = Cash and coins in circulation + Checkable bank deposits + Travelers' checks
- M2: financial assets that aren't directly used for a medium of exchange, but can be converted to cash or a checking account
  M2 = M1 + Savings accounts + Small CDs + Money market deposits + Money market mutual funds

Monetary Aggregates: an overall measure of the money supply that includes different forms of money that are categorized based on liquidity
Currency in Circulation: money outside of banks
Currency in Vaults or Reserves: money that banks keep within the bank
- Required Reserves: the fraction of money that banks are required to put aside and not use for loans or any other purpose
- Demand Deposits: deposits placed into banks that a bank must return to the account holder on demand

Commodity Money: raw material that has intrinsic value in other uses
Commodity-Backed Money: money that has no inherent value, but it has a value guaranteed by a promise that it could be converted into something of value
Fiat Money (currency): money that gets its value entirely from its status as a means of payment

Banking and the Expansion of the Money Supply

Central Bank or Reserve Bank: an institution that manages a country's money supply and monetary policies
Depository Institutions: a financial institution that accept deposits and make loans, such as a commercial bank
- Coordinates borrowing and lending by combining the deposits of many agents into loans
- Operates using fractional reserve banking (a system in which only a fraction of the total money supply is held in reserve as currency, while the rest is lent out)
- Reserves are divided into required reserves and excess reserves

Depository institutions organize their assets and liabilities on balance sheets.
T-Account: a tool for describing the financial position of a business by showing assets on the left and liabilities and equity on the right
- Assets include real assets (like buildings), money in bank, and financial assets (like bonds and loans)
- Liabilities include savings accounts
- Each side of the table must equal each other

Reserve Requirement: a legal obligation to keep a minimum amount of reserves
- Reserve Ratio: the fraction of total deposits kept on reserve
  RR = Bank reserves / Total deposits

Excess Reserves: the remainder of the money that banks are not required to keep on hand
Excess Reserves = Deposits−(Deposits×Reserve Requirement)
- Used to make loans or kept in banks' vaults
- Basis of expansion of the money supply by the banking system

Fully Loaned Out: a situation in which a bank has only required reserves and keeps no excess reserves

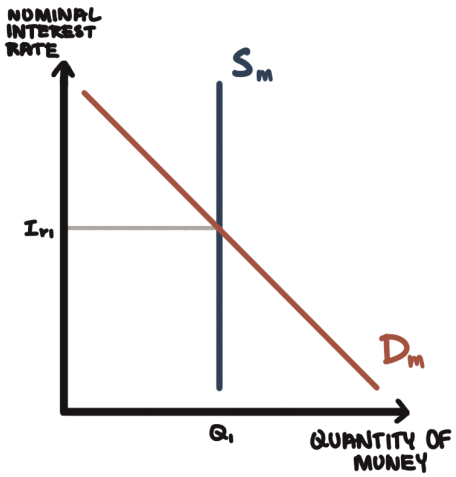
Money Multiplier: the ratio of the money supply to the monetary base
Actual MM = MS / MB
Maximum MM = 1 / Reserve requirement

- Size of expansion of the money supply is dependent on the money multiplier
- Also known as the simple money multiplier because it assumes:
    - Banks never keeps any excess reserves
    - People keep all their money in banks

Maximum Total Change in MS = Change in MB×MM
Maximum Change in Deposits = Initial Deposit×MM

The Money Market

In the money market, demand for and supply of money determine the equilibrium nominal interest rate and influence the value of other financial assets.



Money Market: shows the interaction between the demand for money and the money supply

- Equilibrium is achieved when the nominal interest rate is such that the quantities demanded and supplied of money are equal
- Disequilibrium nominal interest rates create surpluses and shortages in the money market

Money Supply: a curve that shows the relationship between the amount of money supplied and the nominal interest rate

- Because the central bank controls the stock of money, it doesn't vary based on nominal interest rates, and the money supply curve is vertical
- Monetary policy shifts the money supply curve

Money Demand: a curve that shows the inverse relationship between the quantity of money demanded and the nominal interest rate

- Sum of money demand for transactions and money demand as an asset.
    - Transaction Demand: the amount of money held for transactions (not directly related to the interest rate, but increases as nominal GDP increases)
    - Assets Demand: the amount of money demanded as an asset (decreases as nominal interest rates increase)
- The money demand curve is downward sloping due the assets demand
- Price level and income shifts the money demand curve

