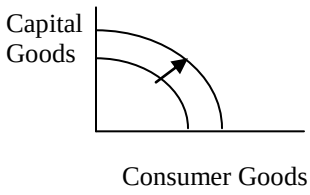
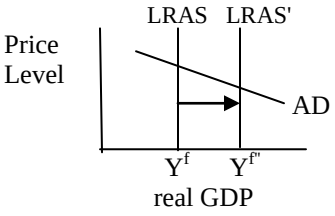
AP MACROECONOMICS REVIEW
BASIC CONCEPTS AND GRAPHS

I. INTRO CONCEPTS

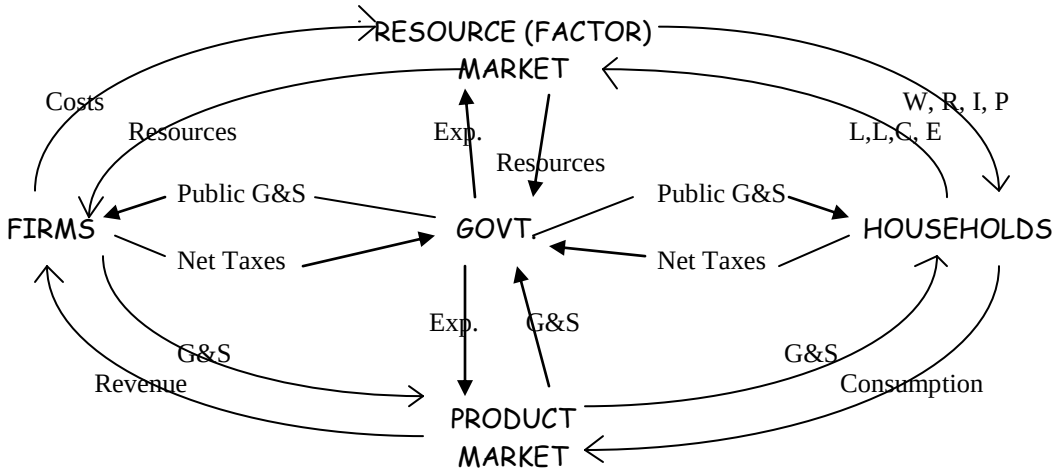
A. SCARCITY, OPPORTUNITY COSTS, FACTORS OF PRODUCTION (land, labor, capital, entrepreneurship)

B. PRODUCTION POSSIBILITIES - A shift to the right of the production possibilities curve is equivalent to a rightward shift of the LRAS curve. In other words, potential GDP (output) has increased, or the productive capacity of the economy has increased. This could be achieved through an increase in resources, particularly capital (increases in NET investment, resulting in an increase in the nation's capital stock), as well as increases in productivity, decreases in input prices and increases in human capital. Remember that it is in increase in our *potential output,* or *long-run aggregate supply*, that will bring about increased real income per capita, or in other words, an increase in the standard of living.





C. CIRCULAR FLOW OF ECONOMIC ACTIVITY (closed economy, with government)

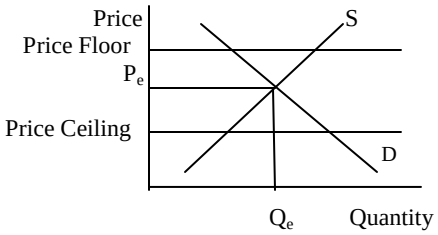


In an expanded circular-flow diagram, "leakages" would include household savings,which flow into the financial markets, and money spent on imports.

Additional "injections" into the domestic circular flow include the money earned from exports and foreign savings which flow into the financial markets.

