

*Advanced Placement
Macroeconomics*

*Study Notes
17th edition of McConnell and Brue*

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Teacher*

Macroeconomics Key Learning Outcomes

1. Define the science of economics
2. Distinguish between opportunity cost, scarcity and trade-offs.
3. Distinguish between macroeconomics and microeconomics
4. List the three basic economic questions
5. Define comparative advantage and specialization and benefits of exchange
6. Use a production possibilities curve to demonstrate opportunity cost and growth
7. List the determinants of demand and supply curves
8. Recognize which factors will cause demand curves or supply curves to shift to shift
9. Distinguish between changes in quantity demanded versus a change in demand
10. Distinguish between changes in quantity supplied versus a change in supply
11. Determine effects on price and quantity when equilibrium changes
12. Describe the macroeconomic performance in the United States and other countries-GDP, inflation, unemployment and other indicators
13. Define Gross Domestic Product by expenditure and income approaches
14. Distinguish between nominal GDP and real GDP
15. Explain the limitations of GDP measures
16. Define unemployment; list sources and types
17. Define labor force participation rate
18. Define the full employment level of GDP
19. Distinguish between actual and potential GDP
20. Explain the calculation of price indices—GDP deflator, CPI, PPI
21. Use price indices to calculate real wages and real interest rates
22. List the determinants of aggregate demand
23. Distinguish between changes in AD and a change in price level causing movement along the AD curve
24. List reasons why the aggregate demand curve is down sloping
25. List the determinants of aggregate supply
26. Distinguish between changes in AS and a change in price level causing movement along the AS curve
27. Explain and demonstrate the shape of the aggregate supply curve in the short and long run; define and show the full-employment level of output (Q_f)
28. Determine the importance of the shape of the AS curve on the effects of change in the AD curve
29. Determine equilibrium using an aggregate demand/aggregate supply graph and show the effects on price level and Real GDP when equilibrium changes in both the long and the short run
30. Given data, determine the size of the spending multiplier and assess its impact on aggregate demand
31. Define Fiscal Policy—discretionary and non-discretionary
32. Define and measure the effect of built-in stabilizers on the economy
33. Using AD/AS analysis, show the effect on price level and RDGP of changes in fiscal policy
34. Define the balance budget multiplier

35. Distinguish between sticky-price and sticky-wage models and flexible price and wage models; identify the effect of these differences on the AS curve
36. Define and list factors influencing money demand
37. Define money supply and other financial assets
38. Demonstrate understanding of the time value of money
39. Define a fractional banking system
40. Explain the role of the Federal Reserve System in the economy
41. Identify and examine the tools of central bank policy and their impact on money supply and interest rates
42. Describe the process of money creation and multiple-deposit expansion
43. Given data, determine the size of the money multiplier and assess its impact on the money supply
44. Distinguish between nominal and real interest rates
45. Define the quantity theory of money
46. Assess the effect of fiscal and monetary policy on real output, price level and the level of employment in the long and short run
47. Gain understanding of how an economy responds to a short-run shock and adjusts in the long run in the absence of any public policy actions
48. Examine the economic effects of government deficit budgets including “crowding out”
49. Consider issues surrounding the size and burden of the national debt
50. Gain understanding of inflation-unemployment tradeoffs using short and long run Phillips curve analysis
51. Show the causes of inflation on an AD/AS model
52. Speculate on the role of inflationary expectations on price level and output
53. Define economic growth and list the factors that stimulate growth
54. Assess the role of productivity in raising real output and standard of living
55. Suggest how public policies stimulate economic growth
56. Using graphical and table analysis, show the benefit of employing comparative advantage
57. Explain how the balance of payments accounts are recorded
58. Explain the effect of trade restrictions
59. List the factors that influence equilibrium foreign exchange rates
60. Using demand/supply analysis, show how market forces and public policy affect currency demand and currency supply
61. Define currency appreciation and depreciation and relate to graphical analysis
62. State the effects of appreciation and depreciation on a country’s net exports
63. Understand how changes in net exports and capital flows affect financial and goods markets

AP MACRO ECONOMICS

SEMESTER PLAN

TEXT: Economics, Principles, Problems and Policies, 17th Edition, McConnell and Brue

Topic	Timing	Chapters
Unit One	Basic Economic Concepts This is a repeat of the first topic in AP Micro; review the chapters if needed.	1, 2, 3 & 5
Unit Two	Measurement of Economic Performance 13 days Circular Flow of income and Business cycle Gross Domestic Product and National Income Unemployment/Inflation	6 & 7
Unit Three	Price Level and Output Determination 19 days Building Aggregate Expenditure Model Aggregate Demand and Supply Fiscal Policy Long run-short run Phillips Curve & Wage-price models Budget Deficits and the Public Debt	8,9,10,11, 15 (partial)
Unit Four	Money, Monetary Policy and Stability 13 days Financials Markets and concepts Money and Banking Monetary Policy and Aggregate Demand	12, 13, 14, 14W
Unit Five	Monetary and Fiscal Combinations 5 days Monetarists/Keynesian controversy Rational Expectations Supply Side Economics Economic Growth	15, 16,17
Unit Six	The US in a Global Economy 8 days Comparative Advantage Gains from Trade and exchange Government Intervention Balance of payments Foreign exchange rates	5, 35,36

Grading Components

The various requirements noted above will be weighted as follows:

Tests	50%
Quizzes and Homework Triple Play	15
Free Response	15
Other Assignments	10
Final Exam*	10

*There will be final exam exemptions for students who have a B average and take the AP Exam.

AP Macroeconomics

Introduction

MACROECONOMIC ISSUES

Chapters 6 and 7 in our textbook introduces the primary issues associated with **Macroeconomics**: the business cycle, growth, inflation and unemployment. In the last four year of the 20th century, the US economy enjoyed rapid growth in its GDP (Gross Domestic Product) while equally enjoying low rates of inflation. Since then we have had a short recession in 2001 followed by growth.

Looking at the data on the end pages of the textbook, the following statistics are evident of the macroeconomic “miracle”.

Year	RGDP (1996 dollars) Billions	% Δ RGDP	Annual change in Productivity	Rate of Inflation	% Unemploy- ment
1996	\$ 7813.2	3.6%	2.8%	3.0%	5.4%
1997	\$ 8159.5	4.4	2.3	2.3	4.9
1998	\$ 8515.7	4.4	2.8	1.6	4.5
1999	\$ 8875.8	4.2	2.8	2.2	4.2
2000	\$ 9318.6	5.0	4.2	3.4	4.0
2001	\$ 9866.6	.05	4.8	2.8	5.8
2002	\$ 10063.0	2.3	4.2	1.6	5.8
2003	\$10381.3	4.4	4.5	1.9	5.7
2004	\$11734.3	4.2	3.4	3.5	5.5
2005	\$12,730.5	6.3	2.2	3.4	4.9
2006	\$13,194.7	3.4	4.0	3.24	4.6
2007 3 qtr	\$13,970.5	4.9	5.0	4.3	5.0

Economic Indicators

Economic indicators provide a snapshot of the economy's health. Just as a doctor checks the vital signs of a patient, an economist might check the vital signs of the economy by looking at gross domestic product (GDP), consumer price index (CPI) or the unemployment rate.

Economists categorize some economic indicators as leading, lagging or coincident. These categories help them see where the economy is in terms of the business cycle, which shows the rising and falling of economic conditions over time. The Federal Open Market Committee (FOMC) examines many economic indicators prior to determining monetary policy. The indicators listed in this section are examples of some of the factors the FOMC considers before issuing its directive on monetary policy.

Leading indicators anticipate the direction in which the economy is headed.

EXAMPLES OF LEADING INDICATORS

1. Average weekly hours, manufacturing: The average hours worked per week by production workers in manufacturing industries tend to lead the business cycle because employers usually adjust work hours before increasing or decreasing their workforce.

2. Average weekly initial claims for unemployment insurance: The number of new claims filed for unemployment insurance are typically more sensitive than either total employment or

unemployment to overall business conditions, and this series tends to lead the business cycle. Initial claims increase when conditions worsen (i.e., layoffs rise and new hires fall).

3. Building permits, new private housing units: The number of residential building permits issued is an indication of construction activity, which typically leads most other types of economic production.

4. Stock prices, 500 common stocks: The Standard & Poor's 500 stock index reflects the price movements of a broad selection of common stocks traded on the New York Stock Exchange. Increases (decreases of the stock index can reflect both the general sentiments of investors and the movements of interest rates, which is usually another good indicator for future economic activity).

5. Index of consumer expectations: This index reflects changes in consumer attitudes concerning future economic conditions and, therefore, is the only indicator in the leading index that is completely expectations-based. Data are collected in a monthly survey and responses to the questions concerning various economic conditions are classified as positive, negative or unchanged.

6. Manufacturers' new orders, consumer goods and materials: These goods are primarily used by consumers. The inflation-adjusted value of new orders leads actual production because new orders directly affect the level of both unfilled orders and inventories that firms monitor when making production decisions.

7. Manufacturers' new orders, nondefense capital goods: New orders received by manufacturers in nondefense capital goods industries (in inflation-adjusted dollars) are the producers' counterpart to manufacturers' new orders for consumer goods.

8. Vendor performance, slower deliveries diffusion index: This index measures the relative speed at which industrial companies receive deliveries from their suppliers. Slowdowns in deliveries increase this series and are most-often associated with increases in demand for manufacturing supplies (as opposed to a negative shock to supplies) and, therefore, tend to lead the business cycle.

9. Money supply: In inflation-adjusted dollars, this is the M2 version of the money supply. When the money supply does not keep pace with inflation, bank lending may fall in real terms, making it more difficult for the economy to expand. M2 includes currency, demand deposits, other checkable deposits, traveler's checks, savings deposits, small-denomination time deposits and balances in money market mutual funds.

10. Interest rate spread, 10-year Treasury bonds less federal funds: The spread or difference between long and short rates is often called the yield curve. This series is constructed using the 10-year Treasury bond rate and the federal funds rate, an overnight interbank borrowing rate. It is felt to be an indicator of the stance of monetary policy and general financial conditions because it rises (falls) when short rates are relatively low (high). When it becomes negative (i.e., short rates are higher than long rates and the yield curve inverts), its record as an indicator of recessions is particularly strong.

Coincident indicators provide information about the current status of the economy.

EXAMPLES OF COINCIDENT INDICATORS

1. Employees on nonagricultural payrolls: It includes full-time and part-time workers and does not distinguish between permanent and temporary employees. Because the changes in this series reflect the actual net hiring and firing of all but agricultural establishments and the smallest

businesses in the nation, it is one of the most closely watched series for gauging the health of the economy.

2. Personal income less transfer payments (in 1996 \$): The value of the income received from all sources is stated in inflation-adjusted dollars to measure the real salaries and other earnings of all persons. Income levels are important because they help determine both aggregate spending and the general health of the economy.

3. Index of industrial production: This index covers the physical output of all stages of production in the manufacturing, mining, and gas and electric utility industries. It is constructed from numerous sources that measure physical product counts, values of shipments and employment levels.

4. Manufacturing and trade sales (in 1996 \$): This index includes sales at the manufacturing, wholesale, and retail levels. It is inflation adjusted to reflect real total spending.

Lagging indicators change months after a downturn or upturn in the economy has begun and help economists predict the duration of economic downturns or upturns.

EXAMPLES OF LAGGING INDICATORS

1. Average duration of unemployment: This series measures the average duration (in weeks) that individuals counted as unemployed have been out of work. Decreases in the average duration of unemployment invariably occur after an expansion gains strength and the sharpest increases tend to occur after a recession has begun.

2. Average prime rate charged by banks: Although the prime rate is considered the benchmark that banks use to establish their interest rates for different types of loans, changes tend to lag behind the movements of general economic activities.

3. Ratio of manufacturing and trade inventories to sales: This is a popular gauge of business conditions for individual firms, entire industries and the whole economy. Because inventories tend to increase when the economy slows and sales fail to meet projections, the ratio typically reaches its cyclical peaks in the middle of a recession. It also tends to decline at the beginning of an expansion as firms meet their sales demand from excess inventories.

4. Consumer installment credit outstanding to personal income: This measures the relationship between consumer debt and income. Because consumers tend to hold off personal borrowing until months after a recession ends, this ratio typically shows a trough after personal income has risen for a year or longer.

5. Change in labor cost per unit of output, manufacturing: Measures the rate of change in an index that rises when labor costs for manufacturing firms rise faster than their production (and vice versa). The index is constructed from various components, including seasonally adjusted data on employee compensation in manufacturing (wages and salaries plus supplements) and seasonally adjusted data on industrial production in manufacturing. Because monthly percent changes in this series are extremely erratic, percent changes in labor costs are calculated over a six-month span. Cyclical peaks in the six-month annualized rate of change typically occur during recessions, as output declines faster than labor costs despite layoffs of production workers. Troughs in the series are much more difficult to determine and characterize.

6. Commercial and industrial loans outstanding (in 1996 \$): This series measures the volume of business loans held by banks and commercial paper issued by nonfinancial companies. The Board of Governors of the Federal Reserve System compiles the underlying data. The Conference Board, a New York-based business research network, makes price level adjustments using the same deflator (based on Personal Consumption Expenditures data) used to deflate the

money supply series in the leading index. The series tends to peak after an expansion peaks because declining profits usually increase the demand for loans. Troughs are typically seen more than a year after the recession ends.

7. Change in consumer price index for services: Compiled by the Bureau of Labor Statistics, it measures the rates of change in the services component of the consumer price index. It is probable that because of recognition lags and other market rigidities, service sector inflation tends to increase in the initial months of a recession and to decrease in the initial months of an expansion.

Check the current statistics at

http://www.conference-board.org/economics/bci/pressRelease_output.cfm?cid=1

Glossary of Selected Key Economic Indicators

Consumer Price Index – a measure of the average price level of a fixed basket of goods and services purchased by consumers as determined by the Bureau of Labor Statistics. Monthly changes in the CPI represent the rate of inflation.

Durable goods orders - reflect the new orders placed with domestic manufacturers for immediate and future delivery of factory hard goods.

Employment cost index – a measure of total employee compensation costs, including wages, salaries and benefits. This is the broadest measure of labor costs.

Gross domestic product – the broadest measure of aggregate economic activity encompassing every measure of the economy, measuring the total value of goods and services produced during a specific period.

Index of industrial production – a measure of the physical output of the nation’s factories, mines and utilities.

Jobless claims – a weekly compilation of the number of individuals who filed for unemployment insurance for the first time. It portends trends in the labor market.

Motor vehicle sales – unit sales of domestically produced cars and light-duty trucks. Figures are good indicators of trends in consumer spending.

Personal income – the dollar value of income received from all sources by individuals.

Personal outlays – consumer purchases of durable goods, nondurable goods and services.

Producer price index – a measure of the average price level for a fixed basket of capital and consumer goods paid by producers.

Trade balance – measures the difference between exports and imports of both tangible goods and services. The level of the international trade balance, as well as changes in exports and imports, indicate trends in foreign trade.

Real Variables and Nominal Variables Explained

- Generally a real variable, such as the real interest rate, is one where the effects of inflation have been factored in.
- A nominal variable is one where the effects of inflation have not been accounted for.

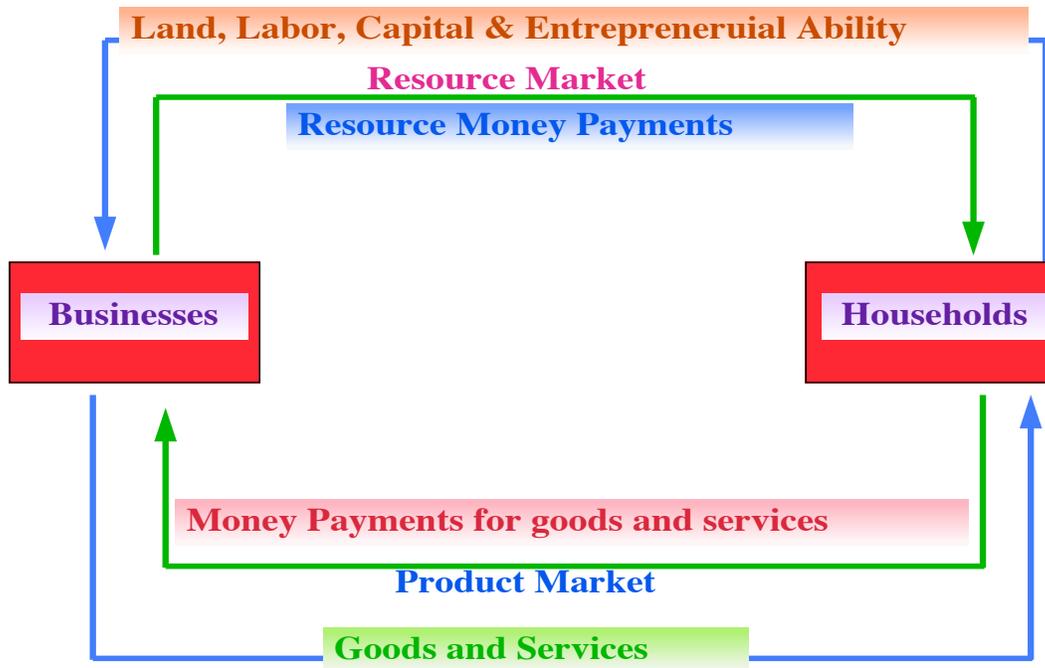
Stocks and flows

- An analogy of a reservoir may be helpful in thinking about a nation's capital stock, investment, and depreciation. Picture a reservoir that has water flowing in from a river and flowing out from an outlet after it passes through turbines. The volume of water in the reservoir *at any particular point in time* is a "stock." In contrast, the inflow from the river and outflow from the outlet are "flows." Such flows are always measured *over some period of time*. Suppose that we measure these inflows and outflows at the end of each week and compare them with our measurements at the beginning of the week.
- The volume or "stock" of water in the reservoir will rise if the weekly inflow exceeds the weekly outflow. It will fall if the inflow is less than the outflow. And, it will remain constant if the two flows are equal.
- We could simplify further by thinking in terms of the *net inflow* (inflow *minus* outflow) into the reservoir, where the net inflow can be positive or negative. The volume of water in the reservoir will rise if the net inflow is positive, decline if it is negative, and remain constant if it is zero.
- Now let's apply this analogy to the stock of capital, gross investment, and depreciation. The stock of capital is the total capital in place at any point in time. Changes in this stock over some period of time, for example, one year, depend on *gross investment* and *depreciation*. Gross investment (the addition of capital goods) adds to the stock of capital while depreciation (the using up of capital goods) subtracts from it. The capital stock increases when gross investment exceeds depreciation, declines when gross investment is less than depreciation, and remains the same when gross investment and depreciation are equal.
- Alternatively, the stock of capital increases when *net investment* (gross investment *minus* depreciation) is positive. When net investment is negative, the stock of capital declines, and when net investment is zero, the stock of capital remains constant.

The distinction between stocks and flows applies to several other elements of economics. For example, *savings* (with an ending "s") is a stock and *saving* per week is a flow. *Business inventories* is a stock and *net changes in business inventories over the past year* is a flow. *Wealth* is a stock and monthly *income* is a flow. Your *checkbook balance* is a stock and your monthly *deposits* and *withdrawals* are flows.

The Circular Flow Model

- Economists use the circular flow diagram to show the high degree of economic interdependence in our economy. Money flows in one direction while goods, services, and the factors of production flow in the opposite direction.
- This simple circular flow model shows two groups of decision-makers—households (or individuals) and businesses. (Later government will be added). The coordinating mechanism, which brings together these decisions, is the market system.



Key graph, p. 39

We can look at this model again to see that it measures the economy. GDP counting by the expenditure approach will be the flow of goods and services in the product market that flows from businesses to households. GDP counting by the income approach will be the money payments from businesses to resource suppliers (households) in the resource or factor market.

Nominal GDP vs. Real GDP

- **Real GDP** measures the value of goods and services adjusted for change in the price level. It will reflect the real change in output. This measure is called the **Constant Dollar GDP** and indicates what the GDP would be if the purchasing power of the dollar has not changed from what it was in a base year. The government currently uses 1987 as its base year for GDP measurement.
- **Current Dollar** reflects the current price level of goods and services and ignores the effect of inflation on the growth of GDP. **It is called Nominal GDP.**

2. Income Approach to GDP

Counting the GDP by using the incomes earned by those supplying resources for the production of the set of goods and services counted by the expenditure approach. We must make some adjustments to this resource payment figure as noted below.

Starting with Resource suppliers:

Add: Total income earned by American resource suppliers includes:

Recognize these as the payments paid to resource providers	}	+Wages and salaries (labor)
		+Rent (land)
		+Interest (capital)
		+Proprietor's income (form of profit earned by single owner and partnerships)
		+Corporate income tax (profit paid as tax)
		+Dividends (form of profit given to shareholders of stock)
		+Undistributed corporate profits (retained profits)

We add to this resource payment figure, two items that are lost in this counting

Add: Non-Income Charges

- +Depreciation: Consumption of Fixed Assets
- +Indirect Business Taxes

We subtract this resource payment item that is the net effect of foreign workers in US and American workers in rest of world.

Subtract: Net American Income Earned Abroad

—NFFIE (Net Foreign Factor Income Earned)

Other National Accounts Definitions:

Net Domestic Product (NDP) equals **GDP** minus **Depreciation**

Since depreciation is the repair and replacement cost of old, obsolete equipment, it does not add to the GDP in a real sense.

National Income (NI) equals **NDP** plus **Net American Income Abroad** minus **Indirect Bs. Taxes.**

After determining the NDP, adding the earnings of Americans in foreign job markets and subtracting business taxes that are lost to spending, we can see how this NI figure is the same as it is derived using the formula above.

Personal Income (PI) equals **NI** minus **SS Contributions** minus **Corp Income Taxes** minus **Undistributed Corporate Profit** plus **Transfer Payments**

Earned and Unearned income is counted as **PI**; the SS contribution, corporate income tax and undistributed corporate profit is earned by not received; the transfer payments include all the unearned portion of income coming as pensions, and other payments, private and public.

Disposable Income (DI) equals **PI** minus **Personal Taxes**

This is the bottom line—we can spend and/or save this DI.

$$\mathbf{DI = C + S}$$

Disposable Income is equal to the income used to spend for goods and service and the income used to save

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Ch 6, p. 116-118

Any Price Index measures the price of a specially selected collection of goods and services, called “a market basket” in a given year as compared to the price of the same collection of goods and services in a reference year.

Gross Domestic Product Price Deflator

The **GDP Price Index method...** measures the combined price of a particular collection of goods and services that make up the GDP and help to adjust the number (Nominal GDP) to a Real GDP figure.

Nominal GDP Growth vs. Real GDP Growth

GDP, or Gross Domestic Product is the value of all the goods and services produced in a country. The Nominal Gross Domestic Product measures the value of all the goods and services produced expressed in current prices. On the other hand, Real Gross Domestic Product measures the value of all the goods and services produced expressed in the prices of some base year. An example:

Suppose in the year 2000, the economy of a country produced \$100 billion worth of goods and services based on year 2000 prices. Since we're using 2000 as a basis year, the nominal and real GDP are the same. In the year 2001, the economy produced \$110B worth of goods and services based on year 2001 prices. Those same goods and services are instead valued at \$105B if year 2000 prices are used. Then:

- Year 2000 Nominal GDP = \$100B, Real GDP = \$100B**
- Year 2001 Nominal GDP = \$110B, Real GDP = \$105B**
- Nominal GDP Growth Rate = 10%**
- Real GDP Growth Rate = 5%**

Once again, if inflation is positive, then the Nominal GDP and Nominal GDP Growth Rate will be less than their nominal counterparts. The difference between Nominal GDP and Real GDP is used to measure inflation in a statistic called **The GDP Deflator** .

Calculating Real GDP					
Year	Unit of Output	Unit Price	Price Index Year 1 = 100	Nominal GDP	Real GDP
1	5	\$10	100	\$ 50	\$ 50
2	7	20	200	140	70
3	8	25	250	200	80
4	10	30	<u>300</u>	300	<u>100</u>
5	11	28	<u>280</u>	308	<u>110</u>

1. Price Index = Nominal price / Base year price

Price Index in year 2 $\frac{\$20}{10} \times 100 = 200$ Price Index in year 4 $\frac{\$30}{10} \times 100 = 300$

Price Index in year 3 $\frac{\$25}{10} \times 100 = 250$ Price Index in year 5 $\frac{\$28}{10} \times 100 = 280$

2. Dividing Nominal GDP by the Price Index to give us Real GDP

Use the price index numbers to deflate the nominal GDP figures. Express the index numbers as hundredths (in decimal form) and then divide them into the related Nominal GDP.

	Real GDP =	<math>\frac{\text{Nominal GDP}}{\text{Price index (in 100th's)}}</math>	
Real GDP in year 2	$\frac{\$140}{2.0}$	= \$70	Real GDP in year 4 $\frac{\$300}{3.0} = \100
Real GDP in year 3	$\frac{\$200}{2.5}$	= \$80	Real GDP in year 5 $\frac{\$308}{2.8} \times 100 = 110$

Consumer Price Index

- Bureau of Labor Statistics gathers data on prices monthly and reports the information as the CPI. The website of BLS tells us that The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. It is a fixed-weight price index, which reflects spending patterns for each of two population groups: All Urban Consumers (CPI-U) and Urban Wage Earners and Clerical Workers (CPI-W). The CPI-U represents about 87 percent of the total U.S. population. It is based on the expenditures of almost all residents of urban or metropolitan areas, including professionals, the self-employed, the poor, the unemployed and retired persons as well as urban wage earners and clerical workers. Not included in the CPI are the spending patterns of persons living in rural non-metropolitan areas, farm families, persons in the Armed Forces, and those in institutions, such as prisons and mental hospitals.

- The CPI market basket is developed from detailed expenditure information provided by families and individuals on what they actually bought. For the current CPI, this information was collected from the Consumer Expenditure Survey over the two years 2001 and 2002. In each of those years, about 10,000 families from around the country provided information on their spending habits in a series of quarterly interviews. To collect information on frequently purchased items such as food and personal care products, another 7,500 families in each of the 2 years kept diaries listing everything they bought during a 2-week period. Altogether, more than 30,000 individuals and families provided expenditure information for use in determining the importance, or weight, of the more than 200 categories in the CPI index structure.

- The CPI represents all goods and services purchased for consumption by the reference population (CPI-U or CPI-W) BLS has classified all expenditure items into more than 200 categories, arranged into eight major groups. Major groups and examples of categories in each are as follows:

- Food and beverages (breakfast cereal, milk, coffee, chicken, wine, full service meals and snacks);
- Housing (rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture);
- Apparel (men's shirts and sweaters, women's dresses, jewelry);
- Transportation (new vehicles, airline fares, gasoline, motor vehicle insurance);
- Medical care (prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, hospital services);
- Recreation (televisions, cable television, pets and pet products, sports equipment, admissions);

- Education and communication (college tuition, postage, telephone services, computer software and accessories);
- Other goods and services (tobacco and smoking products, haircuts and other personal services, funeral expenses).
 - The CPI will need revisions, as long as there are significant changes in consumer buying habits or shifts in population distribution or demographics. The Bureau, by developing annual Consumer Expenditure Surveys and Point-of-Purchase Surveys, has the flexibility to monitor changing buying habits in a timely and cost-efficient manner. In addition, the census conducted every 10 years by the Department of Commerce provides information that enables the Bureau to reselect a new geographic sample that accurately
 - Each month, BLS releases thousands of detailed CPI numbers to the media. However the media usually focuses on the broadest, most comprehensive CPI. This is "The Consumer Price Index for All Urban Consumers (CPI-U) for the U.S. City Average for All Items, 1982-84=100." reflects the current population distribution and other demographic factors. **Changes in the CPI are designed to measure the rate of inflation facing consumers.**

$$\text{CPI} = \frac{\text{Price of market basket in any given year}}{\text{Price of the 1982-84 market basket}}$$

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Chapter 6, p. 118-119

GDP and Economic Well-being

GDP is only a measure of the volume of goods and services produced. There is thought to be a strong positive correlation between real GDP and economic well-being. Greater production means “the good life”. But... there are some shortcomings.

1. Non market transactions—by not counting some kinds of production (homemaker, work done for oneself), we understate the well-being.
2. Leisure—the decline of the US workweek in terms of hours worked, and the additional of a range of fringe benefits are not accounted for and thus we understate our well-being. The “psychic income” of working is also ignored.
3. Improved Product Quality—GDP is a quantitative measure, not qualitative. Improvement in quality over time is not truly measured and well-being is understated, if we are really getting more for our money
4. Composition and Distribution of Output—GDP tells us nothing about who gets the goods and services produced, or the “goodness” of the goods and services. A shift to a more unequal distribution of income (rich are richer, poor are poorer) is not reflected in a rising GDP.
5. Per Capita Output—if GDP growth is less than population growth, the figures to not reflect a lower well-being.
6. GDP and the Environment—”gross domestic byproducts” accompany the growth of GDP. The costs of pollution reduce our well-being; these spillover costs are associated with production, but are not deducted from GDP, overstating our economic well-being.
7. The Underground Economy—composed of illegal activities, informal and unrecorded transactions, and income that is not reported. Some economists estimate that as many as 25 million Americans earn a large part of their income from underground activities. While economists have long estimated that the U.S. underground economy equals about 10 percent of GDP, there are reasons to believe the size may be larger. See <http://www.imf.org/external/pubs/ft/issues/issues30/index.htm> for more information.

Shadow Economy as Percent of Official GDP, 1988–2000	
The ranges reflect the different estimation methods used by different sources.	
Country Group	Percent of GDP
Developing	35–44
Transition	21–30
OECD (21 advanced economies)	14–16

8. Government transfer payments—are not counted as part of GDP. These are the payments made for Social Security, Veterans, unemployment benefits, and welfare programs like AFDC and Food Stamps. The logic of this is that NO current production is generated. Yet...these sources of income are used to purchase goods and services and hence raise our overall well-being.

AP Macroeconomics
Chapter 7 p. 125-127

Economic Growth

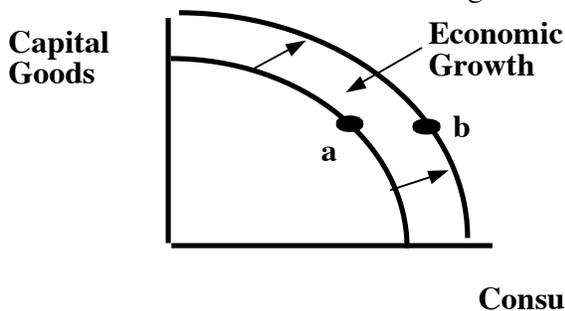
- **Growth Economics** examines factors, which expand an economy's productive capacity over time.

- **Economic growth is defined and measured in two related ways:**

1. the increase in real GDP which occurs over a period of time
2. the increase in real GDP per capita which occurs over time

- Usually calculated in terms of annual percentage rates of growth, economic growth is widely accepted **economic goal**. A growing economy is in a superior position to meet new needs and resolve socioeconomic problems both domestically and internationally. Growth lessens the burden of scarcity. We can consume more while still increasing our capacity with new capital investment if the strategy is to encourage growth.

- Growth can be modeled using the **Production Possibility Curve**.



Movement from a to b shows Economic growth—a shift of the PPC reflected as a change in productivity.