Monetary Policy

Monetary Policy: implemented by central banks to achieve macroeconomic goals

- Involves the use of the money supply to influence macroeconomic aggregates
- Tools include open market operations, the required reserve ratio, and the discount rate

- Can influence aggregate demand, real output, the price level, and interest rates
- Lags are caused by the time it takes to recognize a problem in the economy and the time it takes the economy to adjust to the policy action

Open Market Operations: the buying and selling of securities, such as bonds, by a central bank to control the money supply

- Most frequently used monetary policy tool
- Open market purchases increase reserves, thereby increasing the monetary base
- Effect of an open-market purchase on the money supply is greater than the effect on the monetary base because of the money multiplier

Discount Rate: the interest rate that the Federal Reserve puts on loans that the Fed makes to banks
Reserve Ratio: the amount of reserves that banks are required to keep on hand by the federal bank

Dual Mandate: the two objectives of most central banks, to 1) control inflation and 2) maintain full employment
Many central banks carry out policy to hit a target range for an overnight interbank lending rate (federal funds rate).
Federal Reserve: the central bank of the United States of America
Federal Funds Rate: the interest rate that banks charge each other for short-term loans

- Changes depending on the money supply

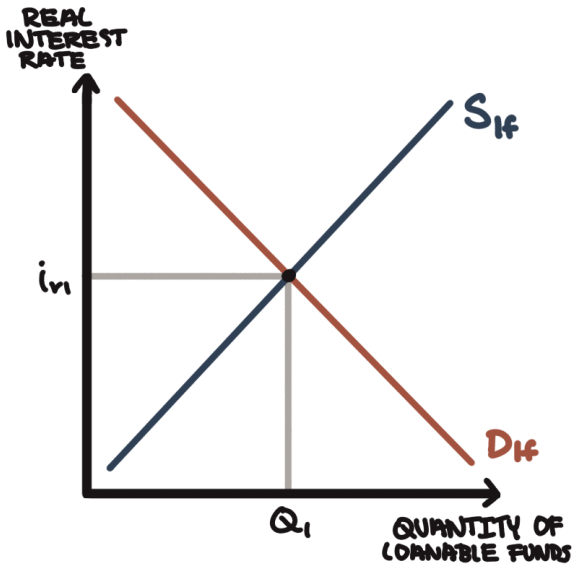
Central banks can influence the nominal interest rate in the short run by changing the money supply, which in turn will affect investment and consumption.

Expansionary Monetary Policy: monetary policy that's designed to increase aggregate demand, increase output, and decrease unemployment
Contractionary Monetary Policy: monetary policy that's designed to decrease aggregate demand, decrease output, and increase unemployment

Problem	Type of Policy	Tools Used
Recessionary Gaps	Expansionary Monetary Policy	Open Market Purchases Decrease Reserve Ratio Decrease Discount Rate
Inflationary Gaps	Contractionary Monetary Policy	Open Market Sales Increase Reserve Ratio Increase Discount Rate

The Market for Loanable Funds

The interaction of borrowers, who demand loanable funds, and savers, who supply loanable funds, determines the equilibrium real interest rate.



Market for Loanable Funds: shows how loans from savers are allocated to borrowers with investment projects

- Can be used to show the effects of government spending, taxes, and borrowing on interest rates
- Equilibrium is achieved when the real interest rate is such that the quantities demanded and supplied of loanable funds are equal
- Disequilibrium real interest rates create surpluses and shortages in the loanable funds market
- Market forces drive real interest rates toward equilibrium

Demand for Loanable Funds: shows the inverse relationship between real interest rates and the quantity demanded of loanable funds

- Factors like investment tax credit shifts the loanable funds demand curve

The marginal benefit of an investment is the expected real rate of return (r) the firm anticipates receiving on the expenditure. The marginal cost of the investment is the real rate of interest (i), or the cost of borrowing.

- If r% ≥ i%, make the investment; otherwise, don't

Supply of Loanable Funds: shows the positive relationship between real interest rates and the quantity supplied of loanable funds.

- Factors like changes in saving behavior shifts the loanable funds supply curve

Closed Economy: an economy which doesn't allow international trade or the movement of financial assets into or out of a country

- In the absence of international borrowing and lending, national savings is the sum of public savings and private savings

Open Economy: an economy which does allow international trade or the movement of financial assets into or out of a country

- For an open economy, investment equals national savings plus net capital inflow.

