Productivity and Growth

CHAPTER

21

1

Standard of Living

- Economy's standard of living as measured by the amount of goods and services available per person grows over the long run because of
  - increases in the amount and quality of resources, especially labor and capital
  - better technology
  - improvements in the rules of the game that facilitate production and exchange
    - tax laws
    - property rights
    - patent laws
    - legal system

2

Economic Growth

- Causes of economic growth
  - Increase in the availability of resources
  - Growth in the labor supply
    - Population increases
    - Existing population supplies more labor
  - Growth in the capital stock
    - The more capital goods produced this year, the more the economy will grow
  - Improvement in Technology
    - Expand the frontier by making more efficient use of existing resources
  - Improvements in the Rules of the game
    - Improvements that nurture production and exchange will promote growth

3

What is Productivity?

- *Productivity*
  - measures how efficiently resources are employed
  - defined as the ratio of total output to a specific measure of input
    - It is a measure of efficiency!

4

Labor Productivity

- Output/Labor Hour
- Most commonly used resource to measure productivity
  - Accounts for a relatively large share of the cost of production – 70% on average
  - More easily measured than other inputs
  - Can be measured as hours per week or full-time workers per year

5

Labor Productivity

- The resource most responsible for increasing labor productivity is capital
  - As the economy accumulates more capital per worker, labor productivity increases → standard of living increases
- Two broad categories of capital
  - *Human Capital*
    - Accumulated knowledge, skill, and experience of the labor force
    - As individual workers acquire more human capital, their productivity and income increase
  - *Physical Capital*
    - Includes the machines, buildings, roads, airports, communication networks and other manufactured creations used to produce goods and services

6

Rules of the Game

- Refers to the formal and informal institutions that promote economic activity
  - Laws, customs, conventions, and other institutional elements
  - Stable political environment and system of well-defined property rights
- Improvements in the rules of the game could result in more output for each level of capital → upward rotation in the per-worker production function

7

Output Per Capita

- Even if labor productivity did not increase, total output would grow if the quantity of labor increased
  - Total output can grow as a result of greater labor productivity, more labor, or both

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Output Per Capita

- ***Output per capita***
  - Real GDP divided by the population
  - Best measure of economy's standard of living
  - Indicates how much an economy produces on average per person
- Relationship between output per capita and labor productivity
  - Suppose labor productivity is $60,000 per worker per year
  - If there is one worker for every two people in the economy, then output per capital equals output per worker divided by 2 → $60,000 / 2 = $30,000

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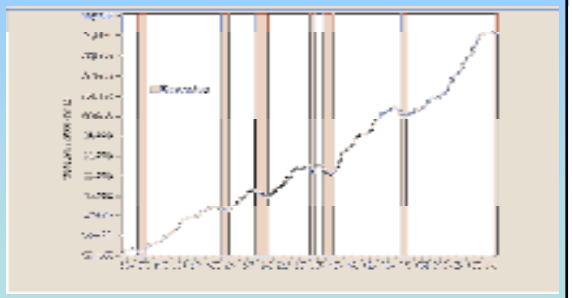
Exhibit 7: Real GDP Per Capita

Despite the six recessions indicated by the shading, real GDP per capita measured in 1996 dollars has nearly tripled, for an average growth rate of 2.3%



Source: U.S. Dept. of Commerce, Survey of Current Business, 81 (July, 2001).

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International Comparisons

Exhibit 8: U.S. Real GDP Per Capita Is Tops Among Major Economies

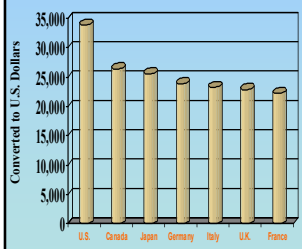
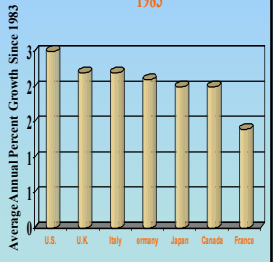


Exhibit 9: U.S. Real GDP Per Capita Outgrew Other Major Economies Since 1983



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Technological Change and Unemployment

- Technological change usually reduces the number of workers needed to produce a given amount of output
- Therefore, some fear that new technology will throw people out of work and lead to higher unemployment
- However, it is also true that technological change can also increase production and employment by making products more affordable

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Research and Development

- Improvements in technology arise from scientific discovery, which is the fruit of research
- We can distinguish between
  - *Basic research*
    - Search for knowledge without regard to how that knowledge will be used
    - First step toward technological advancement
    - Less immediate payoff yet yields a higher rate of return to society as a whole
  - *Applied research*
    - Seeks to answer particular questions or to apply scientific knowledge to the development of specific products

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Convergence Theory

Will poor countries eventually catch up with rich ones?