D. **DEMAND, SUPPLY, AND MARKET EQUILIBRIUM**

1. Factors that shift demand--changes in consumer income, tastes, prices of related goods, future expectations, number of buyers
2. Factors that shift supply--changes in production costs, number of sellers, expectation of future prices, taxes or subsidies, technology, prices of other goods
3. Difference in changes in quantity demanded or supplied vs change in demand or supply
4. Price ceilings--set below equilibrium price, result in shortages
5. Price floors--set above equilibrium price, result in surpluses



II. ECONOMIC MEASUREMENTS

A. MEASURING PRODUCTION

1. **GDP – gross domestic product**
   a. **Expenditure approach = C + Ig + G + Xn** (household spending + business spending on capital, inventories, construction + govt spending + exports minus imports)
   --excludes purely financial transactions, transfer payments, used goods, do-it-yourself, underground economy
   b. **Income approach = (wages + rents + interest + profits = national income)** + depreciation + net foreign factor income

2. **NDP – net domestic product : C + In + G + Xn** (= GDP minus the consumption of fixed capital, or GDP minus the amount spent to replace depreciated capital)

B. MEASURING PRICE LEVELS

1. Inflation – increase in the average price level. Unanticipated inflation hurts lenders, savers, fixed-nominal income receivers. Helps borrowers with fixed nominal i.r. loans.

a. Demand-pull –too many dollars chasing too few goods; increase in AD in intermediate or vertical range of AS curve. Expectations of inflation may bring about demand-pull inflation—consumption increases, and savings decrease.

b. Supply-side (cost-push, supply-shock), caused by increase in per-unit production costs—decrease of AS curve; this causes *stagflation*

2. Deflation – decrease in the average price level (hurts borrowers)

3. Disinflation – decrease in the inflation rate

C. ADJUSTING FOR INFLATION/DEFLATION

1. **Real numbers** – adjusted for inflation or deflation, using an index like the CPI or GDP deflator (core indexes exclude food and oil prices)

$$\text{Price index} = \left(\frac{\text{current-year cost of market basket}}{\text{base-year cost of market basket}} \right) \times 100$$

$$\text{Real GDP} = \left(\frac{\text{nominal GDP}}{\text{price index}} \right) \times 100$$

2. **Nominal numbers** – current prices; not adjusted for inflation or deflation

3. **Real interest rates = nominal interest rate minus inflation.** Lender's nominal interest rate will include an inflation premium to compensate for expected inflation—if actual inflation exceeds this premium, real rate will decline.

4. To calculate **percentage changes**: $\frac{\text{new number – old number}}{\text{old number}} \times 100$

D. EMPLOYMENT

1. Unemployment rate = unemployed (seeking work) divided by labor force (labor force = unemployed + employed, 16 and over)

2. Kinds of unemployment
   a. Frictional – shorter-term, between jobs, just starting out
   b. Structural – obsolete job skills, results from changes in consumer demand or technology, or shifts of jobs to other regions, countries
   c. Cyclical -- deficient-demand unemployment--not included in our "natural" rate of unemployment

3. Full employment – no cyclical unemployment; natural rate of unemployment about 5%

4. Labor-force participation rate—the percentage of working-age population in the labor force

E. BUSINESS CYCLE – EXPANSION, PEAK, CONTRACTION, TROUGH

1. recession loosely defined as two consecutive quarters of declining GDP
2. inflation more likely to occur in expansions than contractions

III. NATIONAL INCOME AND PRICE DETERMINATION

A. AGGREGATE DEMAND (AD) Shifts in AD caused by changes in

1. C**onsumption** (C), caused by a change in wealth, expectations, indebtedness, or personal taxes. Consumption on durables will be affected by changes in interest rates because of borrowing costs.
2. **Investment** spending (I), caused by a change in interest rates (borrowing costs), profit expectations, business taxes, technology, or excess capacity (an *increase* in excess capacity will *decrease* I)
3. **Government** spending (G). Remember G spending not based on interest rates, but interest payments on debt are impacted by interest rate changes.
4. **Net exports** (Xn) caused by a change in national income abroad or exchange rates (which can be affected by relative real interest rates—which can be caused by fiscal or monetary policy) Other reasons listed in V.C.1.

