2015-2016

AP® Macroeconomics Full Review

VERSION 1.3

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Primary Works Consulted:

1. Notes from Mrs. Joelle Keats', Mr. Nathan Tengowski, and Mr. Jason Mohr's AP Economics Classes
2. Cracking the AP Economics Exams (2015)
3. ACDCecon: http://www.acdcecon.com/#!ap-econ/c18qp
4. Crash Course Economics: https://www.youtube.com/user/crashcourse

Shared Folder: http://bit.ly/1UqPiBi

Table of Contents

Please Read/Background Info 4

About the Exams 4

Resources 5

Tips 5

Key for Abbreviations 6

Macro Unit 1: Measurement of Economic Performance 7

- DIAGRAM: Circular Flow 7
- DIAGRAM: Circular Flow (Extended) 8
- Gross Domestic Product (GDP) 8
- Inflation 9
- Real vs. Nominal 10
- Price Indices 10
- Unemployment 11

Macro Unit 2: National Income and Price Determination 13

- GRAPH: AS AD 13
- GRAPH: SRAS (Short Run Aggregate Supply) 14
- LRAS (Long Run Aggregate Supply) 15
- AD (Aggregate Demand) 15
- Cost Push Inflation (Stagflation) 16
- Demand Pull Inflation 16
- Classical Analysis (Laissez-Faire) 16
- Keynesian Analysis 17
- Theory of Rational Expectations (Classical) 17

Macro Unit 3: Fiscal Policy 18

GRAPH: Recessionary and Inflationary Gaps 18
EXAMPLE: AS AD Graph – Short Run to Long Run Equilibrium 19
Marginal Propensity to Consume (MPC) 19
Marginal Propensity to Save (MPS) 20
Government Spending Multiplier 20
Tax Multiplier 20
EXAMPLE: Balanced Budget Involving Multipliers 20
Supply Side Economics: Reaganomics (Less Common) 21
Government Spending 21
GRAPH: Phillips Curve 21
Macro Unit 4: Monetary Policy 23
Money: Basic Definitions 23
Money: Primary Functions 23
Money: Types (M_1, M_2, and M_3) 23
Fractional Reserve Banking System 24
EXAMPLE: Fractional Reserve Banking System 25
EXAMPLE: T Account 26
Tools of the Fed 26
GRAPH: Money Market 27
EXAMPLE: Expansionary Monetary Policy 28
GRAPH: Loanable Funds Market 29
Crowding Out Effect: Revisited (Yes It's THAT Important) 29
Interest Rate Formula (Fisher Effect) 30
Equation of Exchange (Monetarist and Classical) 30
SUMMARY: Monetary and Fiscal Policies 31

Key 31
Expansionary Fiscal Policy 31
Contractionary Fiscal Policy 31
Expansionary Monetary Policy 32
Contractionary Monetary Policy 32
Macro Unit 5: Open Economy: International Trade and Finance 33
Balance of Payments 33
EXAMPLE: U.S. Balance of Payments (2006) 34
GRAPH: Forex (Foreign Exchange) Market for Dollars and Yen 35
Appreciation 36
Depreciation 36
Arbitrage (less common) 36
Managing Exchange Rates 37
Important Graphs and Diagrams 38
Circular Flow 38
Aggregate Supply and Aggregate Demand (ASAD) 38
Short Run Aggregate Supply (SRAS) 39
Recessionary and Inflationary Gaps 39
Phillips Curve 40
T Account 40
Money Market 41
Loanable Funds Market 41
Forex (Foreign Exchange) Market for Dollars and Yen 42

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Please Read/Background Info

I. This resource is not meant to teach you economics; rather it is meant to serve as a concise guide for you to review economic knowledge you have already learned (translation: you still need to pay attention in class)
II. Very few parts of this study guide are bolded so **pay special attention to bolded sections**
III. (less common) indicates material that can, but rarely, appears on the AP test
IV. GRAPH: or DIAGRAM: indicates the section has an accompanying graph or diagram
V. SUMMARY: provides a short summary of a section's material
VI. This is the full version of the study guide. Other resources including the condensed version can be found here: http://bit.ly/1UqPiBi

About the Exams

Around 18% and 15% of people get 5s on the AP Micro and AP Macro tests, respectively[1]
Shoot for an 80% to 85% on both the MC and FR sections for a 5

I. 60 multiple choice
    a. 70 minutes
    b. 66% of total score
II. 3 free response
    a. 60 minutes
        i. 10 minute reading/planning period
            1. **May begin the test during this time**
        ii. 50 minute solving period
    b. 33% of total score
        i. Long FR counts for ½ of this percentage
            1. Spend around 25 minutes
        ii. Two short FR count for ¼ of this percentage
            1. Spend around 25 minutes

[1] Data from the 2015 AP Microeconomics and AP Macroeconomics Tests

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Resources

I. AP Central
   a. Contains course description with practice MC questions and past FR questions
   b. Micro Homepage: http://apcentral.collegeboard.com/apc/public/courses/teachers_corner/2121.html
   c. Micro FR: http://apcentral.collegeboard.com/apc/members/exam/exam_information/2084.html
   d. Macro Homepage: http://apcentral.collegeboard.com/apc/public/courses/teachers_corner/2120.html
   e. Macro FR: http://apcentral.collegeboard.com/apc/members/exam/exam_information/2083.html

II. ACDCecon (Mr. Clifford)
   a. http://www.acdcecon.com/#!ap-econ/c18qp
   b. Micro cumulative video review: https://www.youtube.com/watch?v=JRlREpsr348
   c. Macro cumulative video review: https://www.youtube.com/watch?v=e18RXFFoL9c

III. Crash Course Economics
   a. https://www.youtube.com/user/crashcourse

Tips

These are applicable to both exams, unless stated otherwise.

I. Multiple choice section
   a. Types of questions
      i. Economic policy
      ii. Graphs
      iii. True vs. false statements
   b. Use the process of elimination
   c. Stick with your gut feeling
   d. Two pass system
      i. Skip the questions you aren't comfortable with

1. Come back to them later if you have time

ii. Use the letter of the day strategy

1. Guess using the same answer choice

e. **No penalty for guessing**

II. Free response section

a. Determine which economic tools the question is asking about

b. **Always draw graphs even if they aren't explicitly asked for**

i. Label every line and axis

ii. Graphs will help you avoid making silly mistakes

c. Don't skip steps in your explanation

i. Bad answer: expansionary monetary policy shifts AD out

ii. Good answer: expansionary monetary policy shifts the money supply curve to the right, thus lowering interest rates which attracts more investment and shifts AD out

d. Don't say unnecessary stuff though

i. AP graders will take off points for incorrect extraneous information

e. As a blanket statement, **always think in terms of marginal cost = marginal benefit**

Key for Abbreviations

I. **MC** = multiple choice

II. **FR** = free response

III. **PL** = price level

IV. **F.O.P.** = factors of production

V. **Rightward shift = outward shift**

VI. **Leftward shift = inward shift**

VII. **SR** = short run

VIII. **LR** = long run

IX. $_{e}$ = subscript e = equilibrium

X. **Δ** = delta = change in

XI. **Fed** = federal reserve = central bank

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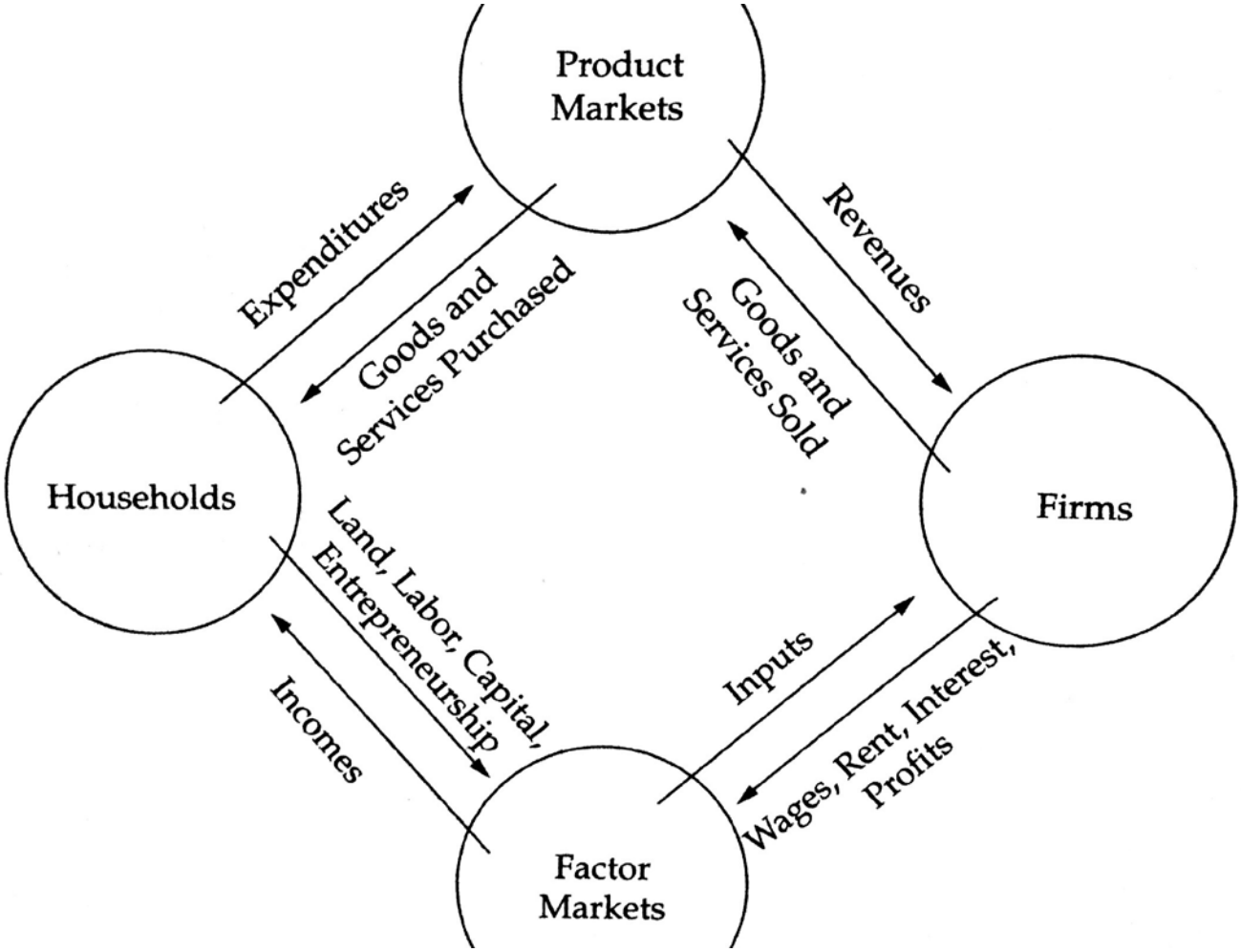
Macro Unit 1: Measurement of Economic Performance

Macroeconomics deals with the whole economy and issues that affect most of society: inflation, unemployment, gross domestic product, national income, interest rates, exchange rates etc.

DIAGRAM: Circular Flow



I. Visual depiction of goods flowing from firms to households through the product markets and inputs flowing from households through the factor markets
II. Doesn't account for leakages into the economy through savings, taxes etc.
III. Doesn't account for injections into the economy through exports, foreign investment etc.