- *Convergence theory* argues that developing countries can grow faster than advanced ones ➔ should eventually close the gap
  - It is easier to copy new technology once it is developed than to develop new technology
  - Thus countries that start out far behind can grow faster by copying technology

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Convergence Theory

- What's the evidence on convergence?
  - Some poor countries have begun to catch up with the richer ones
    - Newly industrialized Asian economies of Hong Kong, Singapore, South Korea, and Taiwan
    - However, these "Asian Tigers" are more the exception than the rule
  - Among the nations that comprise the poorest third of the world's population, consumption per capita has grown significantly slower than in the rest of the world ➔ the standard of living in these countries has fallen farther behind in relative terms

15

Convergence Theory

- Reasons why the poorest countries have not gained
  - Birth rates are nearly double those in richer ones ➔ the poor economies must produce still more just to keep up with a growing population
  - Vast differences in the quality of human capital across countries
    - While technology may be portable, the knowledge, skill, and training required to take advantage of this technology may not be
  - Some countries lack the stable macroeconomic environment, established institutions, and infrastructures needed to nurture economic growth

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Measuring Economic Aggregates and the Circular Flow of Income

CHAPTER

22

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National Income Accounts

- *Gross domestic product*
  - Measures the market value of all final goods and services produced during a year by resources located in the United States, regardless of who owns those resources
- National income accounts
  - Based on the idea that one person's spending is another person's income
  - Double entry bookkeeping system
  - Aggregate output is recorded on one side of the ledger and income created by that spending on the other side

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GDP

- GDP can be measured either by total spending on U.S. production or by total income received from that production
- Expenditure approach
  - Adds up the aggregate expenditure on all final goods and services produced during that year
- Income approach
  - Adds up the aggregate income earned during the year by those who produce that output

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GDP

- Gross domestic product includes only final goods and services
  - Goods that are sold to the final, or ultimate, user
  - Ignores most of the secondhand value of used goods because these goods were counted in GDP the year they were produced
- Intermediate goods and services are those purchased for additional processing and resale
  - Excluded to avoid the problem of double counting which is counting an item's value more than once

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GDP: Expenditure Approach

- Easiest way to understand the spending approach is to divide aggregate expenditure into its four components
  - Consumption
  - Investment
  - Government Purchases
  - Net Exports

21

Consumption

- Personal consumption expenditures
  - Consists of purchases of final goods and services by households during the year
  - Largest spending category
  - Accounting on average for about two-thirds of U.S. GDP
  - Three components
    - Services
    - Durable Goods: Goods that are expected to last at least three years
    - Nondurable Goods

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Investment

- Gross private domestic investment
  - Consists of spending on new capital goods and additions to inventories
  - More generally, investment consists of spending on current production that is not used for current consumption
  - Accounts for about one-sixth of U.S. GDP
  - Categories
    - Physical capital: new buildings and new machinery purchased by firms and used to produce goods and services
    - Purchases of new residential construction
    - Inventories

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Inventories

- Refers to stocks of goods in process and stocks of finished goods
- Help firms deal with unexpected changes in the supply of their resources or in the demand for their products
- Net changes in inventories
  - *Net increase in inventories* counts as investment because it represents current production not used for current consumption
  - *Net decrease in inventories* counts as negative investment, or *disinvestment*, because it represents the sale of output already credited to a prior year's GDP

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Investment

- Excludes
  - Household purchases of durable goods
  - Purchases of existing buildings and machines
  - Purchases of financial assets
    - Stocks and bonds
    - Are not investments themselves, rather, they are simply an indication of ownership

25

Government Purchases

- Specifically, *government consumption and gross investment*
- Includes spending by all levels of government for goods and services
- Averaged a little less than one-fifth of U.S. GDP during last decade
- Excludes *transfer payments* because they are an outright grant from the government to the recipient
  - Are not true purchases by government or true earnings by recipients
  - Social security, welfare benefits, unemployment insurance

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Net Exports

- Net Exports
  - Result from the interaction between the U.S. economy and the rest of the world
  - Equal the value of U.S. exports of goods and services minus the value of U.S. imports of goods and services
  - *Include merchandise trade and and services – invisibles*
  - *Net Exports equals Exports minus Imports*
  - The value of U.S. imports has exceeded the value of our exports nearly every year since the 1960s → U.S. net exports have been negative
  - Equal an average of negative 1% over past decade

