Econ Unit 4: Macroeconomics Notes

<u>Macroeconomics</u> - study of the WHOLE economy ("Big Picture")
1) **Economic Growth/Output** (GDP)
2) **Full Employment** (Unemployment Rate)
3) **Price Levels** (Inflation)

<u>National Income Accounting</u>: system that tracks production, consumption, saving & investment to measure overall economic performance.

<u>Gross Domestic Product (GDP)</u> – the monetary value (**dollar amount**) of all **FINAL** goods & services produced **within a country's national borders** in a **given time period** (usually a year)
- ✓ Even if it's produced by a foreign country

GDP is a measure of National Output (Economic Growth), and **GDP is the most important indicator of the nation's economy**.
- ➢ GDP is computed Quarterly (every 3 months)

<u>Output-Expenditure Model Formula</u>
shows "**aggregate demand**"

GDP = C+I+G+(X-M) or C+I+G+Xn

<u>4 Components of GDP</u> (Economics Sectors)
1. **Consumption** – (1) Private sector (households) consuming goods & services
   - ➢ **70% of GDP**
2. **Investment** – (2) Business sector investing in **capital goods**, which expands an economy in the long-run
   - ➢ **15% of GDP**
3. **Government** – (3) Public sector: Gov't taxing & spending
   - ➢ **20% of GDP**
4. **Net Exports** – (4) Foreign sector includes all consumers & producers **outside** the U.S.
   - ➢ **-5% of GDP (trade deficit)**
- ● **(X-M) means Exports minus Imports** to calculate **net exports (Xn)**

<u>GDP Does Not Measure</u>
1. **Intermediate products** – inputs used to produce final goods & services (excludes double counting)

2. **Secondhand sales** – sales of used goods: yard sales, E-bay, Craig's List)

3. **Nonmarket transactions** – transactions that aren't reported to the IRS: babysitting, lawn care, home repairs done by homeowner

4. **Underground economy (Black Market)** – market activities that go unreported because they are illegal: illegal drugs, prostitution, stolen goods, gambling

5. **Transfer payments** – Gov't money redistribution programs: social security, welfare, entitlements)

GDP does not tell what is actually being produced & does not indicate the country's **quality of life**

<u>Nominal GDP</u> – GDP measured in name only (**current prices**), not adjusted for inflation

<u>Real GDP</u> – GDP expressed in fixed unchanging prices, **adjusted for inflation**

Nominal GDP is the **price**, which will continue to rise yearly due to **inflation**, while Real GDP is the actual **outputs**. To find real GDP you calculate the increase in prices using the real GDP formula:

Real GDP = $\dfrac{\text{nominal GDP}}{\text{(Price Index/100)}}$

<u>Real GDP per capita</u> is real GDP divided by the total population & reflects each person's share of real GDP. This is the usual measure of a nation's **standard of living.**

Economic growth is a sustained increase in an economy's real GDP
- Raises the **Standard of Living**
- Eases the burden of Gov't by **increasing the tax base**
- Solves domestic, social problems:
  - ✓ creates more jobs & income
  - ✓ lowers unemployment & reduces welfare rolls
  - ✓ increases wages due to competition for labor

Business Cycle – series of cycles of economic expansions and contractions over several months or years

4 Phases of the Business Cycle
1. **Recovery/Expansion** – period of **economic growth** as experienced by an increase in **real GDP**

2. **Peak** – when real GDP stops rising

3. **Contraction/Recession** – economic decline in real GDP
   - ■ rise in unemployment
   - ❖ *Recession* is a decline in **real GDP** for 2 or more consecutive quarters (6+ months)
   - ❖ *Depression is a* prolonged and severe recessions
     - ■ **Great Depression** of 1930s

4. **Trough** – economy reaches its lowest point, real GDP stops falling; "bottomed out"

Business Cycle
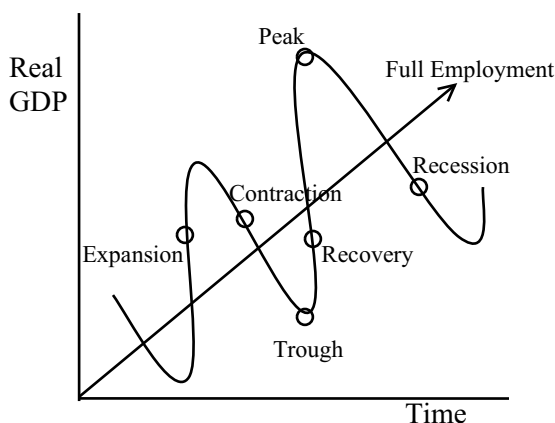
4 Things that influence Business Cycles
1. **Business Decisions** – investments in physical capital, inventory adjustments
2. **Interest Rates & Credit** – easy money v. tight money (low or high interest rates)
3. **Consumer Expectations** – consumer confidence in the economy
4. **External Factors/Supply Shocks** – oil prices, politics, war, natural disasters