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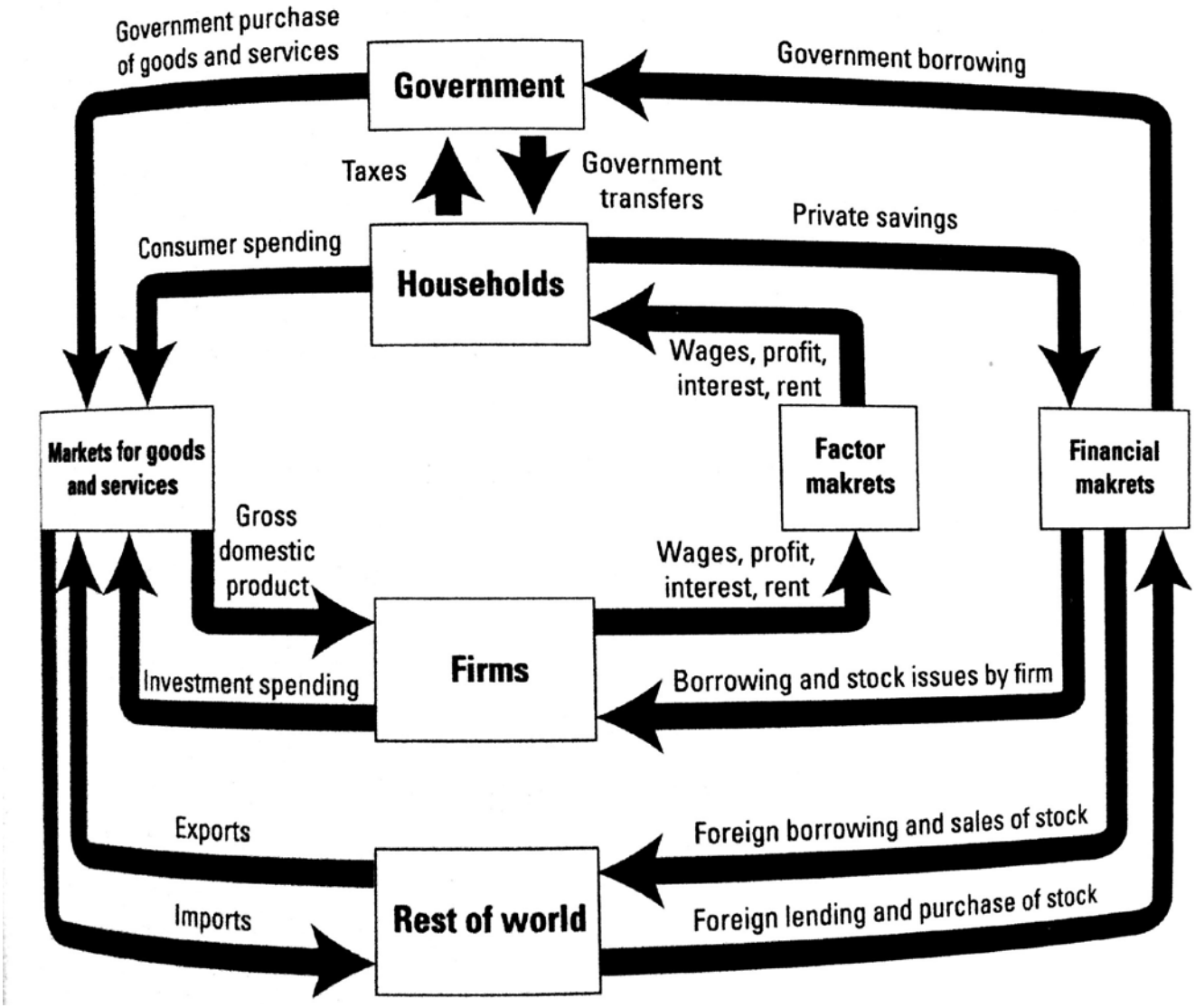
DIAGRAM: Circular Flow (Extended)



Gross Domestic Product (GDP)

I. **Total value of all <u>final</u> goods and services produced in a year within that country**
   a. Does not include intermediate goods which leads to double counting
      i. E.g. lumber which is used to produce homes
   b. Does not include financial transactions b/c they don't "produce" anything
      i. E.g. buying and selling of stocks/bonds
   c. Does not include public and private transfer payments b/c they don't "produce" anything
      i. E.g. welfare, Social Security

II. <u>Expenditure approach</u> of calculating GDP

a. $GDP = C + I + G + Xn$
    i. C = personal consumption expenditures
        1. **Largest proponent of U.S. GDP**
    ii. I = investment in new capital by businesses
    iii. G = gov. purchases
    iv. X_n = net exports = (exports – imports)

III. Income approach of calculating GDP (less common)
a. GDP = NI + Depreciation – Subsidies + Net income of foreigners
    i. NI = national income
        1. Sum of income earned by the F.O.P. by a country's citizens
            a. Includes wages, salaries, and fringe benefits for labor services, rent, interest on borrowed money, and profits from capital resources
    ii. Depreciation
        1. Decline in the value of capital over time due to wear
    iii. Subsidy payments
        1. E.g. payments made from the gov. to farmers

IV. Other terms (less common)
a. Personal income (PI)
    i. Money income received by household before personal income taxes are subtracted
b. Disposable income (DI)
    i. Personal income – personal income taxes
c. Net domestic product = GDP – depreciation
    i. Indicates how much output is left over for consumption
    ii. Indicates additions to the capital stock after replacing the capital used up in the production process

Inflation

I. **Sustained increase in the overall price level**

II. Winners from inflation
a. **Borrowers** are benefited by non-inflation adjusted interest payments
    i. Money they pay back is worth less

III. Losers from inflation
    a. Money illusion
        i. Peoples' salaries rise and think they can afford to buy more stuff; however, in actuality they can't b/c the general price level has risen alongside wages
    b. Menu costs for stores b/c of the need to change price listings
    c. Incomes that increase at a rate less than inflation decrease in value
        i. E.g. fixed incomes
    d. **Lenders and savers** are hurt by non-inflation adjusted interest payments
        i. Money they receive is worth less

IV. Deflation
    a. Sustained decrease in the overall price level

V. Creeping inflation (less common)
    a. Inflation that remains steady for a long period of time

VI. Galloping inflation (less common)
    a. Inflation that exceeds 10% per year and grows month after month

VII. Hyperinflation (less common)
    a. Inflation that exceeds 50% per year
    b. E.g. Zimbabwe

Real vs. Nominal

VIII. Real (insert term here)
    a. (insert term here) **adjusted for inflation**
    b. E.g. real GDP, real wages

IX. Nominal (insert term here)
    a. (insert tem here) **not adjusted for inflation**
    b. E.g. nominal GDP, nominal wages

Price Indices

I. Measure inflation and adjust nominal values for inflation to find real values

II. Consumer Price Index (CPI)
    a. Gov. gauge of inflation to adjust tax brackets and Social Security payments

b. Includes the prices of items in a "**market basket**" of typical goods/services

c. $\text{CPI} = \frac{\text{cost of } \textbf{base} \text{ year market basket at current prices}}{\text{cost of } \textbf{base} \text{ year market baset at base year prices}} \times 100$

d. $\text{Inflation between years Y and Z} = \left[\frac{\text{CPI}_\text{Y}}{\text{CPI}_\text{Z}} - 1\right] \times 100$

e. Problems w/the CPI

i. May overestimate inflation as it is relatively inflexible

ii. Doesn't account for changing qualities of goods and substitutions for cheaper goods

f. Current U.S. CPI: http://www.bls.gov/cpi/

III. Producer Price Index (PPI)

a. Similar in calculation to the CPI

b. Applies to the prices of wholesale goods such as lumber and steel

c. Able to measure inflation as producers often pass on cost increases to consumers

IV. $\text{GDP Deflator} = \frac{\text{cost of } \textbf{current} \text{ year market basket at current prices}}{\text{cost of } \textbf{current} \text{ year market baset at base year prices}} \times 100$

Unemployment

I. Labor force

a. Includes employed and unemployed adults

II. Unemployed workers

a. Labor force participant must be willing and able to work

b. Labor force participant must have made an effort to seek work in the past 4 weeks

c. Does not include discouraged workers

i. Those willing and able to work but given up trying

ii. May cause official unemployment numbers to be lower than reported

d. Dishonest workers

i. Those inaccurately claiming to be unemployed to receive welfare payments

ii. May cause official unemployment numbers to be higher than reported

III. $\textbf{Labor force participation rate} = \frac{\text{labor force}}{\text{working age population}} \times 100$

IV. $\textbf{Unemployment rate} = \frac{\text{unemployed workers}}{\text{labor force}} \times 100$

a. **Natural rate of unemployment** (NRU)

i. About 5 % in the U.S.; much higher in Europe

ii. Typical rate of unemployment in a normally functioning economy

iii. **Referred to as full employment (Y_{FE})**

1. Not the same as 0% unemployment

V. Types of unemployment

a. Frictional unemployment

i. Natural

ii. Includes workers temporarily between jobs

iii. Includes new labor force participants looking for jobs

b. Structural unemployment

i. Result of a skills mismatch

ii. Common result of tech innovation

1. E.g. automation replacing factory workers

c. Cyclical unemployment

i. Results from downturns in the business cycle

d. Seasonal unemployment (less common)

i. Results from changes in hiring patterns due to the time of year

1. E.g. ski instructors

VI. Okun's Law (less common)

a. For every one percentage point increase in the unemployment rate above the natural rate, **real GDP** falls by 2% to 3%