- **Rule of 70 gives a quantitative measure of the effect of economic growth.**

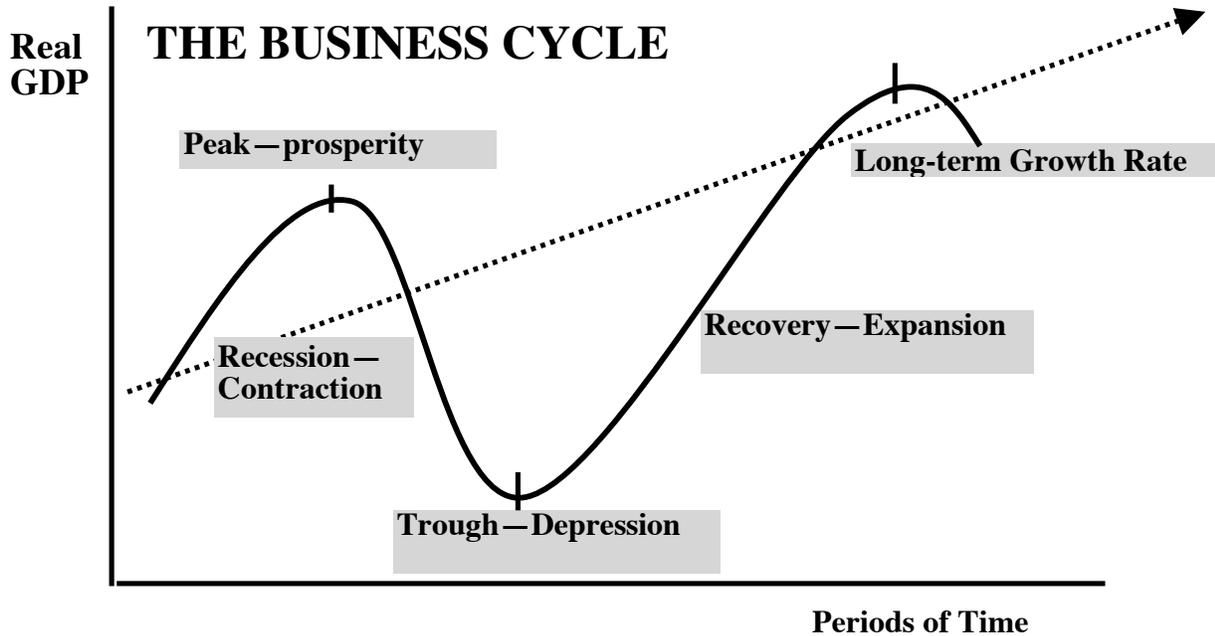
Years to double the real GDP = 70 / annual % growth rate

A 3% annual rate of growth will double Real GDP in 23 years. ($23=70/3$).

- Main source of growth is gains in productivity—measured as real output per unit of input. About 1/3 of US growth comes from more inputs, while 2/3 comes from gains in productivity.
- Real GDP from 1950 to 2005 grew an annual rate of 3.5%—about a 6 fold increase. But population also increased so the Real GDP per capita increased 2.3% over the same period.
- But...we have improved products and services, added leisure. However, impacts on the environment and the quality of life are also effects.

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Business Cycles

- The term **business cycle** refers to the recurrent ups and downs in the level of economic activity, which extend over several years. Individual business cycles may vary greatly in duration and intensity. All display a set of phases.
- The overhead (The Business Cycle) shows the four phases:
 - ✓ **Peak or prosperity phase:** real output in the economy is at a high level, unemployment is low and domestic output may be at its capacity. Inflation may be high.
 - ✓ **Contraction or recession phase:** real output is decreasing and the unemployment rate is rising. As contraction continues, inflation pressure fades. If the recession is prolonged, price may decline (deflation). The government determinant for a recession is two consecutive quarters of declining output.
 - ✓ **Trough or depression phase:** lowest point of real GDP; output and unemployment “bottom out”. This phase may be short-lived or prolonged. There is no precise decline in output at which a serious recession becomes a depression.
 - ✓ **Expansionary or recovery:** real output in the economy is increasing and the unemployment rate is declining. It is the upswing part of the cycle.



• **Recessions since 1950** show that duration and depth are varied:

Period	Duration in months	Depth (decline in real GDP)
1953-54	10	— 3.0%
1957-58	8	— 3.5
1960-61	10	— 1.0
1969-70	11	— 1.1
1973-75	16	— 4.3

1980	6	— 3.4
1981-82	16	— 2.6
1990-91	8	— 2.6
2001 March-November	9	— 0.6

How Indicators Monitor the Four Phases of the Business Cycle

The leading indicator system provides a basis for monitoring the tendency to move from one phase to the next. The system assesses the strengths and weaknesses in the economy as clues to a quickening or slowing of future rates of economic growth, as well as to cyclical turning points in moving from the upward expansion to the downward recession, and from the recession to the upward recovery.

The terms "leading," "coincident" and "lagging" refer to the timing of the turning points of the indexes relative to those of the business cycle. Leading indicators anticipate the direction in which the economy is headed. The coincident indicators provide information about the current status of the economy. These indicators change as the economy moves from one phase of the business cycle to the next and tell economists that an upturn or downturn in the economy has arrived. Lagging indicators change months after a downturn or upturn in the economy has begun and help economists predict the duration of economic downturns or upturns.

The system is based on the theory that expectations of future profits are the motivating force in the economy. When business executives believe that their sales and profits will rise, companies tend to expand production of goods and services and investment in new structures and equipment. When they believe profits will decline, they reduce production and investment. These actions generate the four phases of the business cycle.

- **Causes of Fluctuations** range from innovation to political and random events. Wars can be economically very disruptive—demand for war material can drive the economy to over full employment to be followed at war's end with an economic slowdown. Inflation can be a problem during war, and price controls and rationing are often needed to relieve it.

- **Most economists believe that the most immediate determinant of the levels of output and employment is the level of aggregate or total spending.** In a market economy, profit drives the producer; households sell their resources for this production and earn the income to purchase the output. When demand falls, producers are less willing to produce the goods and services. Income fall and purchasing power declines.

- **Seasonal and secular fluctuation occur.** There is also a cyclical impact in terms of durable goods and nondurables. Capital goods and consumer goods producers are affected most by the swings of the business cycle. Durable goods are said to be postponable; this is true for business capital goods. We can generally repair the old car, the old machine; remodel the house or the factory. Non-durables, like food and clothing, are less likely to be postponed.

Employment and Unemployment

Employment is the state of having a job for which one receives money or other compensation; unemployment is the lack of such a job if one is willing and able.

- **Most people must work** in order to support themselves and their dependents, governments strive to keep levels of unemployment low and usually measure unemployment rates carefully.

- The **civilian labor force** is defined as the sum of employed civilians and persons classified as unemployed. The **total labor force** includes members of the armed forces stationed in the U.S. Persons who are not looking for work are not part of the labor force and are not counted as unemployed. Those not counted will include the institutionalized population, and those unable to work due to desire or disability. Students are not counted as part of the labor force.

- The **civilian unemployment rate** is the numbers of civilians unemployed as a percentage of the civilian labor force. The **overall unemployment rate** uses the total labor force figure as the denominator. The numerator is the same as the civilian rate since being in the military means being employed. For this reason, the overall rate unemployment rate is marginally lower—about one-tenth of a percentage point on average.

- **Official U.S. statistics** on employment and unemployment are derived from a monthly sample survey of households. Another measurement, the employment ratio, is the percentage of the total working-age population--not just the labor force--who have jobs.

- **Discouraged workers** are individuals who want a job but for various reasons have been discouraged from continuing to actively seek one; they are not considered part of the labor force and they are not counted as unemployed. This somewhat distorts the figures.

- **Household data is classified into full-time and part-time.** Work of 35 hours per week means full-time. Data collected asked respondents to give economic and non-economic reasons for their part-time work.

Types of Unemployment

- **Frictional** arises from the normal process of turnover in the labor market as new workers enter the market and search for work, and existing workers quit one job to look for a better one. Often called “search unemployment and wait unemployment”, this type describes the imperfect labor market in making jobs and workers. **Seasonal** unemployment occurs in agriculture, construction, and other industries that are more active at some times of the year than at others.

- **Structural** unemployment, caused by imperfect labor-market adjustment, is the most intractable of the main types. Over time, there are changes in demand and in technology that can displace workers. Also, workers and resources do not move freely to places where they are needed, and long-term structural unemployment is often the result. Many workers who lost their jobs in the Appalachian coal industry during the 1950s and '60s, for example, or in the Midwestern steel industry in the 1970s and '80s, lacked skills useful for other local industries. They did not migrate from the region, nor did new industries arrive that could employ them.

- Some unemployment is **cyclical**; that is, it varies with business conditions. Workers are laid off when business is bad and rehired when conditions improve. Often caused by swings in total spending for goods and services, this type is called deficient-demand unemployment.

• A person whose productive capacities are not fully used is **underemployed**. A part-time worker seeking a full-time job or a skilled worker doing unskilled work for lack of a job in his or her own trade, for example, is underemployed. Underemployment occurs for the same reasons as unemployment, although it is more difficult to measure.

POLICIES TOWARD UNEMPLOYMENT

- Governments adopt various policies to restrain rates of unemployment and to train workers for more productive employment. Programs to create **new jobs, to upgrade workers' skills, or to retrain workers** for new types of jobs are often adopted to fill these needs.
- Governments often **set a minimum wage** allowable by law to ensure that employed workers receive at least a subsistence income, although it is sometimes claimed that this practice increases unemployment among the young by raising the cost of hiring unskilled workers.
- Governments may also provide **subsidies** to workers or industries to relocate, and they may direct resources into selected industries or sectors through ECONOMIC PLANNING.
- The U.S. government combats DISCRIMINATION in hiring and promotion through EQUAL OPPORTUNITY and affirmative action laws and policies.
- Finally, many governments seek to ameliorate the often-devastating effects of long-term unemployment through **UNEMPLOYMENT INSURANCE** and social welfare programs.

$$\text{Unemployment Rate} = \frac{\text{\# of Unemployed workers}}{\text{Labor Force}}$$

- Increases in the unemployment rate lead the economy into a recession but lags during recovery; the rate is affected by basic demand factors. Recall “derived demand” from Microeconomics!

Establishment survey and the Non-farm payroll employment

- Collection of current employment statistics from non-farm establishments, which report **numbers of persons on the payroll** on a full-time or part-time basis. Various segments of the economy can be studied more closely with data collected. Manufacturing employment changes (a high-wage sector) can reflect trends in overall GDP. Data is also collected on average weekly hours, average hourly and weekly earnings. The **Non farm payroll employment** reflects the current strength or weakness of the economy. In cyclical unemployment while moving into a recession, hours of employment will first be cut before layoffs occur. In recovery, hours will increase before new hiring since new hires cost more in benefits, training, etc.

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Full Employment

- **Full employment is less than 100% because the economy is dynamic**—frictional and structural unemployment are often inevitable.
- The Full employment rate of unemployment or the **Natural Rate of Unemployment (NRU) is present when the economy is producing its potential output.** NRU is present when the number of job seekers equals the number of job vacancies. When labor markets are in balance, there is lag time. Workers seeking jobs and those retraining are the cause of the lag.
- The NRU is not static; the economy will want to move to its potential output but cyclical unemployment can interfere. Further, when labor markets are tight and firms quickly retrain structurally unemployed and workers who previously were not in the labor force come back, the economy can operate below the NRU.
- Economists in the 1980's thought the NRU was 6%. Today, the figure is 4 to 5%. Why?
 - Fewer workers available as baby boomers age.
 - Workers find jobs more quickly—the internet is a source of information.
 - Changes in the welfare system put more people in the labor force
 - Doubling of US prison population removes relatively high unemployment individuals from the labor force.

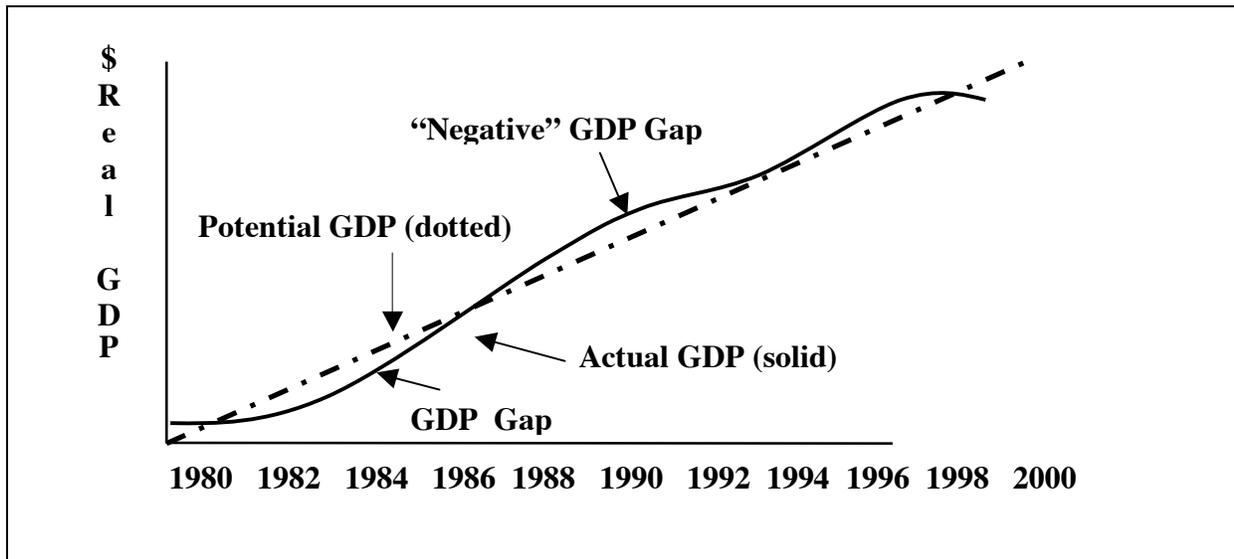
The Natural Rate of Unemployment exists when the cyclical unemployment is zero.

Economic Cost of Unemployment

GDP Gap and Okun's Law

- The **basic loss of unemployment is forgone output**. This is a set of goods and services that is forever lost. The economy will be producing inside the PPC. We measure this as the **GDP Gap and Okun's Law**. Named after American economist Arthur Okun (1926-1980), Okun's law states that the elasticity of the ratio of actual to potential output, with regard to a change in the employment rate, is a constant of roughly three. Okun looked at the US GNP during the 1950s and 1960s and found that a **one per cent rise** in unemployment was associated with a **three per cent** decrement in the ratio of actual GNP to full capacity GNP. This became known as Okun's law.

- **Potential GDP** is the capacity of the economy assuming the Natural Rate of Unemployment. The growth of the Potential GDP assumes the normal growth rate of the real GDP.



- The GDP is related to unemployment. **The higher the unemployment rate the larger the GDP Gap.**

- Sometimes the economy's actual output will exceed its potential—**"negative" GDP gap**. This happens when the statistics don't agree with what's happening because some facts are lost or missed. Extra shifts of workers, capital equipment used beyond its design capacity, overtime work and moonlighting are common statistics that cannot be accurately counted. In 1988-89, an economic expansion caused actual GDP to exceed potential GDP. This condition eventually causes inflation and cannot be sustained.

- Today, some economists theorize that Okun's Law is more a predictive tool than a "law". The data does not fit the law so the 3:1 ratio does not work any longer.

Unequal burdens

Unemployment impacts groups and classes in differing ways. Examine this chart and draw some conclusions as to who bears the greatest burden.

Dec 2007 DATA Source: <http://www.bls.gov/home.htm>

Labor force: 153,866,000 Employed 146,211,000 Unemployed 7,078,000

Labor force participation rate: 66.0% Unemployment Rate 4.6% Discouraged 369,000

Demographic Group	Unemployment Rate 2003	Unemployment Rate 2007
Overall	5.9%	4.6
Occupation:		
Managerial and professional	1.9	2.1
Production occupations	6.3	7.5
Age:		
16-19	15.5	17.1
Male 20+	5.2	4.4
Female 20+	4.4	4.4
Race:		
Black	10	9.0
White	5.2	4.4
Hispanic	7.4	6.3
Gender:		
Female	5.1	4.2
Male	5.9	4.3
Education		
Less than HS	8.5	7.6
High School only	5.4	4.7
College Degree or more	3.1	2.2
Duration (average weeks)	20.1	16.8

Non-Economic Costs

- **Cyclical Unemployment**, when high, causes social problems. People out of work become depressed and crime rates rise. Violence in the home rises as well because of the frustration factor. Families suffer and often fall apart. Severe depression can cause major political and social change. The Great Depression programs of the New Deal changed American thinking about the role of government in aiding citizens when they are needy.

International Comparisons

- Examine the perspective on page 146 of text to view unemployment rates in five industrial nations. Historically the US has had higher rates of unemployment but the pattern has shifted since the 1980's. We now enjoy a better picture and enjoyed low unemployment throughout the 1990's.

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Inflation

- **Inflation is a rising general level of prices.**

√ In short, **more money is required each year to buy a given amount of goods and services.** One can measure the **rate of inflation** as either the annual percentage rate of increase in the average price level or decrease in the value of money.

√ **Inflation properly refers only to episodes in which the rate of inflation is substantially positive over a considerable time period.** What is meant by substantially positive may depend on recent experiences. In the United States during the mid-1960s an inflation rate of 3% per year aroused great alarm, but some countries' governments have proclaimed victory over inflation by bringing the rate down from 50% or even 200% per year to only 10%.

- **Deflation is the opposite of inflation: a period of substantially falling prices and rising value of money.**

- **Inflation is measured by use a price index number.** A price index measures the general level of prices in reference to a base period. The base year is set to 100 and as changes in prices occur they are reflected in the new index number. An index of 136 says that prices are 36% higher than the base year. To calculate the rate of inflation, subtract last year's price index from this year's price index and divide that difference by last year's index. Multiply by 100 to express as a percentage. The government now uses 1982-84 as the base period in their reporting of the CPI.

Example:

Base year 1982-84	100	1997	166.6	2000	172.2
Rate of inflation = $\frac{172.2 - 166.6}{166.6} \times 100 = 3.4\%$					

- **Rule of 70** permits quick calculation of the number of years it takes the price level to double. Divide 70 by the annual rate of increase to determine the approximate number of years required to double prices.

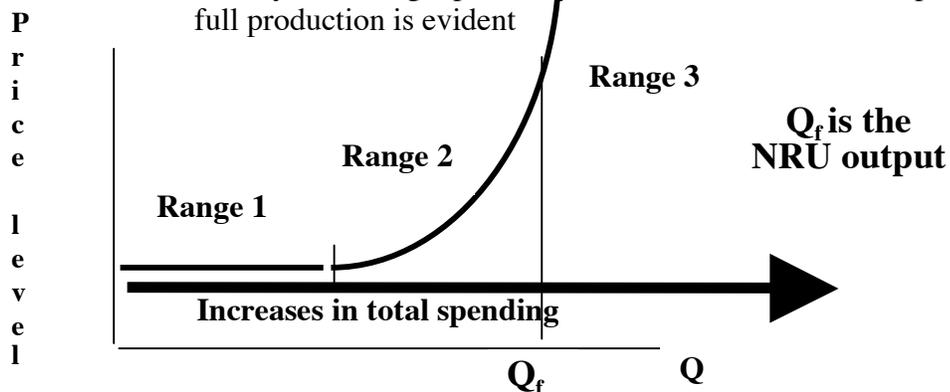
Causes: Theories of Inflation

- **Demand Pull Inflation**

√ Excess of total demand

√ prices are bid upward by the excess demand

√ economy is seeking a point beyond its PPC when full employment-full production is evident



Range 1	<ul style="list-style-type: none"> • Domestic output is far short of maximum full-employment level. • GDP gap exists. High Unemployment, idle capacity. • As you move up the curve, demand increases; real domestic output rises, unemployment will fall, but there is little pressure on prices since producers can move to produce more by using the idle labor and factory resources. • Workers and owners of resources are willing to work for “old” wages and returns because they want the work. • Nominal and Real GDP are identical when prices are stable
Range 2	<ul style="list-style-type: none"> • Approaching full employment and full production, the price level rises as less efficient resources are employed • Bottlenecks occur in some industries as the recovery is uneven. Prices are some resources may rise and some labor markets tighten. Their wages will rise, adding to cost forcing some pricing higher. This situation may cause premature inflation. • At full employment-full production, the pressure to produce more is too much and capacity is stretched now using the least efficient resources. • With Premature inflation, Nominal GDP is rising faster than Real GDP; we must “deflate” GDP figure
Range 3	<ul style="list-style-type: none"> • Full employment-full production occurs in all sectors of the economy. • Total demand in excess of the economy’s capacity to produce pulls prices upward! • With pure inflation, nominal GDP is rising-perhaps rapidly, but real GDP is constant. No real gain!

• Cost Push Inflation

- ✓ prices rising when output and employment are both declining
 - ✓ aggregate demand not excessive
 - ✓ Per unit production costs are rising due to raw materials, energy, labor, etc.
 - ✓ High per unit costs cause decline in profit; hence, the price level is “pushed up” by these costs

Sources:

✓ Often **unions are accused of starting the cycle** that occurs when their wage hikes are taken as a model. Unless high productivity results from the higher wages, there are still higher per unit costs, which will force prices upward. This is called **the wage-push variant**. An upward shift in demand for the good or services produced can forestall the push.

✓ **Rising production costs can sometimes be attributed to abrupt, unanticipated increases in the cost of raw materials or energy inputs.** Oil price increases of the 1970’s and into the 1980’s affected a wide range of product costs. **These are called supply shocks.**

Demand-pull inflation continues as long as there is excess total spending

Cost-push is self-limiting; it generates a recession and this inhibits additional cost increases.

Redistribution Effects of Inflation

By **holding real output constant, and at full-employment**, we can assess the effect of inflation on the distribution of income. **Terms must be defined first:**

Real and Nominal Income

Nominal income ... is the number of dollars earned as rent, wages, interest or profit.

Real income... measures the amount of goods and services nominal income can buy.

✓ If nominal income rises faster than price level, real income will rise.

✓ If the price level increases faster than nominal income, then real income will fall.

Your real income falls only when nominal income fails to keep up with inflation

Unanticipated Inflation:

✓ **Inflation “taxes” those who receive relatively fixed incomes**—elderly, those on fixed pay scales, welfare recipients, workers in declining industries, or without strong unions— because it takes away purchasing power. They would need more dollars to pay for the same amount of goods and services. **Inflation “subsidizes” some people who have flexible incomes.** This group would include workers in expanding industries and union members.

✓ **Savers are also hurt by inflation.** As prices rise, the real value or purchasing power declines. Further, most savers are investing funds and hope to earn interest. If the rate of interest on an investment is less than the rate of inflation, the value of the savings will decline. Savings accounts, insurance policies, annuities, and other fixed value paper assets are hurt by inflation.

✓ **Creditors are losers** in inflation since they are “stuck” with dollars that have lower purchasing power than the money they lent. **Debtors are winners** in inflation at the expense of creditors. The borrower receives “dear” money at the time the loan is initiated and repays the loan with “cheap” dollars.

Anticipated Inflation:

✓ Inflation is less severe if one can anticipate inflation or adjust income to reflect the price level changes.

✓ Cost of living adjustments (COLA’s) clauses in labor contracts give automatic wage increases when inflation occurs.

✓ Lenders can charge higher interest on loans if they have high expectations for inflation over the life of the loan. This extra interest is called inflation premium.

Deflation...effects described above are now reversed. Fixed income earners, creditors, and savers will all be better off.

Mixed Results:... we gain and we lose since we all wear many hats— income earner, saver, creditor, debtor, etc.

Arbitrariness...effects of inflation occur regardless of society’s goals and values.

Output Effects of Inflation p. 140-141

Does inflation have an effect on output? Three ideas emerge:

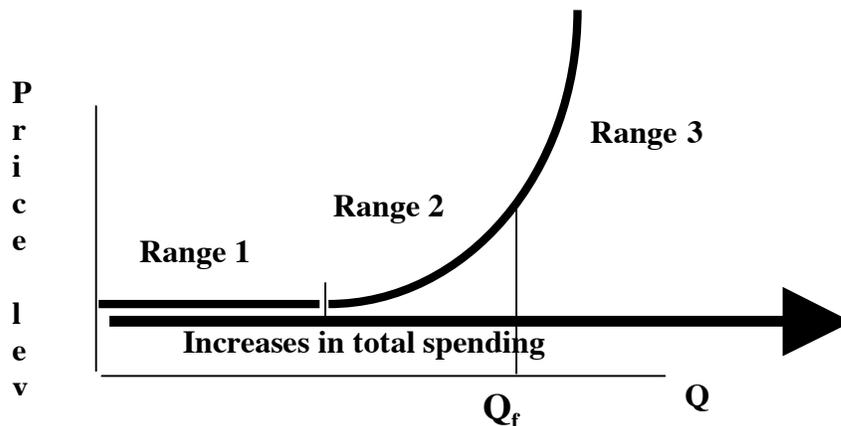
Cost-Push Inflation and Unemployment

✓ If cost-push inflation occurs in a full employment, the existing level of total spending will buy less real output because of the higher price level.

✓ Real output would fall and unemployment will rise.

✓ The cost-push inflation of the 1970's was caused of the oil shocks throughout the decade.

Stimulus of Demand-Pull Inflation



• In **range 2** there is a tradeoff between output and employment and inflation. Some moderate amount of inflation must be accepted if we are to realize high levels of output and employment.

• This does imply an inverse relationship between inflation rate and unemployment rate (referred to as the Phillips Curve described in Chapter 16)

Hyperinflation and Breakdown

✓ Hyperinflation is extremely rapid inflation that can devastate domestic output levels and employment. The article, Inflation: A Domsday Scenario describes how this occurs.

✓ Anticipation of future inflation catches hold of the thinking of consumers and firms who make buying and selling decisions in expectation of the coming inflation.

✓ Labor will demand higher wages, and businesses not wanting to risk their prosperity will give in. But...they must raise prices to cover the new cost and the wage-price spiral whirls out of control. Creeping inflation becomes a runaway gallop.

✓ Economic collapse results often since speculation is rampant. Hoarding and concentration of wealth in “real assets” like gold, jewels, and other metals replaces investment in new capital for businesses.

Think about this!

Read the examples on page 141 and reflect on the causes of hyperinflation. Do government action and the money supply have something to do with it?

Aggregate Spending Model “quick lesson”

Chapter 8, p. 147-152

Tools of Aggregate Expenditures Theory

There are four assumptions:

1. Closed Economy-no international trade transactions
2. Private Economy-Ignore government
3. All savings will be personal savings
4. Depreciation and net foreign factor income are zero.

Implications:

- ✓ Consumption and Investment only
- ✓ $GDP=NI=PI=DI$

Consumption-Income and Savings-Income Relationships

- Consumption is the largest portion of aggregate spending.

If ...Personal Savings is the portion of Disposable Income not spent

So...Disposable Income = Consumption + Savings

Then...Disposable Income is the most significant determinant of both consumption and saving

- **APC** Average propensity to consume (consumption/income)
- **APS** Average propensity to save (savings/income)
- **MPC** Marginal propensity to consumer (change in consumption/change in income)
- **MPS** Marginal propensity to save (change in saving/change in income)

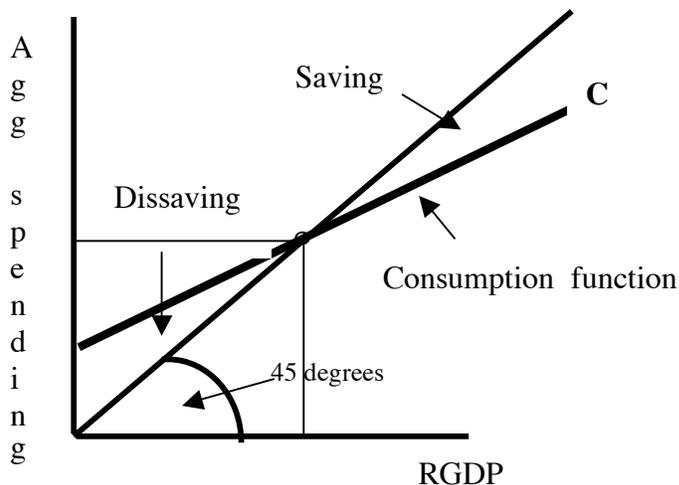
✓ **Note:** $APC + APS = 1$ $MPC + MPS = 1$

- **MPC** is the slope of the consumption schedule
- **MPS** is the slope of the saving schedule.

Determinants of Consumption and Saving

- Wealth
- Price Level
- Expectations
- Consumer debt
- Taxation

If all income is spent, we have a 45-degree line from the origin.



Since there are two choices with disposable income—saving and consuming, the consumption function crosses the 45-degree line and equilibrium is set at the intersection—RGDP is equal to Aggregate Spending. Note savings at higher levels of RGDP.

Key Graph p. 149

Chapter 8, p. 153-158

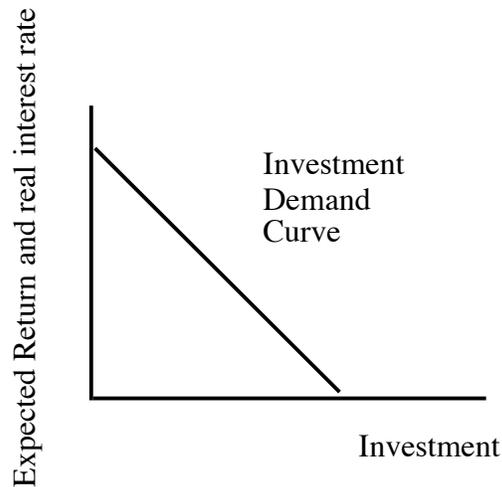
Interest Rate—Investment Spending Relationship

- Second component of private spending—most unstable of total spending
 - Durability of capital, variability of expectations, and irregularity of innovation are causes of instability.
 - Expenditures on new plants, capital equipment, machines, etc.
- **Expected rate of net profit (rate of return) and the interest rate will be the determinants.**
 - **Expected rate of net profit** is found by **comparing the expected economic profit to investment cost** to get expected rate of return. It is **guided by profit motive**, businesses will purchase new capital goods only when it expects such additional capital to produce a profitable return.

$$\text{Rate} = \frac{\text{extra profit}}{\text{cost of investment}}$$

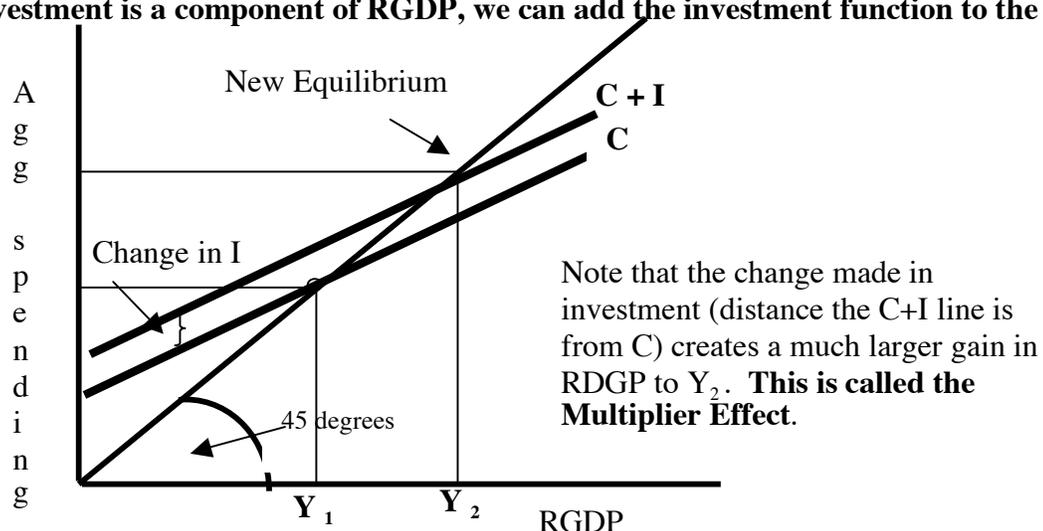
- **The interest rate** is the **financial cost the firm must pay to borrow the money capital** required for purchase of real capital. In the same sense, if the firm used its **retained earnings** to make the purchase, it will incur an **opportunity cost** of using these funds. Real rate vs. nominal rate is also a consideration. Nominal interest is expressed in terms of dollars of current value, while real interest is expressed in terms of dollars that have been inflation-adjusted.

This curve arrays all potential investment projects in descending order of expected return. The curve is downsloping reflecting the inverse relationship between the real interest rate and the quantity of investment demanded.



Key Graph p. 155

Since Investment is a component of RGDP, we can add the investment function to the model



Chapter 8, p. 158-162

Multiplier Effect:

- There is a repetitive continuous flow of expenditures and income since the consumption of one individual is reflected as the income of another. This change in income will cause both the Consumption and Saving schedules to vary in the same direction and by a fraction of the change in income. **The GDP and aggregate spending are increased by more than just the initial change in spending (investment, consumption or government)**

	Change in Income	Change in Consumption MPC = .75	Change in Savings MPS = .25
Increase in Investment of \$5.00	\$5.00	\$3.75	1.25
Second round	3.75	2.81	.94
Third round	2.81	2.11	.70
Fourth round	2.11	1.58	.53
Fifth round	1.58	1.19	.39
All other rounds	4.75	3.56	1.19
Total	\$20.00	\$15.00	\$5.00

In this example, the income must increase by 4 times the initial excess of investment over savings because Households are saving 1/4 of any increase in income (MPS=.25).