3 Types of Economic Indicators
1. **Leading Indicators** – indicate where the economy is going **BEFORE** it happens.
   - ■ Examples: building permits, orders for capital goods, price of raw materials
2. **Coincident Indicators** – reflect the **CURRENT** status of the economy
   - ■ Examples: personal income, sales volumes, production levels
3. **Lagging Indicators** – These indicators come in after the fact.
   - ■ Examples: unemployment figures, business income reports

Disposable Income (DI) = the money you actually have to spend, after taxes.

Unemployment

Labor force is the **total number employed and unemployed adult workers**
- ◆ Adult non-institutionalized civilian population
  - ▪ Over the age of 16
  - ▪ Not in the military
  - ▪ Not in jail or prison
  - ▪ Not living permanently in nursing homes or in another institution

Who is considered "employed" by the U.S. Census Bureau?
Individuals age 16 + who:
- Worked for pay or profit 1+ hours per week
- Have jobs but didn't work due to illness, weather, vacations, leave of absence (maternity/paternity), or labor disputes
- Worked without pay in a family business for 15+ hours weekly (unpaid family workers)

So, if you don't meet any of those criteria, and you were *ACTIVELY LOOKING* FOR WORK within the past 4 weeks, then you are considered UNEMPLOYED!

Unemployment Rate – percentage of people in the Civilian labor force who are unemployed

Unemployment rate does not include:
- Those who have given up looking for work (discouraged workers: stopped looking or don't want a job)
- It also doesn't include the which one is overqualified, or working part-time when full-time work is desired)

Economists consider **Full Employment at 95%** participation of the Labor Force, also calculated as **5% unemployment rate (natural rate of unemployment)**

4 Types of Unemployment

1. **Frictional** – caused by **movement in the economy** & is **always present**, resulting from temporary transitions made by workers & employers
   - **It means workers have choices**: changing jobs, looking for your first job, or a stay-at-home parent goes back to work

2. **Seasonal –** occurs as a result of **seasonal change** or when industries slow or shut down for a season
   - Lifeguards or Six Flags workers in the summer, Christmas holidays, etc.

2. **Structural** – jobs that are **permanently lost due to improvements in technology** (workers replaced by machines & automation), outsourcing jobs to other countries, or consumer tastes
   - Heavy industry assembly lines replaced by robots & computers

Natural Rate of Unemployment (NRU) consists of (1) **frictional**, (2) **seasonal** & (3) **structural unemployment** because they are always occurring in the economy & aren't necessarily a bad thing

4. **Cyclical** – rises during recessions & economic contractions in the business cycle causing unemployment to rise
   - This type of unemployment harms the economy more than any other kind
   - Gov't may attempt to help with cyclical unemployment by using expansionary fiscal policy

Remember: contractions cause an increase in unemployment % , while expansions cause a decrease in unemployment %

Poverty & Income Distribution
Income distribution – the way income is divided among people in a nation

Income inequality – an unequal distribution of income (Lorenz Curve on p.391)

Persistent unemployment usually leads to **poverty** (people lack the income & resources to achieve a minimum standard of living), and the U.S. government established the **poverty threshold** (official minimum income needed for the basic necessities of life in America) at $24,230 per household of 4 in 2014.