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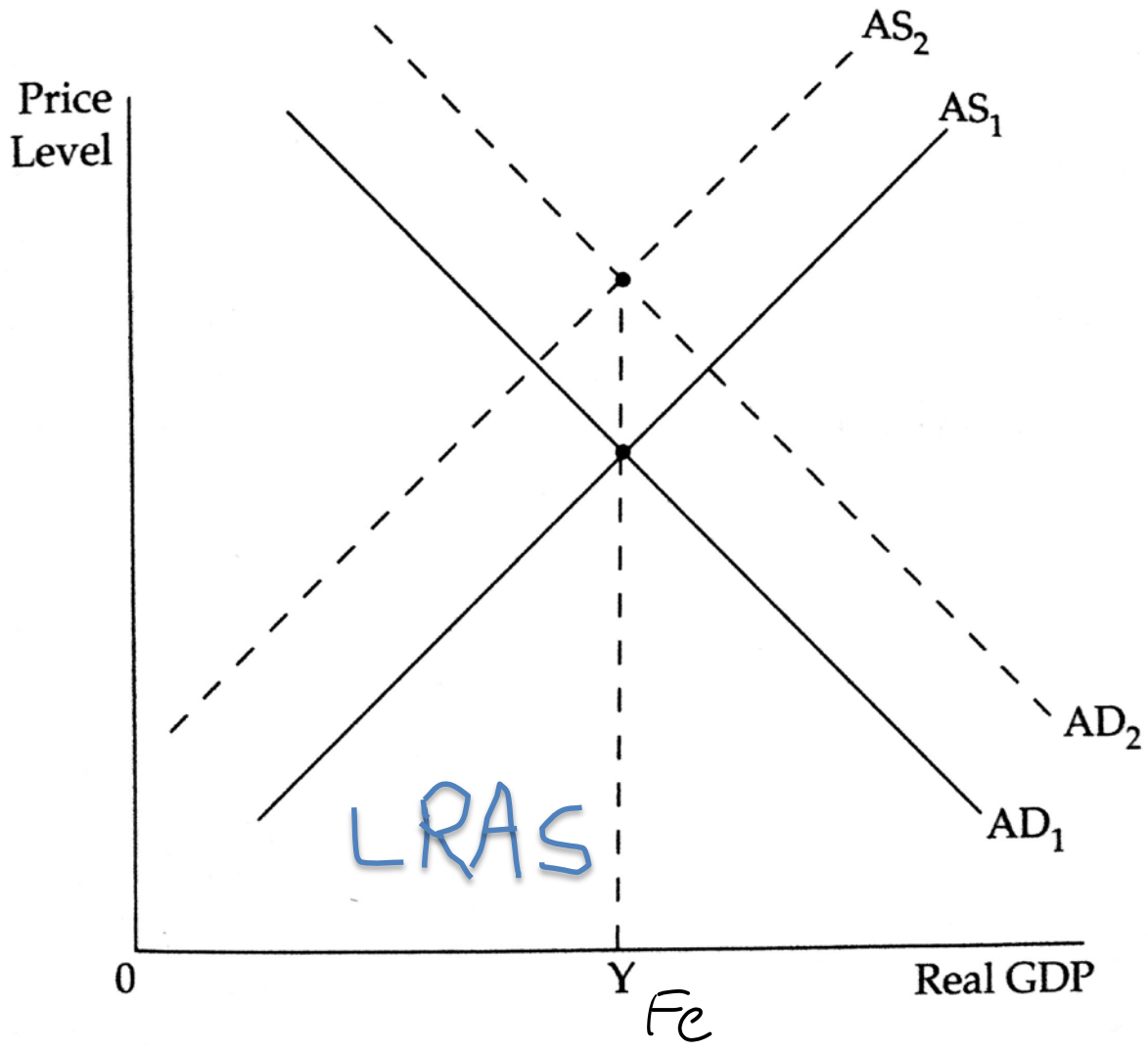
Macro Unit 2: National Income and Price Determination

GRAPH: AS AD



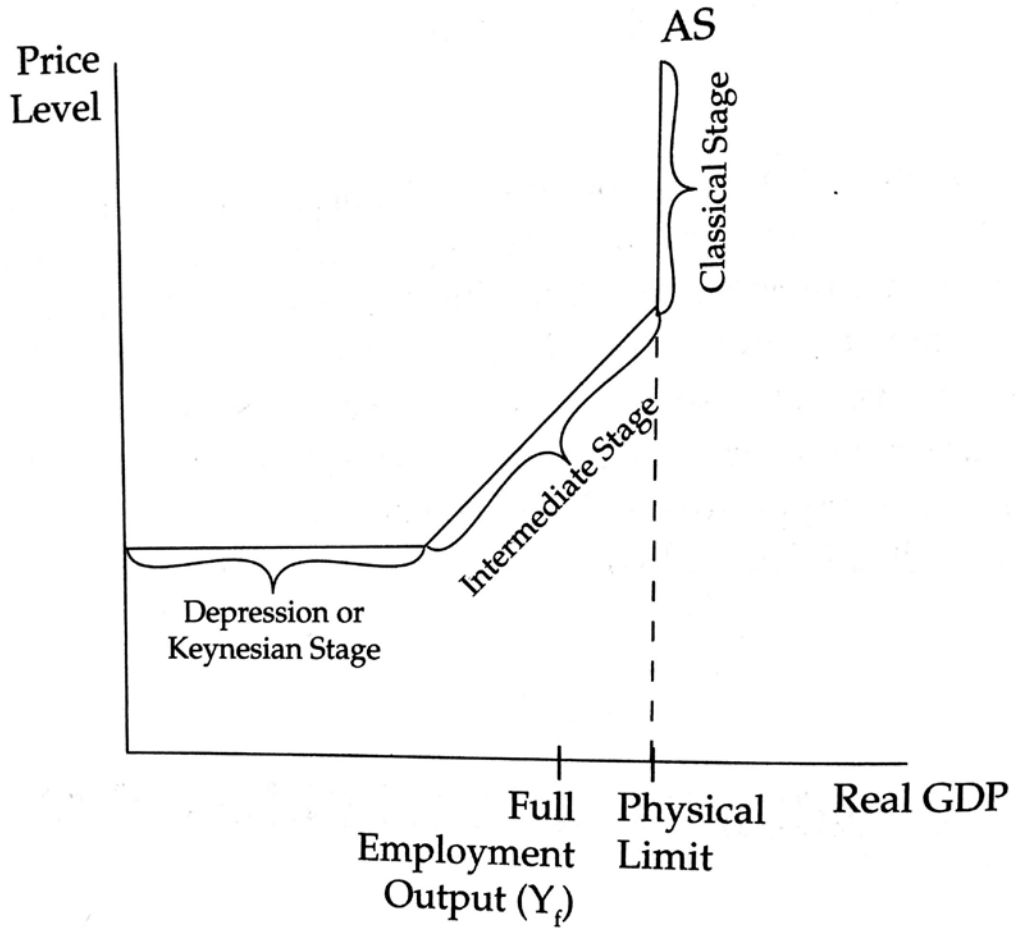
I. AS curve indicates the total value of output that producers are willing and able to supply at alternative price levels in a given time period, holding other influences constant

II. AD curve indicates the total demand for goods and services

III. Price level
   a. Average level of all prices of goods and services in a economy

IV. AS and AD intersect at market equilibrium

GRAPH: SRAS (Short Run Aggregate Supply)



I. Three stages
   a. Flat depression range (Keynesian stage)
   b. Positively sloped intermediate range
      i. Economy normally operates here
   c. Vertical physical limit (Classical stage)

II. **Time is the determining variable in the short run**
   a. Capital is also fixed in the short run

III. <u>SRAS shifters to the right</u> (opposite will shift SRAS in)
   a. Increases in the labor supply
   b. Decreases in wages and/or other input prices
   c. **Decreased inflationary expectations (double shifter)**

LRAS (Long Run Aggregate Supply)

I. Wages and other input prices will adjust in accordance w/output in the long run
   i. No reason to produce more b/c all values (input prices and output prices) will increase by the same percentage

II. **Occurs at the level of output of Y_{FE}** (full employment)

III. LRAS shifters to the right (opposite will shift LRAS in)
   ii. Technological advances
   iii. Increased investment in capital
   iv. Improvements in education
   v. New discoveries of raw materials
   vi. Increased productivity

AD (Aggregate Demand)

I. **Not** an aggregation of individual demand curves for particular goods or a market demand curve
   a. **AD is measured in terms of real GDP** = $C + I + G + Xn$

II. AD curve shows what happens when the general price level of goods/services changes as opposed to what happens when the price of a single good/service changes

III. Why AD is negatively sloped (aka why PL is inversely related to real GDP)
   a. Real Wealth (Balances) Effect
      i. When the PL increases, the purchasing power of cash decreases
   b. Foreign Trade Effect
      i. When the PL in a country increases, the prices of imports from other countries become relatively cheaper so net exports fall
      ii. Domestic firms find it more profitable to invest abroad instead of domestically
   c. Interest Rate (**Crowding Out**) Effect[2]
      i. When the PL increases and the purchasing power of cash subsequently decreases, people need even more money to continue their current consumption levels
      ii. Demand for loanable funds increases and the supply of loanable funds decreases
         1. Results in a higher interest rate and less investment

IV. AD shifters to the right (opposite will shift AD in)

[2] This will make more sense after Unit 4: Monetary Policy

a. Consumption increases
    i. **Inflationary expectations (double shifter)**
    ii. Increased incomes/wealth
b. Investment increases
    i. Lower nominal interest rates
c. Gov. spending increases
    i. Increase in spending
    ii. Decrease in taxes
    iii. Increase in the money supply
d. Net exports increase
    i. Exchange rate decreases (imports decrease)
    ii. Foreign income increases (exports increase)

Cost Push Inflation (Stagflation)

I. Refer to AS AD graph
II. Inflation results from an increase in resource costs that shifts SRAS to the left
    a. Combination of both falling output (higher unemployment) and inflation
III. Difficult to deal with as any policy action will either exacerbate inflation or unemployment further

Demand Pull Inflation

I. Refer to AS AD graph
II. Results from any of the AD outward shifters (explained earlier)
    a. Combination of higher output alongside inflation

Classical Analysis (Laissez-Faire)

I. Classical economists theorize that wages, prices, and interest rates fluctuate quickly–bringing labor and product markets to equilibrium and allowing input and output prices to stay relatively stable
II. Say's Law (less common)
    a. Supply creates its own demand
    b. When supplying goods, workers earn money to spend or save
    c. These savings end up being borrowed and spent on business investments

d. There should be no problem finding demand for the goods and services produced b/c the income from making them will be spent purchasing them
e. Supports the classical claim that gov. doesn't need to intervene in the economy
f. Wages are adjustable in the SR and correspond to a **vertical SRAS curve**
    i. AD increases will increase the price level only, not output

Keynesian Analysis

I. AS curve is horizontal until the full-employment level of output where it becomes vertical
II. In the depression range, excess capacity and unemployment allow increases in output and increase without forcing the price level to increase
III. **Nominal wages are sticky (non-adjustable) in the short run**
    a. Wage contracts are typically adjusted no more than once a year
IV. Deviations from Y_{FE} might persist until the gov. intervenes with monetary/fiscal policy

Theory of Rational Expectations (Classical)

I. People learn to anticipate gov. policies designed to influence the economy, thus making these policies ineffective (translation: we don't need gov. intervention)
II. E.g. if the gov. attempts to boost real GDP through monetary/fiscal policy, people will anticipate the resulting inflation and build it into their wage and price demands
    a. Results in AD shifting out and SRAS shifting in → inflation

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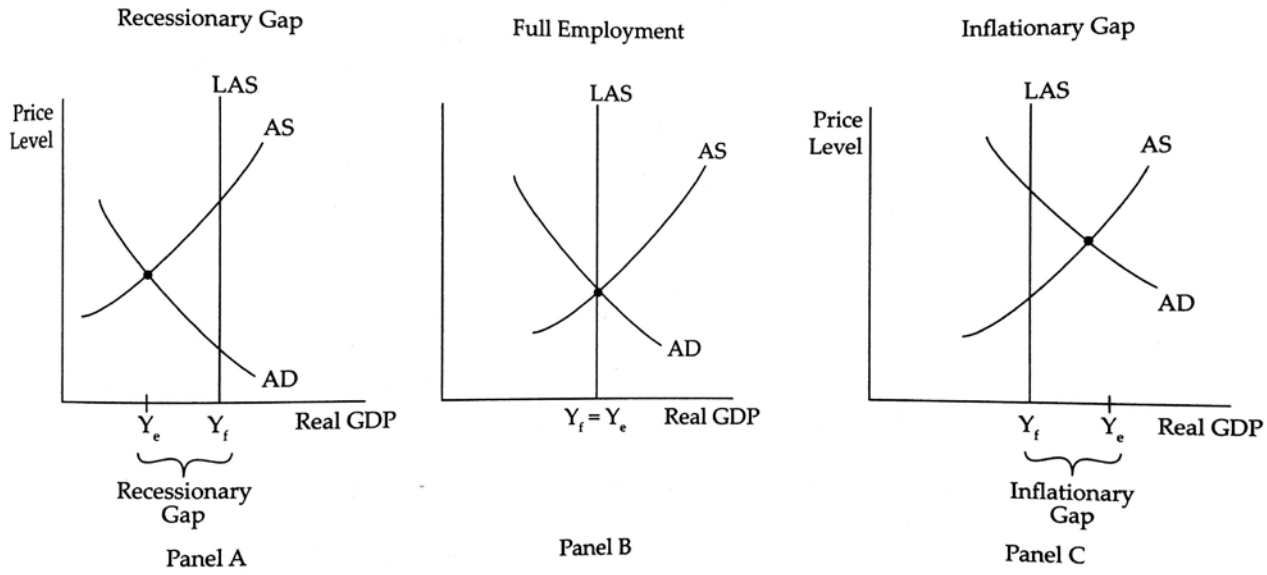
Macro Unit 3: Fiscal Policy

The gov. exercises fiscal policy when it tries to counter changes in aggregate expenditures (AD).