Savings-Investment Spending Equation: shows that savings equal investment

$I = (Y - T - C) + (T - G) + NCI$

- National Savings (I) : the total amount of public and private saving
- Public Saving (T−G): the difference between taxes collected and government spending
    - Budget Surplus: when taxes collected are more than the amount of government spending

    - Budget Deficit: when taxes collected are less than the amount of government spending
    - Budget Balance: when taxes collected are equal to the amount of government spending
- Private Saving (Y−T−C): disposable income after consumption is taken out
    - Disposable Income: income that is left for consumption after taxes are paid
- Net Capital Inflows (NCI): the difference between financial capital entering and leaving the country
    - Foreign Funds: financial assets that come into a country from another country
    - Domestic Outflow of Funds: financial assets that leave a country
    - Capital Flows: financial capital coming into a country

Differences Between the Money Market and the Market for Loanable Funds:
- Breadth of Scope: the money market, both on the supply and the demand side, is broader, and more inclusive, than the market for loanable funds
    - The supply of loanable funds comes from saving while the supply of money also includes currency and checking deposits
    - The demand for loanable funds comes from investment demand, while the demand for money includes the money used for investment, consumption (transaction demand) and for holding as an asset (asset demand)
- Time: the money market represents the short-run, while the market for loanable funds represent the long-run
- Graphing the Models: the vertical axis of the money market is the nominal interest rate while the vertical axis of the loanable funds market is the real interest rate

Long-Run Consequences of Stabilization Policies

Fiscal and Monetary Policy Actions in the Short Run

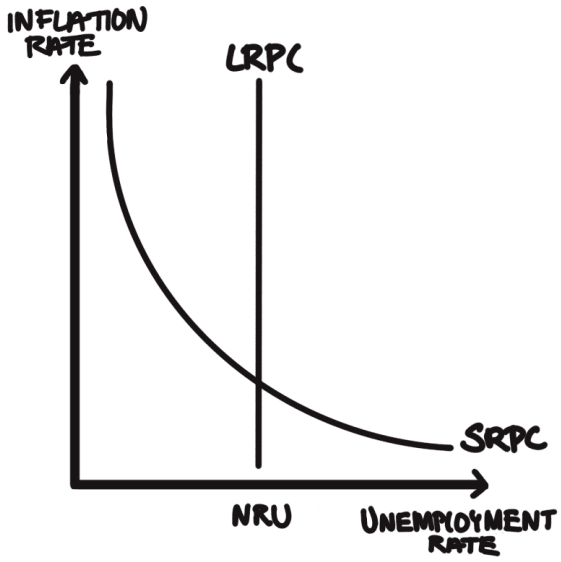
Fiscal and monetary policy are independent of each other; a combination of fiscal and monetary policy influences the economy.

Central Bank Autonomy: the idea that a central bank should be an independent government entity that operates without influence from other parts of the government

	Expansionary Monetary Policy (Open Market Purchases)	Contractionary Monetary Policy (Open Market Sales)
Expansionary Fiscal Policy (Gov't Spending (↑) Taxes (↓))	G (↑) and/or C (↑), AD (↑) MS (↑), *i* (↓), AD (↑) Output (↑), UR (↓), PL (↑)	G (↑) and/or C (↑), AD (↑) MS (↓), *i* (↑), AD (↓) Output (?), UR (?), PL (?)
Contractionary Fiscal Policy (Gov't Spending (↓) Taxes (↑))	G (↓) and/or C (↓), AD (↓) MS (↑), *i* (↓), AD (↑) Output (?), UR (?), PL (?)	G (↓) and/or C (↓), AD (↓) MS (↓), *i* (↑), AD (↓) Output (↓), UR (↑), PL (↓)

The Phillips Curve

The Phillips curve model is used to represent the relationship between inflation and unemployment and to illustrate how macroeconomic shocks affect inflation and unemployment.



Phillips Curve Model: a graphical model showing the relationship between inflation and unemployment using the short-run Phillips curve and the long-run Phillips curve

- Long-run equilibrium corresponds to the intersection of the SRPC and the LRPC
- Points to the left of long-run equilibrium represent inflationary gaps
- Points to the right of long-run equilibrium represent recessionary gaps

Short-Run Phillips Curve (SRPC): a curve showing the inverse short-run relationship between the inflation rate and the unemployment rate

Long-Run Phillips Curve (LRPC): a curve showing that there is no relationship between the inflation rate and the unemployment rate in the long-run

- Vertical at the natural rate of unemployment

The Phillips curve can be used to represent the state of an economy, and corresponds to the PPC and the ADAS model.