Poverty rate is the % of people living in households that have income below the poverty threshold. Poverty doesn't hit all sectors of society equally, and children are especially at risk (make up more than half). Approximately 35 million Americans or 12.4% lived in poverty (2003) & that number jumped to 45.3 million Americans living in poverty (14.5%) by 2013. **Families living below the poverty line are headed by single mother households.**

Factors Affecting Poverty

1) **Education**: higher education = higher income; poverty rate of those who don't complete high school education is 12 x higher than those with college degree
2) **Discrimination:** certain groups such as minorities & women sometime face wage discrimination or occupational segregation to find higher paying jobs; gov't initiatives (**Affirmative Action**) have attempted to combat discrimination in the marketplace
3) **Demographic changes**: increase in single-parent families have increased from 5% in the 1950s to over 30% & divorce rates have also increased to nearly 50%
4) **Changes in the labor force:** shift in the labor force from mainly manufacturing to mainly service industries has limited economic opportunities for low-skilled & low-educated workers & wages in service industries like fast food aren't considered a "living wage"

Gov't Antipoverty Programs

- In 1964, President **LBJ** declared a "War on Poverty" & promised to involve gov't to help reduce & even eliminate poverty in America (Antipoverty Programs)
- **WELFARE** – government economic & social programs that provide assistance to the needy
- **Entitlements** – gov't programs of **transfer payments** that redistribute tax payers' money to those under the poverty threshold to assist with poverty
  - **Food Stamps** (1964) to ensure no American will go hungry
  - **Medicaid** offers health care for the poor & is funded by both the federal & state governments
  - **Social Security** (1935) is funded through a special payroll tax & entitles retirees a monthly check/benefit around age 62 based on their last 35 years of earnings in the workforce & money already paid into their "trust fund"

Inflation

Inflation – a general & sustained **increase in the average price level of ALL products** in the economy, causes money to hold less value & **decreases the purchasing power of the dollar**

Inflation rate is the % change in the price level from the previous period or base year
- Normal, "healthy" inflation rate is 1-3%

Degrees of Inflation
- Creeping inflation = 1-3% per year
- Walking inflation = 3-10%
- Galloping inflation = 10-30% (politically unstable Latin American Marxist countries or former Soviet communist bloc countries)
- Hyperinflation = 50% per year (extremely rare & is **last step before total monetary collapse** & ANARCHY!)

Causes of Inflation

1. **Quantity Theory** – excess monetary growth or **too much money in the economy**; money supply grows faster than real GDP
- **Federal Reserve** (US central bank) allows **too much money to be in circulation** thus **decreasing the actual value of the dollar**
  - Ever heard of "monopoly money?"

2. **DEMAND-PULL Theory**– when aggregate demand for goods & services exceeds existing supplies
- Think **supply & demand**: If **demand for goods increases faster than the companies can produce**, then there'll be a **SHORTAGE of supply**.
- Too much demand & not enough supply causes Prices to be "pulled" higher!
- Demand-Pull is primarily caused by an increased quantity of money in the economy

3. **COST-PUSH Theory** – producers raise prices in order to meet increasing costs of inputs (resources)
- Unexpected increase in cost of inputs: energy cost (price of oil), labor cost (union demands or increased minimum wage), or cost of raw materials
    o Example: price of oil barrels rose from $5 to $35 in 1970s and resulted in massive STAGFLATION

STAGFLATION is a decline in real GDP with a rise in price levels; in other words, it's a **combination of a stagnant economy (recession) with high inflation**

Price Level | LRAS (full employment) | AS$_1$ | AS

P_1

P_e

AD

Y_1 Y_e Real GDP
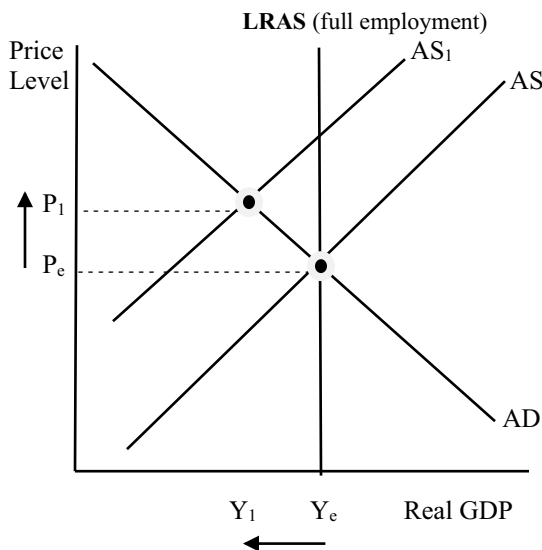
Notice that the increased cost of resources caused the Aggregate Supply (AS$_1$) decrease and the curve to shift left. The leftward shift decreased real GDP, causing a Recessionary Gap and increased the unemployment rate; as well as, increased price levels (inflation). This is what Stagflation looks like on a AD/AS

I'll explain this AD/AS graph in more detail

No single cause of inflation, but a self-perpetuating spiral of wages & prices begins & is difficult to stop