- **The Multiplier Effect can be caused by changes in investment, consumption or government spending, or net export.** Investment fluctuates more than the others so we usually associated the multiplier with changes in investment spending.
- **The Multiplier Effect works both ways**—declines in spending causes multiplied lower levels of output and spending.
- The **size of the Multiplier is inversely related to the size of the MPS.**
- **The Multiplier is the reciprocal of MPS. We often refer to this reciprocal as the Spending Multiplier.**

The Simple Spending Multiplier is: $\frac{1}{1-MPC}$ or $\frac{1}{MPS}$ Here savings is the only leakage from economy

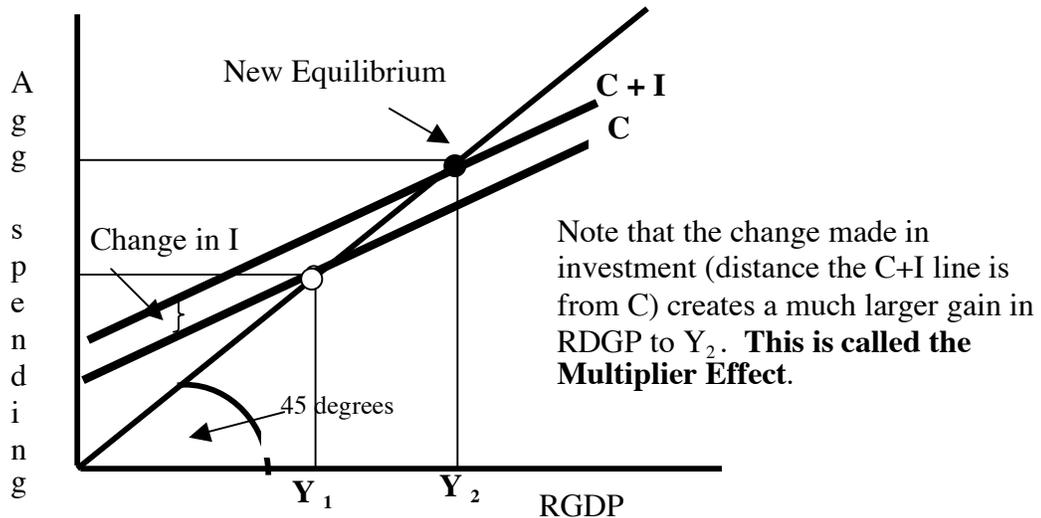
If MPS = .25, Multiplier is 4 **If MPS=.33, Multiplier is 3**

- **The Multiplier magnifies fluctuations in business activity** initiated by changes in spending.
- **The larger the MPC, the greater the multiplier.**
- **Complex Multiplier** takes all “leakages” into account (savings, taxes, imports). The Council of Economic Advisors estimates the nation’s complex multiplier to be about 2.

Chapter 9, p. 168-175

Adding Investment to Aggregate Spending Model

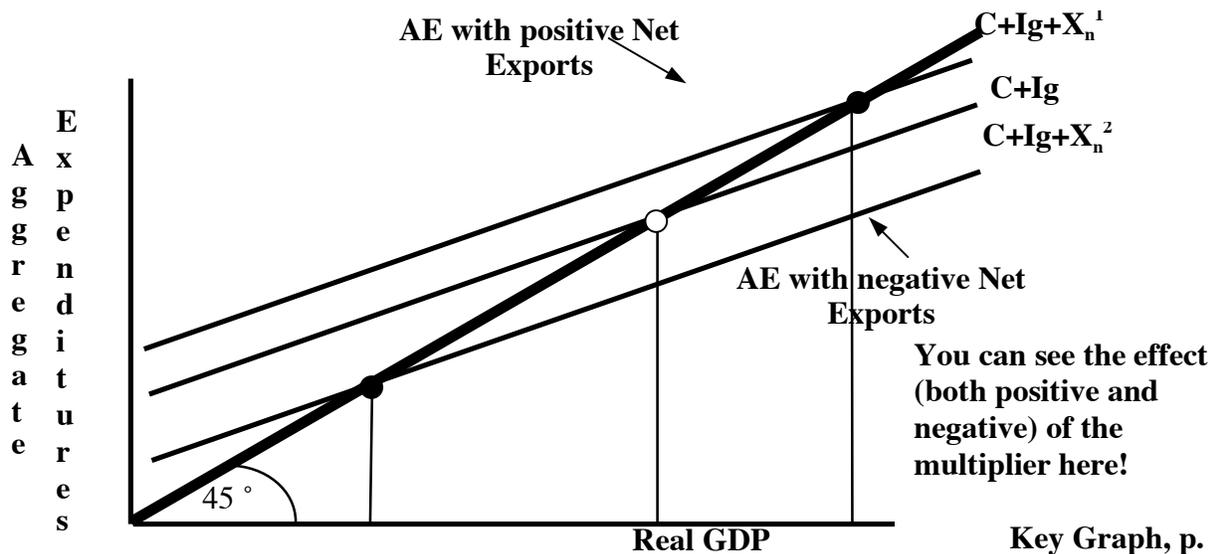
Since Investment is a component of RGDP, we can add the investment function to the model



International Trade and Equilibrium Output

• **Net Exports (exports minus imports) may be either positive or negative. Exports expand aggregate spending; imports contract it.**

• **Exports** act as an injection like investment. Exports are a part of aggregate expenditures. **Imports** (goods produced outside the US) act as leakages from the income stream. Imports are subtracted when measuring aggregate expenditures



Key Graph, p.

- **Positive net exports** increase aggregate expenditures on domestic output and increase equilibrium GDP
- **Negative net exports** decrease aggregate expenditures on domestic output and reduce equilibrium GDP.

Linkages:

- ✓ **Prosperity abroad:** Rising level of national income among our trading partners will enable us to sell more of our exports. (Japan's 10-year recession has hurt our export sales to Japan)
- ✓ **Tariffs:** Tariffs on their side reduce export sales; retaliation is an issue. (Think of Great Depression and Hoot-Smalley Tariff)
- ✓ **Exchange Rates:** Depreciation of \$ will stimulate exports and lower imports expanding GDP. (What about Appreciation of the \$???)

Chapter 9, 175-179

Government Spending and Equilibrium Output

- ❖ Completing the Aggregate Expenditure Model by adding government will now create an **open mixed economy with a public sector**.
- ❖ Government expenditures and taxes are subject to direct public control, but we can use these tools to manipulate the economy.

Assumptions:

- ✓ Investment and net exports are independent of the level of GDP
- ✓ Government spending is not the cause of shifts in Consumption or Investment.
- ✓ Taxes are Personal Taxes $DI < PI$ by the amount of tax revenues; GDP, NI, and PI will be equal
- ✓ Fixed amount of taxes (lump-sum) regardless of level of GDP
- ✓ Price level is constant

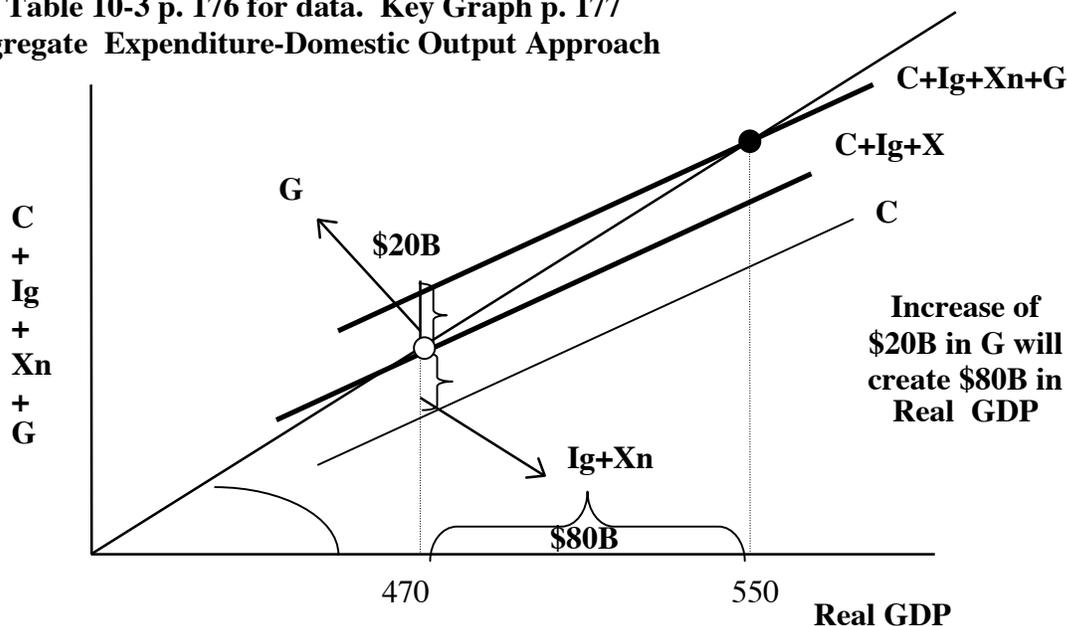
Most of these assumptions will be dropped in Chapter 12 when we discuss how government changes in its expenditures and taxes can alter equilibrium GDP and the rate of inflation

Government Purchases and Equilibrium GDP

Increases in public spending, like increases in private spending, will boost the aggregate expenditure schedule and result in high equilibrium GDP.

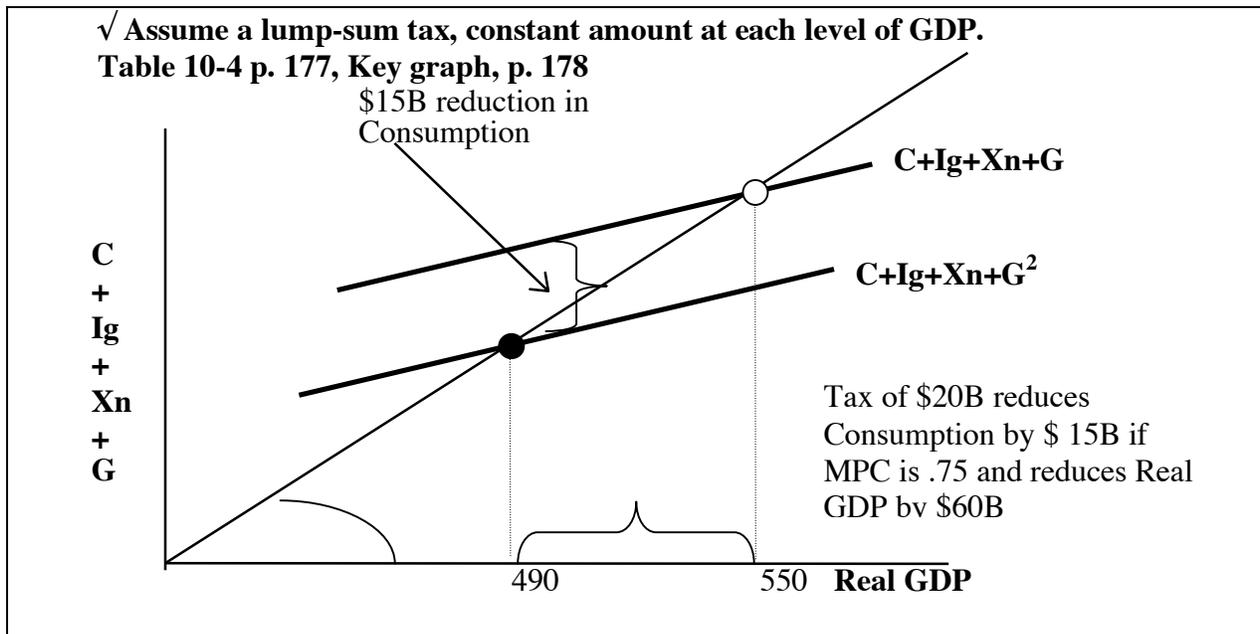
Use Table 10-3 p. 176 for data. Key Graph p. 177

Aggregate Expenditure-Domestic Output Approach



Taxation and Equilibrium

Taxes cause DI to fall short of GDP by the amount of the tax; reduces both consumption and saving at each level of GDP. The size of the reduction is determined by the MPC and MPS.



Again, when we add government effects (both purchase of goods and services and taxation) we see the effect of the Simple spending multiplier.

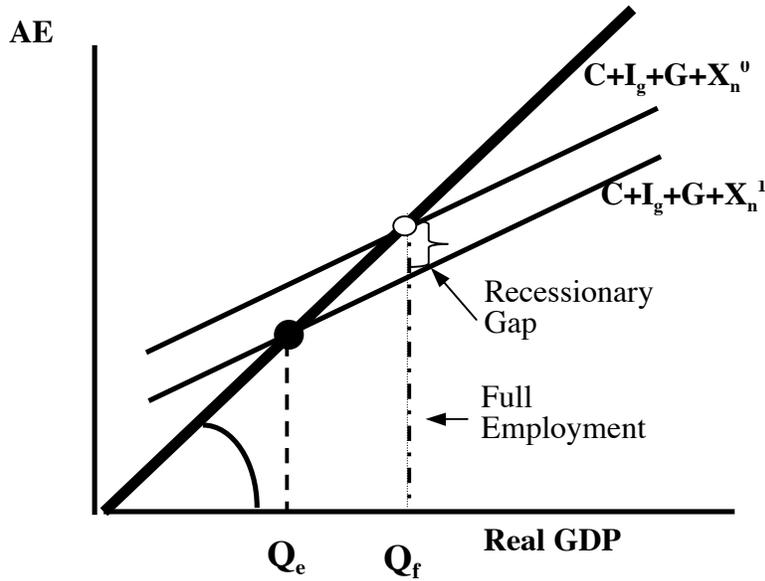
Balanced Budget Multiplier

Defined as Equal Increases in Government Spending and Taxation increase the equilibrium GDP. In other words, when the government increases purchases of goods and services but enacts a tax that pays for the extra spending, there is a balance.

- If G and T are each increased by a particular amount, the equilibrium level of real output will rise by that amount. Why?
- **Government Spending** is a direct impact on aggregate expenditures. It is a component of GDP.
- But, **A change in taxation** has an indirect impact by changing disposable income and thereby changing consumption.
- The overall result is a net upward shift of the aggregate expenditure schedule equal to the amount of the change in G and T .
- So, for this reason, the **balance budget multiplier = 1**.

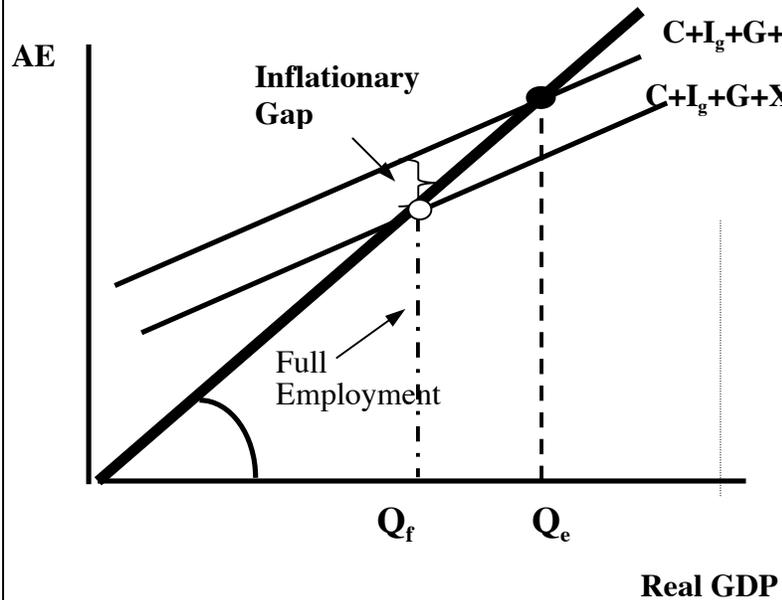
Equilibrium versus Full-Employment GDP

Equilibrium GDP (Q_e) in this example) may or may not entail full employment show at Q_f . Aggregate Expenditures may lie above or below that which would intersect with the 45-degree line at the full-employment non-inflationary level of output.



Recessionary Gap is amount by which aggregate expenditures fall short of the non-inflationary full-employment GDP. It will cause a multiple decline in Real GDP.

See Key graphs p. 180



Inflationary Gap is amount by which aggregate expenditures exceed the non-inflationary full-employment GDP. This gap will cause demand-pull inflation.

Read the two historical applications on p. 180-181.

The Aggregate Expenditure model has four limitations:

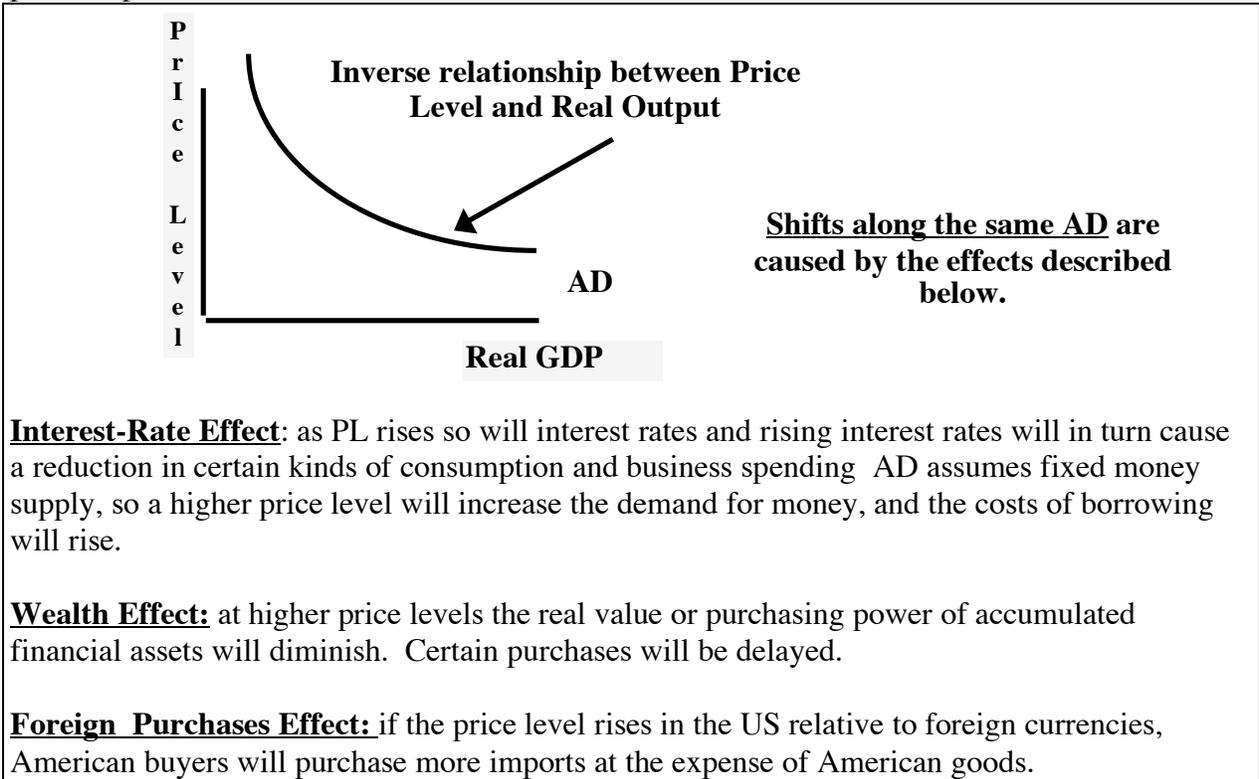
- The model does not show price-level changes—that is Inflation!
- The model can account for demand-pull inflation, but does not indicate the extent of inflation when there is an inflationary gap.
- It does not explain how inflation can occur before the economy reaches full employment.
- It does not indicate how the economy could produce beyond full-employment for a time.
- The model does not address the possibility of cost-push type of inflation.

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The Aggregate Demand-Aggregate Supply model is a variable-price-level model that helps one to understand changes in both RGDP and the price level simultaneously. It is more useful than the Aggregate Spending model and helps to explain the logic of macroeconomic stabilization policies.

Aggregate Demand ...

...a schedule which shows the various amounts of goods and services (the Real GDP) which consumers, businesses and government will collectively desire to purchase at each possible price level.

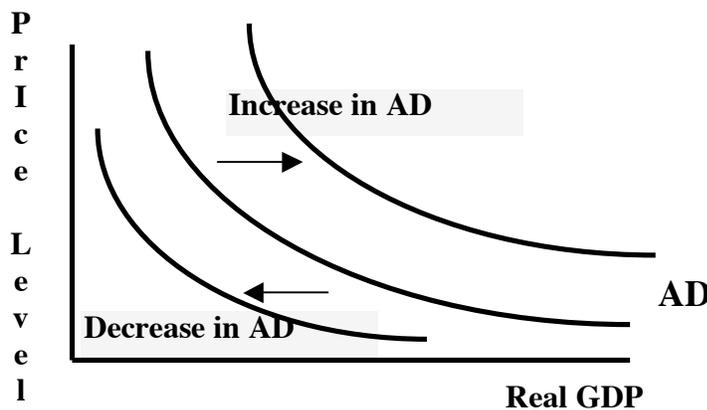


Interest-Rate Effect: as PL rises so will interest rates and rising interest rates will in turn cause a reduction in certain kinds of consumption and business spending AD assumes fixed money supply, so a higher price level will increase the demand for money, and the costs of borrowing will rise.

Wealth Effect: at higher price levels the real value or purchasing power of accumulated financial assets will diminish. Certain purchases will be delayed.

Foreign Purchases Effect: if the price level rises in the US relative to foreign currencies, American buyers will purchase more imports at the expense of American goods.

Shifts in Aggregate Demand...caused by non-price-level factors



Non-Price Level Determinants of Aggregate Demand

Causing Aggregate Demand curve to shift up and down

Change in Consumer Spending	Consumer Wealth Consumer Expectations Household Indebtedness Taxes
Change in Investment Spending	Real Interest Rates Profit expectations Business Taxes Technology Degree of excess capacity Expectations of future business conditions
Change in Government Spending	Desire to add or deduct from government supported programs
Change in Net Export Spending	National Income Abroad Exchange Rates

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Aggregate Supply ...

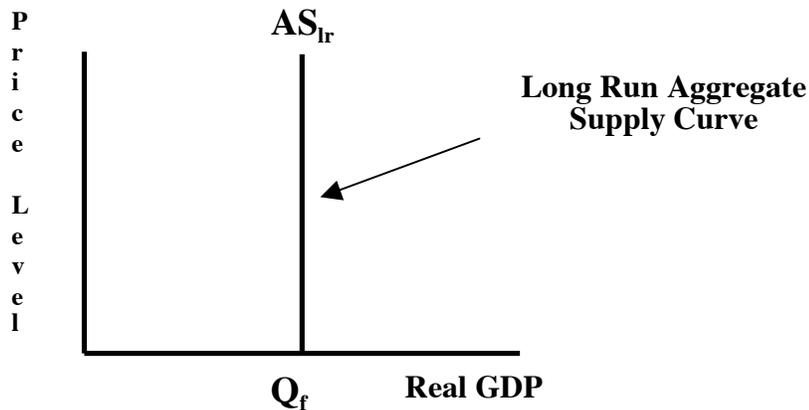
...a schedule, which indicates the real level of GDP that will be available at each possible price level

...production responses of firms to changes in the price level differ in the **long run**—period in which nominal wages (and other resource prices) match changes in the price level.

...**short run** is a period in which nominal wages (and other resource prices) do not respond to price-level changes.

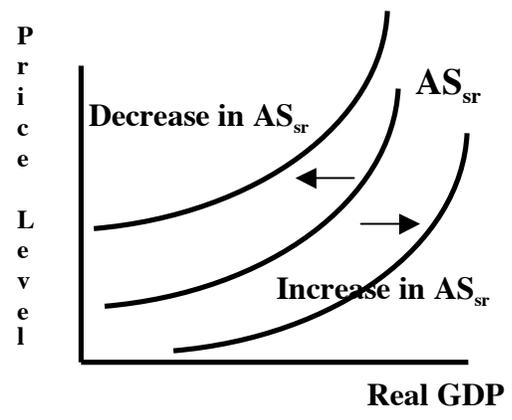
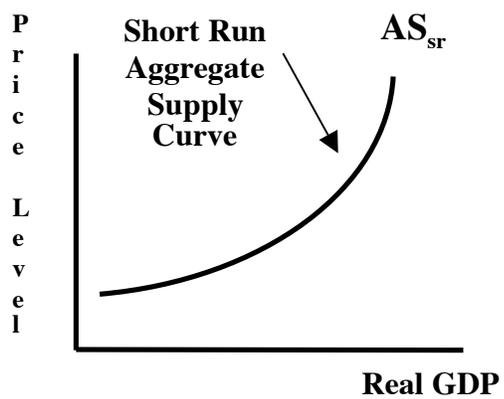
Long Run Aggregate Supply

- In the long run, the aggregate supply curve is vertical at the economy's full employment output. This is often referred to as the potential GDP.
- When changes in wages respond completely to changes in the price level, those price-level changes do not alter the amounts of Real GDP produced and offered for sale.
- When the price level increases, note that additional Real GDP can be produced since the economy is at full employment. Price level changes do not affect firm's profits and create no incentive to produce more output.



Aggregate Supply in the Short run

- Nominal wages do not immediately adjust to price level changes. It may take several months or even years for perfect adjustments are made.
- The short run Aggregate Supply curve is upsloping. A rise in price level will increase real output.
- Per unit production costs determine the short run aggregate supply curve. This is a direct (positive) relationship between price level and level of output.
- Production costs rise because of reduced efficiency, but the extent of that rise depends on where the economy is operating relative to its capacity.
- The AS short run curve is flatter at lower levels of Real GDP and steeper at higher levels of GDP.

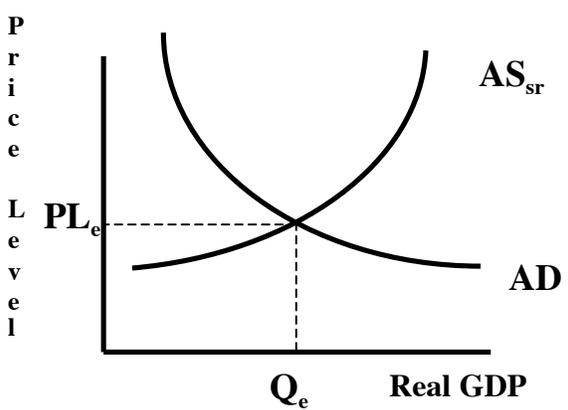


Non-Price Level Determinants of Aggregate Supply

Change in Input Prices	Domestic Resource Availability Prices of Imported Resources Market Power
Change in Productivity	Effect of Training Programs Technology Gains
Change in Legal-Institutional Environments	Business Taxes Business Subsidies Government Regulation

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Equilibrium using Aggregate Demand and short run Aggregate Supply... occurs at the intersection of the Aggregate Demand and short run Aggregate Supply curve setting the equilibrium price level and output in the short run.

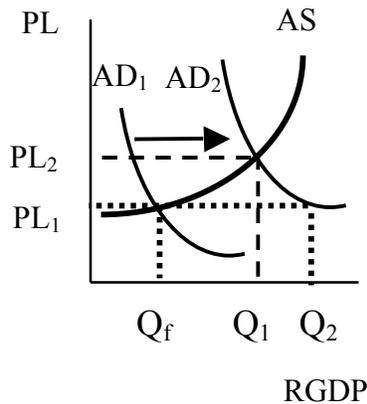


Equilibrium of Short run AS and AD

See Key Graph p. 197

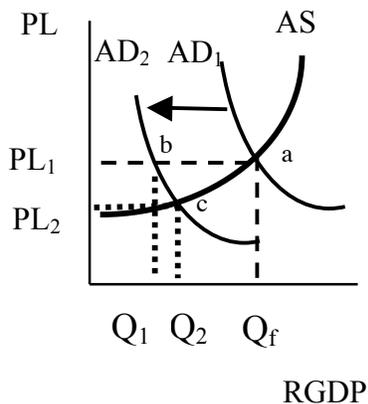
Changes in Equilibrium p. 196-202

I. Increases in AD: Demand-Pull Inflation



The increase in AD from AD_1 to AD_2 will cause demand-pull inflation since the economy was at full employment. PL rises to PL_2 and this causes a positive GDP gap of $Q_1 - Q_f$. The rise of the price level reduces the size of the multiplier effect. If the price level had stayed at PL_1 , the increase in output would have been at Q_2 . Here the multiplier effect was complete.

II. Decreases in AD: Recession and Cyclical unemployment



If the price level is downward inflexible at PL_1 , the decrease in AD from AD_1 to AD_2 will move the economy leftward from a to b along the price level reducing the output to Q_1 . Idle capacity, cyclical unemployment and a negative GDP gap ($Q_1 - Q_f$) will result.

If the price level had been flexible downward, the decline in AD will move the economy from a to c with the GDP gap being smaller.

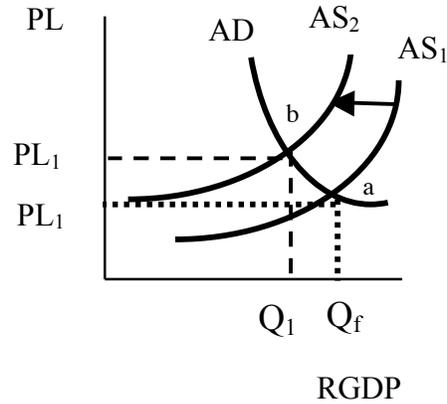
√ Real output declines in the US because Price level tends to be inflexible.

- Fear of Price wars keeps price steady. No firm wants to reduce its profits.
- Menu costs. Costs incurred to “changes prices” are too high.
- Wage contracts. Collective bargaining agreements keeps wages fixed for long periods of time
- Morale, effort and productivity. Firms fear that dropping wages will reduce productivity.
- Minimum Wage. The legal wage floor cannot be reduced in a recession.

√**Ratchet Effect** describes the ideas that increases in AD will tend to make the price level upward flexible. In the US, the price level has risen 55 of 56 since 1950. But decreases in AD are not the same—product prices, wages rates and per-unit production costs do not move as quickly downward.

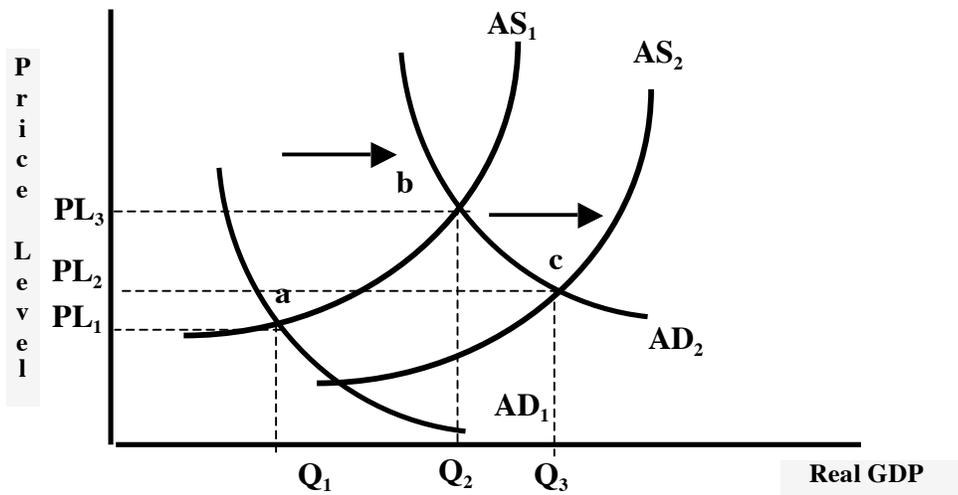
III. Decreases in AS: Cost Push Inflation

A decrease in AS raises the price level thus producing Cost Push inflation. The decrease can be caused by higher costs of production. Real output declines and a negative GDP gap ($Q_f - Q_1$) occurs.



IV. Increases in AS (short run): Full Employment and Price-level Stability

- In the last half of the 1990's and into 2000, the US experienced full employment, strong economic growth and price-level stability. Some thought that this condition did not seem likely under the AD-AS model since the gains in AD should have triggered price level increases.
- In this AD-AS model, as the economy grew to its potential, most thought that the price level would rise and inflation would move to harmful levels.
- The movement from AD_1 to AD_2 alone on the AS_1 curve would result in higher RGDP to Q_2 but cause higher price level to PL_3 .
- But...Larger than normal gains in productivity due to new technology and its implications gave rise to a New Economy model. This model shows gains in RGDP with price stability.
- The shift in AS_1 to AS_2 caused by the gains in productivity moves the equilibrium to "c" and shifts the price level back to PL_2 with further growth of RGDP to Q_3 .
- To summarize, full employment, high economic growth and price stability are possible if productivity-driven increases in AS are sufficient to balance growing AD.



Assessing the Impact of Government on GDP and Aggregate Spending

Consumption and Investment decisions are based on self-interest; government is an instrument of the whole society. Government decisions with respect to spending and taxing are supposed to influence equilibrium GDP in terms of the general welfare. Fundamental function of government is to stabilize the economy through fiscal and monetary policy.