- A demand shock represents movement along the SRPC
    - When AD increases, there is a movement to the left on the SRPC
    - When AD decreases, there is a movement to the right on the SRPC
- A supply shock represents a shift in SRPC
    - When SRAS increases, SRPC shifts to the left
    - When SRAS decreases, SRPC shifts to the right
- Changes in the natural rate of unemployment will cause the LRPC to shift
    - When LRAS increases, LRPC shifts to the right
    - When LRAS decreases, LRPC shifts to the left

Money Growth and Inflation

Inflation results from increasing the money supply at too rapid of a rate for a sustained period of time. When the economy is at full employment, changes in the money supply have no effect on real output in the long run.

The Quantity Theory of Money: when the velocity of money is fixed and real output is limited to full employment output, any increase in the money supply causes an increase in price level

- In the long run, the growth rate of the money supply determines the growth rate of the price level (inflation rate)

Monetarists and classical economists argue against active open market purchases because they believe in the quantity theory of money.

The Equation of Exchange: a mathematical identity that describes the relationship between the money supply and real GDP
$M \times V = P \times Y$
$M \times V$: the effective money supply
- Money Supply (M)
- Velocity of Money (V): the number of times an average dollar gets spent on goods and services

$P \times Y$: nominal GDP
- Price Levels (P)
- Real GDP (Y)

Money Neutrality: the concept that money only impact nominal variables, not real variables, in the long run
- Variations in the money supply will only influence output in the short-run
- Only price levels will change in the long-run

Government Deficits and the National Debts

A government must pay interest on its accumulated debt, thus increasing the national debt and increasingly forgoing using those funds for alternative uses.

Deficit: total amount of overspending when there is a situation where the amount spent is greater than the amount earned
Gov't Deficits = Tax revenue − Gov't spendings − Transfer payments
- Deficits turn into debt

Debt: the accumulated amount of money owed as a result of annual deficits

When the government engages in expansionary policy, budget deficits are likely. The different ways of financing the deficit has the potential to weaken the expansionary policy.
- Borrowing: may result in the crowding-out effect (when the government increases the demand for loanable funds and increases the interest rate)
- Creating Money: risks high inflation

When the government engages in contractionary policy, a budget surplus can occur. The effectiveness of the contractionary fiscal policy depends on what is done with that surplus.
- Pay Down Debt: if the government pays down debt and retires bonds ahead of schedule, the demand for loanable funds decrease, decreasing interest rates

Crowding Out

A loanable funds market model can be used to show the effect of government borrowing on the equilibrium real interest rate and the resulting crowding out of private investment.

Crowding Out: when a government's deficit spending (expansionary fiscal policy), and borrowing to pay for that deficit spending, leads to higher real interest rates and less investment spending

1) Gov't increases demand for loanable funds and drives interest rates higher
2) Capital accumulation slows down due to decreased levels of interest-sensitive private sector spending in the short-run
3) Physical capital accumulation and economic growth slows down in the long-run

Expansionary Fiscal Policy: G(↑) or T(↓) → AD(↑) → Y(↑) → Money Demand(↑) → Interest Rate(↑) → I(↓) → Y(↓)

Contractionary Fiscal Policy: G(↓) or T(↑) → AD(↓) → Y(↓) → Money Demand(↓) → Interest Rate(↓) → I(↑) → Y(↑)

Theory of Rational Expectations: people learn to anticipate government policies designed to influence the economy, thereby making the policies ineffectual
Ricardian Equivalence Theory: deficit financing is no different from tax financing because if the former is chosen, people will simultaneously increase their savings by the amount they would've been taxed in preparation for the inevitable repaying of the debt at a later time

Say's Law: supply creates its own demand
The government doesn't need to enact policies to maintain demand at a desirable level.

Monetary Policy Effects:
Net Export Effect: shows that net exports decrease when interest rates are high

1) Higher interest rates makes the US an attractive place to invest money, but people need dollars to purchase US bonds
2) Causes an increase in demand for US dollars, when in turn increases the price of the dollar
3) It becomes more expensive for foreign citizens to convert their money to buy goods in the US, so net exports fall
4) Decrease in AD lessens the impact of the expansionary fiscal policy

NOTE: Because state and local governments are sometimes required by law to balance their budgets, they might thwart fiscal policy.