Effects of Unanticipated Inflation
1) **Dollar buys less, meaning the dollar loses value over time, thus decreasing one's purchasing power**
2) **Extremely hard on retired workers living on fixed incomes like social security** (Know for MILESTONE)
3) **People change spending habits, which disrupts the economic business cycles**
4) People may speculate to take advantage of higher price level and make risky investments in the stock market
5) **Inflation in the long run favors the debtors over the creditors because the value of the dollar decreases every year** (Know for MILESTONE)
    ➢ This is why creditors must charge interest on loans to debtors

Consumer Price Index (CPI) – an index used to measure inflation; measures the overall cost of goods and services commonly purchased by consumers

$$CPI = \frac{\text{current year cost}}{\text{base-year cost}} \times 100$$

Aggregate Demand (AD) – total amount of goods & services that households, businesses, government, and foreign purchasers will buy at each & every price level
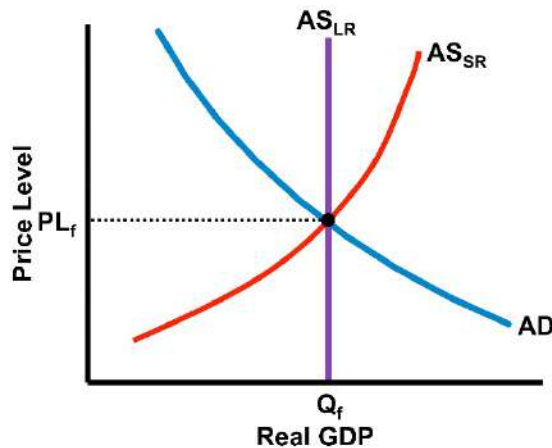
$$AD = C + I + G + Xn$$

(Recognize this equation?? Yep, it's GDP!!!)

- **A change in any one of the 4 components will cause the AD curve to shift right (increase) or left (decrease) and impact the macroeconomy**

Aggregate Supply (AS) – the total amount of goods & services that producers will provide at each & every price level
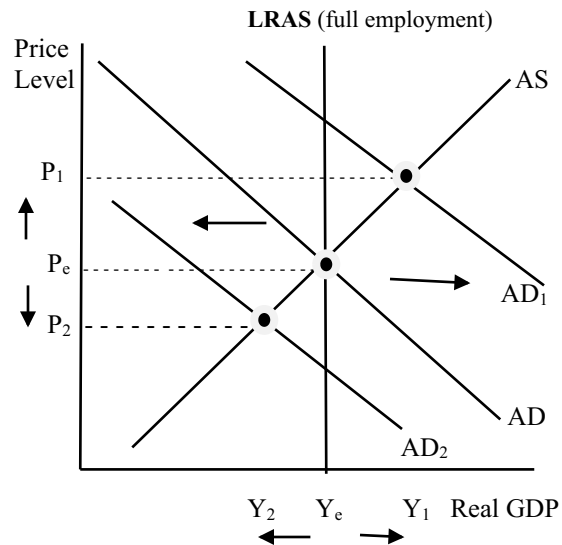
- **A change in (1) input costs, (2) productivity/technology, or (3) business taxes/regulations/subsidies will cause the AS curve to shift right (increase) or left (decrease)**

AD/AS Graph

The AD/AS Graph above shows a shift right with AD_1 due to increased **I**nvestment in **capital goods** by the business sector. The rightward shift of AD_1 marks **economic growth** by **an increase in real GDP** but also **inflation** due to an increase in the price level.

The leftward shift of AD_2 due to a **trade deficit** (**Xn**) shows a **decrease in real GDP** (**recessionary gap**) causing **unemployment rate to increase**, but **price levels have decreased.**

Long-run Aggregate Supply (LRAS) is the vertical line where AD and AS intersect at the equilibrium and **demonstrates an efficient economy operating at full employment (95%)** or at the **natural rate of unemployment (5%)**