B. AGGREGATE SUPPLY (AS) Shifts in SRAS caused by changes in

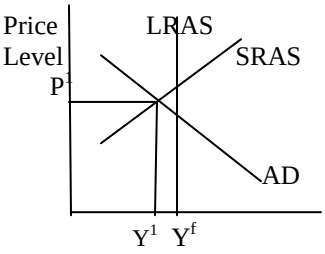
1. **Input prices** for land, labor, capital, entrepreneurship (rent, wages, interest, profits)—influenced by domestic resource availability and prices of foreign inputs (positive and negative supply shocks)
2. **Productivity**
3. **Legal-institutional environment** (govt. policies like taxes, business regulations)

C. LONG RUN AGGREGATE SUPPLY (LRAS)

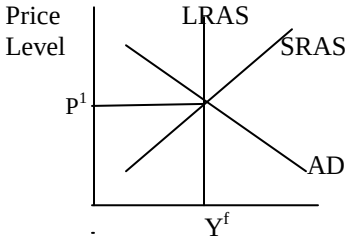
1. LRAS will shift to right with increases in productivity of labor, increases in technology, increases in capital formation (due to increased In) and improvements in human capital.

2. LRAS could shift to left if negative supply shock resulted in a permanent decrease in resources.

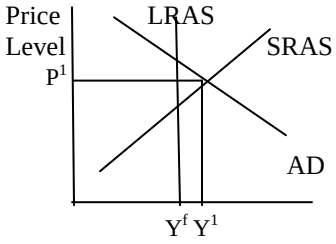
D. EQUILIBRIUM



Economy in a RECESSION



Economy at FULL EMPLOYMENT



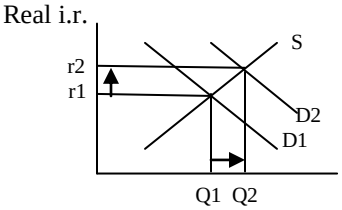
Economy in INFLATION

E. CLASSICAL THEORY - Assumes flexible prices, theorizes that a laissez-faire economy will self-correct back to full employment in long run through responsiveness of SRAS curve to long-run price changes.

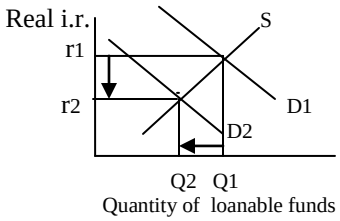
F. RATIONAL EXPECTATIONS THEORY argues that fully anticipated price level changes result in very quick or even instantaneous self-correction, so there will be no change in real output.

G. FISCAL POLICY - Changes in government spending and taxing policies (by Congress and the Administration) designed to achieve a full-employment and non-inflationary level of GDP. Fiscal policy created by John Maynard Keynes, who contended that prices were sticky in a downward direction and economy would not automatically self-correct from recession to full employment.

1. EXPANSIONARY – G ↑, T↓ causes movement toward a budget deficit, may cause increase in real interest rates due to increased demand by government for loanable funds—crowding out results, which may reduce long-run growth. Also adds to our national debt, requiring substantial interest payments, some going abroad.



2. CONTRACTIONARY – G ↓ , T↑ causes movement toward a budget surplus, may cause decrease in real interest rates due to decreased demand by government for loanable funds



3. MULTIPLIER EFFECT: Changes in C, I, G, and Xn have multiplied impact on GDP. The following multipliers show how much a change in these will change GDP, assuming no inflation and no leakages—in other words, assuming the economy is operating in the horizontal (Keynesian) range of the AS curve:

M_E = 1/MPS or 1/(1-MPC) (This is the expenditure, or spending, multiplier.)

$M_T = M_E - 1$ (Tax multiplier)

$M_B = M_E - M_T = 1$ (Balanced budget multiplier)

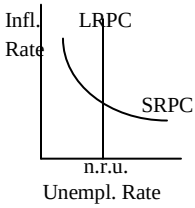
For example: Assume an MPC of .90. The M_E would then be 1/MPS = 10. If G increases by $2 million, then GDP could increase by as much as $2 million x 10 = $20 million.

Using the same MPC of .90, the M_T would be M_E minus 1 = 9. If taxes decreased by $2 million, then GDP could increase by as much as $2 million x 9 = $18 million.

To close a recessionary gap of $20 million while maintaining a balanced budget, the government could increase both G and T by $20 million.