GRAPH: Recessionary and Inflationary Gaps



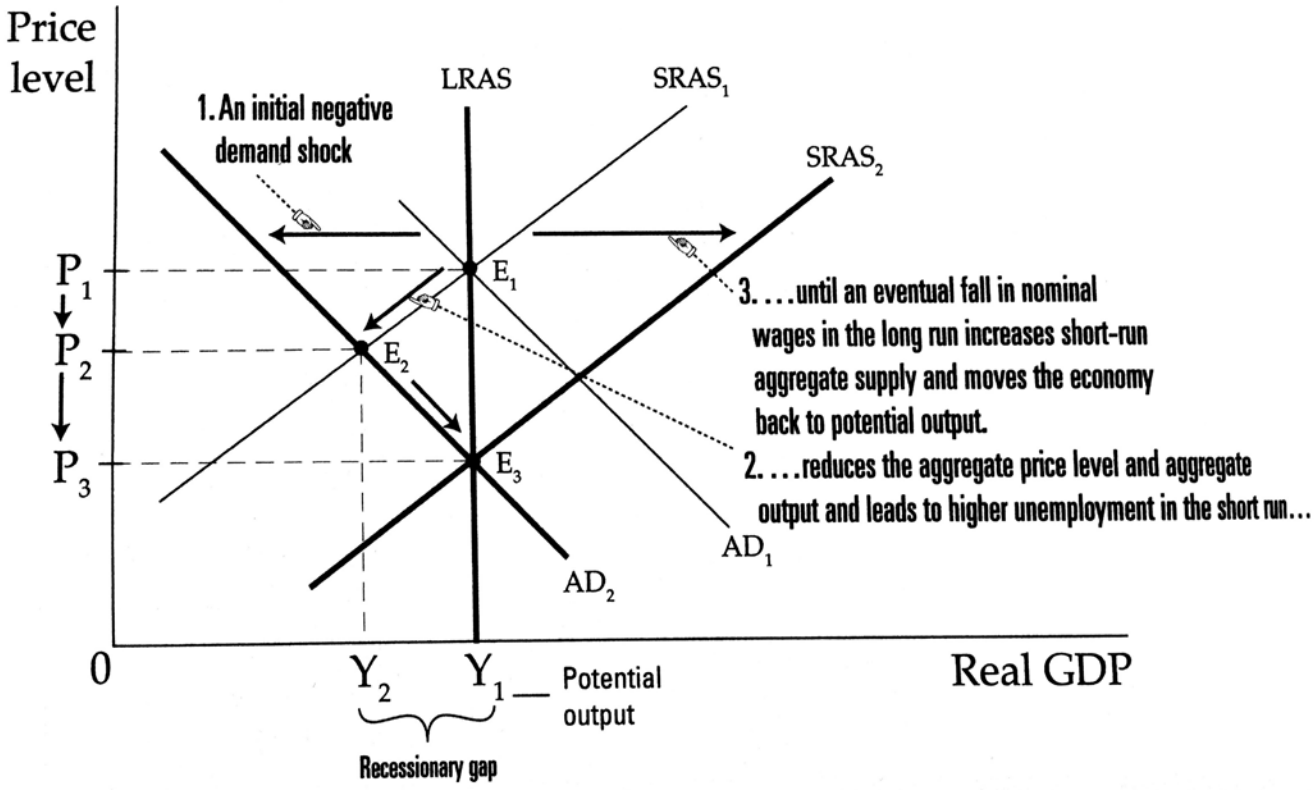
I. Recessionary Gap (Panel A)
   a. Occurs when $Y_e < Y_{FE}$
   b. Classical theory: no gov. intervention
      i. Surplus of workers and other inputs will cause wages and other input prices to fall
      ii. SRAS shifts right to reach equilibrium
   c. Keynesian theory: gov. intervention
      i. Nominal wages aren't flexible enough in the short run to respond to the gap
      ii. Gov. can implement expansionary monetary and/or expansionary fiscal policy
         1. Increase the money supply
         2. Increase gov. spending
         3. Lower taxes

II. Long Run Equilibrium (Panel B)
   a. **All roads come back to equilibrium**

III. Inflationary Gap (Panel C)
   a. Occurs when $Y_e > Y_{FE}$

b. Classical theory (no gov. intervention)
    i. High general prices in the economy necessitate higher wages
    ii. SRAS shifts left to reach equilibrium
c. Keynesian theory (gov. intervention)
    i. Wages aren't flexible enough in the short run to respond to the gap
    ii. Gov. can implement contractionary monetary and/or contractionary fiscal policy
        1. Decrease the money supply
        2. Decrease gov. spending
        3. Raise taxes

EXAMPLE: AS AD Graph – Short Run to Long Run Equilibrium



Marginal Propensity to Consume (MPC)

I. Represents the amount by which consumption increases for every additional dollar of real income

II. $\underline{\text{MPC}} = \frac{\text{change in consumption}}{\text{change in real income}}$

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Marginal Propensity to Save (MPS)

I. Represents the fraction of each additional dollar of income that is saved

II. MPS = $\frac{\text{change in savings}}{\text{change in real income}}$

Government Spending Multiplier

I. MPC + MPS = 1

II. Indicates the total change in real GDP resulting from each $1 change in spending

III. Spending Multiplier = $\frac{1}{MPS} = \frac{1}{(1-MPC)}$

   a. Don't need to know the derivation for AP exam but in case you're interested: http://www.oswego.edu/~dighe/lstum10.htm

Tax Multiplier

I. Indicates the total change in real GDP resulting from each $1 change in tax collection

II. **Smaller than the spending multiplier** b/c a fraction of the tax cuts will be saved by households (due to MPS) whereas all of the gov. spending will be injected into the economy

III. Tax Multiplier = $-\frac{MPC}{MPS} = (1 - spending\ multiplier)$

   a. Negative b/c a decrease in taxes results in higher spending

EXAMPLE: Balanced Budget Involving Multipliers

I. Suppose the U.S. is in a recession and the gov. wants to intervene **without deficit spending**. How can they do this? The MPC = 0.8

II. Solution

   a. We know the spending multiplier is greater than the tax multiplier

      i. Spending multiplier = 5

      ii. Tax multiplier = 4

   b. Let's see what happens if we increase spending and raise taxes by $100 billion

      i. Increase in AD from gov. spending = 5 × $100 billion = $500 billion

      ii. Decrease in AD from raised taxes = 4 × $100 billion = $400 billion

   c. Total change = ($500 billion) – ($400 billion) = $100 billion **increase in GDP**

Supply Side Economics: Reaganomics (Less Common)

I. **Belief that changes in tax rates will affect AD and AS**

II. Consider the case of lowering taxes:

   a. Households will save more and businesses will invest more, increasing worker productivity

   b. Take-home pay of workers increases, encouraging individuals to enter the workforce or increase their current work hours

   c. Promotes entrepreneurship as there are now greater post-tax profits

Government Spending

I. Budget deficit (yearly)

   a. Occurs when gov. spending exceeds tax revenues

II. Budget surplus (yearly)

   a. Occurs when tax revenues exceed gov. spending

III. National debt

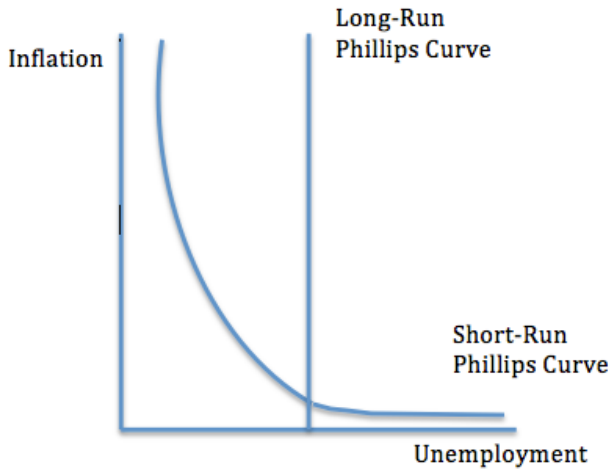
   a. Accumulation of annual deficits and surpluses

IV. Gov. can **move towards deficit or towards surplus** with changes in spending

V. Ricardian Equivalence (less common)

   a. Theory that deficit spending is no different from tax financing b/c if the former is chosen, people will simultaneously increase their savings by the amount they would have been taxed in preparation for the inevitable repayment of the debt at a later time

GRAPH: Phillips Curve



I. **Traditional U.S. unemployment = 5% and inflation = 3%**

II. **Fails to explain stagflation**, a common occurrence in the 1980s resulting from OPEC embargoes

III. SRPC (short run Phillips Curve)
   a. Tradeoff between inflation and unemployment
   b. SRPC rightward movement **on the curve** (opposite will move leftward on the curve)
      i. Outward shifts of AD resulting in inflation
   c. SRPC shifters to the left (opposite will shift SRPC out)
      i. Negative supply shocks shifting SRAS in
         1. Can be caused by droughts, computer viruses, or resource restrictions etc.
      ii. Inflationary expectations
         1. Inflation is a **self-fulfilling prophecy** as inflationary expectations lead to workers and firms building these expectations into their wage and price contracts, thus leading higher wages and prices
         2. **Opposite is decreased inflationary expectations (not deflation)**

IV. LRPC (long run Phillips Curve)
   a. Occurs at Y_{FE}
   b. LRPC shifters to the right (opposite will shift LRPC in)
      i. Anything that shifts LRAS to the right
         1. E.g. increased capital, better education, higher productivity etc.

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Macro Unit 4: Monetary Policy

The gov. exercises monetary policy to influence interest rates, inflation, exchange rates, and ultimately real GDP.

Money: Basic Definitions

I. Money
   a. Anything that is commonly accepted as a means of payment for goods and services

II. Commodity money
   a. Has value beyond its usefulness as money (intrinsic value)
   b. E.g. gold, cigarettes, shells etc.