FISCAL POLICY... is the manipulation of the public budget process (spending and taxation) to achieve full employment, non-inflationary GDP levels.

✓ Legislative Mandates include: Employment Act of 1946, Council of Economic Advisors, and Joint Economic Committee.

✓ **Increases** in government spending will stimulate the multiplier effect (these are injections into income stream) and GDP will rise.

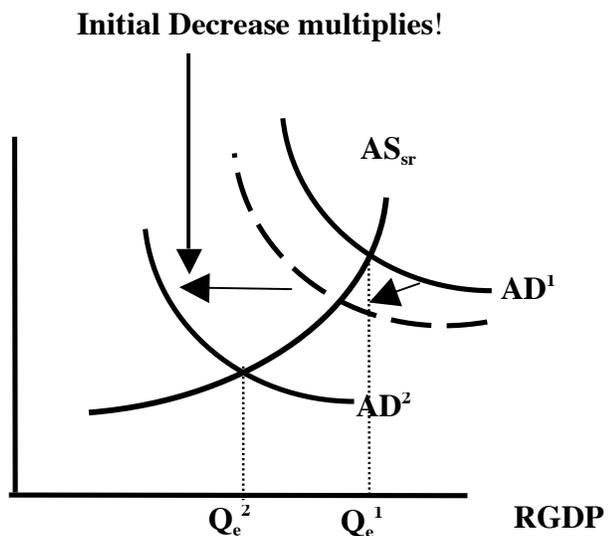
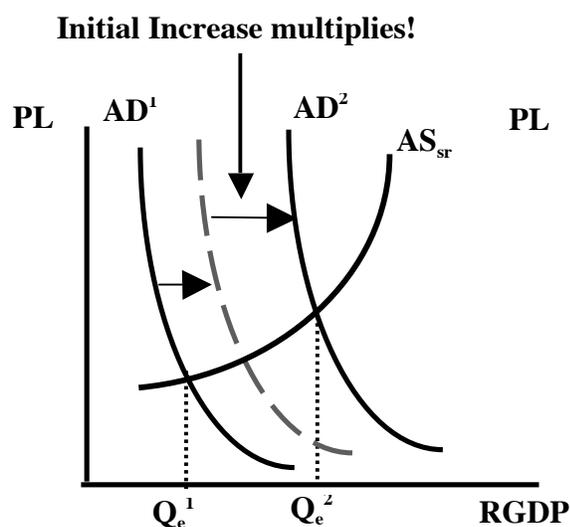
✓ **Decreases** in government spending will retard the growth of the economy; the multiplier effect will cause even greater.

Fiscal Policy over the business cycle

✓ Fiscal policy's goal is to eliminate unemployment or inflation

Expansionary fiscal policy used to reduce effects of recession
 ✓ Increase government spending
and/or
 ✓ Decrease taxes

Contractionary fiscal policy used against demand-pull inflation
 ✓ Decrease government spending
and/or
 ✓ Increase taxes



Demand side effects of Discretionary Fiscal Policy

✓ The effect of the expenditure multiplier and the tax multiplier will drive demand side effects.

✓ A change in government spending such as the push to improve Homeland Security issues will increase by a multiplied effect the movement of the AD curve. GDP will increase by an amount greater than the change in security spending.

✓ The tax cut of 2002 increased Disposable Income, which in turn increased consumer spending raising AD. GDP increased by an amount greater than the amount of new spending.

✓ Recall the Balanced Budget Multiplier of 1. It increases AD and GDP.

Supply side effects of Discretionary Fiscal Policy

✓ Incentives and disincentives to work, save and provide entrepreneurial skills drive supply side effects.

✓ More government spending for infrastructure can raise the potential GDP and pushes the Production Possibility Curve to the right. AS moves to the right and Q_f is increased. Think of the building of the Hoover Dam in the 1930's and the interstate highway system in the 50's and 60's. These projects provided new tools for production—electricity and a transportation system.

✓ Tax increase on capital returns will reduce savings and increase the borrowing rate of interest. Purchases of new capital will decline; potential GDP declines and decreases in AS will result.

✓ Tax increases on entrepreneurial activities will weaken the incentive to take risks and create new businesses. A smaller number of firms in the economy will lower employment and use of capital. Potential GDP declines and lower AS is the result.

✓ Reverse these results if taxes decrease for the groups noted above. Lower taxes will stimulate spending, and the concept of MPC/MPS will mean that some of the new incomes will be saved. More savings lower the interest rate, which encourages borrowing for new capital. AS is pushed to the right and Potential GDP is increased. New business will form with lower tax rates and further increases in AS occur.

• Financing Deficits...Disposing of Surpluses

✓ **Borrowing:** government competes with private borrowers for funds and could drive up interest rates; may “crowd out” private borrowing.

✓ **Money creation:** is more expansionary yet voids the “crowding out” effect; worry about inflation

✓ **Budget Surplus: debt reduction** (may reduce the anti-inflationary effects of the surplus since it causes interest rates to fall when the government buys back some of its bonds.) or **idle surplus** (more anti-inflationary effect since the government is withholding purchasing power from economy.)

• Policy Options...Which is better? G or T???

✓ Liberals Higher government spending??

✓ Conservatives: Lower taxes???

Think About This!

What are the government's fiscal policy options for ending severe demand-pull inflation?

Which of these policies do conservative economists support over liberal ones?

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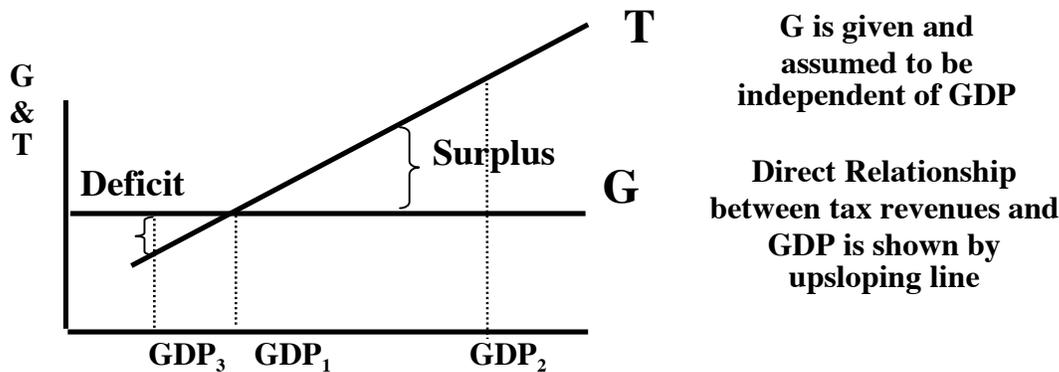
Built-in Stability

Some changes in relative levels of government expenditures and taxes occur automatically. This is not like discretionary changes in spending and tax rates studies earlier since these net tax revenues vary directly with GDP.

✓ **Almost all taxes will yield more revenue as GDP rises.** Sales and excise tax revenues rise as GDP increase. New Jobs and more income will yield greater income tax and payroll tax revenue, in addition to the gain realized by the progressiveness of the tax structure.

✓ **As GDP declines, tax receipts will fall. Transfer payments (“negative taxes”) decrease during expansion and increase during a contraction.** These include: unemployment benefits, welfare payments, and farm subsidies.

• **Congress establishes tax rates NOT the level of tax revenues so there exists a BUILT-IN STABILIZER function.**



✓ **Taxes are leakages or withdrawals of potential purchasing power.**

✓ Stability of the economy depends on **reducing the leakages**, or to reduce inflationary pressures

Built-In Stabilizer ...is anything, which tends to increase the government deficit (or reduce the surplus) during recession or to increase the surplus (or reduce the deficit) during inflation without requiring specific action by policy makers.

✓ The size of the deficit or surplus and therefore **stability depends on the responsiveness of changes in taxes to changes in GDP**

✓ If tax revenues change sharply as GDP changes, the slope of T will be steep and the vertical distance between T and G will be large.

✓ If tax revenues change little when GDP changes, the slope will be gentle and **built-in stabilizer will be low.**

✓ Steepness of T depends on the **type of tax system in place**. The more progressive the tax system, the greater is the built-in stability.

✓ **1986 Tax Reform Act reduced the progressivity of income tax, but the 1993 changes increased progressivity by broadening the tax brackets and raising by 1% the corporate income tax. These 1993 changes in built-in stabilizers helped to grow the surpluses of the late 1990's.**

✓ These built-in stabilizers have reduced the severity of business cycle swings. The stabilizers cannot prevent a recession but they can cushion the effect or diminish the trend.

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Functional Finance... a balanced budget is not as important as the purpose of Federal Finance—to provide for no inflationary full employment.

✓ The focus of concern is the devastating effects of recession and inflation. Deficits and surpluses are not important, and if they happen so what?

✓ The best way to finance government spending depends on economic conditions. The goal is to achieve macroeconomic stability and growth.

Worries about Functional Finance...overcome!

✓ US tax system is based on personal and corporate income tax, which automatically rises when the economy expands. This is the built-in stabilizer effect. A deficit that succeeds in raising GDP will be self-liquidating.

✓ Taxing power of Congress and the FED ability to increase the money supply can finance any deficit.

✓ A large Federal debt is less burdensome than some think.

Problems, Criticism & Complications

• Problems of Timing:

✓ Recognition Lag— an awareness that the economy is changing; leading indicators may not be up-to-date; recessions often are not recognized for 6 months

✓ Administrative Lag — wheels of government turn slowly; action taken may be wrong for the times

✓ Operational Lag—time for spending to take effect may be slower than tax changes

• Political Problems:

✓ Political Business Cycle—politicians' goal is to get reelected; assumption that voters take economic conditions into consideration when voting; Incumbents want to cut taxes and spend in their own districts; continued expansion of economy after the election may push us into inflationary territory; then the recession is a new starting point for reelection

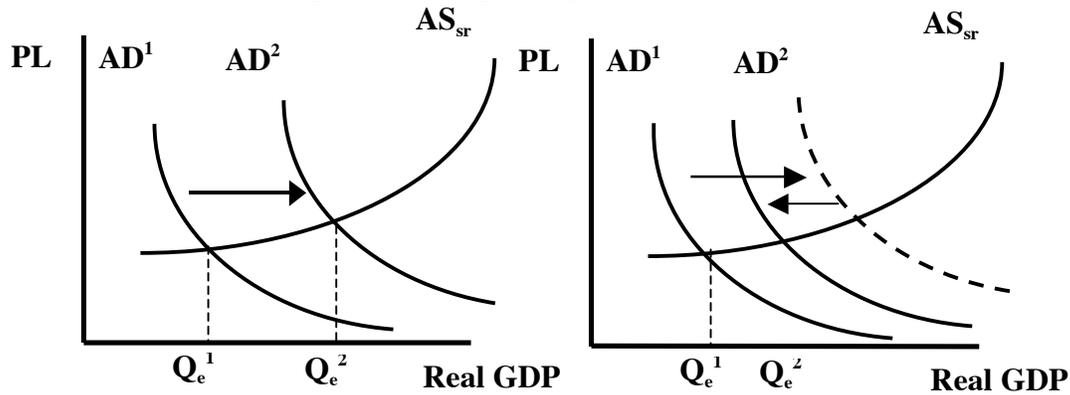
✓ State and Local Finance— Requirements to balance budgets may prove to be counterproductive at times (think of what's happening now!)

✓ Expansionary Bias—deficits may be politically attractive since spending on your home district and lowering taxes are well received; surpluses may be unattractive since cutting spending and raising taxes is not well received.

Chapter 11, p. 217 and 221-222

Crowding—Out Effect

- Expansionary (deficit) fiscal policy will increase the interest rate and reduce private (both consumer and investment) spending, weakening or canceling the effect of fiscal policy.
- In recession, government spending is increased with no new taxation to pay for spending.
- Government borrows funds in the money market as it issues bonds. The resulting increase in the demand for money raises interest rates.
- Higher interest rates blocks both consumer and investment spending since the cost of borrowing is now higher. This is the crowding-out effect.
- Graphically, there is a loss of AD since consumption and investment is lower. This mutes the effect of the increase in government spending.

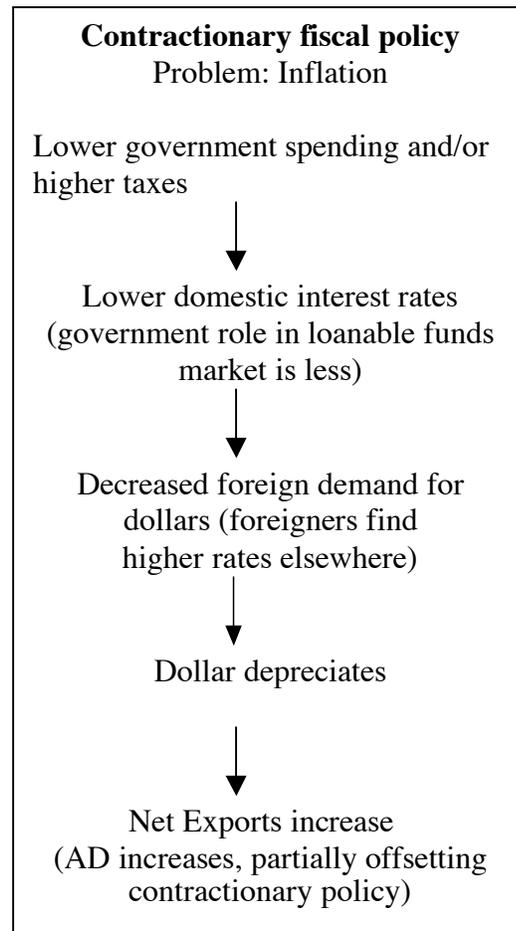
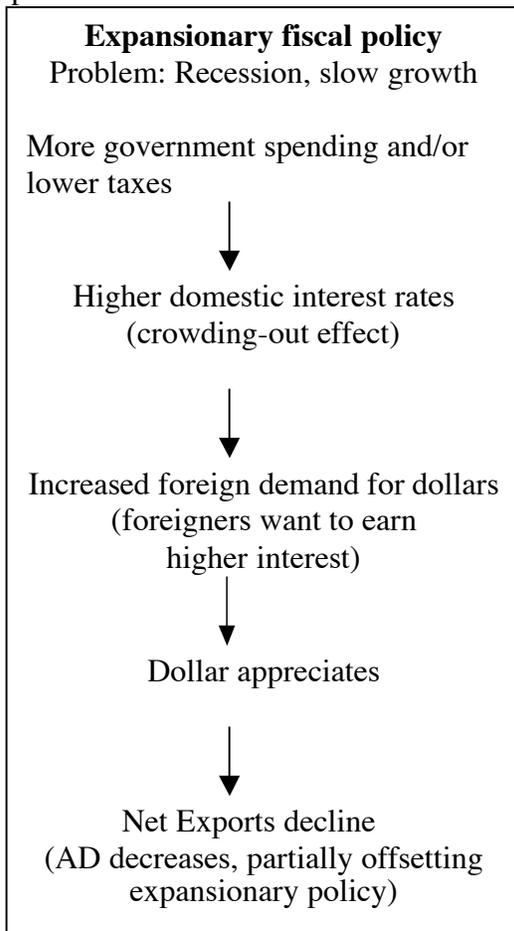


Without Effect of Crowding Out

With Effect of Crowding Out

Fiscal Policy in the Open Economy

- **Shocks from Abroad**-unanticipated events worldwide have impact on the US economy. If an aggregate demand shock (great prosperity/or/recession for a trading partner) or an aggregate supply shock (changing prices for essential resources), the fiscal policy previously enacted can be influenced in light of these events.
- Fiscal policy may be weakened by an accompanying **net export effect**, which works through change in (a) interest rates (b) in international value of the dollar (c) exports and imports.



Chapter 11, p. 218-222

Public Debt: Deficits and Debt: Definitions

A **budget deficit** is the amount by which the government expenditure and the government revenue in a particular year.

The **National or Public Debt** is the accumulated deficits and surpluses of the government over time. This is only debt of the US government, as most state and local governments by law must balance their budgets.

- **Figure 11.6**, p. 219 shows the data on the ownership of the public debt in 2005. Foreign ownership stands at about 25% so we owe most of the debt to “ourselves.” By the beginning of 2008, the Federal National Debt was near \$9.2 Trillion. RGDP in third quarter of 2007 was \$13.9 Trillion. **Figure 11.7**, p. 219 shows that as a % of GDP, the public debt is at a higher % now than in 1970.

- **Why so large?**

- √ Wars—In WW2, most of the war bills were paid by selling bonds to the public. This also diverted some of the earned income from spending and held down the price level and aided in allocating resources to war goods.

- √ Recessions—the built-in stabilizer function of the federal budget causes tax collections to fall in times of recession. If spending is not cut, deficits occur. The Great Depression was such a time. If the funding for the New Deal had not been assigned, the misery level probably would have gone even lower.

- √ Tax cuts—the Economic Recovery Tax Act of 1981 under the Reagan Administration did not make offsetting reductions in spending. This condition caused a structural deficit. When the tax cuts took effect, the recession of 1980-82 generated rapidly increasing annual deficits. As spending rose, the tax revenue did not reach the amount needed even when the economy was close to full employment. Later, huge sums were needed to bail out the failed savings and loan associations. The recent tax cut in the George W. Bush administration has erased the previous budget surplus and the increase in spending in 2003 has increased the federal deficit to the on-year largest figure ever.

- √ Clinton administration actions—higher tax rates and spending limits were part of a program to reduce the deficits and hence the debt. Coupled with strong economic growth, this deficit reduction plan, deficits were reduced and by 1998, a budget surplus appeared. We enjoyed the surpluses in 1999 and 2000 as well.

- √ Lack of political will—politicians find it hard to cut programs like entitlements. Differing views of various constituent groups make it hard to convince anyone that tax increases are needed to fund the programs everyone wants. The Deficit-reduction Act passed in 1993 shows that some ideas can work. With its passage, the US has enjoyed three years of surplus. But now, the argument centers over what to “fund now with our new available funds”!

- **False Concerns?**

- √ Debt and GDP—Though the debt has increased, the relative size of the debt to GDP is much less in 2000 than in 1950. The absolute growth figure (doubled in 10 years) ignores the growth in wealth and productivity of US economy. Will the debt bankrupt the US? No, because we can refinance the debt or raise taxes to pay the debt.

- √ International Comparison—Perspective 11.2 shows how US fares against other nations.

- √ Do we burden future generations with a high public debt? The US owns a large portion of the public debt itself. US citizens and institutions own about 74 of outstanding government

securities. It is both a liability and an asset. To pay off the debt would mean that a large transfer payment would occur. Taxpayers would pay higher taxes and holders of the debt would receive the value of their held securities. Only the repayment of the 25% of the debt held by foreigners would negatively impact US purchasing power.

- **Substantive Issues**

- √ Income Distribution—the ownership of the US held debt is concentrated among wealthier groups of Americans.

- √ Interest Charges—interest is fourth largest item in Federal Budget, and the amount paid as interest fluctuates with interest rates. Taxes equal to 2.2% of GDP are used to pay interest on national debt, and thus adds to further shifts in income distribution. Further, the payment to interest lessens incentives to bear risk, to innovate and to work impairing economic growth.

- √ Crowding out. When the federal government deficit spends and adds to the national debt, they must finance this activity by selling government bonds. These bonds are attractive to investors since the US government supports them – they compete for savings dollars and hence fewer dollars reach the financial market for investment loans. This will raise interest rates in the loanable funds market and have a negative effect on investment spending which can lower Real GDP. In the early 1980's, when huge deficit spending needed to be financed, the US Treasury sold many bonds, raising market interest rates. Foreigners wanting to gain the advantage of the higher interest rates, exchanged their currency for dollars causing the US currency to appreciate. That makes it more expensive for foreigners to buy our exports, but cheaper for our citizens to buy imports. This caused a huge negative Trade Deficit—Net exports were negative. Foreign investment in the US increased and we “surrendered” some control of our economy to foreigners. Further, return on foreign investment in US flows back abroad.

- √ Public investment and Public-Private Complementarities The crowding out effect may be worse than most think if the constant refinancing of the national debt leaves future generations with a lower standard of living. Two factors can reduce this effect: Public investment and Public-Private Complementarities. If public spending that is financed with debt is for infrastructure items, then future capacity is enhanced. Further, if this new public spending “breeds” private investment, then the effect of crowding out is lessened.

Options for Surpluses:

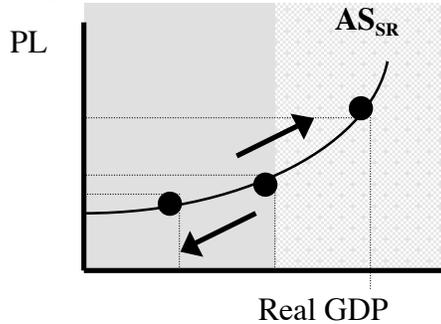
- **Pay down the debt:** reverse effect of crowding out, but some think not really. They cite the fact that there are other reasons that firms borrow for investment (like rates of return). Some argue that government securities are important financial vehicles for many savers and the principal tool of the FED is the buying and selling of government securities.
- **Reduce taxes:** give the money back to the taxpayers in some form; avoid the habit of too much government spending. Critics feel that cutting taxes in surplus will mean cutting taxes in deficit and this is inappropriate policy. The surplus acts as a built-in stabilizer to the economy.
- **Increase Government Spending:** Various constituents have causes that could be funded with a surplus. The problem is that certain kinds of government spending tend to become institutionalized and fail to be cancelled when recession hits.
- **Bolster the Social Security Trust Fund:** Currently, 135 million workers are paying into the trust fund and 45 million people are drawing the benefits of social security. The baby boomers are reaching retirement age and at the projected rate, the trust fund will be depleted by 2038. Some think that the national debt should be paid with the surplus and the savings in interest payments should be directed to the Social Security trust fund to prevent increases in FICA taxes in the future.

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Chapter 15, p. 286-288

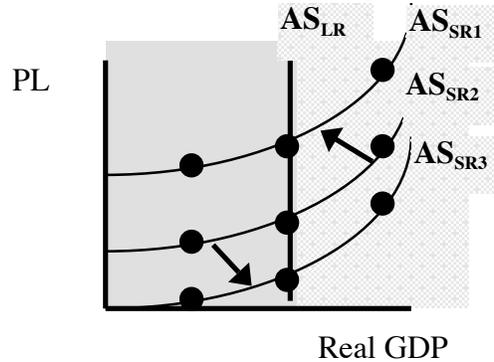
Extending Aggregate Supply Analysis

Short run: period in which nominal wages (and other input prices) remain fixed as the price level changes. In the short run, workers may not be aware that inflation has affected their real wages and they do not adjust their labor decisions. Long-term union contracts are also a cause of this short run occurrence.

Long run: period in which nominal wages (and other input prices) are fully responsive to changes in the price level. Workers gain information about their real wages and do ask for higher wages to adjust.



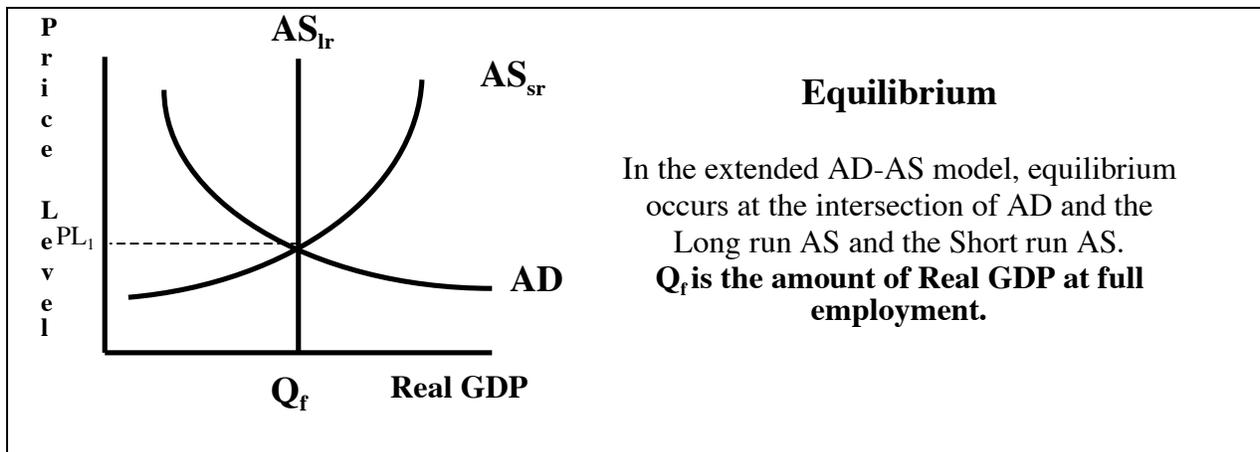
Short Run



Long Run

Short Run AS curve is positively sloped because nominal wages stay constant as PL changes. Increases in the price level will move along AS_{sr} and show changes in the Real GDP.

Long Run curve is vertical because nominal wages eventually change by the same amount as change in the PL. A price level change will move the AS curve leftward and the new equilibrium is established. **Connecting the dots will give us the vertical AS_{lr} .**

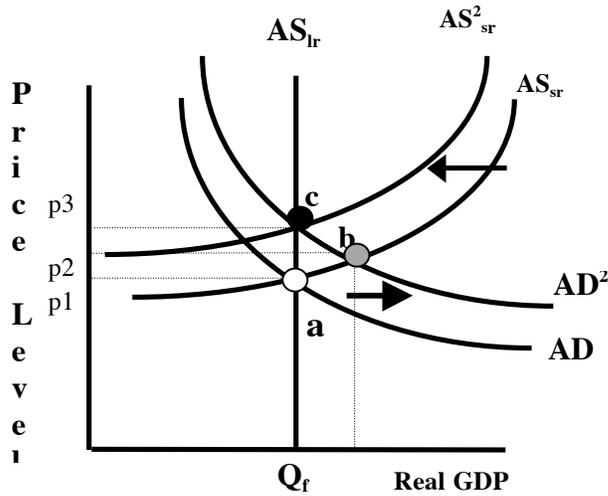


Equilibrium

In the extended AD-AS model, equilibrium occurs at the intersection of AD and the Long run AS and the Short run AS. **Q_f is the amount of Real GDP at full employment.**

At long-run equilibrium, where Q_f represents the full-employment (or potential) output, there is neither a negative or positive GDP gap.

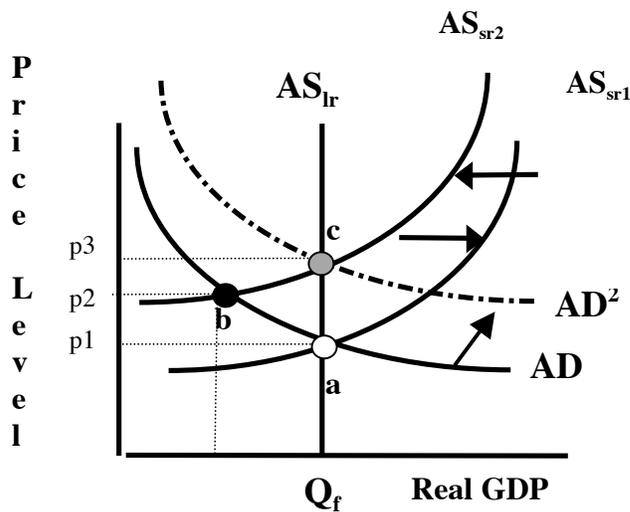
Chapter 15, p. 288-290
Applying Extended AD-AS Model



Demand Pull Inflation:
Initial position: AD, AS, AS_{lr}

Short Run Increase in AD shows point b as the new output and price level at p^2 . Higher RGDP and PL.

Long Run: Nominal Wages rise and AS moves to left. RGDP returns to previous level on long run AS, But...PL rises even more to p^3 !



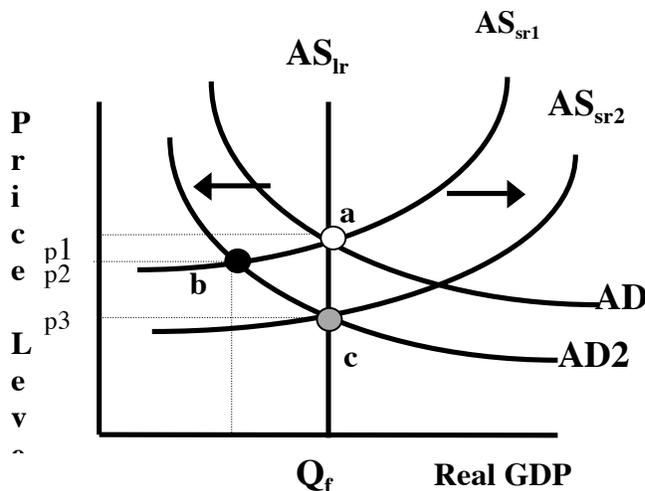
Cost Push Inflation:

Initial position: AD, AS, AS_{lr}

Leftward Shift in AS_{sr} shows point b as the new output and price level at p_2 caused by a change in input prices.

If government tries to push economy to full employment by pushing AD to dotted line, an inflationary spiral will occur... p_3 at Q_f . Full employment but at higher price level.

If government lets the recession take its course, nominal wages will fall in the long run and return to point a ... p_1 at Q_f .



Recession

Initial position: AD, AS, AS_{lr}

Leftward Shift in AD shows point b as the new lower output and price level at p_2 caused by a lower level of spending.

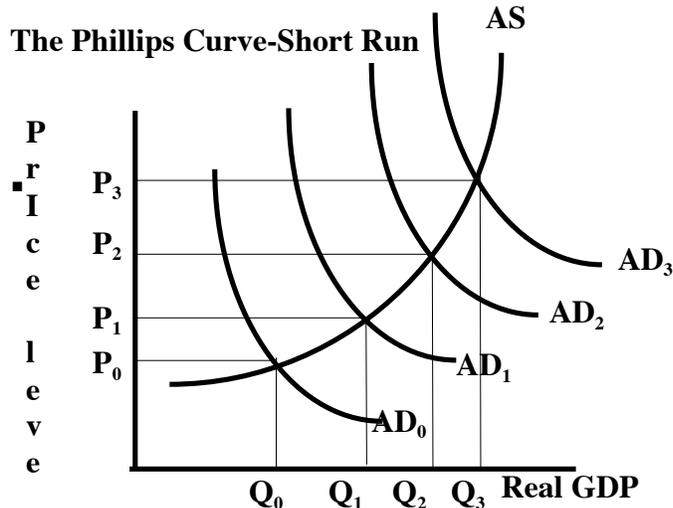
This decline in the price level will eventually shift the AS_{sr1} to AS_{sr2} . Price level declines to p_3 and Q return to Q_f at point c .

AP Macroeconomics

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The AD-AS extended model supports three generalizations:

- ❖ Under normal conditions, there is a short-run trade off between unemployment and inflation.
- ❖ AS shocks can cause both higher price levels and higher rates of unemployment.
- ❖ There is no significant trade-off between unemployment and inflation in the long run.



Basic Idea:

- Larger the increase in AD, the higher the rate of inflation and the greater the increase in Real GDP.

- Real GDP and unemployment rate are inversely related, so...the opportunity cost of reducing unemployment is higher inflation and the opportunity cost of reducing inflation is higher unemployment.

Given AS_{sr} , high rates of inflation should be accompanied by low rates of unemployment. This is the work of A. W. Phillips who looked at data for the 1960's and his Phillips Curve idea was enforced. Figure 15.6 shows his data set for 1960's.

- ❖ **In the short run**, changes in aggregate demand are movements along the short-run aggregate supply curve
 - If Aggregate Demand moves upward price level rises and Real GDP rises. This is reflected as a new point on the short-run Phillips curve showing higher rate of inflation and higher unemployment.
 - If AD moves down, price level falls and Real GDP falls. This is reflected as a new point on the short-run Phillips curve showing lower rate of inflation and lower unemployment.