Economic Growth

The economy fluctuates between periods of expansion and contraction in the short run, but economic growth can occur in the long run.

Economic Growth: growth rate in real GDP per capita over time

- An increase in real GDP is not necessarily economic growth because economic growth is an increase in the capacity to produce.
- Represented as a shift in the PPC curve or LRAS

Sources of Economic Growth:

- Increased investment in human capital (education)
- Increased investment in physical capital
- Improvements in technology
- Enhancements in resource utilization

Aggregate employment and aggregate output are directly related because firms need to employ more workers in order to produce more output, holding other factors constant.

Aggregate Production Function: describes how real GDP depends on individual inputs

- Shows that output per capita is positively related to both physical and human capital per capita
- Output per employed worker is a measure of average labor productivity
- Productivity is determined by the level of technology and physical and human capital per worker

Determinants of Productivity:

- Stock of Physical Capital: tools used to speed up labor
- Human Capital: knowledge and skills that can be applied to the labor they do
- Natural Resources:
    - Nonrenewable Resources: have a finite supply and cannot replenish themselves
    - Renewable Resources: have the ability to repopulate themselves
- Technology: the nation's knowledge on how to produce goods in the best possible way

$Y = A \times f(K, L)$

- Real GDP (Y)
- Total factor of productivity (A): level of technology
- Capital (K): non-human capital
- Labor (L): human capital

Public Policy and Economic Growth

Economic growth is encouraged by policies that support productivity, infrastructure, and technology.

- Public policies that impact productivity and labor force participation affect real GDP per capita and economic growth
- Government policies that invest in infrastructure and technology affect growth

Supply-side economists say that lower taxes can increase AS and AD by creating productivity incentives and promoting risk taking.

- Lower taxes → Higher household savings → Higher business investment and capital levels → Workers more productive
- Lower income taxes → Higher take-home pay of workers → More incentive to enter the workforce or increase work hours
- Lower taxes → Higher rewards for entrepreneurship → More incentive to take risks

Supply-side fiscal policies affect aggregate demand, aggregate supply, and potential output in the short run and long run by influencing incentives that affect household and business economic behavior. They are tax reductions targeted to increase AS so that real GDP increases with very little inflation.

Investment Tax Credit: reduces a firms' taxes if it invests in physical capital

Open Economy: International Trade and Finance

The Balance of Payments

Balance of Payments (BOP): a record of all funds going in and out of an economy

$CA + CFA = 0$

- Consists of the current account and the capital financial account
- Any transaction that causes money to flow into a country is a credit
- Any transaction that causes money to flow out is a debit
- Sum of all credit entries should match the sum of all debit entries

Current Account (CA): a record of international transactions that do not create liabilities

$CA = \text{Trade balance} + \text{Services balance} + \text{Transfers}$

- Records net exports, net (investment) income from abroad, and net unilateral transfers
- Not always balanced; may show a surplus or a deficit
- Includes a nation's balance of trade (net exports) that may also show up as a surplus or deficit

Capital and Financial Account (CFA): a record of international transactions that do create liabilities

CFA = Foreign purchases of home assets−Home purchases of foreign assets

- Records financial capital transfers and purchases and sales of assets between countries
- Not always balanced; may show a surplus (financial capital inflow) or a deficit (financial capital outflow)

Official Reserves: quantities of foreign currency that the Federal Reserve uses to balance the accounts

NOTE: With the exception of some statistical discrepancies, the US dollars that Americans send to foreigners are equal to the US dollars that foreigners send to Americans.

Exchange Rates

The interaction of buyers and sellers exchanging the currency of one country for the currency of another determines the equilibrium exchange rate in a flexible exchange market and influences the flow of goods, services, and financial capital between countries.