III. Fiat money
   a. Has no value beyond its usefulness as money (no intrinsic value)
   b. E.g. paper currency

Money: Primary Functions

I. Medium of exchange
   a. We would have to barter for everything w/o money
   b. Simplifies transactions

II. Store of value
   a. Perishable goods and services benefit from a nonperishable item that will hold the value of past production into the future
   b. Allows for the concept of "saving up your past earnings"

III. Unit of account
   a. Provides a standard unit for price listings and comparisons which would otherwise be in terms of arbitrary units
      i. E.g. six chickens per iPhone, 7 pears per Xbox

Money: Types (M_1, M_2, and M_3)

I. Monitored by the Fed

II. Liquidity

a. **Ability for an asset to be bought or sold in the market w/o affecting the asset's price**
b. M_1 is the most liquid and M_3 is the least liquid
c. $M_{(n+1)}$ includes all of M_n

III. M_1
a. Coin and paper money
b. Checking deposits
c. Traveler's checks

IV. M_2
a. M_1
b. Savings deposits
c. Small time deposits with a fixed maturity date
i. E.g. certificates of deposits (CDs)
d. Money market mutual funds

V. M_3
a. M_2
b. Large time deposits

Fractional Reserve Banking System

I. **Accounts for money creation**
II. Only a fraction of a bank's total deposits is held on reserve and the rest is lent out
a. The initial sum lent out is deposited in another bank and part of that deposit is lent out
b. This process continues indefinitely and leads to the money multiplier
c. Banks charge a higher interest rate to borrowers than banks pay to their depositors

III. Reserve ratio $= \frac{\text{required reserves}}{\text{total deposits}}$
a. Fed sets a minimum reserve ratio for all banks

IV. Money multiplier $= \frac{1}{\text{required reserve ratio}}$

V. T account
a. Central to the accounting practices of a bank
b. **Two sides must always balance**
c. Assets

i. Required reserves
ii. Excess reserves that can be loaned out
iii. Loans

d. Liabilities
i. Deposits
ii. Reserves that can be borrowed from the Fed

EXAMPLE: Fractional Reserve Banking System

Bank 1	Reserves	10	Deposits	100
	Loans	90		
Bank 2	Reserves	9	Deposits	90
	Loans	81		
Bank 3	Reserves	8.1	Deposits	81
	Loans	72.9		
Bank 4	Reserves	7.29	Deposits	72.9
	Loans	65.61		
•			•	
•			•	
•			•	
Total	Reserves	100	Deposits	1000
	Loans	900		

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EXAMPLE: T Account

Assets		Liabilities	
Required Reserves	10	Deposits	100
Excess Reserves	10		
Loans	80		
	100		100

I. This bank has a reserve ratio of $\frac{10}{100} = .1$

II. This bank has $10 million dollars of excess reserves that it can still loan out

Tools of the Fed

I. Adjustments in the reserve ratio

II. Adjustments in the discount rate
   a. Interest rate paid by banks to borrow from the Fed

III. Open market operations (most important)
   a. Buying and selling of gov. securities (bonds)
   b. **Buy big sell small**
      i. Buying bonds = expansionary monetary policy
      ii. Selling bonds = contractionary monetary policy

IV. Recessionary Gap
   a. Decrease reserve ratio
   b. Decrease discount rate
   c. Buy bonds
      i. Injects money into circulation

V. Inflationary Gap
   a. Increase reserve ratio
   b. Increase discount rate
   c. Sell bonds
      i. Removes money from circulation

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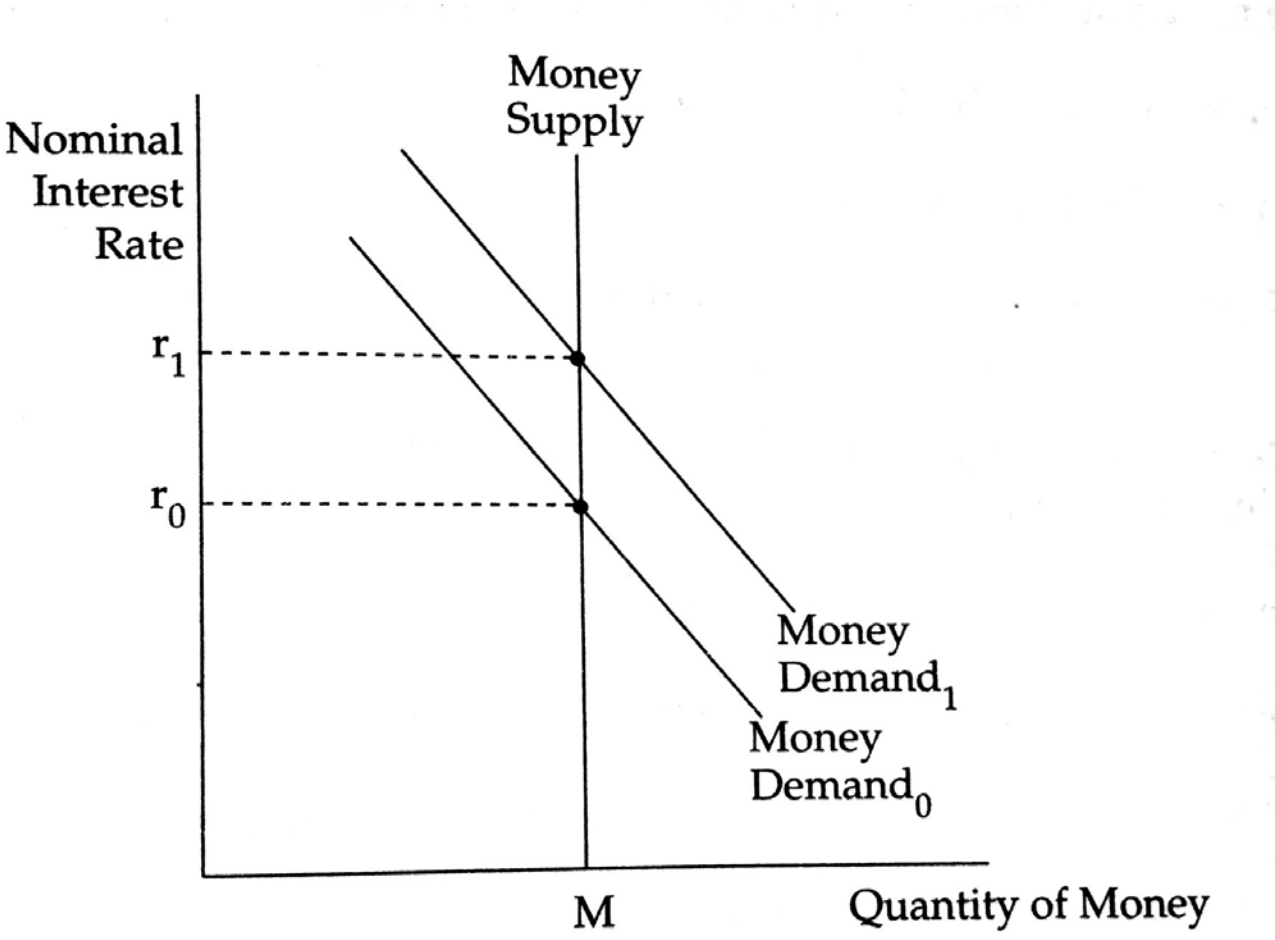
GRAPH: Money Market



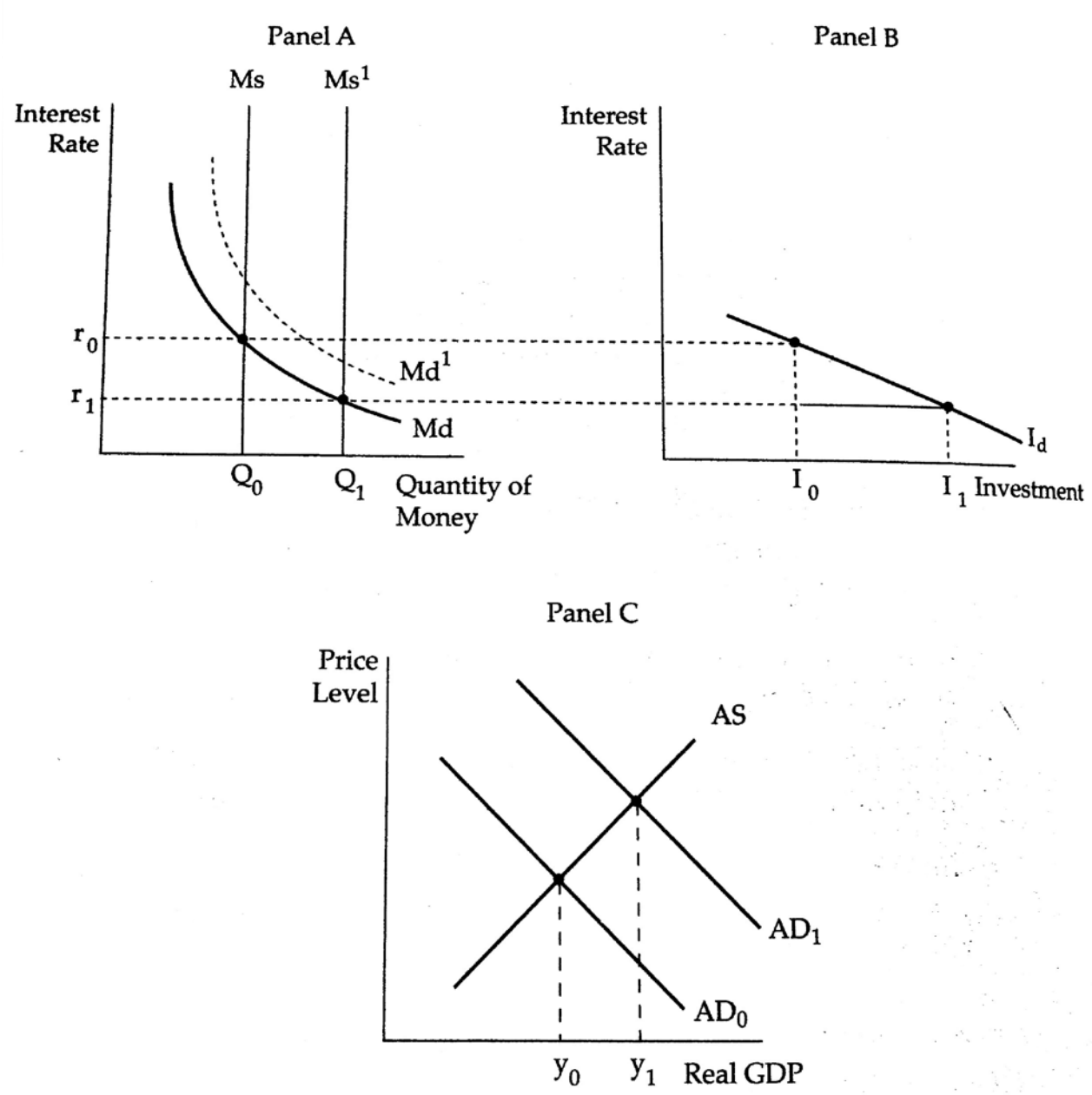
I. This specific graph includes an increase in the demand for money