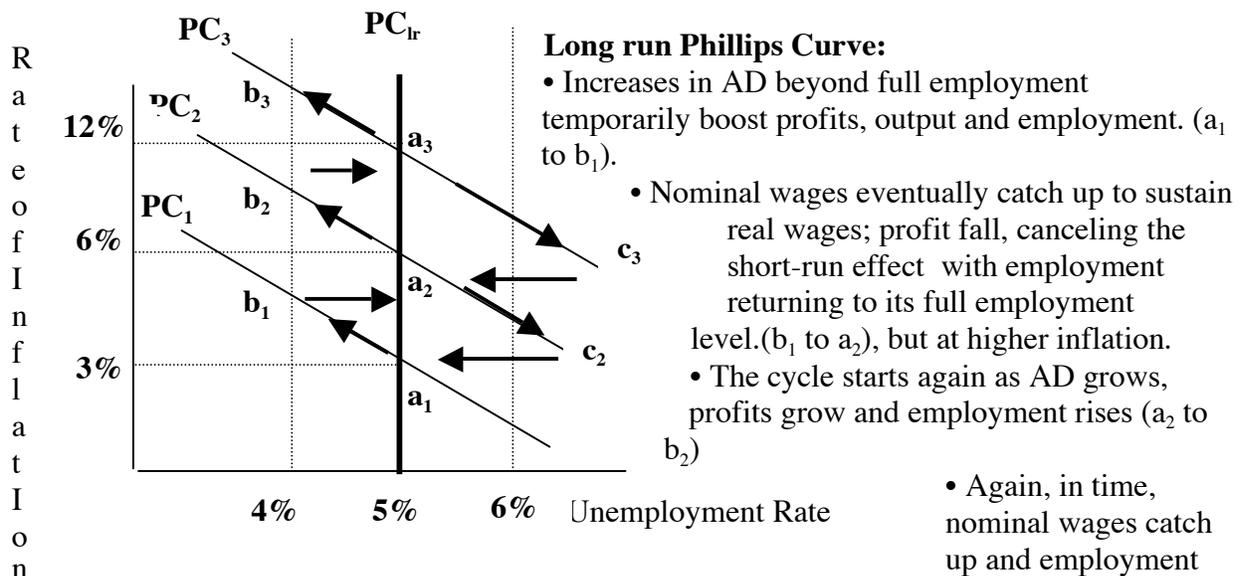
Changing Interpretations

- The **Phillips curve relationship of the 1960's is in disfavor**. Most economists today accept the idea of a short-run tradeoff perhaps lasting a few years.
- **Stagflation** was the term defined in the 1980's, which suggested that the Phillips curve shifted to a less desirable position negating the tradeoff between inflation and unemployment.
- Most believe that **adverse supply shocks** can cause periods of rising unemployment and rising inflation. Rapid and significant increases in resource prices push AS to the left. The OPEC-induced price increases for oil in the 1970's are an example. Agricultural problems, depreciated dollar, a rise in wages following the wage-price control of mid 70's combined with declining productivity also caused the situation.
- Examine Figures 15-8 p. 292 showing that in many years of 1970's and early 80's the economy experienced increasing inflation and rising unemployment

- In the later 80 and 90's, the effect of high unemployment and hence smaller increases in wages were coupled with foreign competition that held down prices and wage. This seemed to be the demise of stagflation. Deregulation and the decline of OPEC's power pushed the rates back closer to the earlier tradeoff picture. The AS_{sr} shifted back to its old position and the AS_{lr} adjusted.
- The decade of the 1990's when the US enjoyed the greatest period of economic growth in its history, unemployment reached a 30-year low of 3.7%, well below that most economists judge as the natural rate. Inflation was tamed in the mid-decade period and remained low till the new century. Some suggest that the FED under the wisdom of Alan Greenspan learned more about controlling inflation. Others suggest that the surplus budgets of the later 1990's coupled with the gains in productivity helped the economy to grow at low rates of inflation and higher rates of employment.

Phillips Curve Long Run

- **In the long run**, the actual price level equals the expected price level and output is at potential output with unemployment at its natural rate.
- To compensate for a higher than expected price level, (expansionary gap), labor shortages and dissatisfaction with lower REAL wages will lead to higher wages in the next round of negotiation. The AS_{sr} curve will shift up (due to higher costs) returning the economy to its potential output. The higher AD will have no lasting effects since the price level increase is not matched by a decline in employment.
- To compensate for lower than expected price level, (recessionary gap), labor surpluses and firms gaining advantage in labor negotiations will force lower wage rates. The AS_{sr} curve will shift right (due to lower costs) returning the economy to its potential output. Both price level and unemployment fall.



returns to its natural rate. The reward is a higher inflation rate.

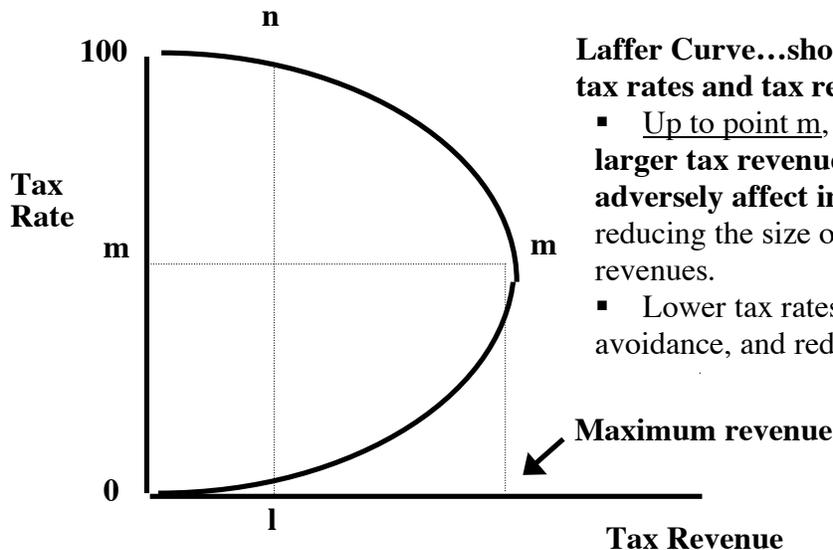
- There is not a stable relationship between unemployment and inflation as shown.
 - **The long-run Phillips curve is the vertical line through a_1 , a_2 , and a_3 . Any rate of inflation is consistent with the 5% rate of unemployment.**

Disinflation

- Disinflation ...reductions in the inflation rate from year to year.
- Suppose the economy on the diagram above is at a_3 with inflation at 9%.
- Suppose that AD falls and reduces inflation to 6% below the expected 9%. Profits decline and since nominal wages were determined under the 9% expectations, so prices are rising less rapidly than wages.
- In response to lower profits, firms reduce employment and the unemployment rate rises.
- The economy moves from a_3 to c_3 along the short-run curve.
- When the actual rate of inflation is lower than the expected rate of inflation, profits temporarily fall and the unemployment rate temporarily rises.
- Firms and workers eventually adjust (Long run!), lower wages are renegotiated and profits rise. The expected rate of inflation at 6% is now the actual and the short run Phillips curve moves to PC_2 .
- This scenario can continue beginning with the decline in AD, and the spiral downward of disinflation could continue.

Supply-Side Economics

- Supply siders manipulate aggregate supply by enacting policies designed to stimulate **incentives to work, to save and invest** (including measures to encourage entrepreneurship).
 - ✓ These may include **tax cuts** which will increase disposable incomes, thus increasing household saving and increase the profitability of investments by businesses.
 - ✓ **Marginal tax rates** are most relevant to decisions to undertake additional work; after-tax earnings are the incentive. Lower marginal tax rates will induce more work and this will increase productive effort.
 - ✓ **Too many transfer disincentives erode incentives to work.** Unemployment and welfare programs are cushioning the effect of these troubles and act as disincentive. Recently legislation has changed the face of the welfare programs across the states.



Laffer Curve...shows the relationship between tax rates and tax revenues

- Up to point m, higher tax rates will result in larger tax revenues. But still higher tax rates will adversely affect incentives to work and produce, reducing the size of the tax base and reducing tax revenues.
- Lower tax rates will lessen tax evasion and avoidance, and reduce government transfer.

BUT...

- **some people will work more** if taxes are lowered; the opportunity cost of leisure time is increased if you can bring home more income with lowered taxes.
- **some people will work less** if taxes are lowered; they can now buy leisure time since working fewer hours brings the same after-tax income as before.
- **demand-pull inflation likely** since tax cuts will stimulate AD and overwhelm effect on AS. If the tax changes come at a time of full production/employment, then AD is added to an already overheated economy.
- Laffer assumed we were **at point n** (above the ideal); **others disagree** where the economy
- **In 1993 the increases in marginal tax have generated large increases in tax revenues.**

Chapter 14W, p. 14W2-14W8

(find it on the web at

http://highered.mcgraw-hill.com/sites/0073273082/student_view0/web_chapters.html

Time Value of Money Introduction:

- Suppose your brother or sister owed you \$500. Would you rather have this money repaid to you right away, in one payment, or spread out over a year in four installment payments? Would it make a difference either way?
- According to a concept that economists call *the time value of money*, you would probably be better off getting your money right away, in one payment. You could invest this money and earn interest on it or you could use this money to pay off an all or part of a loan. There are a million things you could do with this money. The time value of money refers to the fact that a dollar in hand today is worth more than a dollar promised at some future time.
- But how can that be? A dollar is a dollar, isn't it? Yes, but a dollar in hand today can be invested in an interest-bearing account that would grow in value over time. This explains in part why the value of money is related to time.
- The time value of money is related to another concept called opportunity cost. The cost of any decision includes the cost of the best-forgone opportunity. If you pay \$10.00 for a movie ticket, your cost of attending the movie is not just the ticket price, but also the time and cost of what else you might have enjoyed doing instead of the movie. Applying this concept to the \$500 owed to you, you see that getting the money in installments will saddle you with opportunity cost. By taking the money over time, you lose the interest on your investment or any other use for the initial \$500, such as spending it on something you would have enjoyed more. The trade-off between money now and money later depends on, among other things, the rate of interest you can earn by investing.

Process:

First, consider **future value**.

Future value (FV) refers to the amount of money to which an investment will grow over a finite period of time at a given interest rate. Put another way, future value is the cash value of an investment at a particular time in the future. Start by considering the simplest case, a single-period investment.

√Investing For a Single Period:

- Suppose you invest \$100 in a savings account that pays 10 percent interest per year. How much will you have in one year? You will have \$110. This \$110 is equal to your original *principal* of \$100 plus \$10 in interest. We say that \$110 is the future value of \$100 invested for one year at 10 percent, meaning that \$100 today is worth \$110 in one year, given that the interest rate is 10 percent.
- In general, if you invest for one period at an interest rate r , your investment will grow to $(1 + r)$ per dollar invested. In our example, r is 10 percent, so your investment grows to $1 + .10 = 1.10$ dollars per dollar invested. You invested \$100 in this case, so you ended up with $\$100 \times 1.10 = \110 .

√Investing For More Than One Period:

- Consider your \$100 investment that has now grown to \$110. If you keep that money in the bank, what will you have after two years, assuming the interest rate remains the same? You will earn $\$110 \times .10 = \11 in interest after the second year, making a total of $\$100 + \$11 = \$121$. This \$121 is the future value of \$100 in two years at 10 percent.

Another way of looking at it is that one-year from now, you are effectively investing \$110 at 10 percent for a year. This is a single-period problem, so you will end up with \$1.10 for every dollar invested, or $\$110 \times 1.1 = \121 total.

- This \$121 has four parts.
- The first part is the first \$100 original principal.
- The second part is the \$10 in interest you earned in the first year.
- The third part is the other \$10 you earn in the second year, for a total of \$120.
- The fourth part is \$1, which is interest you earned in the second year on the interest, paid in the first year: ($\$10 \times .10 = \1)
- The process of leaving the initial investment plus any accumulated interest in a bank for more than one period is *reinvesting* the interest. This process is called **compounding**. Compounding the interest means earning **interest on interest** so we call the result **compound interest**. With **simple interest**, the interest is not reinvested, so interest is earned each period is on the original principal only.

√Interest on Interest...

- Suppose you locate a two-year investment that pays 14 percent per year. If you invest \$325, how much will you have at the end of two years? How much of this is simple interest? How much is compound interest?
- At the end of the first year, you will have $\$325 \times (1 + .14) = \370.50 . If you reinvested this entire amount, and thereby compound the interest, you will have $\$370.50 \times 1.14 = \422.37 at the end of the second year. The total interest you earn is thus $\$422.37 - 325 = \97.37 . Your \$325 original principal earns $\$325 \times .14 = \45.50 in interest each year, for a two-year total of \$91 in simple interest. The remaining $\$97.37 - 91 = \6.37 results from compounding. How much will you have in the third year?
- Suppose you go in for an interview for a part-time job. The boss offers to pay you \$50 a day for a 5-day, 10-week position OR you can earn only one cent on the first day but have your daily wage doubled every additional day you work. Which option would you take?
- **FV= PV (1 + i)^N**
 - FV = Future Value
 - PV = Present Value
 - i = the interest rate per period
 - n= the number of compounding periods
 - (Do you understand “N”? It means to the power of.. $5^2=25$. $3^3=27$)
- What is the future value of \$34 in 5 years if the interest rate is 5%?
 - **FV= PV (1 + i)^N** $FV= \$ 34 (1+ .05)^5$ $FV= \$ 34 (1.2762815)$ $FV= \$43.39$.
- You can go backwards too. I will give you \$1000 in 5 years. How much money should you give me now to make it fair to me? You think a good interest rate would be 6% (You just made that number up).
 - **FV= PV (1 + i)^N** $\$1000 = PV (1 + .06)^5$ $\$1000 = PV (1.338)$
 $\$1000 / 1.338 = PV$
 $\$ 747.38 = PV$ √O.K. so you give me \$ 747.38 today and in 5 years I'll give you \$1000. Sound fair?? You will get 6% interest on your money.

The Financial Sector

From Saving to Investment

- **Financial markets** are a vital part of a free enterprise economy.

- ✓ These are place where individuals and firms enter relationships:

- ✓ savers give funds to a financial institution, which gives them a return in the form of interest.

- ✓ These financial institutions lend funds to businesses wishing to expand their business

- ✓ In this way, savers can build wealth by letting their savings dollars build our economy's wealth.

- **Two sides to the financial market.**

- ✓ savers looking for the best return on savings

- ✓ businesses that want to buy capital resources.

How do businesses use financial markets to obtain money?

- **They borrow the money with long-term loans.**

- ✓ The principal (the amount borrowed) is repaid usually at the end of the loan period with interest payments paid at intervals during the life of the loan. These long-term loans are called bonds—borrowers get the cash they need while lenders earn interest.

- ✓ Standard and Poor's and Moody's rate the bonds in terms of financing condition and potential for profit of bond issuer.

- ✓ Triple A (AAA, Aaa) are the highest rating with AA or Aa , A , BBB or Baa next and so on down the line.

- ✓ Fixed-income securities such as bonds, pay a set amount of interest on a regular basis

- ✓ These ratings do influence the rates paid

- a low rating will cost the issuing company more in interest over the term of the bond because they must pay a higher return to attract buyers for the bond

- Low ratings can also affect the selling price of the bond by selling it below face value, which is called discounting the bond.

- **They sell new shares of ownership called equity financing.**

- ✓ Newly formed corporations or existing ones can issue new stock in what is called an Initial Public Offering (IPO).

- ✓ stockholders receive their share of the profits when (and if) the board of directors elects to distribute them as dividends.

- ✓ The number of shares of stock a corporation issues varies with the size and nature of the firm.

- ✓ IBM had over 1.8 billion shares of stock outstanding in Sept. of 1999, while McDonald Hamburgers had 1.6 billion shares outstanding at the end of 1998

- ✓ Nike had 282 million shares outstanding at the end of 4th Quarter 1999. In any of these cases, if you owned one share of stock, you would own that fraction of the business. For example, in the case of Nike, you would own 1/282,000,000 of the company.

- **Common Stock**

- ✓ All corporations issue common stock that represent ownership shares.

- ✓ Initially sold by the corporation and then traded among investors in the secondary market.

- ✓ A common stock share is a claim to a share of the profits of a company, that is, the income after all expenses and taxes are paid.

✓ Common Shareholders vote for the Board of Directors of the corporation and can vote directly on many policies.

✓ Investors who buy common stock expect to earn dividends, and hope that the stock price increases so that their investment will become more valuable.

✓ There are risks, however, in investing in common stocks since dividends could significantly decrease or be suspended during periods when the company is not performing well.

✓ Stock prices may also fall, eroding the value of the investment.

• **Preferred stock**

✓ represents ownership in the issuing corporation, but does not provide all the privileges of ownership.

✓ Preferred stock is optional and many corporation do not issue it.

✓ Most preferred stock is issued as nonvoting stock.

✓ There is less risk associated with owning preferred stock, because the amount of the dividend is set and paid before any dividends on common stock.

✓ If a firm has a time of poor performance, the preferred stock holders may get paid a dividend while the common shareholders receive nothing.

✓ Preferred stockholders receive their share of the assets ahead of the common stockholders if the firm liquidates.

• **They save the money themselves.**

✓ Businesses save when they set aside a portion of their profits to be used to purchase new capital resources.

✓ For a corporation, these funds are called undistributed profit or retained earnings.

✓ After paying operating expenses and taxes, the board of directors may decide to give the shareholders a portion of the remaining profit in the form of a dividend. Any remaining money is the retained earnings.

✓ Like farmers who keep some of their harvest for next year's seed, companies save some of their earnings to buy new capital resources.

✓ Retained earnings are very important to new, small and rapidly growing businesses.

Typically, these businesses do not pay dividends to their shareholders. Instead, they keep the profits and invest them in the company's growth.

✓ McDonalds Corp. went public in 1965 selling stock to fund growth. It did not pay a dividend for more than 10 years, retaining their profits each year to open more locations and expand operations. Today, McDonalds Corp. pays an \$.20 dividend per share and is the world's largest fast-food producer with over \$12 billion in revenues.

The Market Story

Stocks

✓ The stock market has various parts including the organized exchanges:

• New York Stock Exchange (NYSE) listing over 3,000 companies worth more than \$16 trillion in global market capitalization.

✓ These companies include a cross-section of leading U.S. companies, large and mid-size.

✓ In addition, almost 400 non-U.S. companies are listed on the NYSE making it truly the world's largest equity market.

• American Stock Exchange (AMEX), listing over 700 common stocks, 26 index shares and 1100 options on domestic and foreign stocks.

It concentrates on the mid-size companies with strong growth potential.

- There are also smaller, regional stock exchanges located in Los Angeles, Chicago, Boston, Cincinnati and Philadelphia.
- The National Association of Securities Dealers Automated Quotation system known, as NASDAQ is an electronic trading system sometimes referred to as “over-the-counter” trading. Currently listing over 5,000 companies, NASDAQ is the home to some of the nation’s best-known companies especially in the technology arena. Microsoft, Apple, Cisco, and Yahoo are all listed on NASDAQ.
- To be listed on these exchanges, there are minimum requirements of market capitalization, revenues and shareholders.

√ Unlisted companies which do not meet these minimum are often traded in the so-called pink sheet market.

√ Here, people buy and sell shares of smaller, less popular stocks that the exchanges do not list.

Bonds

- The Bond Market is a secondary market that trades already issued bonds.
- The NYSE and AMEX list previously issued corporate bonds and are traded over-the-counter (OTC).
- A bond’s interest rate never changes so when other rates change people may be willing to pay more or less for the bond. If the bond is paying more interest than is paid elsewhere, then investors will pay more to own it.
- Several factors, including yield and return, affect the probability that the trade is a good one. Inflation is the worst factor since it can erode the return even eating into the maturity value of the bond.
- In the secondary market, the rate of interest of the bond, and the question of uncertainty regarding repayment can influence the return. Paying more or less than the par value in this market affects the yield.
- Yield what you actually earn over time on a bond investment. The annual interest is divided by the price paid.
 - For example, a bond of par value \$1,000, paying 6% interest is sold for \$980. The yield is 6.12%. Paying a discounted price (less than par value) for the bond raises the yield. Paying a premium for the bond (more than par value) lowers the yield.
- Government issued bonds like Treasury Notes and Municipal Bonds are traded in the secondary market after initial issue. The Federal Reserve System handles transactions for new sales of Treasury bills and bonds, but those wishing to sell before maturity must deal with a broker. Municipal bonds are issued through investment banks or open bidding. After issue, they are traded through a broker.

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Money and Banking

... **Money is anything that is generally accepted in payment for goods and services.**

Functions:

- ✓ **Medium of Exchange**—convenient way to exchange for goods and services
- ✓ **Unit of Measurement**—yardstick for measuring worth
- ✓ **Store of value**—way to store wealth

Supply of Money:

• **Amount of money in circulation is constantly changing.** The amount depends on how much money is desired by individuals and businesses. In November and December, banks need more currency since people want it for shopping funds; supply of money automatically expands and contracts with the needs of business.

• **M1 Money Supply...** currency and checkable deposits

✓ **Currency**—Coin is 2-3% of total M1 for convenience money; called token money (intrinsic value is less than the face value). Paper money is 54% of total M1 in the form of Federal Reserve Notes (no longer tied to gold reserves) and **Checkable Deposits are 46%**. This exclude currency held in the bank vault or deposited in Federal Reserve Banks or held by US Treasury.

✓ **Checkable Deposits**— are 46% of total M1, used for 90% of transactions (offered by commercial banks, thrift institutions, and credit unions), called **demand deposits**. Checks are a way to transfer ownership of bank deposits. Commercial banks are the primary depository institutions—they take in deposits and make loans. Savings and loans, mutual savings banks and credit unions or known as thrift institutions and do the same thing—accept deposits and make loans. NOTE: Currency and checkable deposits owned by the US Treasury, the FED, commercial banks and other financial institutions are not counted as M1.

M2 and MZM: Near Monies... ...a broader measure of money supply; highly liquid financial assets that do not directly function as medium of exchange but can be easily converted into currency or checkable deposits.

✓ **M2:** M1 components + savings accounts and money market deposit accounts, time deposits like CD's (less than \$100,000), money market mutual funds held by individuals.

✓ **MZM:** Money Zero Maturity adjusts M2 by subtracting small (less than \$100,000) time deposits and adding money market mutual fund balances held by businesses. The advantage of MZM is that it includes currency, checkable deposits, MMDA's and MMF's all used on a daily basis to buy goods and services.

We do not include less liquid assets like Treasury Bills and US Savings Bonds.

Each definition is useful. M1 is easy and often cited. MZM uses a broader measure.

We will use M₁ money supply as the definition of money in our discussion. M1 components of currency and checkable deposits are also a part of M2 and MZM so changes in currency and checkable deposits will change the all three.

✓ **Credit Cards are NOT money**, but rather a “bank loan”. They do allow us to “economize” our use of money. We hold less currency and fewer checkable deposits.

What "backs" Money Supply?

Money as Debt

... **Paper Money is the circulating debt of the Federal Reserve Banks.**

... **Checkable Deposits are the debts of commercial banks and thrift institutions.**

- Neither has intrinsic value; they cannot be redeemed in gold or other "valued" item.

Value of Money

✓ **Acceptability** : confident money is tradable for goods and services

✓ **Legal tender**: matter of law (creditor must accept or forfeit right to sue or charge interest) and government will accept money in payment of taxes. Checks do not have this status but agencies like FDIC and NCUA insure deposits up to \$100,000.

✓ **Relative scarcity**: demand (utility related to acceptance for goods and services) and supply (controlled by FED) relationship

Money and Prices

✓ **Purchasing power of money is the real value.** The amount a dollar will buy varies inversely with the price level.

$$D = 1/P$$

D=Value of the \$

P= Price level

✓ Inflation and Acceptability:

- Inflation is the result of a society's spending beyond its capacity to produce.
- HH & BS are willing to accept currency and checkable deposits as long as they know it can be spent without a loss of purchasing power.
- In inflation... the rapid loss of purchasing power will cause money to lose its function as a medium of exchange.
- Money will serve its function as a store of value as long as there is no unreasonable loss in value by storing it.

✓ Stabilization of Money's Purchasing Power

✓ **Major backing** for money is the government's ability to keep the value of money stable.

✓ This means **appropriate fiscal policy** and wise management of the money supply through **sound monetary policy**.

✓ In US, a **blend of legislation, government policy, and social practice** stops the unwise expansion of the money supply, which could change money's value in exchange.

Think About This!

What "backs" the money supply of the US?

What determines its value?

Who is responsible for maintaining the value of money?

Why is it important to be able to alter the money supply?

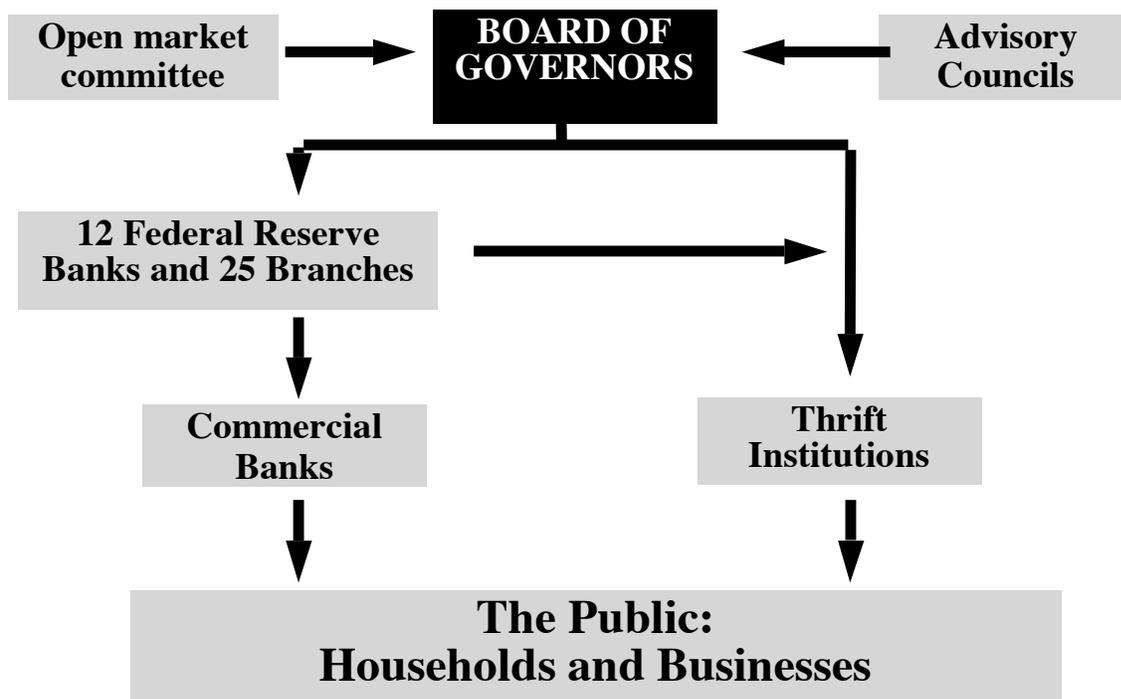
Federal Reserve System

Established by an Act of Congress in 1913. It is the system that coordinates commercial banking operations, regulates some aspects of all depository institutions and oversees the United States Money Supply.

The **Depository Institutions Deregulation and Monetary Control Act of 1980** expanded the ability of thrift institutions to create money as the commercial banks, but also put them under regulatory control of the FED.

The primary goal of the FED is to adjust the money supply to meet the needs of the economy. Through its control of the size of the money supply, the FED has the ability to influence the levels of employment and prices in the economy. It can also be part of policies, which alleviate the problems of unemployment and inflation.

The organizational structure of the FED includes:



• **The Board of Governors** are seven members appointed by President, approved by Senate for 14-year terms. **Alan Greenspan** is current chairman. He acts as spokesman and is leader in setting pace of monetary policy for the economy. The Board **develops objectives and policies** that are consistent with the stated goals. The current goals include low interest rates that will stimulate investment spending and low rates of inflation to protect the value of the nation's income.

- The **Open Market Committee** includes Board members and 5 of the district bank presidents who authorize the buying and selling to government securities by the FED.
- The **Federal Advisory Council** include 12 commercial bank presidents from the 12 districts and offers advice on the nation’s financial situation to the Board.
- The **12 Federal Reserve District Banks (and 25 branches)** are the central bank of the US and serve as “bankers’ bank”. They deal with commercial banks and thrifts; they enforce the Board policies, and operate as independent entities, which are owned by their member banks.

• **Functions of the FED include:**

- √ Provides banking services for financial institutions
 - supplies currency from member bank accounts with FED
 - processes checks through its check-clearing system
 - holds member bank reserves and other deposits
 - makes loans to financial institutions when necessary
 - provides wire transfer services (ETS)
- √ Banker to the Federal Government
 - maintains the Treasury Department’s checkbook
 - issues and redeems government bonds and other securities
- √ Supervises and regulates the nation’s banking system
 - establishes rule of behavior for banking system
 - shares responsibility with Comptroller of the Currency and Office of Thrift Supervision
- √ Manages the Supply of Money and Credit
 - responsibility to see that money and credit supply are matched to demand
 - uses three tools:
Reserve requirement, Discount Rate and Open Market Operations

• **Federal Reserve Independence**

Pros	Cons
√ Needs to be <u>free from political influence</u> to be effective √ Cite other <u>country’s high rates of inflation</u> as being <u>related to their lack of independence</u> √ <u>Fear pressure on Congress</u> if they had the power to regulate the money supply √ <u>Few understand</u> that the high rates are necessary at times to control inflation	√ <u>Undemocratic</u> not to elect members who have such power √ <u>Legislative</u> and <u>Executive</u> branches have the <u>responsibility</u> to promote growth and maintain stability...but not the tools. √ Voters try to <u>blame Congress and the President</u> though they have no control over FED action √ Some say that the FED policy is often <u>in conflict with the fiscal policy</u> of Congress.

• **Recent Developments**

- √ **Many kinds** of financial institutions offer checkable deposits and banks and thrifts (traditional institutions) are losing market share. Table 13-2 on page 258 shows list. Insurance companies, securities firms, etc. are taking banking business over.
- √ **Expansion of services** has enlarged the market for these services—home equity loans, low-or-zero down payments, ATM machines, Internet banking and telephone banking are all new services of the 90’s.

√ **Consolidation of the banking and thrift industry** through mergers are expected to continue. In 1999, there are 5000 fewer banks than in 1990. Ten largest banks hold 1/3 of all deposits.

√ The **Financial Services Modernization Act of 1999** has changed the landscape of the financial services industry. Banks can merge with non-bank operations...one-stop banking services are being offered. The downside of this trend is that in recession, we may see more failures.

√ **Innovations in computer and telecommunication** technology will mean a trend toward globalization of financial markets. Capital flows can happen in a nanosecond and cause a quick turn-around like in Asia in 1997-98.

√ **Electronic cash and “smart cards”** are the future. Banking services will be paperless, shopping on the Internet and direct deposits of payments is already reality. You will find on your college campus next year that your ID can be “loaded” with cash and you can use it at various locations. The worry is that the amount of E-cash created by private firms and the fraud that might result.

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Balance Sheet approach

A balance sheet is a statement of assets, liabilities and net worth. Assets are items of economic value; **liabilities** are debts or obligations, and **net worth** is the equity remaining.

A balance sheet must “balance”. The Assets must be equal to the Liabilities plus the Owner’s Equity.

$$\text{Assets} = \text{Liabilities} + \text{Net Worth}$$

How Banks Create Money!

• Bank Customers deposit money in their checking accounts. This transaction creates a LIABILITY for the bank since they have the obligation to repay the depositor his funds.

• **Fractional Reserve Banking System** ... legally permits financial institutions to hold less than 100 percent of their deposits as currency in their vaults.

√ Goldsmiths in the Middle Ages were the first to use this method when they issued gold receipts when people stored gold with them. the receipts began to circulate and the goldsmiths began to issue more “money receipts” as interest-bearing loans to merchants as confidence grew.

√ Our system today has two characteristics:

• money creation and reserves: banks can create money but they are restrained by the FED’s power to set reserve requirements.

• bank panics and runs: confidence is the key in our system since there is no gold or other metal that backs our currency. Prudent laws, good enforcement and FDIC insurance are ways that confidence is maintained.

• **Financial institutions are required to keep a fraction of their deposits on reserve** to cover withdrawals and to maintain a level of confidence in the monetary system. This fraction is set by Congress and regulated by the Federal Reserve System. This **legal reserve** is kept in the bank’s vault or in the vault of the District FED bank.

• “The Monetary Control Act (MCA) of 1980 authorizes the Fed’s Board of Governors to impose a reserve requirement of from 8% to 14% on transaction deposits (checking and other accounts from which transfers can be made to third parties) and of up to 9% on non-personal time deposits (those not held by an individual or sole proprietorship). The Fed may also impose a reserve requirement of any size on the amount depository institutions in the United States owe, on a net basis, to their foreign affiliates or to other foreign banks. Under the MCA, the Fed may not impose reserve requirements against personal time deposits except in extraordinary circumstances, after consultation with Congress, and by the affirmative vote of at least five of the seven members of the Board of Governors.”(from the FED NY website)

• A bank can loan out its **excess reserves** to credit-worthy customers. This process will create an asset since customers must repay the loan according to the terms given.

• Usually a **bank does not loan out all of its excess reserves**—”good” customers or loan purposes are hard to find OR other investment opportunities may be more lucrative.