- LRAS is the same line as the PPC outward curve and Business Cycle growth tend line, which shows an economy at **sustainable full employment**
- Any point or movement inside, below, or to the left of the line shows a **recession;** and any point outside, above, or to the right shows **economic growth** but **inflation**
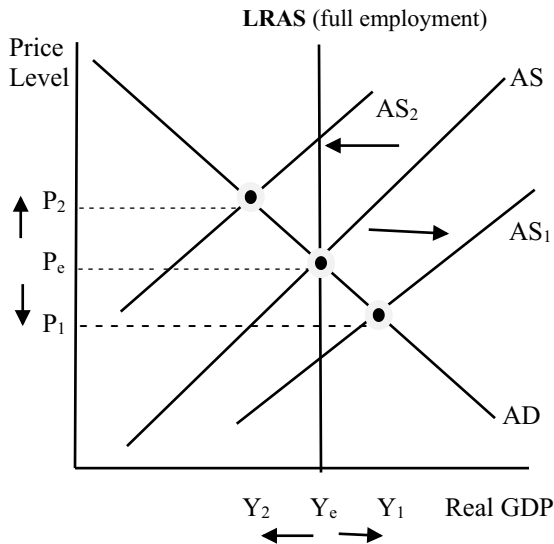
AD/AS Graph

LRAS (full employment)

Price Level

P₂

Pₑ

P₁

AS₂

AS

AS₁

AD

Y₂ Yₑ Y₁   Real GDP

AS₁ shifted right because of **increased productivity** due to better technology, **increasing supply and real GDP**, and **lowering price levels**

AS₂ shifted left because **of increased cost of inputs** (energy prices) which **decreased real GDP**, caused **a recession** and **increased unemployment**, while also raising the price level (**inflation)**
- This is cost-push inflation (**Stagflation**) and is bad for the macroeconomy

Money
Money – most basic of all financial assets, used to buy goods and services
- Something that is regularly accepted in exchange for goods and services

Three Functions of money
1. **Medium of Exchange** – exchange/payment for products; buyers give sellers in exchange for goods/services
2. **Unit of Account** – an expression of value; a way for comparing the values of goods and services
3. **Store of Value** – money holds its value if you decide to store it instead of spend it

2 Types of Money
1. **Commodity money** – money that has an alternative use as a commodity, which has intrinsic value (item has value if not used as money)
- Gold, silver, cigarettes (WWII), tulip bulbs (1600's Europe), etc.

2. **Fiat money** – "order/decree"; government issued money
- Paper dollars
- Money that is intrinsically worthless
- Legal tender - money that a gov't has required to be accepted in settlement of debts
- **U.S. uses fiat money because we're no longer on the gold standard**

Money in the USA
Liquidity – ease with which an asset (liquid asset) can be converted into money/medium of exchange (Ex: Liquid – checking account; non-liquid – your House)

M1 – money that people can gain access to easily and immediately; checkable demand deposits (balances in bank accounts)
- High liquidity - checking accounts, traveler's checks

M2 – consists of all the assets in M1 plus assets that are not as liquid (near-monies)
- Slightly less liquid, savings accounts, money market, mutual funds, etc.

Characteristics of Money
1. **Durability** – must withstand physical wear and tear that is a part of being used over and over again
2. **Portability** – people need to be able to take money with them from place to place
3. **Divisibility** – money must be easily divided into smaller denominations
4. **Stability** – money's purchasing power (value) should be relatively stable
5. **Uniformity** – money must be uniform, easy to count & measure
6. **Limited Supply/Scarcity** – the money supply must be kept in limited supply
7. **Acceptability** – everyone in an economy must be able to exchange the objects that serve as money.

Monetary Policy and the FED

<u>Monetary policy</u> ("money") – directly affects the nation's money supply (expansionary or contractionary) to influence the cost & availability of credit

<u>The Federal Reserve</u> ("The **FED**") – the **central bank** of the U.S.
- Created by Congress with the **Federal Reserve Act of 1913**
- <u>Central Bank</u> – institution designed to **oversee the banking system** and **regulate the quantity of money** in the economy

<u>Structures of the FED</u>
- Central Bank is in Washington, D.C.
- Run by a 7 member **Board of Governors**
- Appointed by POTUS, confirmed by the Senate to 14 year terms
- Board is led by the **Chairman of the Fed**
- Current chair of the Fed is **Janet Yellen** (appointed by President Obama in 2013)
- Fed is comprised of Twelve Federal District Reserve Banks
- One Federal Reserve Bank for each district
- Each FRB monitors economic and banking conditions in its district

The Federal Open Market Committee (FOMC)
- **7 member Board of Governors** plus the **President of the FED of NY** make up the permanent members, and **4 of the other 11 regional bank presidents rotate on a yearly basis**
- FOMC holds 8 regularly scheduled meetings a year & monitors the money supply
- All 12 attend, **only 5 vote, President of New York Fed always votes** (financial capital of the world)
- Voting on the decision to either **increase or decrease money supply**