II. Money supply **(S_m) is vertical b/c the Fed determines the amount of money in circulation**

III. S_m shifters to the right (opposite will shift S_m in)
   a. Fed increases the money supply

IV. D_m shifters to the right (opposite will shift D_m in)
   a. Increase in the nation's wealth/income
   b. Follows expansionary fiscal policy due to an increase in the general price level
   c. Follows expansionary monetary policy due to the crowding out effect

EXAMPLE: Expansionary Monetary Policy



I. Suppose the gov. implements expansionary monetary policy to counter a recession

II. The Fed will increase the money supply, shifting S_m (Ms) out

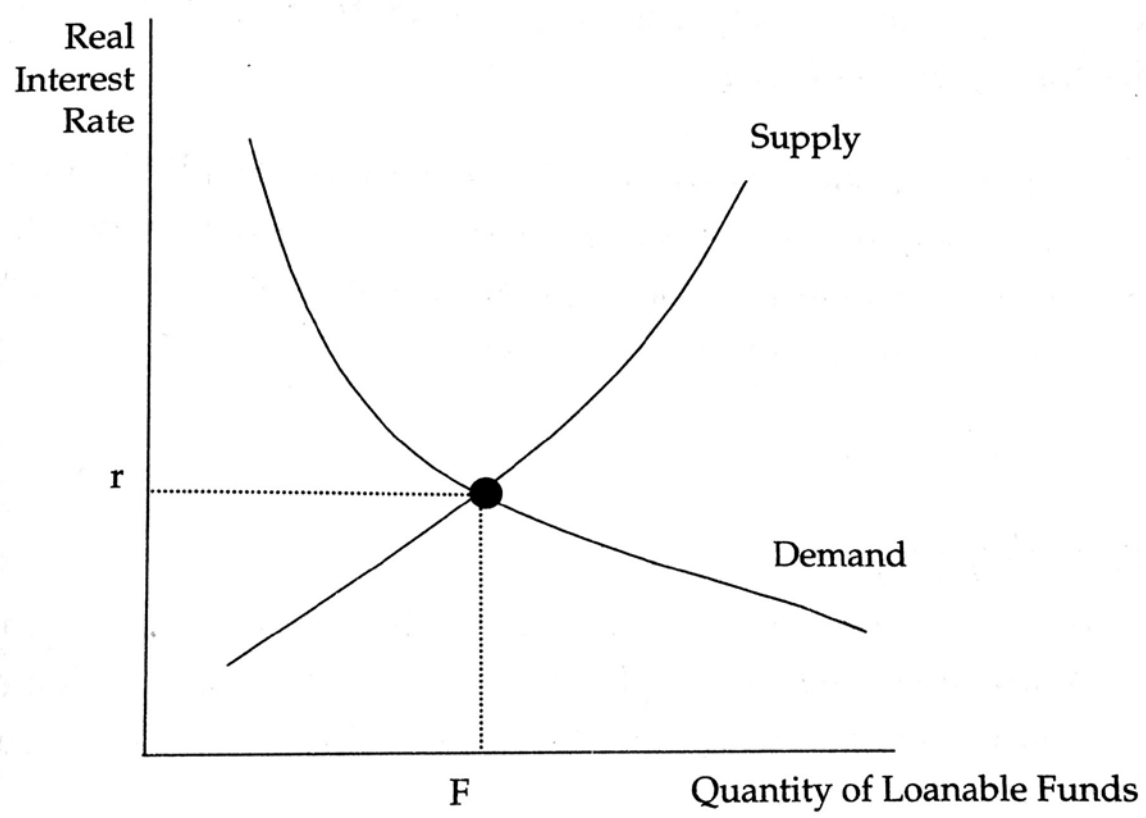
III. This lowers the nominal interest rate, promoting investment

IV. An increase in investment leads to a higher level of output (Y_1)

V. However, **the crowing out effect** will shift D_m out in the loanable funds market

VI. This will increase the nominal interest rate, partially negating the effects of the expansionary policy

GRAPH: Loanable Funds Market



I. Supply of loanable funds is positively sloped because:
   a. Lower interest rates promote households to increase current consumption and make their money available to banks
   b. Higher interest rates promote households to forgo current consumption and withdraw their money from banks

Crowding Out Effect: Revisited (Yes It's THAT Important)

I. **Crowding out** (general definition)
   a. Decrease in investment stemming from higher interest rates (r) due to gov. purchases

II. Partial crowding out (less common)
   a. Effect of crowding out on real GDP is less than the initial increase in real GDP due to the gov. purchases

III. Complete crowding out (less common)
   a. Effect of crowding out eliminates the entire boost in real GDP from the gov. purchases

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Interest Rate Formula (Fisher Effect)

I. **Nominal interest rate = real interest rate + anticipated inflation**

Equation of Exchange (Monetarist and Classical)

I. $\boldsymbol{MV = PY}$

- a. M = money supply
- b. V = velocity of money
  - i. Relatively stable
  - ii. Represents the number of times a dollar might be spent in succession
  - iii. E.g. you buy a donut from Bob who uses that money to buy an apple from Bill etc.
- c. P = average price level
- d. Q = quantity of goods and services sold in a time period
  - i. Quantity theory of money
    1. Some classical economists and monetarists believe Q is stable
    2. Thus, any changes in M will cause changes in P
       - a. Inflation is directly related to the money supply

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SUMMARY: Monetary and Fiscal Policies

If you truly understand the effects of monetary and fiscal policies, the cryptic sequences below will make sense. The interest (crowding out) effect works both ways on fiscal and monetary policy. Also, it is important to remember that **monetary and fiscal policies are often used in tandem**.

Key

I. **G** = gov. spending
II. **T** = taxes
III. **AD** = aggregate demand
IV. **Y** = real GDP
V. **S_m** = supply of money in the money market
VI. **M_d** = money demanded in the loanable funds market
VII. **r** = nominal interest rate
VIII. **I** = investment in capital

Expansionary Fiscal Policy

I. Shows the initial ↑ in Y but also the negative aftereffects of expansionary fiscal policy on Y
II. Customarily, the ending ↓ in Y is less than the initial ↑ in Y or the expansionary fiscal policy would be completely ineffective

Contractionary Fiscal Policy

I. Shows the initial ↓ in Y but also the negative aftereffects of contractionary fiscal policy on Y
II. Customarily, the ending ↑ in Y is less than the initial ↓ in Y or the contractionary fiscal policy would be completely ineffective

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Expansionary Monetary Policy

I. Shows the initial ↑ in Y but also the negative aftereffects of expansionary monetary policy on Y
II. Customarily, the ending ↓ in Y is less than the initial ↑ in Y or the expansionary monetary policy would be completely ineffective

Contractionary Monetary Policy

I. Shows the initial ↓ in Y but also the negative aftereffects of contractionary monetary policy on Y
II. Customarily, the ending ↑ in Y is less than the initial ↓ in Y or the contractionary monetary policy would be completely ineffective

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Macro Unit 5: Open Economy: International Trade and Finance

Balance of Payments

I. Statement of all international flows of money over a given period

II. **Net balance must = 0**

III. Three balances within the balances of payments:

- a. Merchandise trade balance = (merchandise exports) – (merchandise imports)
  - i. Trade deficit
    1. Imports exceed exports
  - ii. Trade surplus
    1. Exports exceed imports
  - iii. Imbalances must be offset elsewhere in the balance of payments
- b. Current account balance = (trade balance) + (services balance) + (transfers)
  - i. Include other types of assets that change ownership across borders
    1. E.g. securities, currency, capital, land etc.
- c. Financial account balance = (foreign purchases of home assets) – (home purchases of foreign assets)
  - i. Home refers to the country for which the financial account is made

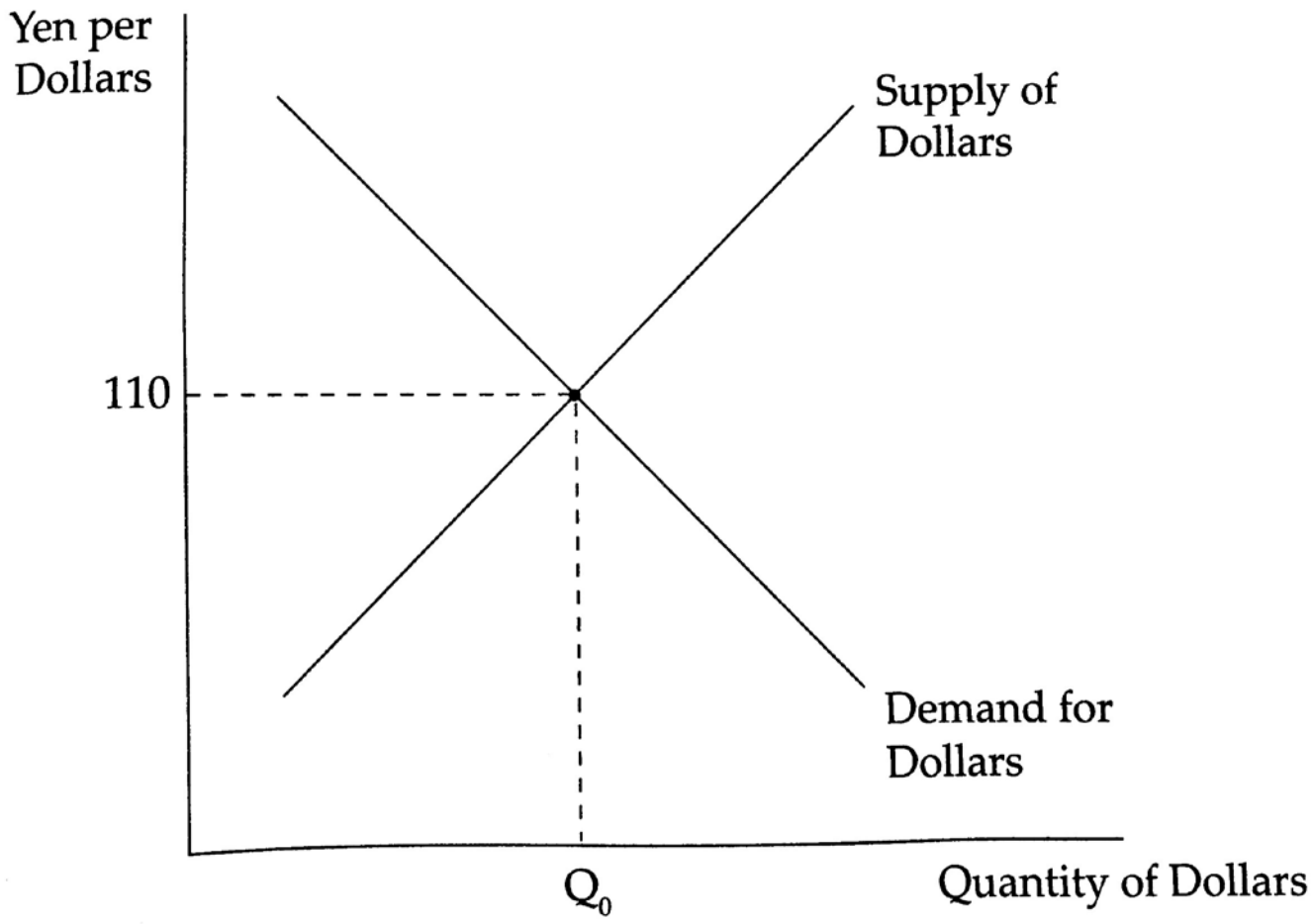
EXAMPLE: U.S. Balance of Payments (2006)