AP Macroeconomics
Chapter 13 p. 245-251

Fractional Banking Reserve System

- Only a portion of checkable deposits is backed up by cash in bank vaults or deposits at the central bank. The US and most other countries today operate this way. Historically, the idea goes back to the goldsmiths who stored gold and issues certificates. As the certificates began to trade like cash, some goldsmiths began to issue more certificates and charge interest.
- So...banks create new money by lending. This policy can trend toward “panics” and runs” on the bank, but the FED has controls that supervise banks and their required reserves. As well, bank deposits are protected by deposit insurance known as the FDIC.

A Balance Sheet is an accounting device that uses a fundamental formula:

$$\text{Asset} = \text{Liabilities} + \text{Net Worth}$$

A SINGLE COMMERCIAL BANK

Transaction 1: Creating A Bank

New owners obtain a charter and sell capital stock in a new bank, which raises cash to begin operations. The cash is an asset; the capital stock represents the stockholder’s worth.

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Cash	\$250,000		Capital Stock	\$250,000

Transaction 2: Acquiring Property and equipment

The Board of Directors of the new bank purchase a building and equipment needed to begin operations. The building and equip is an asset; the cash is reduced by the amount of the purchase

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Cash	\$ 10,000		Capital Stock	\$250,000
Property	240,000			

Transaction 3: Accepting deposits

Customers begin to make deposits to checking accounts they have opened. These are called demand deposits since the bank must give the money to the customers when asked. Cash is increased by the amount of the deposit and a liability called Demand Deposits is created.

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Cash	\$ 110,000		Capital Stock	\$ 250,000
Property	240,000		Demand Deposits	100,000

Up to this point, the money supply has remained the same since these transactions only affect the composition of the money supply. Cash held by customers has been exchanged for another “kind” of money—checking accounts. Currency held by the bank is not counted as part of the money supply.

Transaction 4: Depositing Reserves in a Federal Reserve Bank

The FED requires banks and thrift institutions to keep a legal reserve aside from the amount that customers deposit. This legal reserve can be kept on deposit at the FED district bank, in which this bank is located. Table 13.1 shows the current reserve ratios set by the FED. For this example, 20% is the legal reserve requirement set by the FED. To facilitate this example, assume that the bank has sent aside \$110,000 as reserves. We know that \$20,000 is the amount of the required reserve if the LRR is 20%. The excess reserve is \$90,000.

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Cash	0		Capital Stock	\$ 250,000
Reserves	\$ 110,000		Demand Deposits	100,000
Property	240,000			

Transaction 5: Clearing a Check drawn on one of the bank's Demand Deposits.

Customers write checks to pay bills and make purchases. When the bank receives the check from a merchant or through the FED's check clearing service, the amount of Demand Deposits is decreased, and the legal reserve/excess reserve amounts will change as well. In the example, the amount of the check was \$50,000. Now the bank's legal requirement is \$10,000 and the excess reserves is \$50,000.

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Reserves	\$ 60,000		Capital Stock	\$ 250,000
Property	240,000		Demand Deposits	50,000

Up to this point, the money supply has remained the same since these transactions only affect the composition of the money supply. Cash held by customers has been exchanged for another "kind" of money—checking accounts. When they pay bills, they are moving money through the economy not creating any new money. Currency held by the bank is not counted as part of the money supply.

Money Creating Transaction of Commercial Banks

Transaction 6: Granting a Loan

Customers often want to borrow money to buy goods and services like cars and homes; businesses want to borrow to build new plant facilities or expand their business. Banks can loan out funds up to the amount of their excess reserves. They will judge each loan applicant on their previous financial record and their current ability to repay the loan in time. In our example, let's assume a loan of \$50,000, the total of our current excess reserves. The loan customer receives the funds in the form of a new demand deposit. Demand deposits rise to \$100,000 (\$50,000 + \$50,000), the bank has a new asset in the form of a Loan (\$50,000) that will be repaid. Excess reserves are reduced by the amount of the loan (\$50,000) and are now \$0

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Reserves	\$ 60,000		Capital Stock	\$ 250,000
Property	240,000		Demand Deposits	100,000
Loans	50,000			

The money supply has been increased since a new demand deposit has been created from the excess reserves held by the bank. The loanee's IOU has replaced the excess reserves and he will write checks to pay for a new car or whatever. As the checks covering the entire loan

are cleared, the demand deposits will fall back to the pre-loan amount, but the new money has been used to purchase goods and services in the economy—**increased Money Supply**. This is what the balance sheet will appear as when the \$50,000 has been withdrawn for the project purpose of the loan. The bank is now without excess reserves to make more loans and must wait for more demand deposits to appear.

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Cash	\$ 10,000		Capital Stock	\$ 250,000
Property	240,000		Demand Deposits	50,000
Loan	50,000			

Transaction 7: Buying Government Securities

When a bank buys Government bonds from the public, the effect is the same as lending the money. Assume we have the data after Transaction 6, and the bank buys a government bond from a bond dealer. It gets an asset—Securities in the amount of \$50,000. It gives the bond dealer \$50,000 in a demand deposit, which rises to \$100,000.

Balance Sheet of a Bank (partial)				
ASSETS		=	LIABILITIES & NET WORTH	
Reserves	\$ 60,000		Capital Stock	\$ 250,000
Property	240,000		Demand Deposits	100,000
Securities	50,000			

As the checks drawn on the demand deposit of the bond dealer are cleared, the demand deposits will fall back to the pre-loan amount, but the new money has been used to obtain for the bank an asset. **Bond Purchases from the public (like a bond dealer) increase the money supply in the same way as lending to the public. Securities (not money) are exchanged for Demand Deposits (new money).**

Transaction 8: Repayment of Loans or Selling Government Securities

When a bank sells government securities to the public or borrowers repay their loans, the money supply is decreased. The securities (not money) are exchanged for money coming out the economy, and buyers are writing checks or giving up their cash.

Profit, Liquidity and Federal Funds Market

- Banks have two goals: profit and liquidity
 - Profit is derived from making loans and buying securities which earn interest
 - Liquidity means that a bank has to be ready when a customer wants to exchange his checkable deposit for cash.
- Banks usually have “extra” reserves each day aside from their required amounts.
 - Reserve deposits with the FED do not pay interest
 - Banks can lend excess reserves “overnight” to other banks that are short of required reserves.
- The interest rate on these overnight loans is called the **Federal Funds rate**.

The Banking System: Multiple Deposit Expansion

The commercial banking system can create money, by a multiple of its excess reserves. Multiple lending is possible even though each bank in the system is limited by the dollar amount of their own excess reserves.

Three assumptions in this discussion:

1. Reserve Ratio—20%
2. All banks “loaned out”
3. New loans are deposited in another bank.

Bank	Acquired Reserves and deposits	Required Reserves	Excess Reserves	New Money Created
Bank A	\$100.00	\$20.00	\$80.00	\$80.00
Bank B	80.00	16.00	64.00	64.00
Bank C	64.00	12.80	51.20	51.20
Bank D	51.20	10.24	40.96	40.96
Bank E	40.96	8.19	32.77	32.77
Bank F	32.77	6.55	26.22	26.22
Bank G	26.22	5.24	20.98	20.98
Bank H	20.98	4.20	16.78	16.78
Bank I	16.78	3.36	13.42	13.42
Bank J	13.42	2.68	10.74	10.74
Bank K	10.74	2.15	8.59	8.59
Bank L	8.59	1.72	6.87	6.87
Bank M	6.87	1.37	5.50	5.50
Bank N	5.50	1.10	4.40	4.40
Other Banks	21.97	4.40	17.57	17.57
Total Amount on Money Created				\$400.00

The Money Multiplier

- As an entire system, the initial deposit of only \$100.00, \$80.00 of which was the excess reserve, created \$400.00 of new money. The \$400.00 is a multiple of the \$80.00—5 times the initial excess reserve amount.

- The **Money Multiplier** or demand deposit multiplier exists because the reserves and deposits lost at one bank are received by another, magnifying excess reserves into a larger creation of demand-deposit money.

$$\sqrt{m = \frac{1}{R}} \quad \text{monetary multiplier equals the reciprocal of the Reserve Requirement}$$

$$m = 1/R$$

$$m = 1/.20$$

$$m = 5$$

√ Finding the maximum amount of new demand deposit money (D) by using:

$$D = E \times m$$

Maximum new money = excess reserves multiplied by the money multiplier

$$D = E \times m$$

$$D = \$80 \times 5$$

$$D = \$400$$

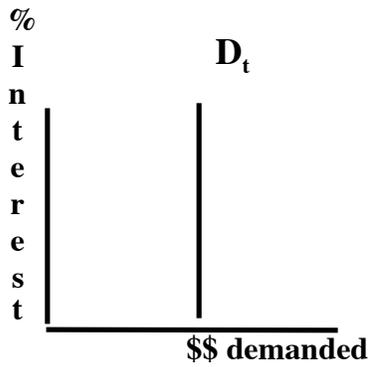
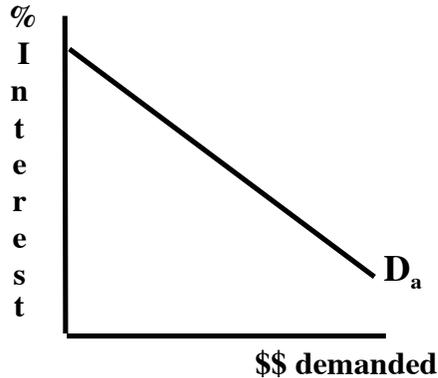
- **Complications:**

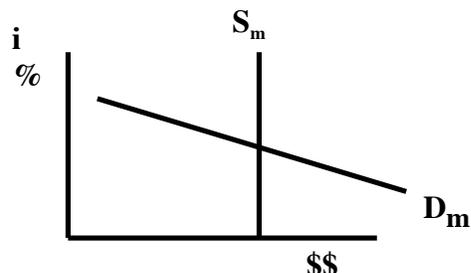
Currency Drains—some borrowers want cash instead of DD

Excess Reserves—do banks fully loan out excess?

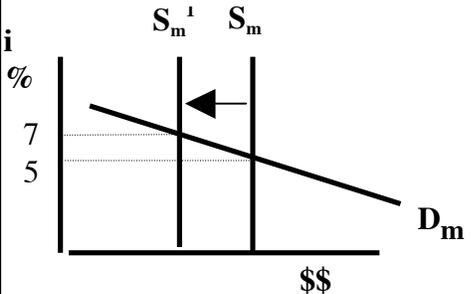
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 Chapter 14 p. 259-261
 Demand for Money

Two reasons for demanding money:

<p>Transaction demand ✓ Medium of exchange ✓ varies <u>directly</u> with GDP</p> 	<p>Asset demand ✓ store of value ✓ varies <u>inversely</u> with GDP</p> 
<p>Total Demand D_m ✓ Combining the two creates the total demand for money and portrays the money market and determines the equilibrium interest rate.</p>	

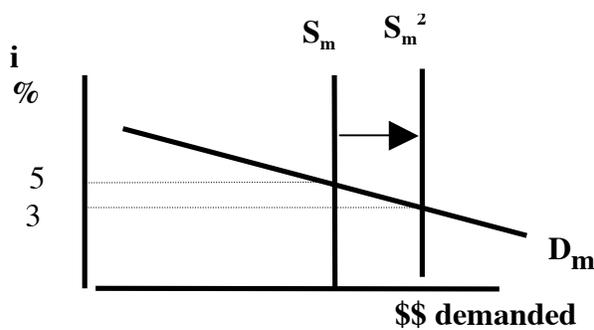


Money Market... supply of money is a vertical line since monetary authorities (FED) and financial institutions have provided the economy with a certain stock of money.
 The Price axis is the rate of interest and \$\$ is the amount of money demanded at that rate.



Response to a Decline in Money Supply... if the supply slips back to S_{m1} , people will adjust by selling some financial asset like bonds causing the price of bonds to fall since there will be a greater supply of bonds than demand. The supply of money does not change because one person will gain cash by the sale but another will lose to pay for the bond. Overall, this increases the supply of bonds relative to the demand.

Lower bond prices are associated with higher interest rates... the yield of the bonds has increased when prices fall and this causes an increase in interest rates (5% to 7% on graph). A higher interest rate will raise the opportunity cost of holding money that firms and households want to hold. So the change in interest rates move upward along the D_m and reduces the \$\$ of money demanded. Equilibrium is restored.



Response to a Surplus of Money...if the supply pushes outward to S_m^2 , people will adjust by buying some financial asset like bonds causing the price of bonds to rise since there will be a greater demand for bonds than supply. The supply of money does not change because one person will lose cash by the sale but another will gain by selling his bond.

Higher bond prices are associated with lower interest rates...the yield of the bonds has decreased when prices rise and this causes a decrease in interest rates (5% to 3% on graph). A lower interest rate will lower the opportunity cost of holding money that firms and households want to hold. So the change in interest rates move downward along the D_m and increasing the \$\$ of money demanded. Equilibrium is restored.

Nominal Interest Rates vs. Real Interest Rates

Suppose we buy a 1-year bond for face value that pays 6% at the end of the year. We pay \$100 at the beginning of the year and get \$106 at the end of the year. Thus the bond pays an interest rate of 6%. This 6% is the nominal interest rate, as we have not accounted for inflation. Whenever people speak of the interest rate they're talking about the nominal interest rate, unless they state otherwise.

Now suppose the inflation rate is 3% for that year. We can buy a basket of goods today and it will cost \$100, or we can buy that basket next year and it will cost \$103. If we buy the bond with a 6% nominal interest rate for \$100, sell it after a year and get \$106, buy a basket of goods for \$103, we will have \$3 left over. So after factoring in inflation, our \$100 bond will earn us \$3 in income; a real interest rate of 3%. The Fisher Equation describes the relationship between the nominal interest rate, inflation, and the real interest rate:

Real Interest Rate = Nominal Interest Rate - Inflation

If inflation is positive, which it generally is, then the real interest rate is lower than the nominal interest rate. If we have deflation and the inflation rate is negative, then the real interest rate will be larger.

Think About This!

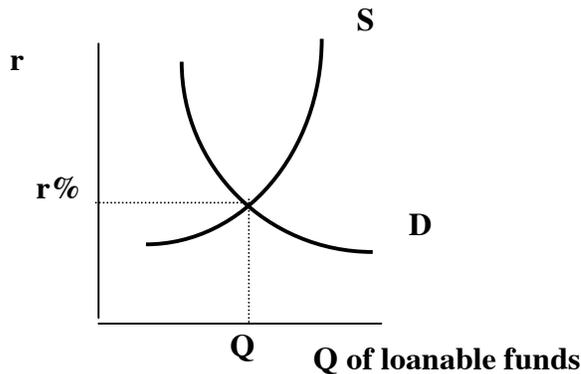
- How is the equilibrium interest rate in the money market determined?
- How might each independently of these affect the transaction demand for money and the equilibrium interest rate
 - a. the expanded use of credit cards
 - b. a shortening of worker pay periods
 - c. an increase in nominal GDP

AP Economics

Loanable Funds Money Market, p. 529-534

The **Interest rate is determined in Loanable Funds Money Market.**

- Fewer investment projects will be undertaken when the interest rate rises. More investment projects will be undertaken when the interest rate falls.



- **Demand** consists of Transaction and Asset demands; it is down sloping because at lower interest rates, businesses are willing to borrow more.

- **Supply** is upsloping because at higher interest rates, consumers will be induced to save more and spend less.

Extending the Model:

Financial institutions: Most savings goes to banks (and other financial institutions) rather than directly to businesses for investment. The banks pay interest to attract that saving. Businesses borrow these funds from the bank which charges interest for the use of money. Both interest rates are set by demand and supply.

Changes in Supply: Anything that makes people save more will shift the supply curve to the right. If interest earned becomes tax-exempt, this would induce more savings. If the government decides to pay for more social welfare program (like Medicare, drug prescriptions, etc.) the savings rate will decline. As people ages, they will spend more and save less since they do not need to save for the costs of old age.

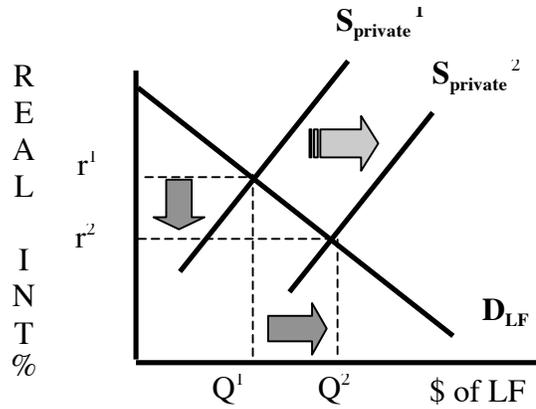
Changes in Demand: Anything that raises the rate of return on investment by businesses will raise the demand for loanable funds. Increases in productivity raise the marginal revenue product of a resource and so as revenue rises, so does the rate of return.

Other Participants:

- Households borrow for “big ticket” items—demand curve to the right
- Government borrows to finance deficit spending—demand curve to the right.
- Businesses with excess funds may make these funds available to the market—supply moves right.
- Banks can add to supply from the profits they accrue from making loans
- The FED controls the money supply and can increase or decrease the supply of through monetary policy.

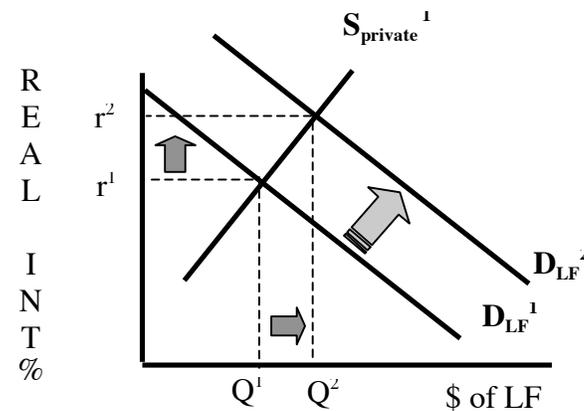
At times of deficit, Government can join this market on the demand side. A change in investment or consumption decisions moves the demand curve, while changes in savings decisions move the supply curve. Government policies that influence the loanable funds market includes Fiscal policies that influence taxes and investment, and government budget deficits. These policies decisions can move the demand or the supply curve.

When government decreases the tax on interest income, the incentive for households to save at any given interest rate increases. The supply of loanable funds curve shifts to the right, and the result is that the equilibrium interest rate decreases, as the quantity of loanable funds increases.



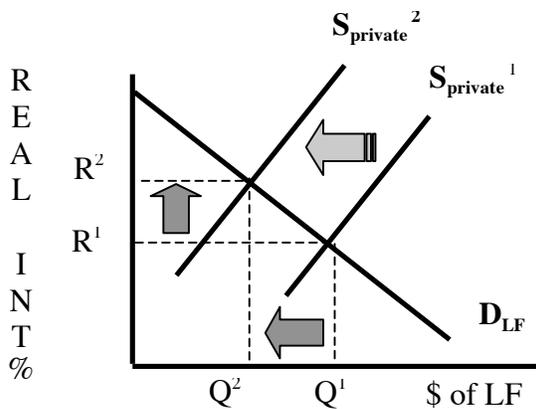
Loanable Funds Market

When government gives an investment tax credit for new equipment, this fiscal policy action increases the incentive to borrow. The demand for loanable funds curve shifts to the right, and the result is that the equilibrium real interest rate and quantity of loanable funds both increase.



Loanable Funds Market

When Government deficit spends, there are two views to consider. In one view, private saving is reduced (as funds are diverted to the purchase of government securities) and the supply curve moves to the left.



Loanable Funds Market

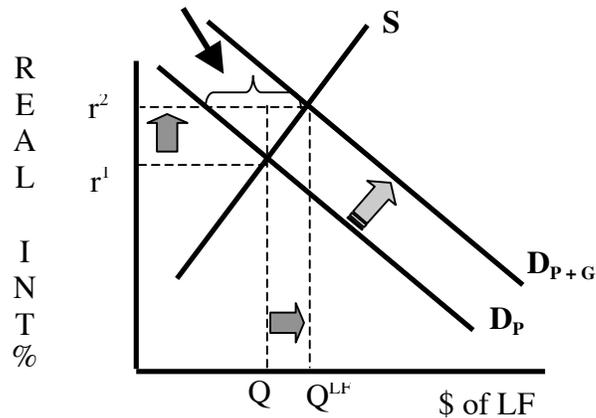
Supply View of Government Deficit Financing

When Governments borrow to finance budget deficits, this reduces the supply of loanable funds made available to finance investment by households and firms. This is a shift in private saving away from the loanable funds market. This is movement of the supply curve to the left and the result is that the equilibrium interest rate increases and the quantity of loanable funds decreases.

In the other view, government demand (seeking loanable funds to finance debt) is added to the private demand in the market and the demand curve moves to the right. This second view is the clear illustration of the **Crowding Out Effect**. The higher real interest rate discourages private borrowing by businesses and consumers. You can see the loss of Investment and interest-sensitive Consumption spending on the graph below. In theory, this leads to lower private investment and consumption and a decrease in aggregate demand, causing real GDP to decline with a lower price level. Deficit spending as a tool of fiscal policy is usually directed to stabilization in terms of moving the economy to a higher level of growth in GDP.

When government moves into the market for loanable funds, new demand is generated. The demand for loanable funds curve shifts to the right (D_{P+G}) and the result is that the equilibrium real interest rate and quantity of loanable funds both increase. But, note that the Q of LF Private is reduced and there is a loss of both private I and C Spending.

Loss of I & C spending



Loanable Funds Market

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Objective Of Monetary Policy

- The fundamental **objective of monetary policy** as practiced by the Federal Reserve Banks... is **to assist the economy in achieving a full-employment, non-inflationary level of total output.**
 - The **FED uses its tools** to alter the economy's money supply to stabilize aggregate output, employment and the price level.
 - **Monetary policy** entails increasing the money supply during a recession to stimulate spending, and to restrict it during inflation to constrain spending.

Tools of Monetary Policy

Open Market Operations

The FED acts as the buyer and seller of US government securities. It is the most important and most used tool of monetary policy.

Open Market Operations	Buying Securities		Selling Securities	
	Commercial Banks	√ CB gives up part of its holdings of securities to FED	√ FED pays for these securities by increasing the reserves of CB	√ FED gives up securities to CB
The Public	√ Customer gives up security to FED and gets a check drawn on FED account; ; customer deposits check in CB	√ CB collects check from FED in form of increased reserves	√ FED sells securities to customer who pays with a check drawn on their account at CB	√ FED collects the check drawn on CB and reduces the reserves held.

Effects:

Buying Securities...FED is potentially increasing the money supply by providing more excess reserves for money creation. When the banks loan out their excess, they create new demand deposits

Selling Securities...FED is potentially decreasing the money supply by providing fewer excess reserves for money creation. Lower bank reserves means that the banking system is restricted in the amount of new money creation.

Bond Prices and Interest Rates...bond prices and interest rates are inversely related.

• When FED is buying bonds, the demand for them increases: **price of bonds rise and their interest rates fall.** Lower interest rates causes banks and other bondholders to sell them to the FED.

• When FED is selling bonds, the increase in the supply of bonds in the market, causes price **of bonds to fall and their interest rates to rise.** Higher interest rates causes banks and other bondholders to buy them from the FED since bonds are now a better investment.

The Reserve Ratio

The FED controls the ratio of legal reserve to demand deposits. This tool aids in maintaining confidence in the “fractional” banking system .

Raising Reserve Ratio	Lowering Reserve Ratio
<ul style="list-style-type: none"> Increases the amount of \$ required to be withheld from loaning and investment activity. 	<ul style="list-style-type: none"> Decreases the amount of \$ required to be withheld from loaning and investment activity.
<ul style="list-style-type: none"> Diminishes the ability of a bank to make new loans and increase the money supply—lower excess reserves are now available. 	<ul style="list-style-type: none"> Increases the ability of a bank to make new loans and increase the money supply—greater excess reserves are now available
<ul style="list-style-type: none"> Banks would need to receive new demand deposits or they may be forced to foreclose on loans to be compliant. 	<ul style="list-style-type: none"> Banks can issue more loans if they have customers willing and able; they may have new funds for investments

The Discount Rate

The FED can make short-term loans to its member banks. It will act as the “lender of last resort”.

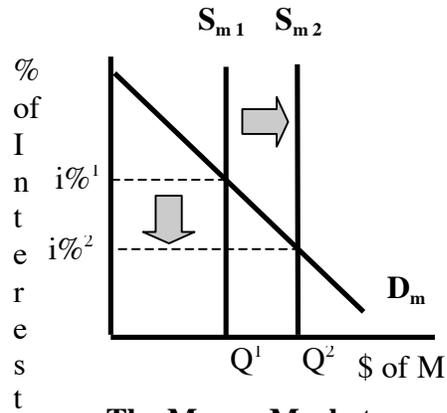
Raising the Discount Rate	Lowering the Discount Rate
<ul style="list-style-type: none"> CB will be discouraged to borrow at higher rates 	<ul style="list-style-type: none"> CB will be encouraged to borrow at lower rates
<ul style="list-style-type: none"> CB will not increase their excess reserves 	<ul style="list-style-type: none"> CB may choose to increase their excess reserves
<ul style="list-style-type: none"> Money creation will be decreased because fewer new loans are given 	<ul style="list-style-type: none"> Money creation could be increased because more new loans are given

Easy Money policy: Expansionary

Goal:	Cheap, available credit Increase the money supply		
Actions:	<ul style="list-style-type: none"> FED will <u>buy government bonds</u> from banks and the public 	<ul style="list-style-type: none"> FED will <u>lower the legal reserve ratio</u> 	<ul style="list-style-type: none"> FED will <u>lower the discount rate</u> charged to member banks
Results:	<ul style="list-style-type: none"> √ <u>Increase the bank excess reserves</u>, and banks can make more loans. 	An increase in the money supply <u>will lower the interest rate</u> , causing Investment to increase and equilibrium GDP to rise.	The <u>amount of the change</u> will be <u>dependent on the size of the Income Multiplier (1/MPS)</u>

Easy Money Policy – FED

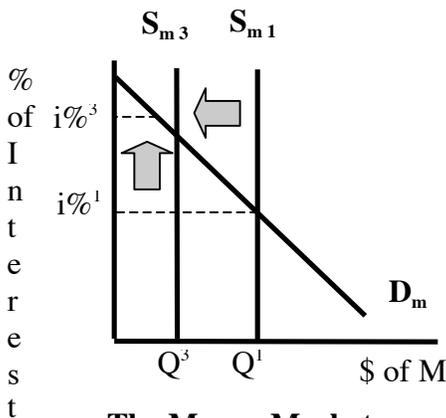
When the FED engages in easy money policy, the supply of money moves to the right and the interest rate falls. This stimulates investment and interest-sensitive consumption, which increases the aggregate demand. Price levels rise while real output increases.



The Money Market

Tight Money policy: Contractionary

Goal:	Restriction of credit, higher costs Decrease the money supply		
Actions:	<ul style="list-style-type: none"> • FED will <u>sell government bonds</u> from banks and the public 	<ul style="list-style-type: none"> • FED will <u>raise the legal reserve ratio</u> 	<ul style="list-style-type: none"> • FED will <u>raise the discount rate</u> charged to member banks
Results:	<p><u>Decrease the bank excess reserves</u>, and banks will refrain from making new loans as old loans are repaid.</p>	<p>√ A decrease in the money supply will <u>raise the interest rate</u>, causing investment to decrease, with the resulting lower aggregate demand <u>restraining demand-pull inflation</u></p>	<p>The <u>amount of the change</u> will be <u>dependent on the size of the Income Multiplier (1/MPS)</u></p>



The Money Market

Tight Money Policy – FED

When the FED engages in tight money policy, the supply of money moves to the left and the interest rate falls. This discourages investment and interest-sensitive consumption, which decreases the aggregate demand. Price levels fall while real output decreases.

Relative Importance:

√ **Central bank borrowing by commercial banks at discount rate is very small (2 to 3%),** mostly in response to open market operations involving buying and selling of bonds. It is a passive form of monetary policy.

√ The **effectiveness** of the discount rate as a tool depends on the **initiative of the commercial banks to increase reserves and make loans.**

√ **Changes in the reserve requirement is rare** since it has immediate effects on the cash balances held by the FED for commercial banks; this can lower profit if the rate is increased.

√ **The use of open market operations is the quicker tool to use and the method that has also immediate effect.**

Targeting Federal Funds Rate

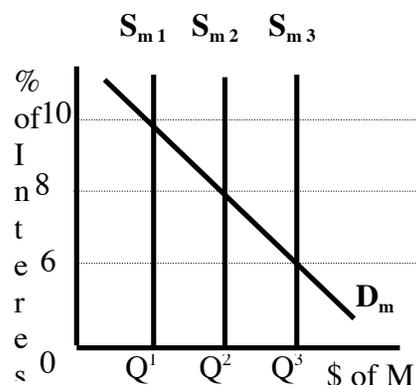
The FOMC can influence the **Federal Funds Rate**, which is an interbank overnight rate. An equilibrium interest rate is created when banks borrow from each other overnight to cover their required reserve amounts. The funds are called “Federal Funds” because they are reserves that are required by the FED. The FED is the only supplier of the currency used by banks. In today’s money markets, the Federal Open Market Committee (FOMC) meets every 6 weeks to debate and set these interest rates.

But...the FED does not set the Federal Funds rate or prime rate. Each is established by the **interaction of lenders and borrowers.** The FED can change the supply of excess reserves in the banking system and so it can obtain the market rates it wants.

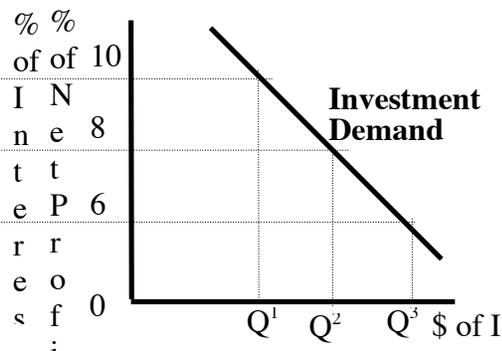
- To **increase** the Federal Funds rate, the FED sells bonds, excess reserves are reduced, lessening the amount available for overnight loans. This raises the Federal Funds Rate. The lower excess reserves also means less borrowing and less growth in demand deposits. Other rates (prime for example) rise as well.

- To **decrease** the Federal Funds rate, the FED buys bonds, excess reserves are increased, increasing the amount available for overnight loans. This lowers the Federal Funds Rate. The higher excess reserves may mean more borrowing and growth in demand deposits. Other rates fall as well.

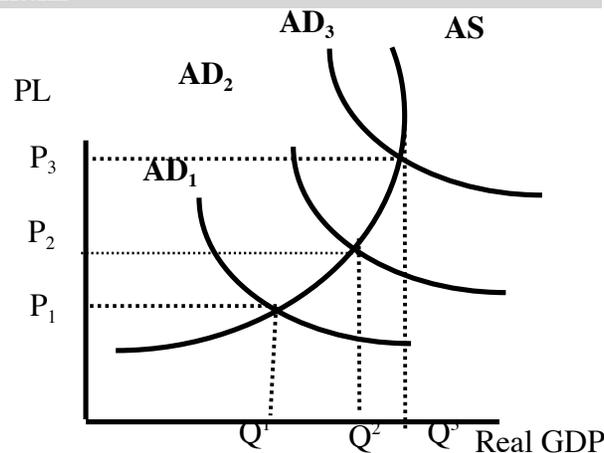
• **Equilibrium GDP and Price Level: Cause and Effect Chain**



The Money Market



Investment Demand



Equilibrium GDP and Price Level

• The **Money Market** is where the demand for money and the supply of money are used to determine quantity of money and a % of interest stated as a real % of interest. Real rates of interest are important in investment and interest-sensitive consumer decisions.