FED's 3 Tools of Monetary Control

1) **Open-Market Operations** – **purchase & sale of U.S. government bonds by the Fed**
✓ **Most often used method** to control the money supply because it has an IMMEDIATE EFFECT

✓ To increase the money supply, **Fed buys bonds from the banks & credits the banks with money**

<u>**Easy-Money Policy**</u> – expansionary monetary policy, goal is to expand the economy by **lowering interest rates**, **increase inflation**, **encourages banks to lend money to consumers, discourage saving**, **increases the money supply**
- **Policy is used stimulate the economy by promoting business investments & consumer spending**

✓ To decrease the money supply, **Fed sells bonds to the banks & withdrawals money from the banks**

<u>**Tight-Money Policy**</u> – contractionary monetary policy, goal is to **slow the economy** by **raising interest rates**, **cause inflation to slow**, **discourage borrowing**, **encourage saving**, **restricts the money supply**
- **Policy slows down business activity & investments & stabilizes prices, which reduces aggregate demand**

Remember this hint: **Buy BIG** (expansionary) & **Sell SMALL** (contractionary)

2) **Reserve Requirements** – **regulations on the minimum amount of reserves that banks must hold against deposits**
✓ <u>Fractional-reserve system</u> – banks hold only a fraction of deposit reserves as opposed to a 100% reserve system (how banks "create" money)
  - Banks must have a supply of reserves to protect against "runs" or "panics"
  - Currently 10% requirement on M1 ("liquid" money: currency, checking accounts, traveler's checks)

- ✓ Influences how much money banks can create from each deposit (reserves)
  - Increase in RR, banks must hold more reserves, can loan out less
  - Decrease in RR, banks must hold less reserves, can loan out more

3) **Discount Rate** – **interest rate on loans the FED charges its MEMBER BANKS**
- ✓ Fed is the lender of last resort
- ✓ Banks borrow from Fed when it has low reserves; too many loans, high withdrawals
  - Lower discount rate encourages borrowing
  - Higher discount rate discourages borrowing

Fiscal Policy and Government Spending

Each fiscal year, Congress & the president must agree to establish the federal budget; federal gov't spends $trillions on resource allocation, income redistribution, and on public goods and services, becoming a major factor in the macroeconomy
- Money the federal gov't borrows to spend is less money for the private sector, which is known as the

Crowding-Out Effect

Mandatory spending – spending required by current law
- Makes up well over ½ of all federal spending
- Most of this spending is in **entitlements** (social welfare programs)
  - Ex: Social Security, Medicare, Medicaid, Food Stamps, Unemployment

Discretionary spending – spending that gov't must authorize each year
- More than 1/3 of federal revenue
- Ex: interstate highways, national parks, space & research programs, FBI, etc.
- Largest expenditure is national defense (about 50%)

Fiscal Policy – federal government's use of **TAXES & GOV'T SPENDING** to affect the economy
- Either speed up (gas) or slow down (brake) the economy

2 GOALS: (1) **increase aggregate demand** (2) **fight inflation**
- ❖ When economy is in **recessionary period**, gov't may use **expansionary fiscal policy** to **increase aggregate demand** & stimulate a weak economy
  - ■ Gas pedal = increase gov't spending and/or decrease taxes
- ❖ When economy experiences an **inflationary period**, gov't may use a **contractionary fiscal policy** to **reduce aggregate demand** & slow the economy in a period of too-rapid expansion
  - ■ Brake = decrease gov't spending and/or increase taxes

Discretionary fiscal policy involves actions taken by the gov't to correct economic instability; in other words, Congress must pass a law or the government takes an action that affects the macroeconomy

John Maynard Keynes

Great Depression of 1930s changed economists' minds on the role of gov't in the economy (discretionary fiscal policy)

Keynesian economics believes that in times of RECESSION aggregate demand needs to be STIMULATED by gov't action & forms the basis of demand-side fiscal policy (expansionary fiscal policy)
- Keynes "revolutionary" idea of expansionary fiscal policy to attain full employment & an active role of gov't in the economy challenged **Adam Smith** & **Classical economists** who supported **limited gov't** and the **laws of supply & demand** to drive the economy

- **Negatives:** Excessive aggregate demand due to gov't or consumer spending can lead to inflation and national debt, and when the economy experiences stagflation, demand-side policies are ineffective