U.S. Balance of Payments, 2006

	Item	Amount (Billions)
1.	Merchandise exports	1,024
2.	Merchandise imports	–1,860
	Merchandise trade balance (lines 1–2)	–836
3.	Service exports	413
4.	Service imports	–342
5.	Income from U.S. overseas investments	622
6.	Income outflow for foreign U.S. investments	–629
7.	Net U.S. government grants and transfers	–28
8.	Net private transfers	–56
	Current-account balance (items 1–8)	–856
9.	U.S. capital inflow	1,765
10.	U.S. capital outflow	–1,046
	Financial account balance (items 9–10)	719
11.	Statistical discrepancy	137
	Net balance (items 1–11)	0

Source: U.S. Department of Commerce, Bureau of Economic Analysis, www.bea.gov/newsreleases/international/transactions/transnewsrelease.html

GRAPH: Forex (Foreign Exchange) Market for Dollars and Yen



I. **Pay attention to the axes**

II. Forex shifters

a. Tastes

b. Price level (inflation)

c. Income

d. Interest[3]

i. U.S. has higher interest than CAN: **Scenario 1** (more common)

1. If the U.S. has a higher interest rate, Canada will demand more U.S. dollars to buy U.S. bonds and get a higher return → higher demand for U.S. dollars and increased supply of Canadian dollars

[3] In class, you may have only been taught Scenario 1 as it is more common. I am including Scenario 2 b/c on the 2015 AP Macroeconomics exam, one of the MC questions could only be solved through an understanding of Scenario 2.

ii. U.S. has higher interest than CAN: **Scenario 2** (less common)

1. If the U.S. has a higher interest rate, U.S. will demand less Canadian dollars and b/c the interest rate is higher in the U.S. → lower demand for CAN dollars and decreased supply of U.S. dollars

III. **Demand and supply always shift out or in together**

a. E.g. if demand for U.S. dollars increases, supply for Canadian dollars must also increase

IV. **If one country's currency appreciates, the other country's currency will depreciate**

Appreciation

I. Results in a stronger currency

a. Takes fewer units of that currency to buy a unit of another currency

II. **Leads to lower net exports**

III. Helps citizens traveling abroad and importing industries

IV. Hurts domestic tourism and exporting industries

Depreciation

I. Results in a weaker currency

a. Takes more units of that currency to buy a unit of another currency

II. **Leads to higher net exports**

III. Helps domestic tourism and exporting industries

IV. Hurts citizens traveling abroad and importing industries

Arbitrage (less common)

I. Practice of buying at a low price and selling a high price for a certain profit

II. Prevent exchange rates from being different in one place than in another for a significant period → should lead to a natural equilibrium unless the gov. intervenes

III. Most of the financial sector (Wall Street) operates on a "no-arbitrage" assumption as making profit from nothing shouldn't happen

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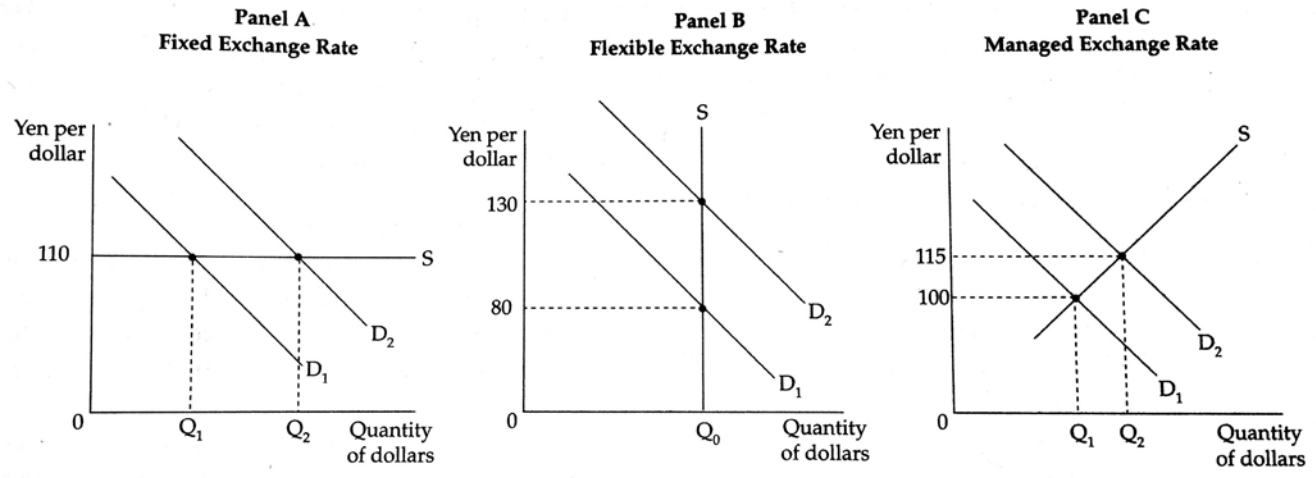
Managing Exchange Rates



I. Fixed exchange rate
   a. Changes in foreign demand only affect the quantity of domestic currency purchased
      i. Unlimited supply of domestic currency
   b. E.g. China and U.S.
      i. China decreases its interest rate to lower foreign capital inflow and lower the demand for Chinese Yuan
      ii. China buys more U.S. currency to increase the supply of Chinese Yuan
      iii. China implements some kind of foreign exchange control e.g. telling a foreign country you can't buy specific types of assets which in turn lowers the demand for Chinese Yuan

II. Flexible exchange rate
   a. Changes in foreign demand only affect the exchange rate
      i. Limited supply of domestic currency

III. Floating (managed) exchange rate
   a. Value of a country's currency changes based on market forces

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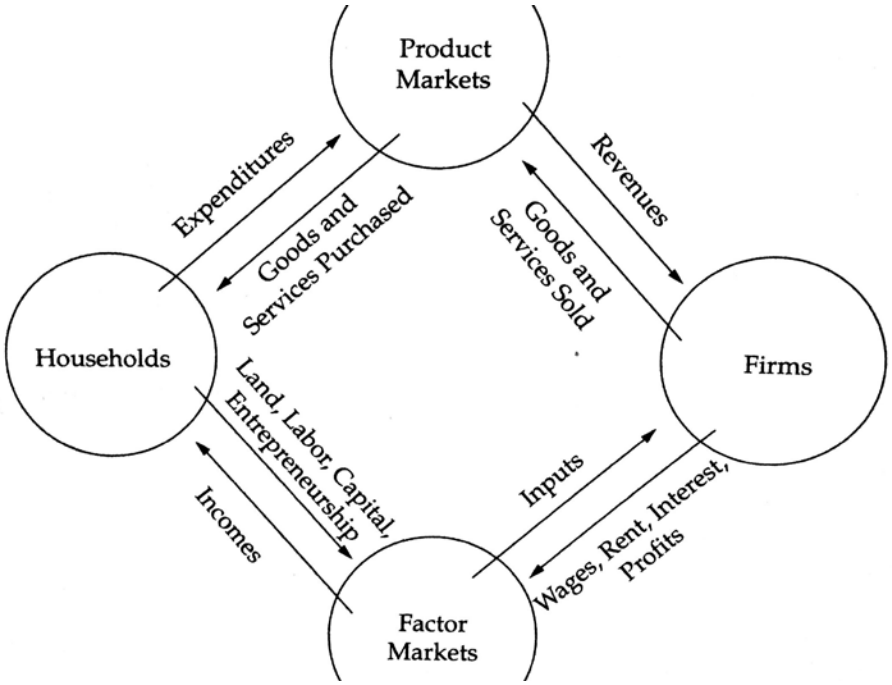
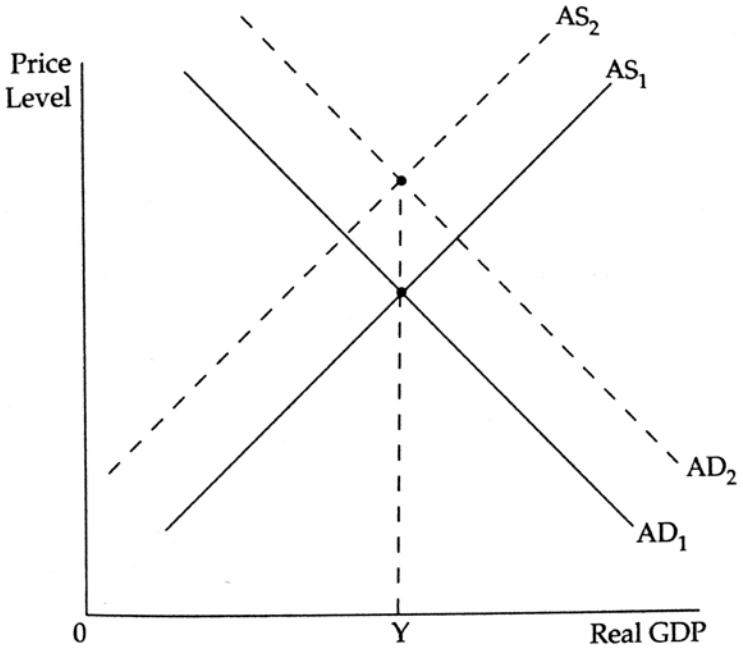
Important Graphs and Diagrams

Circular Flow



Aggregate Supply and Aggregate Demand (ASAD)