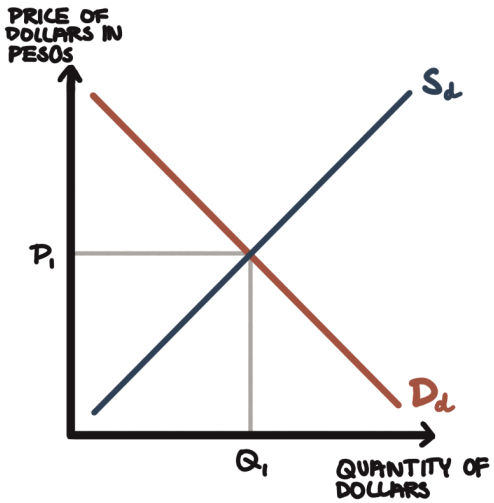
Exchange Rate: the price of a currency in terms of another currency

Exchange Rate = (# of units in currency B / a unit of currency A)

- Appreciation: when a currency becomes more valuable relative to another currency
- Depreciation: when the value of currency decreases relative to another currency

Floating Exchange Rates: when the exchange rate is determined in free markets by the interaction of supply and demand

The Foreign Exchange Market



Foreign Exchange Market: a market where a currency is being exchanged for another currency

- Facilitates the importing and exporting of goods around the world
- Equilibrium is achieved when the exchange rate is such that the quantities demanded and supplied of the currency are equal
- Disequilibrium exchange rates create surpluses and shortages in the foreign exchange market
- Market forces drive exchange rates toward equilibrium

Demand for a Currency: shows the inverse relationship between the exchange rate and the quantity demanded of a currency

- Arises from the demand for the country's goods, services, and financial assets

Supply of a Currency: shows the positive relationship between the exchange rate and the quantity supplied of a currency

- Arises from making payments in other currencies

NOTE: Inflation occurs when the value of one nation's currency drops.

Effect of Changes in Policy and Economic Conditions on the Foreign Exchange Market

Demand for a currency derives from foreign buyers of goods, services, and assets.
Factors that shift demand (TIPSY):

1) Tastes and preferences
2) Interest Rate: when interest rates are high in one nation, its financial assets are more desirable
3) Price level: consumers seek out goods that are relatively less expensive
4) Speculation: because foreign currencies can be traded as assets, there are investors seek to profit from buying currency at a low rate and selling it at a higher rate
5) National Income (Y): when one nation's macroeconomy is strong and incomes are rising, all else equal, they increase their demand for all goods, including those produced abroad

Supply of a currency derives from domestic buyers of goods, services, and assets.
Factors that shift supply:

- Tariffs (a tax on imported goods) or quotas (a limit on the quantity of goods that can be imported) on the other country's goods and services

Atribase: the practice of buying at a low price and selling at a high price that prevents exchange rates from varying from place to place

Fiscal policy can influence aggregate demand, real output, the price level, and exchange rates. Monetary policy can influence aggregate demand, real output, the price level, and interest rates, and thereby affect exchange rates.

Changes in Foreign Exchange Markets and Net Exports

Anything that changes a currency's value can impact net exports and aggregate demand, and thus also real GDP, unemployment, and the price level.

- Factors that cause a currency to appreciate cause that country's exports to decrease and its imports to increase. Net exports will decrease and cause a larger trade deficit.
- Factors that cause a currency to depreciate cause that country's exports to increase and its imports to decrease. Net exports will increase and cause a smaller trade deficit.

Real Interest Rates and International Capital Flows

When there are differences in real interest rate between two countries, capital flows into the country with the relatively higher real interest rate.

- A has higher real interest rates than B → supply of capital in A increases, demand for A's currency increases → supply of capital in B decreases, supply of B's currency increases → real interest rates in B increases, B's currency depreciates

Central banks can influence the domestic interest rate in the short run, which in turn will affect net capital inflows.

Capital Controls: legal restrictions on the flow of capital from one country to another
Financial Contagion: the spread of economic conditions from one country to another

Economic Schools of Thought

Monetarists	Classical Economists	Keynesians
- Money supply is the primary tool to bring economic stability - Increase the money supply at a rate equal to the average growth in real output - Fiscal and monetary policy threaten to destabilize the economy - Changes in government spending will crowd out private spending and will have little to no effect on aggregate spending, prices, real output, or real interest rates - Unemployment and output are expected to tend toward their natural rates without active	- Economy is fairly stable and will naturally adjust to full employment - Attempts to fine-tune the economy are ineffective because individuals come to anticipate the government's actions and act to offset them - Velocity of money is constant, which means that an increase in the money supply has a direct effect on total spending	- Economy is inherently unstable - Unable to self-adjust due to "sticky" prices and wages - Inadequate demand causes periods of stagflation - Active government policy should be used to respond to inflationary and recessionary gaps - Changes in government spending affect aggregate spending, real interest rates, and real output - Changes in the money supply have a relatively small and indirect effect on output

intervention		- Changes in the money supply affect interest rates, which affect investment, which affects aggregate expenditure, which affect income and output