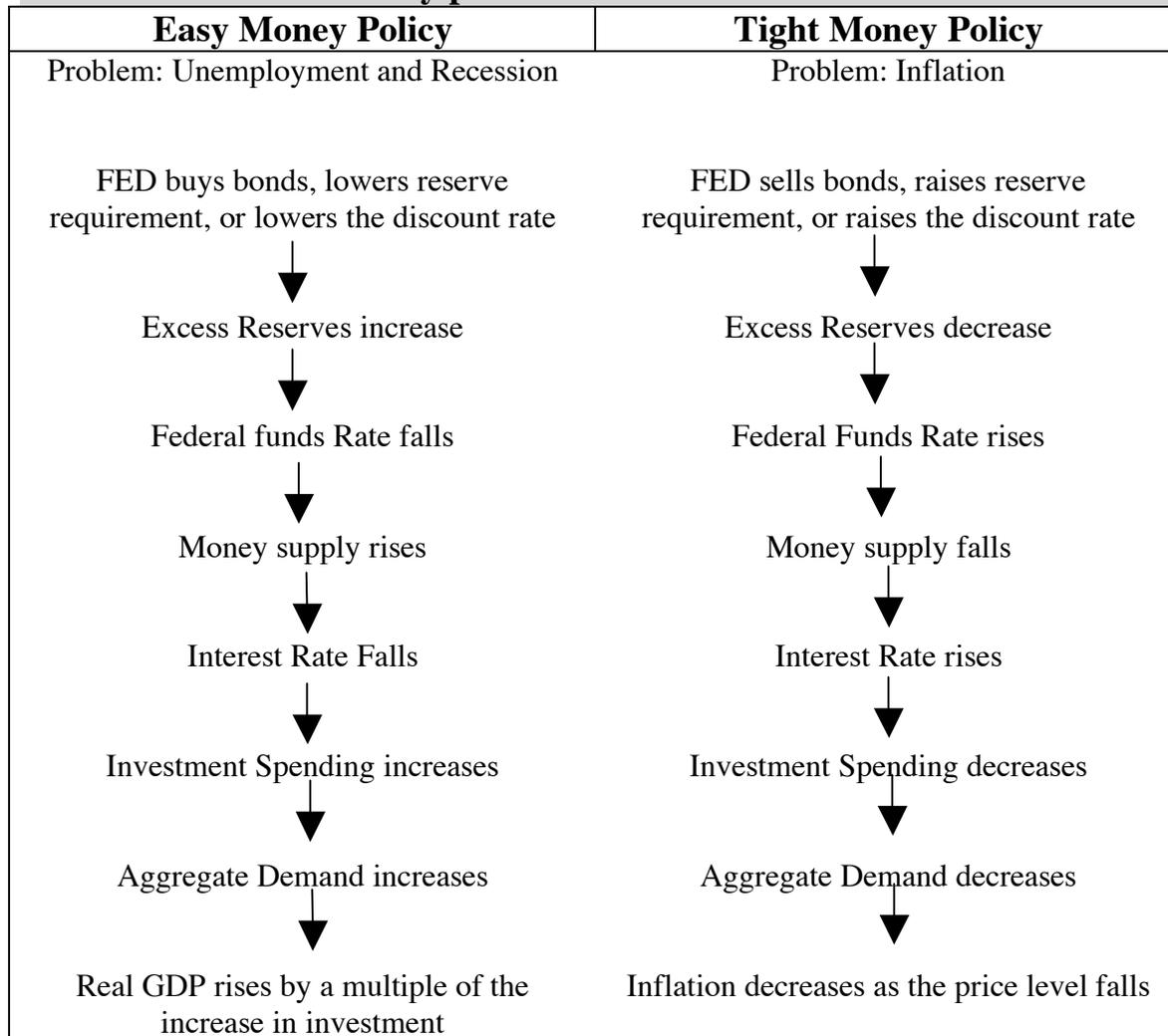
√ Recall from Chapter 13 that the **total demand for money is related to transaction and asset demand**. The transaction demand is directly related to the level of GDP and the asset demand is related inversely to the interest rate since the rate is the opportunity cost of holding money. An increase in GDP will shift D^m to the right and a decline in GDP will shift to the left.

√ The **vertical S^m is some fixed amount of money determined by the FED**. The interest rate does not determine the location of S^m though the FED's monetary policy can have some effect.

• **Investment Demand** shows the inverse relationship between the interest rate and the \$ of investment undertaken. We assume that investment decisions are more likely to be influenced by interest rate changes than consumption spending is influenced. As the rate changes, the \$ amount of investment changes in the opposite direction.

• **Equilibrium GDP and the Price Level** shows that investment spending changes influence the position of the AD curve. Lower interest rates cause more investment spending which raise the AD since Investment is a component of the AD. Higher interest rates cause lower investment spending which lowers AD.

Monetary policies for Recession and Inflation



Evaluation and Issues: p. 274-279

Monetary policy has become a dominant component of US national stabilization policy. Speed and flexibility are two advantages. It can be quickly altered since the FOMC can meet or hold a conference call to change the policy. Isolation from political pressure is also a factor since members serve 14-year terms and are not elected by the general public.

Successes of 80's and 90's:

1. monetary policy cure for 13.5% inflation in 1980 to 3.5% in 1983
2. monetary policy moves ended the 1990-91 recession since huge budget deficits negated fiscal policy curves
3. current FED and FOMC policy to “foresee” inflation and use monetary policy as preventive instead of curative has given us the longest period of prosperity in our this century. See discussion p. 274.

Limitations

- √ Less Control? The ease of money transfer, E cash and smart cards, and the flow of money through global markets can complicate monetary policy-making
- √ Cyclical Asymmetry: Easy money policy is not as easy to affect! Banks are not forced to make loans when excess reserves rise. This may mean that moving the economy out of recession and low employment may be more difficult than “cooling off” the economy.
- √ Changes in velocity: An easy money policy will increase velocity (turnovers) since the cost of holding money is lower. A tight money policy will work in the opposite direction.
- √ Investment impact: Factors such as business conditions or other incentives play a part in where the investment-demand curve is set.
- √ Interest as Income: interest is inversely related to interest-sensitive consumer goods and investment for capital goods, but households and businesses are also recipients of interest income which will influence spending.
 - **For those who pay interest as an expense, a rise in interest rates reduces spending and a fall in interest rates increases spending.**
 - **For those who earn interest as income, a rise in interest rates increases spending, while decline will reduce spending.**
- √ Lag time. It may take 3 to 6 months for interest-rate changes to have their full impacts on investment, aggregate demand, Real GDP and the price level.
- √ The **steeper the D^m** curve, the larger will be effect of any given change in the money supply upon the rate of interest.
- √ Any given change in the interest rate will have a larger impact upon investment—and hence the equilibrium GDP—the **flatter the investment-demand curve**.
- √ A specific change in monetary policy will be **most effective** when the demand curve for money and the investment demand curve are relatively flat.
- √ **Interest rate**, working through the investment-demand curve, is an important determinant of equilibrium GDP. The **level of GDP** is a determinant of the equilibrium interest rate. This link is related to the transaction component of money-demand that depends directly on the level of nominal GDP.
 - **Result:** The increase in the GDP, which an easy money policy brings about, will in turn INCREASE the demand for money, tending to partially offset or blunt the interest-reducing effect. **OR**
 - **Result:** The tight money policy will tend to reduce the GDP, and this will DECREASE the demand for money and tend to dampen the initial interest-increasing effect of the tight money policy.
- √ **Monetary policy and Aggregate Supply**. The effect will depend on where initial and changed equilibrium points are located on the aggregate supply curve. **Movement within the horizontal range of AS will gain full benefit of multiplier without inflation.** If economy is at near or full employment, changes in AD will have a limited effect.

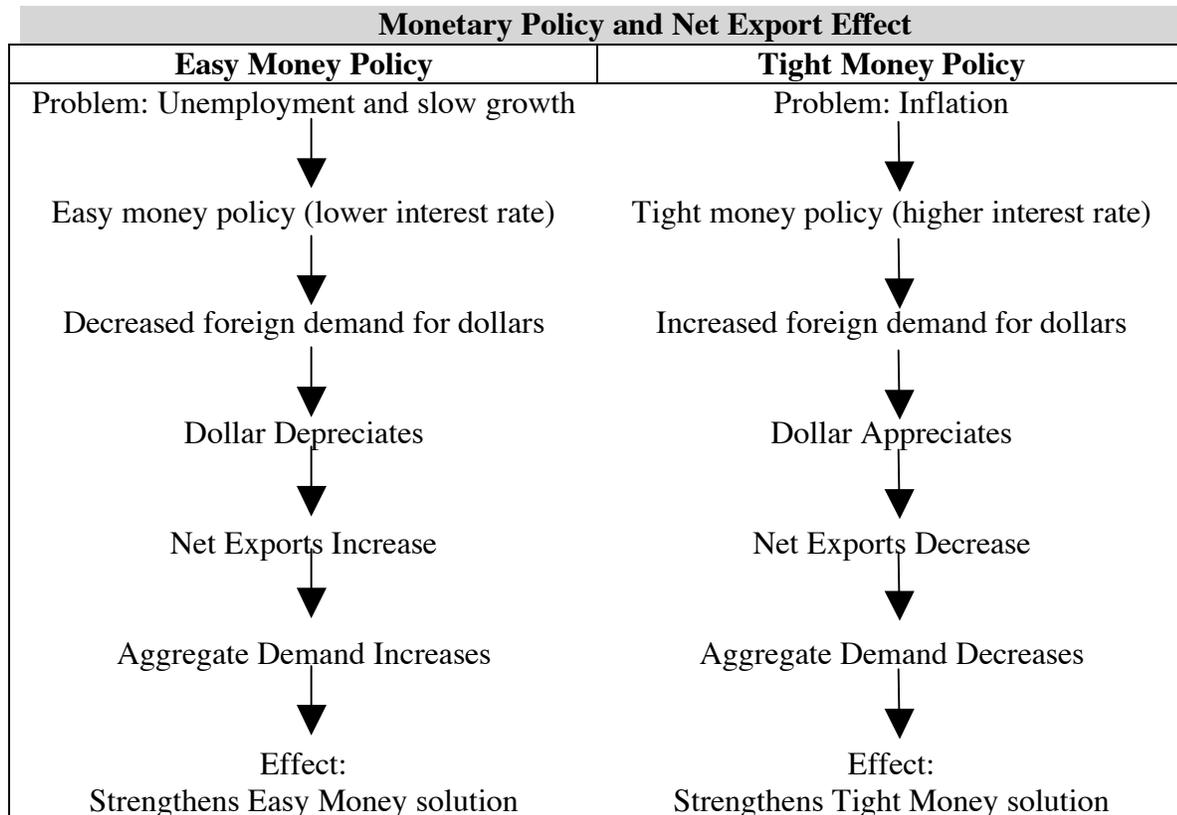
Examine the Key Graph, p. 276-277 to review the Aggregate Demand and Supply theory of price level, real output, and stabilization

AP Macroeconomics

Monetary Policy and International Trade

√ In our study earlier, we learned Fiscal Policy may be **weakened** by an accompanying **net export effect**, which works through change in (a) interest rates (b) in international value of the dollar (c) exports and imports.

√ With Monetary Policy, the **net export effect** works to **strengthen** monetary policy actions. Exchange rate changes which occur in response to interest-rate change act to increase the effect.



√ Monetary policy can also work to aid in **reducing trade deficits** since an easy money policy and lower interest rates causes net exports to increase and this aids in moving the trade balance closer to equality.

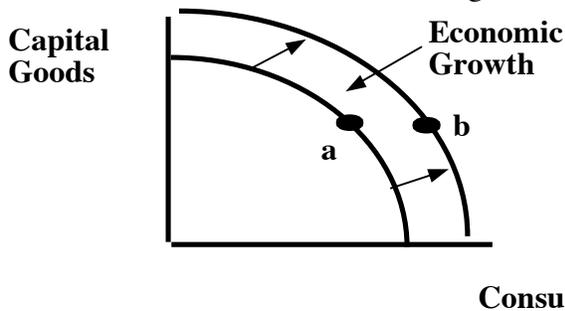
√ But... a tight money policy with higher interest rates causes net exports to decrease and this will push the trade deficit higher.

**And so... Easy money Policy alleviates a trade deficit,
but aggravates a trade surplus.**

**But... Tight money policy aggravates a trade deficit,
but alleviates a trade surplus.**

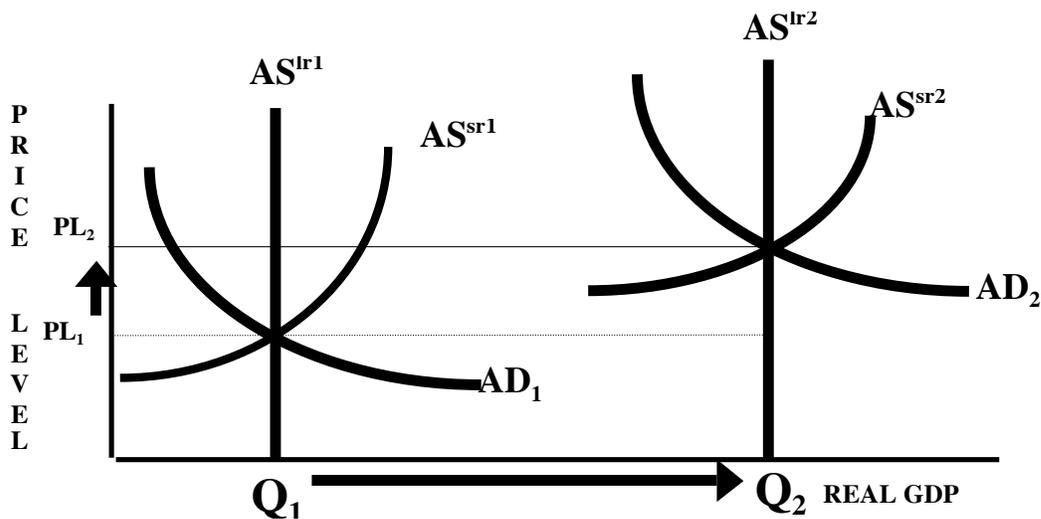
Economic Growth

- **Growth Economics** examines factors, which expand an economy’s productive capacity over time.
- **Economic growth is defined and measured in two related ways:**
 1. the increase in real GDP which occurs over a period of time
 2. the increase in real GDP per capita which occurs over time
- Usually calculated in terms of annual percentage rates of growth, economic growth is widely accepted **economic goal**. A growing economy is in a superior position to meet new needs and resolve socioeconomic problems both domestically and internationally. Growth lessens the burden of scarcity. We can consume more while still increasing our capacity with new capital investment if the strategy is to encourage growth.
- Growth can be modeled using the **Production Possibility Curve**.



Movement from a to b shows Economic growth—a shift of the PPC reflected as a change in productivity.

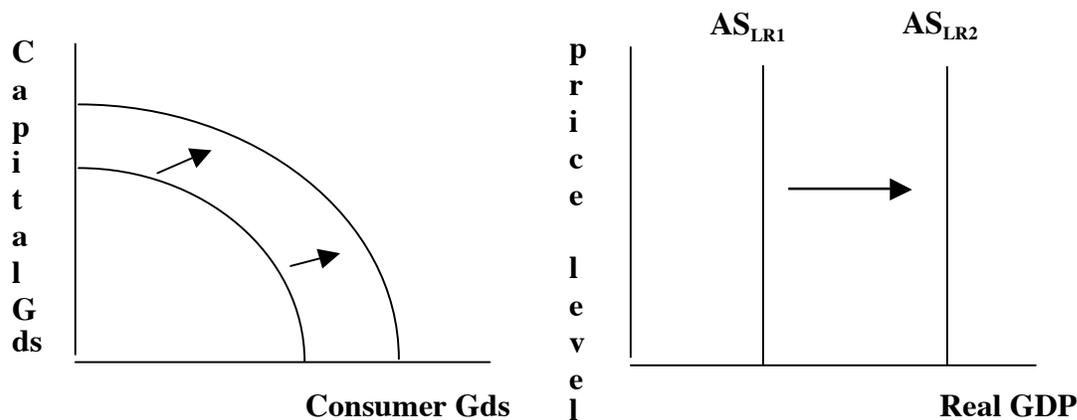
Growth in the AD-AS Model



Economic Growth in the Extended AD-AS model

Long run and short run Aggregate Supply has increased over time (AS^{LR1} to AS^{LR2} and AS^{SR1} to AS^{SR2}), while Aggregate Demand has shifted rightward. **These combined shifts show Economic Growth—**increase in Real GDP to Q_2 accompanied by some degree of inflation to PL_2

Production Possibility Curve and Aggregate Supply



- ❖ Supply factors will shift the economy's production possibility curve outward and denote economic growth.
- ❖ The same factors (including efficiency) will move the AS_{LR} to the right and denote economic growth.
- ❖ When spending occurs for investment goods, AD moves to the right, but if the investment goods increase productivity and add to the stock of capital, then AS_{LR} will move right.

Growth in the US

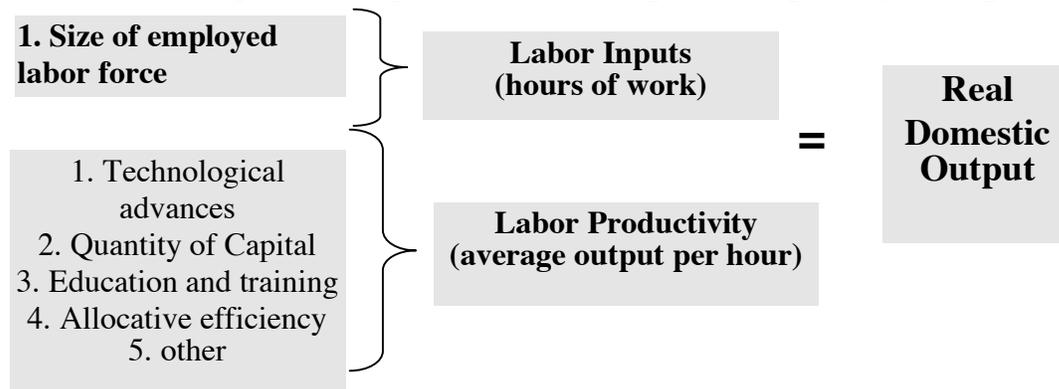
- Growth in the US has been at the **annual average rate of 3.5%** since 1950.
- Real per capita GDP gain has been **nearly 2.3% annually** since then.
- The numbers **hide these facts**:
 - √ Improved products and services—a measure of improved well-being
 - √ Added Leisure time—average workweek has been reduced from 50 hours per week to 40 and now 35.
 - √ Environmental effects—adverse effects on the quality of life may be the price we pay for growth
 - √ International Comparisons—US does not grow as fast as others, but we are already much bigger.

Chapter 16 p. 307-311

Accounting for Growth

- Supply factors:** quality and quantity of natural resources
increases in quality and quantity of human resources
increases in the stock of capital goods
improvements in technology
- Demand factor:** Full employment of resources, which require a growing level of AD
- Efficiency factor:** Productive Efficiency (least costly way)
Allocative efficiency (society's optimal mix of products)

Real GDP viewed as product of quantity of labor inputs multiplied by labor productivity.



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Productivity defined...

- **Productivity is a measure of economic efficiency** which shows how effectively economic resources (inputs) are converted into goods and services (output).
- The ability to produce more with the same or less input is an important source of **increased potential national income**. The U.S. economy has been able to produce more goods and services over time, not by adding workers or more hours, but by making production more efficient.
- Bureau of Labor Statistics **measures productivity by comparing the amount of goods and services produced with the inputs that were used in production. Labor productivity is the ratio of the output of goods and services to the labor hours devoted to the production of that output.**
- Output per hour of all persons--**labor productivity**--is the most commonly used productivity measure. Labor is the input essential to almost every production process. For the U.S. business sector, labor cost represents about two-thirds of the value of output produced.
- Over the long run, **labor productivity determines the real hourly wage**.
- Productivity provides the **ability of a nation to raise its standard of living**. Firms can pay higher wages without losing profits since workers produce more goods and services.

Productivity Growth and the New Economy

- Over the last 130 years labor productivity has grown an average of 2.1% per year. Output per hour of work is about 15 times greater today than in 1870. Research like the Dennison study suggest that the quality of labor and capital is much more important than the quantity of these

resources. Rates jumped after World War II continuing to about 1973. Growth was slow in the decade of the 1980's averaging less than 2% per year. But beginning in the mid 1990's, rates of growth rose as shown in this table.

Years	Avg. Growth in Productivity	Annual Real GDP Growth
1973-81	0.7%	1.1%
1981-90	1.3%	1.8%
1990-96	1.2%	1.3%
1996	2.0%	
1997	1.9%	3.4%
1998	2.7%	6.1%
1999	2.5%	4.1%
2000	3.4%	4.1%
2001	1.1%	0.3%
2002	4.2%	2.3%
2003	9.0%	4.4%
2004	3.4	4.2
2005	2.2	6.3
2006	4.0	3.4
2007 3 qtr	5.0*	4.9*

* only 3
quarters

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Classical Theory:

Say's Law of Markets—*J.B. Say*

- Act of producing goods generates an income amount that is exactly equal to the value of the goods produced
 - Hence, all markets are cleared
 - **"Supply creates its own Demand"**
- Price system is capable of providing a full employment output
- Assume that the composition of output is in accord with consumer preference.

• **Underspending** (or spending less than enough to purchase a full-employment output) is unlikely to occur

• If underspending does occur, **price-wage—interest rate adjustments** will ensure continued full employment.

• **Price-Wage Flexibility**

✓ **Deficient demand could also cause prices to fall and wages to fall until full-employment output was reached again.**

Classical economists argued that workers would accept lower wages because of competition among unemployed workers. The equilibrium interest rate equates the amounts households and businesses planned to save and invest, guaranteeing full employment output

• Classical theory believed in **laissez-faire economic** policy because adjustments in interest rates, prices and wages would bring about full-employment equilibrium. They thought that government interference could only bring trouble.

✓ The classical theory of employment is **grounded in Say's law, the classical interest rate mechanism, and downwardly flexible prices and wages.**

✓ This theory held the belief that capitalism was a **self-regulating** economy in which full employment was the norm. Capitalism was capable of "running itself".

✓ Adam Smith's idea of capitalism includes the **notion of "laissez faire"** government policy.

Keynesian Economics

General Theory of Employment, Interest and Money

John M. Keynes—1936

- Capitalism does not contain any mechanism capable of guaranteeing full employment. **It is not self-regulating.**
- Causes of unemployment and inflation are the result of the **lack of synchronization on economic decisions of households and businesses** in terms of saving and investing. Ups and downs in the economy should not be solely associated with war, drought, etc.
 - Product prices and wages tend to be **downward inflexible**; long periods of recession will prevail before declines in prices and wages will be seen.
- **External forces** can contribute to economic instability.

Unlinking of Saving and Investment

• Businesses invest more when saving increased? **NO!** More savings means less consuming!

• **Savers and investors are distinct groups:**

- ✓ Saving by households (from disposable income) and businesses (retained earnings)

✓ Investing by business esp. corporation

• **Savers and investors are differently motivated**

✓ Households: large purchases down payments, future needs, precautionary, emergency, institutionalized, contractual

✓ Businesses invest for many reasons:

- Interest rate is high consideration in plans to purchase new capital goods
- Rate of return is also highly considered.

• In recession or depression, when profit is questionable, incentive to invest is lost even if rate of interest fall.

• **Additional sources of funding (not seen in classical theory)**

✓ accumulated money balances held by households—some used for everyday expenses, but some held as a form of wealth

which are offered to financial markets at times(this is in excess of current saving from DI

√ commercial bank lending power adds to the money supply and augments current saving as source of funds.

• **Does all current saving go to investment?**

√ some households add some of the current saving to their money balances rather than channel it into money markets.

√ some current saving is used to retire outstanding bank loans and these funds are lost to investment if these payments are not loaned again

• **In summary, saving and Investment plans can be at odds and can result in fluctuations in total output, total income, employment and the price level.**

Discrediting Price-Wage Flexibility

• Most Keynesians recognize that some prices and wages are downward flexible—Example in 1980's.

• Recall the **ratchet effect**—Monopolistic producers have ability and desire to resist falling prices as demand declines; strong labor unions are persistent in holding the line of wage cuts. Employers are wary of wage cuts, recognizing effect on morale and productivity; they see a “goodwill effect” of maintaining wages (efficiency wages)

• The volume of total money demand cannot remain constant as prices and wages decline. Lower prices and wages means lower nominal incomes, and this will mean reductions in total spending.

• A decline in wage rates for a single firm does not apply to the economy as a whole.

• **Businesses** will produce a level of output they can profitably sell.

• **Workers and Capital** are idled if there are not markets for the goods and service they can produce

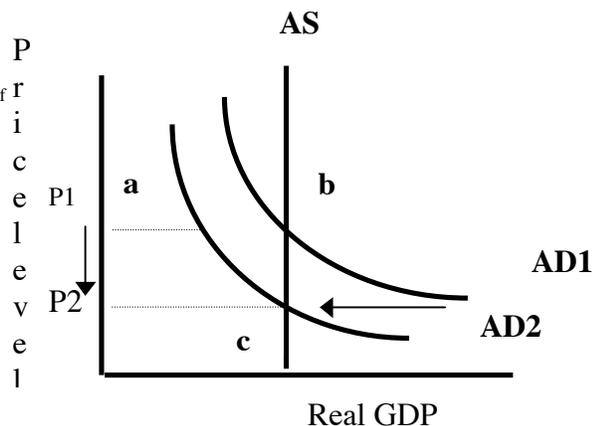
• **Total output and employment vary directly with aggregate expenditures.**

How are the levels of output and employment determined in modern capitalism?

The amount of goods and services produced and therefore the level of employment depend directly on the level of total or aggregate expenditures.

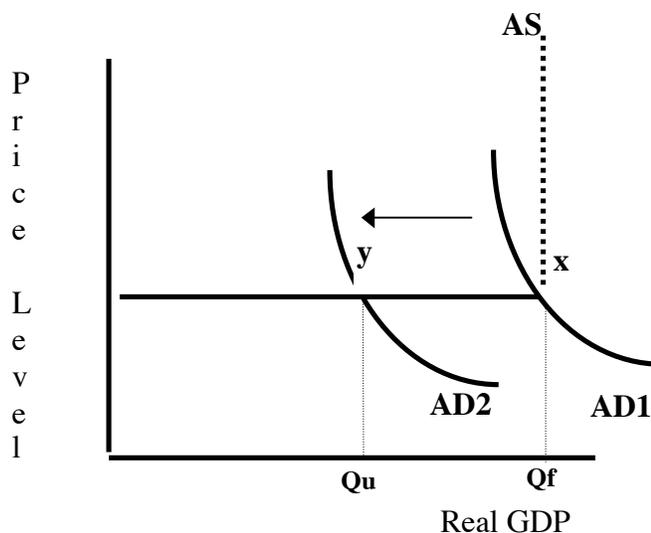
Classical View:

- AS is vertical and determines the output at Q_f
- AD is stable and determines the price level as long as money supply is stable
- If AD is unstable, prices and wages adjust
- Here the shift to AD^2 shows that the price level declines



Keynesian View:

- Product prices and wages are downward inflexible
- AS is horizontal up to Q_f then becomes vertical
- AD is unstable; changes in AD will have no effect on PL
- Movement from AD^1 to AD^2 reduces the Real GDP but the PL remains constant.



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What causes Macro Instability?

☐ Mainstream View: Keynesian Based

- **Changes in Investment spending** which changes in AD and/or Supply shocks which change AS

- ✓ Aggregate Expenditures: $C+G+I_g+X_n = GDP$

- ✓ Investment spending subject to “booms and busts” and the effect of the multiplier cause AD to swell and can lead to demand-pull inflation

- **External events or artificial supply restrictions (adverse aggregate supply shocks)** boost prices of key imported resources and raise per unit cost. AS decreases and destabilizes the economy and causes cost-push inflation.

- **Changes in the money supply** will affect the supply of money changing interest rates, changing investment undertaken, affecting GDP and AD. Keynesians view monetary policy as a stabilizing factor.

☐ Monetarist View: New Classical

- **Focus on money supply;** markets are competitive; market system gives a high degree of macro stability.

- **Accept classical view of flexible prices and wages** AND no government interference.

- **Government has caused the instability**—minimum wage laws, pro-union legislation, farm price supports, and pro-business monopoly legislation—most limiting competition.

- **Equation of Exchange: $MV = PQ$**

- ✓ MV represents total amount spent (M is money supply; V is velocity)

- ✓ PQ represents total amount received by sellers (P is price level, Q is physical volume)

- ✓ **The dollar value of total spending must equal the dollar value of total output.**

- **Velocity is stable**—the factors altering it change gradually and predictably. People have a stable desire to hold money relative to other financial assets, holding real assets or buying current output. The factors depend on the level of nominal GDP. **$GDP/M = V$.**

- If V is stable, **changes in M directly lead to change in nominal GDP ($P \times Q$)**. When M rises, and V is stable, then people use the additional M to buy the current output stimulating directly GDP.

- **Inappropriate monetary policy is the single most important cause of macroeconomic instability.** A change in the money supply directly affects AD, causing demand-pull inflation or deflation.

☐ Real-Business-Cycle View

- **Instability is that business cycles** are caused by factors that affect Aggregate Supply rather than Aggregate Demand. Significant changes in technology and resource availability are present.

- A **decline in resource availability** will shift the **long run AS** curve to the left, causing a decline in RGDP. This reduces the demand for money since fewer loans are taken and the supply of money with less saving. Now, AD moves to the left and the result is a recession at which the price level remains constant.

☐ Coordination failures

Failures occur when people fail to reach a mutually beneficial equilibrium because they lack a way to coordinate their actions.

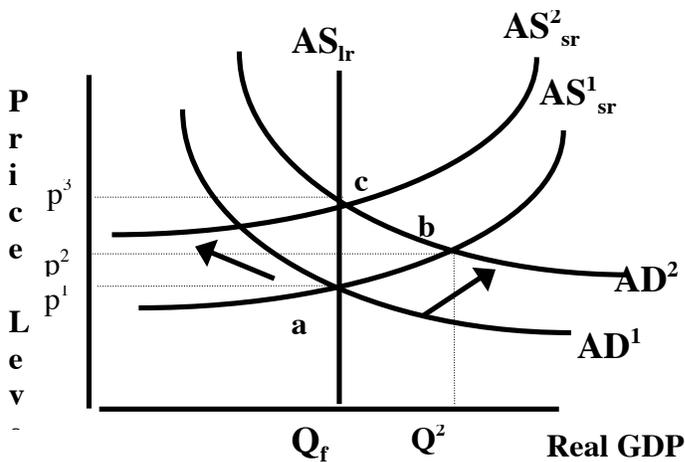
Self-Correcting Economy

□ **New Classical View—Adaptive and Rational Expectations**

Economy self corrects when unanticipated events divert it from its full-employment level of Real GDP.

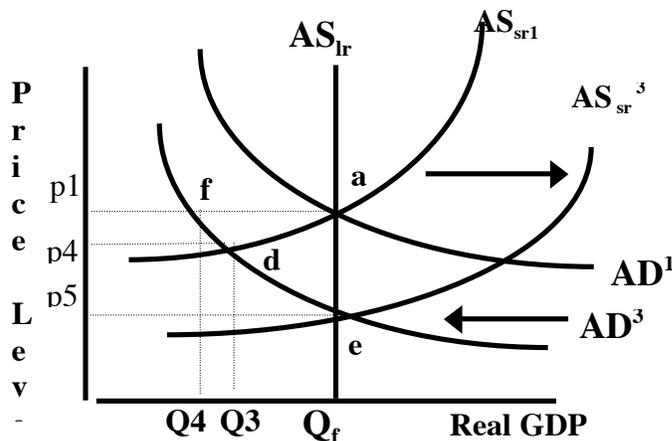
- **Adaptive Expectations view:** their view will use a Long-Run Vertical Phillips curve. Expansionary monetary and fiscal policy may temporarily boost profits, output and employment. But nominal wages will rise, reducing profits and thereby negating the short run gain.

- **Rational Expectations Theory:** It contends that businesses, consumers, and workers understand how government policies will affect the economy and anticipate the impacts in their own decision-making. Fiscal and monetary actions will quickly be read and businesses, consumers, and workers think rationally and cause the opposite effect intended.



**Effect of an increase in AD—
Expansionary Gap**

Movement from AD_1 to AD_2 first moves economy from **a to b**. Price level rises and then self-correction to **c** by shifting left to AS_2 . The economy is has returned to full employment but a higher price level.



**Effect of a decrease in AD—
Recessionary Gap**

Movement from AD_1 to AD_3 first moves economy from **a to d**. Price level falls and Then self-correction to **e** by shifting right to AS_3 . The economy is back to full employment at a lower price level.

Speed of adjustment

- **Rational expectation views** hold that workers **anticipate** future outcomes before they occur. They believe that people behave rationally in gathering, and processing information. These individuals then adjust their expectations quickly as they gather new outcomes. They judge conditions in the economy and then they adjust their behavior. They favor the classical view of flexible wages and prices and their thinking leads them to believe that they can adjust instantaneously to events that have known outcomes like changes in monetary and fiscal policy that we have studied.
- Further, RET believes that **unanticipated price-level changes cause change in real output** in the short run but not in the long run. Market participants immediately change their actions in response to anticipated price level change such that no change in real output occurs.