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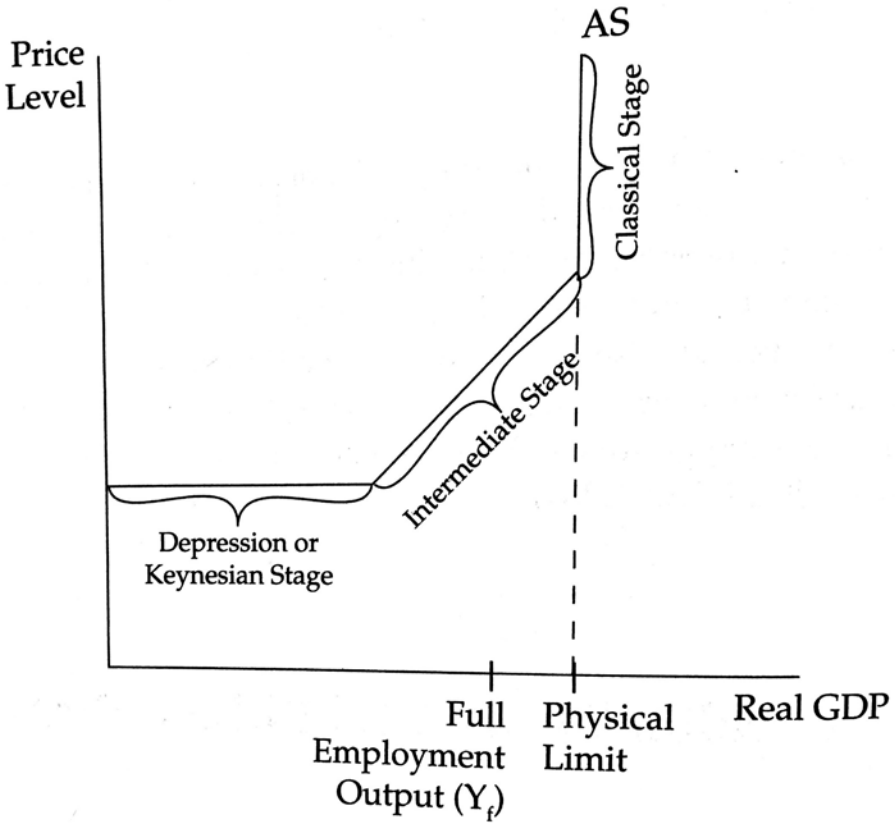
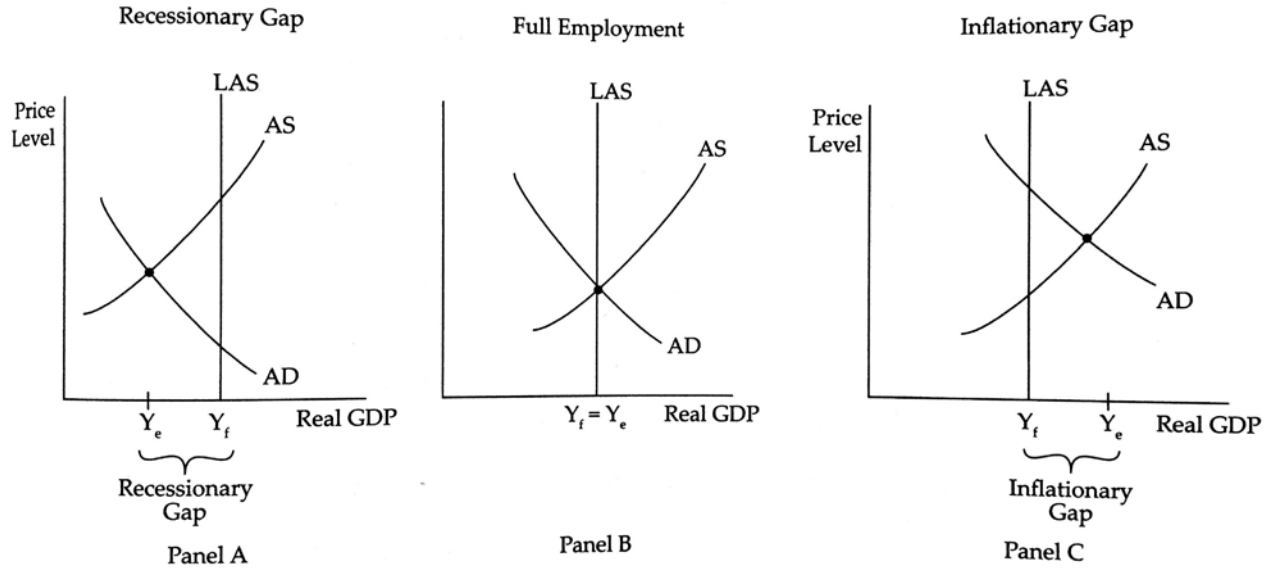
Short Run Aggregate Supply (SRAS)



Recessionary and Inflationary Gaps



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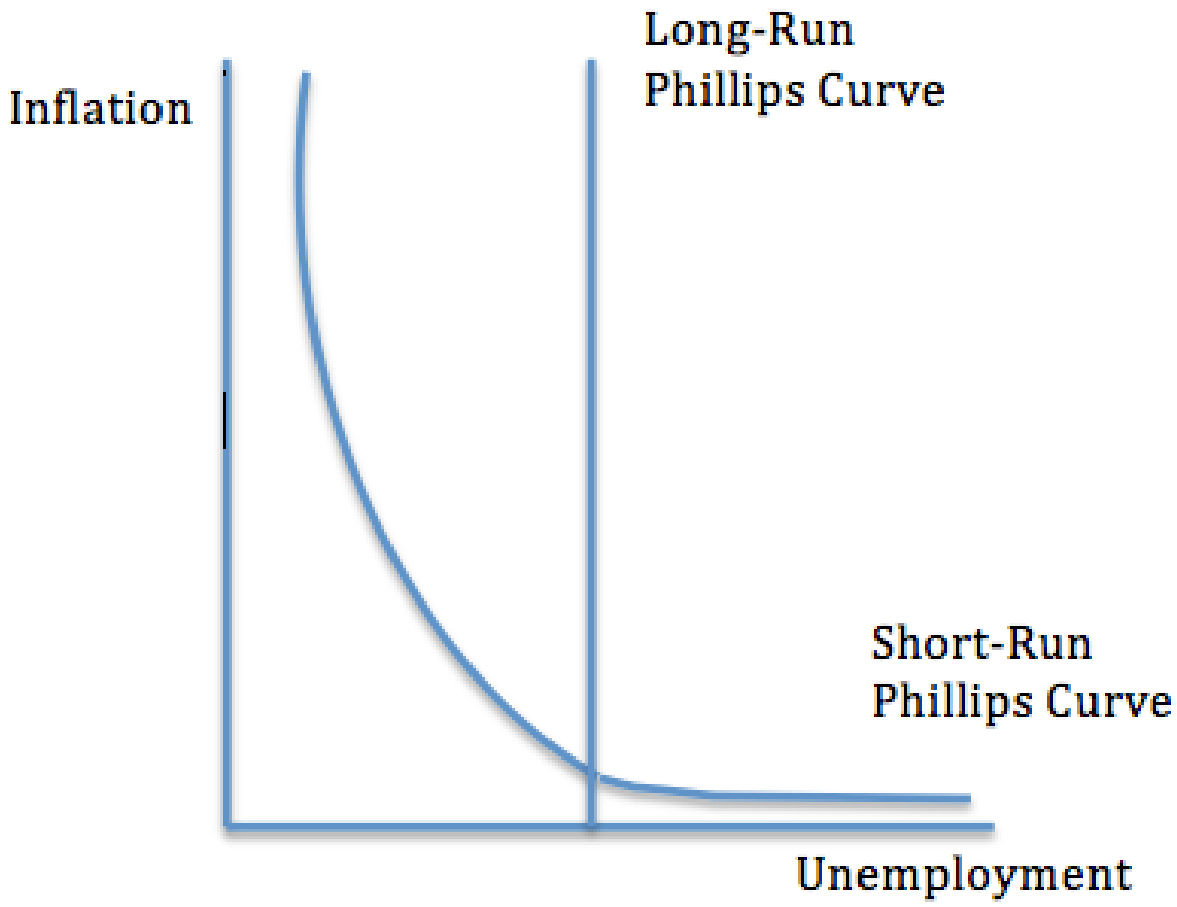
Phillips Curve



T Account

Assets		Liabilities	
Required Reserves	10	Deposits	100
Excess Reserves	10		
Loans	80		
	100		100

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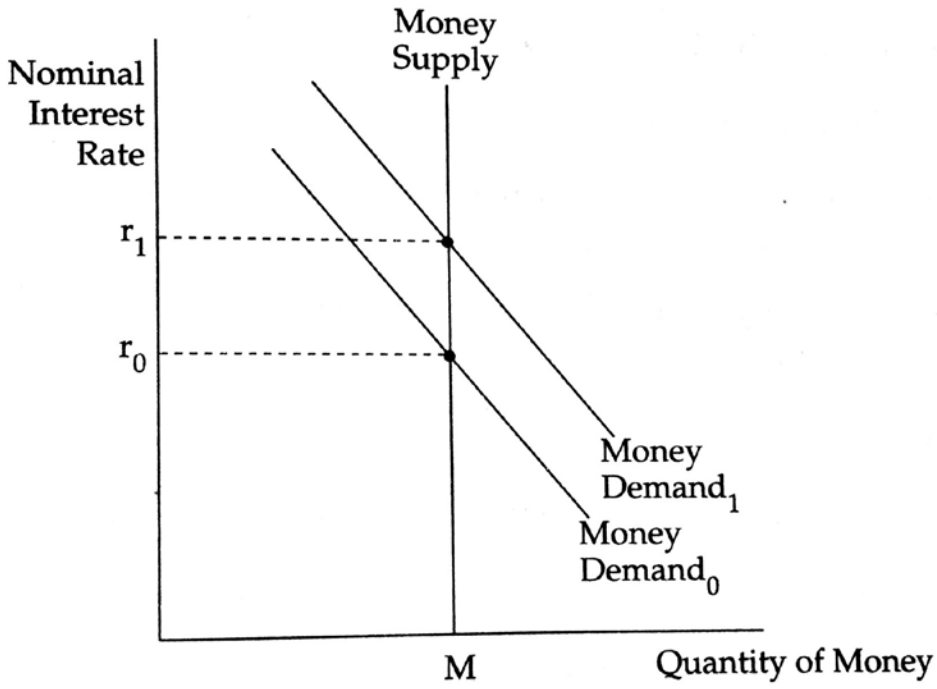
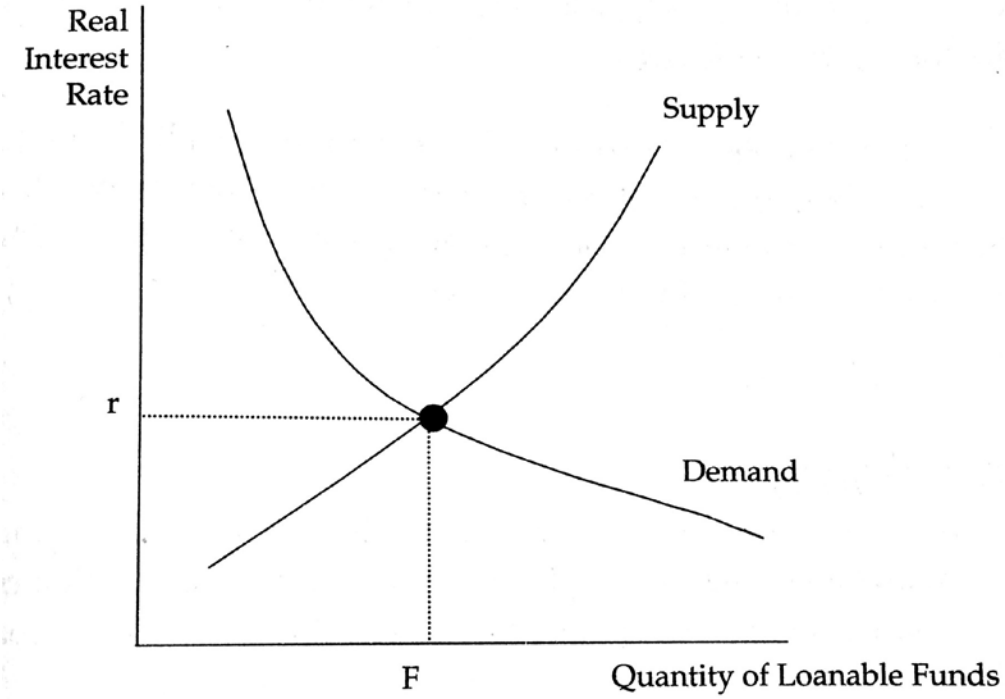
Money Market



Loanable Funds Market



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Forex (Foreign Exchange) Market for Dollars and Yen