H. PHILLIPS CURVE – relationship showing the tradeoff between inflation and unemployment.

1. Short-run - movement along the SRPC depicts short-run impact of an shift of AD along the SRAS; for example, increased AD brings about increased GDP and thus reduced unemployment, but also brings about an increase in the inflation rate.



The short-run Phillips Curve will shift left if there is a shift rightward of the SRAS curve, and it will shift right if the SRAS shifts left.

2. Long-run – a vertical line at full-employment (NRU). This curve would shift if the natural rate of unemployment (NRU) changed.

I. SUPPLY-SIDE ECONOMICS

1. Goal to increase LRAS
2. Achieved by reduction in marginal tax rates(which increase supply of loanable funds and thus lower real interest rates), elimination of unnecessary govt regulations to stimulate work, savings, and investment incentives

IV. FINANCIAL SECTOR

A. MONETARY POLICY - changes in the rate of growth of the money supply (M1 includes currency and demand deposits held by the public) by the Federal Reserve to assist the economy to achieve a full-employment, noninflationary level of GDP.

1. EXPANSIONARY – Open Market Ops (OMO): Buy securities (to lower federal funds rate—bank to bank overnight lending rate); lower discount rate (Fed to bank lending rate); lower reserve requirement (which is a % of demand deposits)

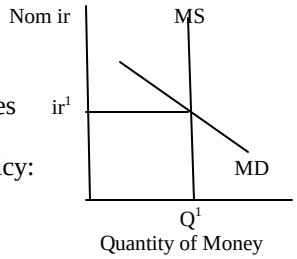
2. CONTRACTIONARY – OMO: Sell securities (to raise federal funds rate); raise discount rate; raise reserve requirement

B. CREATION OF MONEY THROUGH BANK LENDING PROCESS

1. Banks can lend excess reserves (total reserves minus required reserves).

2. An increase in excess reserves can have a multiplied impact in the banking system as a whole equal to the deposit multiplier (l/reserve ratio) times the change in excess reserves, assuming all excess reserves become loans, and all loans become new demand deposits.

C. MONEY MARKET



1. Changes in demand (MD) caused by change in nominal GDP (money demand varies directly with nominal GDP), financial innovations (ATMs, credit cards), precautionary motives

2. Changes in Supply (MS), caused by central bank's monetary policy:

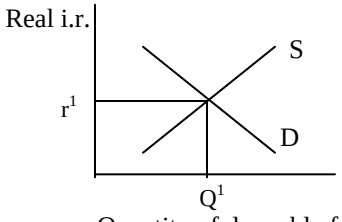
   a. MS will increase if Fed enacts expansionary monetary policy and both nominal and real int. rates will decrease in short run (in long run, inflation could cause an increase in nominal i.r., and eventually real i.r. will return to long-run level).

   b. MS will decrease if Fed enacts contractionary monetary policy and both nominal and real int. rates will increase in short run (in long run, reduction of inflation could result in decrease in nominal i.r. and real rates will return to long-run level).

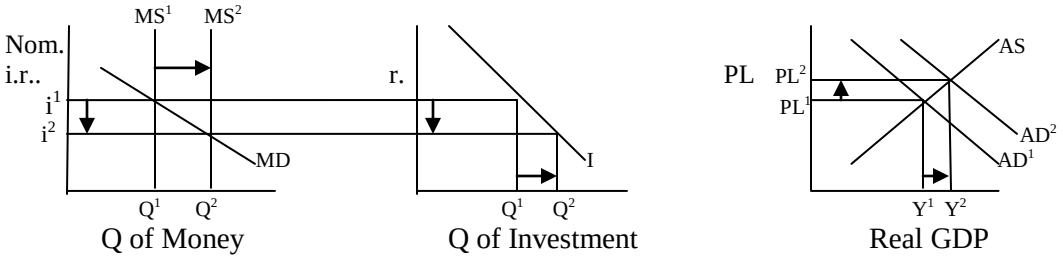
D. LOANABLE FUNDS MARKET - supply influenced in the short run by money market, but NOT the same market

1. Supply of loanable funds determined by availability of savings--household savings, business savings, and government savings (if they ran a surplus and paid back some of their debt), as well as foreign savings. By controlling bank lending activity Fed also influences supply of loanable funds in the short run, but not in the long run because prices adjust in the long run, leaving real money supply unchanged (long-run money neutrality).