□ Mainstream economic view of Self-correction p. 328-330

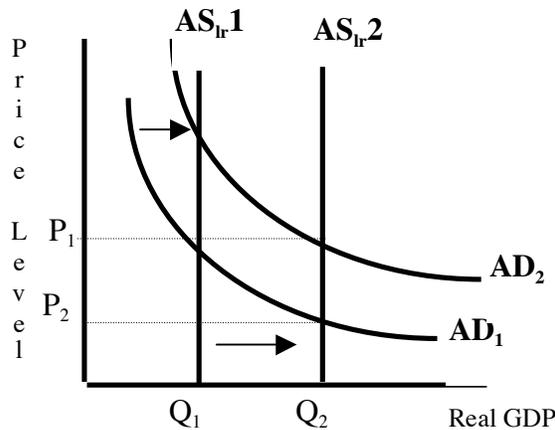
- **Mainstream economists** accept some ideas of new classicals, but they maintain that wages and prices are downward inflexible. There is ample evidence that this is true especially for long periods. It may take the economy years to move from recession back to full-employment output. They believe it will take fiscal and monetary help.
- In **the second diagram**, when AD shifts to AD3 (caused by, they say, a change in investment). The Price Level is stable at P1 so the economy will not move to e as the RET says. Mainstream economists believe it will move as if on a horizontal AS curve and move to f. Real output will decline to a recessionary level of Q4.
 - **Downward inflexible wages** are caused by wage contracts and minimum wage laws. Firms do not wish to reduce wages and risk low morale, or losing a skilled worker to another firm.
 - ✓ **Efficiency Wage theory** is another idea. Greater work effort, out of fear of losing job which pays higher wages, lower supervision costs since work effort is based on job performance, reduced job turnover are the benefits of paying higher wages for the firm.
 - ✓ **Insider-Outsider relationships** may also keep wages up. Insiders (those not losing work because of recession) would resent the outsiders (those losing work during recession) who might be induced to return to work for lower wages. Harassment and lack of cooperation might result.
 - **Self-correction might occur** but it will take much longer than RET.

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Policy rules or Discretionary Fiscal and Monetary Policy?

□ **Policy rules: supported** by Monetarists and other new Classical economists like Rational Expectationists.

- **Policy Rules** will reduce instability; preventing government from “managing” AD. They believe that changes to AD are causing the instability. Their view postulates that inappropriate monetary policy is a cause of instability as well.

- **Monetary rule:** directs the Fed to expand the money supply each year at the same annual rate as the typical growth of the economy’s productive capacity. The FED would use its tools to ensure that the nation’s money supply grows steadily by some percent each year regardless of the state of the economy.



An increase in the money supply to match the increase in potential GDP would shift **AD rightward to AD₂** at the same pace as the shift in long-run **AS to AS_{r,2}**. Thus **the economy would experience growth without inflation or deflation.**

- **Other points of discussion for policy vs. fiscal or monetary include:**

- √ Changes in Money supply directly change AD according to monetarists.

- √ RET says that monetary or fiscal policy is “read” by the public and they react to cause the opposite effect with instantaneous market adjustments. They want balanced budgets because Government should be passive not intentionally running deficits or surpluses.

- √ **Monetarists oppose expansionary fiscal policy and feel crowding out effect is the result of such and hence is rendered ineffective.**

❑ **In Defense of Discretionary Stabilization Policy**

Mainstream Economists **oppose a monetary rule and a balanced-budget amendment.** They believe that fiscal and monetary policies are tools for achieving and maintaining full employment, price stability and economic growth.

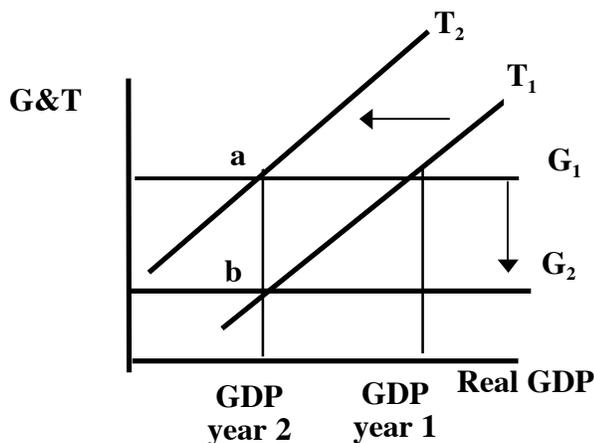
✓ **Monetary rule is flawed** because velocity is not always stable as monetarists claim and a change in the MS in the quantity equation ($M \times V = P \times Q$) does not always make AD change if velocity could also be moving.

✓ Mainstream economists feel that the FED's **tight money policy** can affect investment spending to put a **stop to demand-pull inflation** caused by an move in AD beyond the range of AS movement. An easy money can expand the economy in the same way.

✓ Mainstream economists use **fiscal policy to keep recessions from deepening and inflation from expanding.**

✓ **Crowding out in their view is not a serious problem.** Fiscal policy should be held in reserve and used if monetary policy is not effective.

✓ The effects of a **requirement to balance the budget** during a recession are shown here.



A **decline in Real GDP** will automatically create a **budget deficit of ab**. If required to balance the budget the government must do one of the following:

- shift the tax line upward to T_2 so that it intersects at a.
- shift the government spending line downward to G_2 to intersect at b
- enact a combination of tax increases and spending cuts so that the new lines intersect at GDP year 2.

But...Each of these measures is contractionary and will further reduce Real GDP.

Successes with monetary and fiscal policy actions are:

- Tight money policy dropped inflation from 13.5% in 1980 to 3.2% in 1983.
- Expansionary fiscal policy reduced unemployment from 9.7% in 1982 to 5.5% in 1988.
- Easy money policy help the economy recover from 1990-91 recession.
- The prosperous mid 1990's have been in part attributable to good policy management.
- The FED has been diligent in watching for signs of inflation yet keeping the economy on the long-term growth path.
- In 2001 and 2002, expansionary fiscal and monetary policy helped the economy recover from the dot.com bust, investment declines, and 2001 terrorist attacks.
- In 2004 and 2005, the FED continued to increase interest rates in .25% increments to hold back inflation.
- In 2007 and into the new year, the FED has lowered interest rates and recently there is discussion of a tax rebates to pump up the economy.

Summary of Alternative Views, p. 334

Issue	Mainstream Macroeconomics Keynesian Based	New Classical Economics	
		Monetarism	Rational expectations
View of the private economy	Potentially unstable	Stable in long run at natural rate of unemployment	Stable in long run at natural rate of unemployment
Cause of observed stability of private economy	Investment does not equal saving causing changes in AD; AS shocks	Inappropriate monetary policy	Unanticipated AD and AS shocks in the short run
Appropriate macro policy	Active fiscal and monetary	Monetary rule	Monetary rule
How changes in money supply affect the economy	By changing interest rates, changing investment and real GDP	By directly changing AD which changes GDP	No effect on output because price-level changes are anticipated
View of velocity of money	Unstable	Stable	No consensus
How fiscal policy affects the economy	Changes AD and GDP via the multiplier	No effect unless money supply changes	No effect on output because price-level changes are anticipated
View of Cost push inflation	Possible (wage-push, AS shock)	Impossible in long run in absence of excessive money supply growth	Impossible in long run in absence of excessive money supply growth

AP Macroeconomics
Chapter 35, p. 676-682

Facts of International Trade

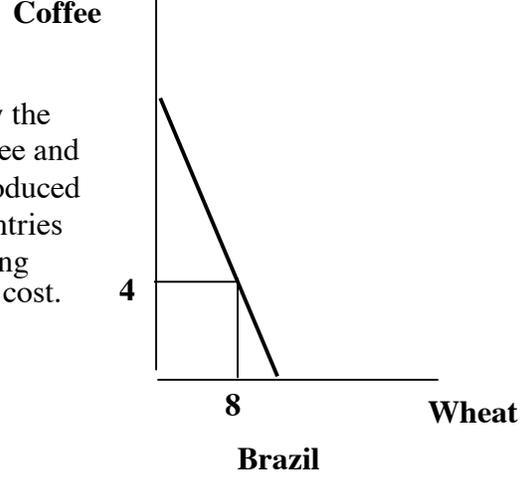
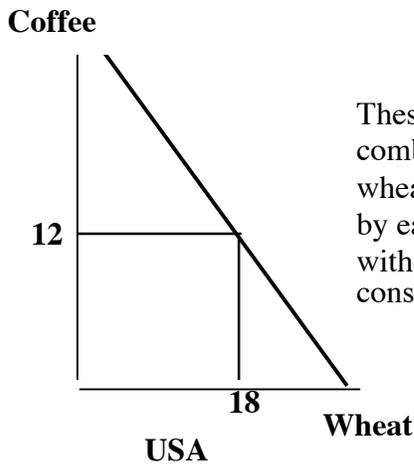
1. The US enjoys an increasing amount of trade. Examine data on p. 676 in text for a summary of trade issues.
2. Exports increased to \$142.3 billion in November from \$141.7 billion in October. Goods were \$101.0 billion in November, up from \$100.9 billion in October, and services were \$41.4 billion in November, up from \$40.8 billion in October.
3. Imports increased to \$205.4 billion in November from \$199.4 billion in October. Goods were \$173.7 billion in November, up from \$167.8 billion in October, and services were \$31.8 billion in November, up from \$31.7 billion in October.
4. For goods, the deficit was \$72.7 billion in November, up from \$66.9 billion in October. For services, the surplus was \$9.6 billion in November, up from \$9.2 billion in October. The US is dependent on the world economy for a number of items, yet the world is as well dependent on the US. The Bureau of the Census issues data reports on foreign trade. Check <http://www.census.gov/foreign-trade/statistics/highlights/top/top0711.html>. To find data for our major trading partners.
5. In 2000, the US dollar was strong against many foreign currencies making it cheap for American citizens to buy foreign goods. Now at the end of 2007, the US dollar was weak against many foreign currencies like the euro. American exports are now cheaper for foreigners to buy.
6. International trade is a substitute for the international mobility of resources.
7. International trade is subject to political interference and controls.

Basis Of Trade

- Why nations trade is related to two points:
 - ✓ Distribution of economic resources is uneven.
 - ✓ Efficient production requires different technologies and combinations of resources
 - ✓ Capital intensive vs. labor intensive vs. land intensive?
- Specialization And Comparative Advantage
 - ✓ **Total output would be greatest when each good is produced by the nation, which has the lower opportunity cost.**
 - ✓ **Specialization** can be profitable in terms of output. It results in **more efficient allocation** of world resources.
- **Comparative Advantage is the ability to produce an item at a lower opportunity cost.**
Resources are scarce, so that one can only produce more of one product by taking the resources away from another. It means that total world output will be greatest when each good is produced by the nation, which has the lowest domestic opportunity cost.
 - ✓ As a result of trade, countries that trade products based on their own specialization will have more of **BOTH** products (produced and traded for)

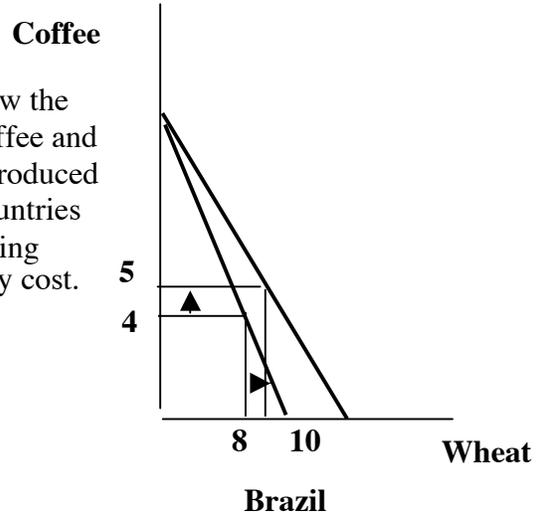
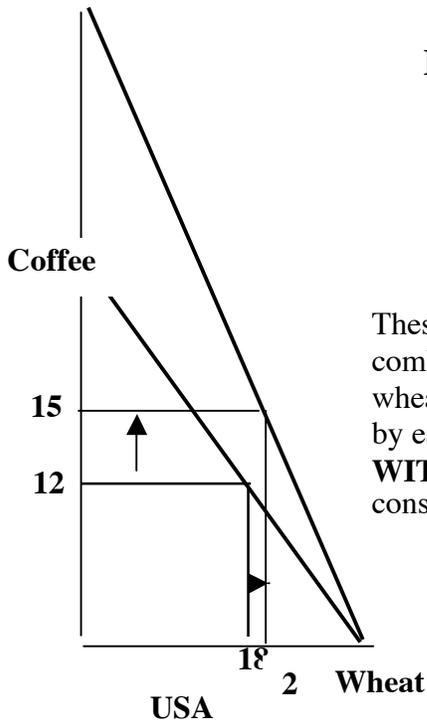
Graphical analysis:

Country	Outputs before Specialization	Outputs after Specialization	Amt exported (-) or imported (+)	Outputs available after trade	Gains from Trade
Country A	18 wheat	30 wheat	- 10 wheat	20 wheat	2 wheat
	12 coffee	0 coffee	+ 15 coffee	15 coffee	3 coffee
Country B	8 wheat	0 wheat	+ 10 wheat	10 wheat	2 wheat
	4 coffee	20 coffee	- 15 coffee	5 coffee	1 coffee



These two PPC show the combinations of coffee and wheat that can be produced by each of these countries without trade assuming constant opportunity cost.

Key Graph, p. 680



These two PPC show the combinations of coffee and wheat that can be produced by each of these countries **WITH** trade assuming constant opportunity cost.

√ **Terms of Trade**...the exchange ratio between goods traded. This ratio explains how the gains from international specialization and trade are divided among the trading nations; **it depends on the world supply and demand for the two products.** Because the US in this example wants both coffee and wheat, it must get more than a unit of coffee for each unit of wheat or it will not benefit since $1W=1C$. Brazil must get one unit of wheat by exporting some amount less than two units of coffee since $1W=2C$.

$1W=1C$ in USA and $1W=2C$ in Brazil are the cost conditions

√ Let's say that world supply and demand for the products sets terms of trade at $1W=1.5C$. The USA exports 10 units of wheat to Brazil and in return Brazil exports 15 tons of wheat to USA. Will the countries trade at that exchange ratio?

√ Note in the graphs above, USA gained 3 coffee and 2 wheat with trade; Brazil gained 1 coffee and 2 wheat. Is this better than when they ignored each other and produced only domestically? Check the table!

√ **Note that each country has expanded its production possibility frontier with trade. This is the equivalent of having more and better resources or discovering new production methods.**

Who Benefits By Foreign Trade

BENEFITS

Consumer Benefits

- Consumers benefit from foreign trade by being able to consume products that would not be available without trade and lower prices.
- Consumer benefit by being able to purchase many products at lower cost than if they were no foreign trade both because of the lower prices of imported goods and because of competition from imports holds down the prices of domestic goods.

Producer and worker benefits.

- Domestic industries that use imported inputs benefit.
- Export industries, their workers, and their suppliers benefit from the sales to markets abroad.

Who Is Hurt By Foreign Trade

LOSSES

Import-competing firms' and workers' losses

- Competition from imports can be costly to the domestic firms and their workers in lost sales
- These costs are similar to the costs of competition from new domestic producers or from new substitute products.

Mobility of capital and labor

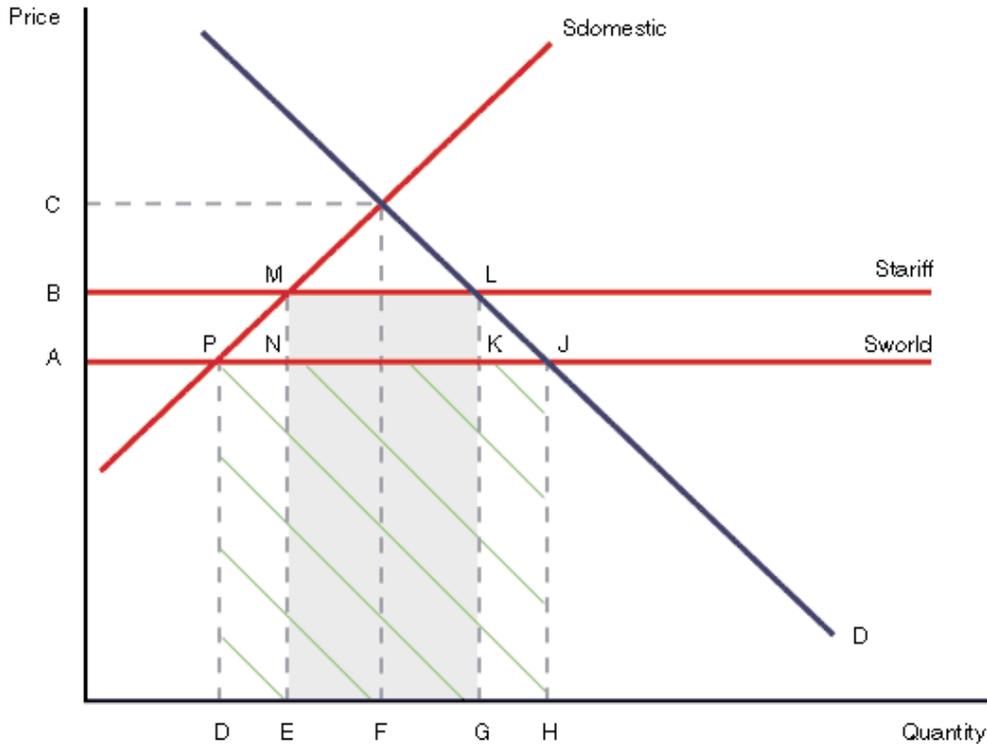
- The costs of free trade to import-competing firms and workers can be minimized by mobility of capital and labor to alternative employments

Domestic consumers of export industries

- The export of part of the output of an industry tends to raise the price of the good to domestic consumers.

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Chapter 35, p. 685-688
Tariffs

Tariffs (import duties) are surcharges on the price of imports. The diagram below uses a supply-and-demand graph to illustrate the effect of a tariff.



Note that the tariff

- raises the price of the import;
- reduces the demand for imports;
- encourages demand for home-produced substitutes;
- raises revenue for the government.

Quotas

Quotas restrict the actual quantity of an import allowed into a country. Note that a quota:

- raises the price of imports;
- reduces the volume of imports;
- encourages demand for domestically made substitutes.

Protectionism

- raises the price of products in three ways:
 - price of imported good increases
 - higher price of imports causes some customers to shift to a higher-priced domestically produced good
 - domestically produced goods rise because import competition has declined

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Chapter 36, p. 697-700

Balance of Payments and Foreign Exchange

• A nation's balance of payments records all the transactions that take place between its residents and the residents of a foreign nation. These include: merchandise exports and imports, tourist spending, purchases and sales of shipping and insurance services, interest and dividend payments received, purchases and sales of financial or real assets, and so on.

A simplified balance sheet for the US might look like this: Figures shown in billion (2005)

Current Account				
US goods export	\$+ 893			
US goods imports	−1675			
Balance of Trade in Merchandise		\$−782		
US exports of services	+380			
US imports of services	−322			
Balance of Trade in Services		+58		
Balance on goods and services			\$−724	
Net Investment income	\$ + 2			
Net Transfers	−83			
Balance of Current Account				\$ −805
Capital and Financial Account				
Capital Account				
Balance on Capital Account				\$ −6
Foreign purchases of Assets in the US	\$ +1265*			
US purchases of Assets Abroad	−487*			
Balance of Capital and Financial Account				\$ +811
Balance on Capital and Financial Accounts				\$ +805
* includes ½ of \$10B statistical discrepancy				\$ 0

The current account includes:

- Balance Of Trade in merchandise exports and imports (\$−782)
- Balance Of Trade in services exports and imports (\$+58)
- Net Investment income is the difference between dividend and interest payments coming into and going out of the US (\$+ 2)
- Net transfers reflects net aid and grants both public and private between the US and the rest of the world. This would include foreign aid given to foreign nations by US and pensions paid to people living abroad. (\$−83)

The capital account includes:

- The Capital Account is a “net” account that mainly measures debt forgiveness. In this case we owe foreigners and they forgive the debt when we make a transfer from the official reserve account. The negative sign denotes a debit—an on paper out payment by the amount. (\$−6)
- Real investments are direct purchases of real estate and businesses, while financial investments are direct investments like stocks and bonds that reflect indirect claims on physical assets.
- Foreign Purchases of US assets would create a demand for dollars and would be a positive entry in the capital account.(\$+1265)
- Purchases of foreign assets by Americans would create a supply of dollars in exchange for foreign currency and would be a negative entry in the capital account. (−\$487).

The official reserve account represents:

- the exchange of foreign exchange reserves when the balance on the capital account does not offset the balance on the current account. The central banks of nations hold quantities of foreign currencies, reserves held in the IMF and stocks of gold.
- A positive number indicates an export of foreign exchange reserves, which represents a decrease in US official holdings of foreign exchange.

Balance of Payments:

- A **deficit** occurs when the sum of the balances of the current and capital accounts is **negative**
- A **surplus** occurs when the sum of the balances of the current and capital accounts is **positive**
- Persistent deficit balance of payments are trouble since reserves were be depleted in time. Some policies to correct the problem are: currency depreciation, trade barriers, reduction of budget deficits to lower interest rates, easy money policy by the FED and others.

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Foreign exchange is foreign currency needed to carry out international transactions. The exchange rate is the price of one currency measured in terms of another currency. Rates are determined by the interaction of the households, firms, private financial institutions, government and central banks that buy and sell foreign exchange.

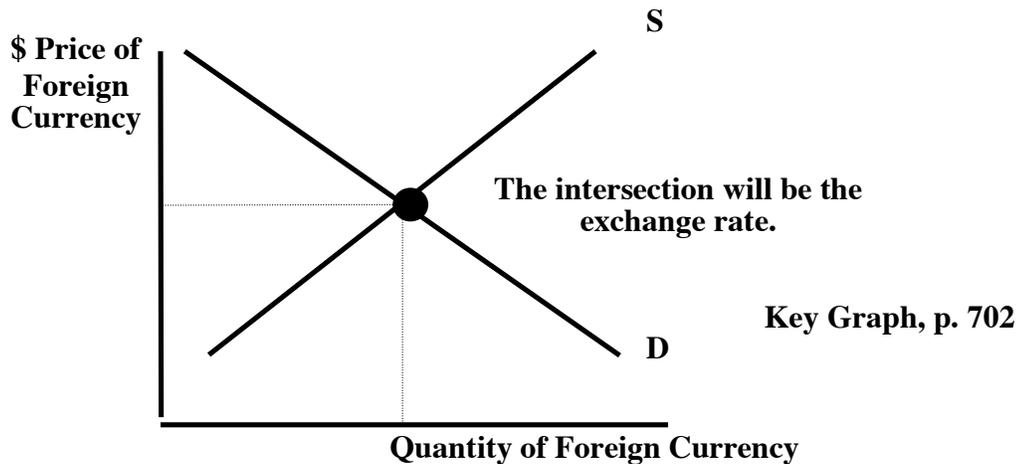
There are two “pure” systems:

- ❖ **Flexible** or freely floating exchange rates — demand and supply determine rate with no government interference
- ❖ **Fixed-exchange** rate — governments determines rates and makes necessary adjustment to their economics to maintain the rate.

Freely floating (flexible) exchange rates

The **demand** for any currency is downsloping because as the currency becomes less expensive to obtain, people will be able to buy more of that nation’s Goods & Services and therefore need more of that currency.

The **supply** is upsloping because as its price rises, holders obtain more of their currencies more cheaply and will want to buy more important goods and therefore give up more of their currency to obtain other currencies.



- ❖ **Depreciation**— value of currency has fallen; it takes more units of that country’s currency to buy another’s currency. Example: If the Rate had been \$2 for 1 £ but now the rate is \$3 for 1£, the dollar has depreciated.
- ❖ **Appreciation**— value of currency has risen; it takes fewer units of that country’s currency to buy another’s currency. Example: If the Rate had been \$2 for 1 £ but now the rate is \$1 for 1£, the dollar has appreciated.

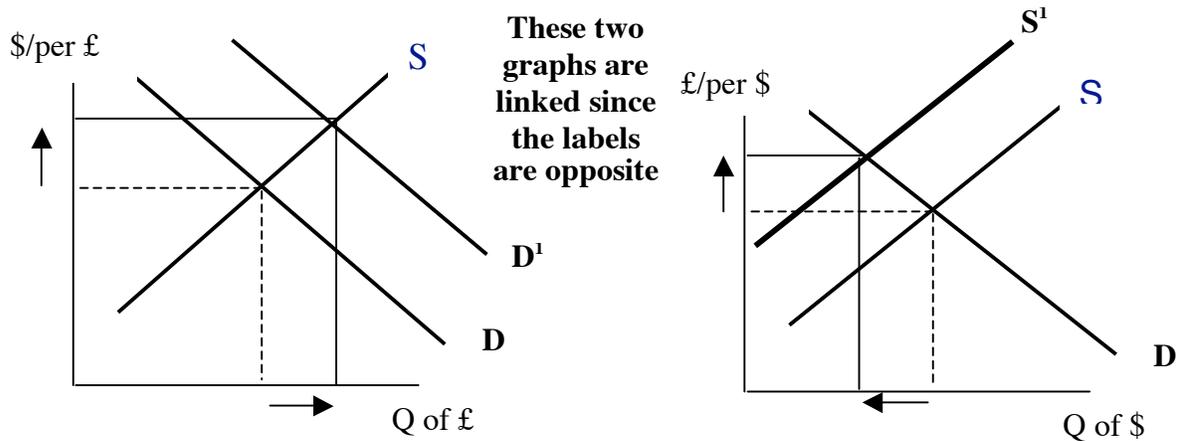
What factors would cause a nation's currency to appreciate or depreciate?

- If the demand for a nation's currency increases (all else equal), that currency will appreciate; if the demand declines, that currency will depreciate.
- If the supply of a nation's currency increases (all else equal), that currency will depreciate; if the supply declines, that currency will appreciate.
- If a nation's currency appreciates, some foreign currency depreciates relative to it.
- If a nation's currency depreciates, some foreign currency appreciates relative to it.

Here are the Factors that will cause a nation's currency to appreciate or depreciate relative to another nation's currency

Determinants of exchange rates:	Example	Depreciates Appreciates	
Changes in tastes	Japanese autos decline in popularity in US	Japanese Yen	Dollar
	German tourists flock to US	Euro	Dollar
Changes in relative incomes	England is in recession; its imports decline while the US is growing increasing US imports	Dollar	Br. Pound
Changes in relative prices	Germany experiences a 3% inflation rate compared to US 10% inflation rate	Dollar	Euro
Changes in relative interest rates	FED raises interest rates while Bank of England does not	Br. Pound	Dollar
Speculation	Currency traders believe France will have more rapid inflation than US	Euro	Dollar
	Currency traders think that German interest rates will plummet relative to US. rates	Euro	Dollar

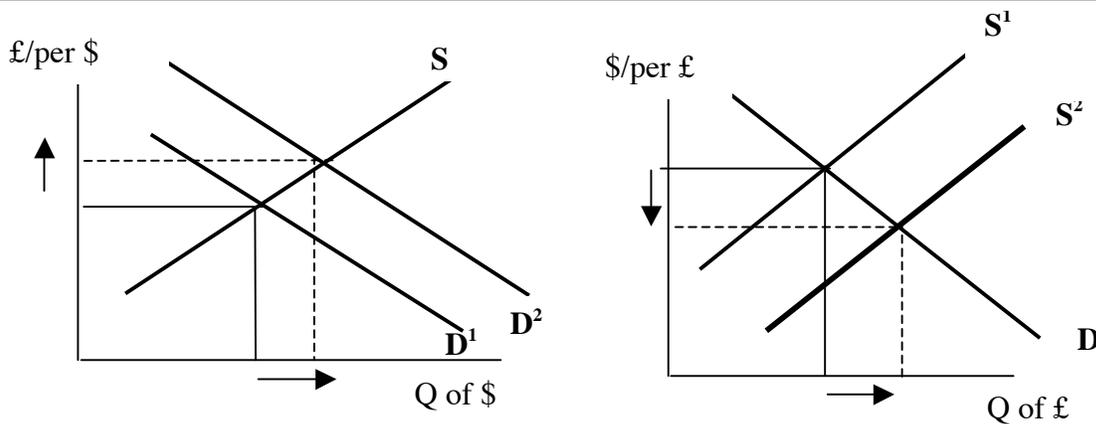
Graphic analysis:



• If England is in recession; US is not. British imports to US will rise causing a demand for £'s. More \$'s are supplied to the dollar market so we can buy the £'s. The dollar depreciates and the £ appreciates.

• The DEMAND for £ increases, causing the \$/per £ to rise and Q of £ to increase showing that the pound has appreciated.

• The SUPPLY for \$ decreases, causing the £/per \$ to rise and Q of \$ to decrease showing that the dollar has depreciated.



• FED raises interest rates while Bank of England does not raise rates. British citizens will demand \$'s for investment in US to gain the higher interest rate. British citizens will need to place more £ in the £ foreign market.

The DEMAND for \$ will increase causing the £/per \$ to rise and Q of \$ to increase showing an appreciation of the \$.

The SUPPLY for £ will increase causing the \$/per £ to fall and Q of £ to rise showing a depreciation of the £.

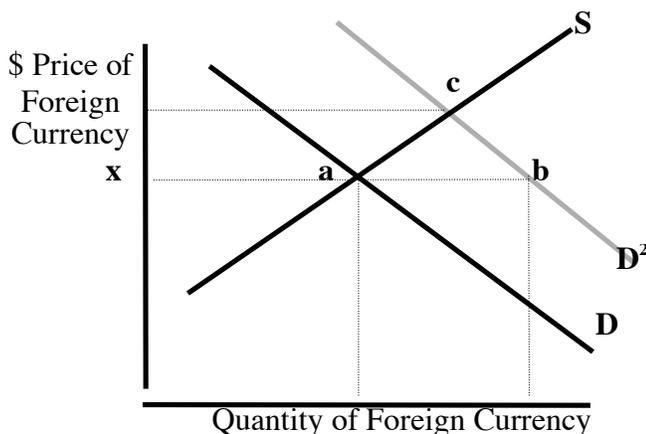
- ❖ **Appreciating (Strong) Dollar**—dollar is currently exchanging for more foreign currency.
 - ✓ Imports are cheaper for Americans
 - ✓ Exports are more expensive for foreigners
- ❖ **Depreciating (Weak) Dollar**—dollar is currently exchanging for less foreign currency.
 - ✓ Imports are more expensive for Americans
 - ✓ Exports are cheaper for foreigners
- ❖ **Strong dollar helps:** Businesses who import foreign goods for resale and American tourists and business people in foreign countries
- ❖ **Strong dollar hurts :** Businesses who export foreign goods for resale and foreign tourists and business people in the US
- ❖ **Strong dollar makes the trade deficit worse since imports grow and exports decline.**

Flexible rates have the ability to automatically correct the imbalance in the balance of payments.

- If there is a deficit in the balance of payments, this means that there is a surplus of that currency and its value will depreciate.
- As depreciation occurs, prices for goods and services from that country become more attractive and the demand for them will rise.
- At the same time, imports become more costly as it takes more currency to buy foreign goods and services. With rising exports and falling imports, the deficit is eventually corrected.

Using a Flexible Rate Exchange System

A shift in D to D^2 would cause a US balance of payments **deficit** **ab**; it would be corrected by a change in exchange rate noted at **c** which is higher than **x**



Disadvantages of Flexible Rate Exchange

1. Uncertainty and Diminished trade results if traders cannot count on future prices of exchange rates
2. Terms of trade may be worsened by a decline in the value of a nation's currency
3. Unstable exchange rates can destabilize an economy especially if exports and imports are a large part of the GDP.

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Fixed Exchange Rates

- Rates that are pegged to some set value like gold or the US dollar.
- The problem is that a government agreement cannot keep from changing demand and supply. A shift in demand and supply can threaten a fixed exchange system and the government must intervene to maintain value.
- Official reserves are used to alleviate imbalance in balance of payments since exchange rates cannot fluctuate. Another strategy is to use gold as an “international money” to buy reserves.
- Trade policies must be used directly to control the amount of trade and finance
- Exchange controls and rationing of currency are bad for 4 reasons:
 1. distorts trade patterns
 2. involves discrimination among importers
 3. reduces freedom of choice by consumers
 4. black market rates develop unless policed
- Domestic macroeconomic adjustments are more difficult under fixed exchange. A persistent trade deficit may call for tight monetary policy and fiscal policies to reduce prices, which raises exports and reduces imports, but this can also cause recession and unemployment.