2. Demand for loanable funds from businesses (investment demand), households borrowing for durables, and the government borrowing to finance deficit.



E. IMPACT OF MONETARY POLICY ON OUTPUT AND PRICE LEVEL (example shows impact of easy monetary policy in the short run)



- Interest-sensitive consumption (on durable goods) will also be impacted by changes in interest rates.
- Net exports will be impacted through changes in demand for the dollar resulting from interest rate changes.
- Government spending will be largely unaffected by interest rate changes.

F. MONETARISM (based on MV=PQ)

- Inflation caused by too much money in economy; Fed should stick to monetary "rule"—steady growth of the money supply consistent with real GDP growth
- Fiscal policy results in complete crowding out—so useless in the long run

G. OTHER FINANCIAL ASSETS

1. Stocks (Equities) –a source of equity financing for corporations
2. Bonds—a source of debt financing for corporations and governments
   a. Current bond yield = annual interest payment of bond divided by the market price of bond (annual rate of return on bond)
   b. Interest rates and bond prices vary inversely.
   c. Bond yields move with other market interest rates

H. TIME VALUE OF MONEY

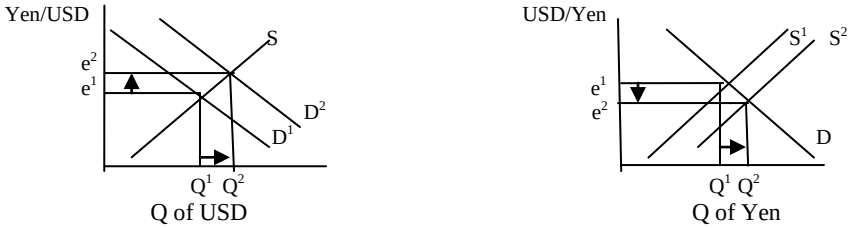
- Present value = Future value/$(1+r)^n$
- Future value = Present value $(1+r)^n$

V. INTERNATIONAL TRADE

A. ABSOLUTE ADVANTAGE: can produce more with same inputs, or requires fewer inputs to produce

B. COMPARATIVE ADVANTAGE: nation has lower opportunity cost; should specialize in this and trade for rest. (Output model – over; Input model –under). Favorable terms of trade will fall between the opportunity costs of each nation.

C. FOREIGN EXCHANGE MARKET - An increase in the demand for the dollar will increase the price of the dollar relative to other currencies. And an increase in the demand for the dollar implies an increase in the supply of other currencies seeking dollars (and an increase in <u>quantity supplied</u> of the dollar). Decreased demand for dollar means decreased supply of other currencies seeking dollars.



1. Increased demand for the dollar caused by the following (and decreased demand by the opposite of the following):
    a. Relatively higher real interest rates in the US (resulting from expansionary fiscal or contractionary monetary policy) which increases financial capital flows to the US to buy dollars to buy US securities which offer higher returns
    b. More demand for US goods/services due to changing tastes or higher incomes abroad
    c. Relatively lower inflation rates in the US (so cheaper US goods)
    d. Political/economic instability abroad, making the US a safe haven
    e. Speculation

2. Impact of stronger dollar (weaker dollar has opposite impact)
    a. Decrease of Xn
    b. Lower costs for U.S. producers who use imported inputs
    c. Helps keeps U.S. price level lower because of cheaper imports
    d. Hurts multinationals because of reduced foreign income when converted to $

D. TRADE BARRIERS – protectionism (tariffs, quotas, embargoes)

1. Reduce amount and raise price of imported goods
2. Allow domestic producers to raise prices
3. Fail to consider comparative advantage, resulting in less efficient allocation of resources

E. BALANCE OF PAYMENTS

1. Balance of trade
2. Current account –exports and imports of goods and services, net investment income
3. Financial (formerly Capital) account – purchase and sale of real and financial assets
4. In the absence of governmental or central bank intervention, current account balance and financial/capital account balance must sum to zero (a current account deficit will be matched by a financial/capital account surplus)