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GDP: Expenditure Approach

- Using the expenditure approach, the nation's aggregate expenditure equals the sum of
  - Consumption, C
  - Investment, I
  - Government Purchases, G
  - Net Exports, (Exports, X, minus Imports, M)
  - C + I + G + (X – M) = Aggregate Expenditures = GDP

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GDP: Income Approach

- Income approach sums, or aggregates, income arising from that production
- Recall that double-entry bookkeeping ensures that the value of aggregate output equals the aggregate income paid for resources used to produce that output
  - Wages
  - Interest
  - Rent
  - Profit arising from production

29

GDP : Income Approach

- *Aggregate income* equals the sum of all the income earned by resource suppliers in the economy
- Aggregate expenditure = GDP = aggregate income
- We avoid double counting either by
  - including only the market value of the goods and services, or
  - calculating the value added at each stage of production

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Exhibit 1: Computation of Value Added for a New Desk

The value added by each firm equals the firm's selling price minus the amount paid for inputs from other firms. The value added at each stage represents income to individual resource suppliers at that state

Stage of Production	Sale Value (1)	Cost of Intermediate Goods (2)	Value Added (3)
Logger	$ 20		$ 20
Miller	50	$ 20	30
Manufacturer	120	50	70
Retailer	200	120	80
Market Value of Final Good			$200

The sum of the value added at all stages equals the market value of the final good and the value added for all final goods and services equals GDP based on the income approach

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The Circular Flow

- Aggregate income is the total income from producing GDP
- *Disposable income* is the income remaining after taxes are subtracted and transfers added
- *Net taxes*
  - NT
  - Taxes minus transfer payments
  - Therefore, disposable income equals GDP minus net taxes
  - GDP = Aggregate income = DI + NT

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Circular Flow of Income and Expenditure

- The upper half of the circular flow is the expenditure half because it focuses on the components that make up aggregate expenditure
  - Consumption, C
  - Investment, I
  - Government Purchases, G
  - Net Exports, X - M
- Aggregate spending on U.S. output equals the market value of aggregate output – GDP
  - C + I + G + (X – M) = aggregate expenditure = GDP

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Leakages Equal Injections

- This first accounting identity leads to
  - *DI + NT = C + I + G + (X – M)*
  - Since disposable income equals consumption plus saving, we can substitute C + S for DI in this equation
  - *C + S + NT = C + I + G + (X – M)*
  - After subtracting C from both sides and adding M to both sides, the equation reduces to
  - *S + NT + M = I + G + X*
  - Thus, the leakages (S, NT, and M) must equal the injections (I, G, and X) into the circular flow

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Planned versus Actual Investment

- *Planned Investment*
  - The amount firms plan to invest before they know how much output they sell
- *Actual Investment*
  - Includes both planned investment and any unplanned changes in inventories
  - Unplanned increases in inventories cause firms to decrease their production next time around
- *Only when there are no unplanned changes in inventories will GDP be at an equilibrium level → planned investment equals actual investment*

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Limitations of National Income Accounting

- Some production is not included in GDP
  - With some minor exceptions, GDP includes only those products that are sold in markets
  - Ignores "do-it-yourself" household production → an economy in which householders are largely self-sufficient will understate GDP
  - Ignores the underground economy
    - All market activity that goes unreported because it's illegal or those involved want to evade taxes
    - Federal study suggests the equivalent of 7.5% of GDP or about $750 billion in 2001

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Leisure, Quality and Variety

- Average U.S. workweek is much shorter now that it was a century ago → people work less to produce today's output but this increase in leisure time is not reflected in GDP because it is not explicitly bought and sold in a market
- People also retire at a much earlier age and they live longer after retirement → quality of life has increased

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Leisure, Quality and Variety

- The quality and variety of products available have on average also improved over the years because of technological advances and competition
- GDP does not reflect these improvements

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GDP Ignores Depreciation

- In the process of producing GDP, some capital wears out or becomes obsolete
- A truer picture of the *net* production that actually occurs during a year is found by subtracting this depreciation from GDP
- *Depreciation* measures the value of the capital stock that is used up or becomes obsolete in the production process

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Net Domestic Product

- *Net domestic product* equals gross domestic product minus depreciation
- Two definitions of investment
  - *Gross investment* measures the value of all investment during a year
    - Used in computing GDP
  - Net investment equals gross investment less depreciation
    - When net investment is negative → depreciation exceeds gross investment → the capital stock declines
    - If it is zero → capital stock remains constant
    - If positive, the capital stock grows
    - Used in computing net domestic product

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Accounting for Price Changes

- Gross domestic product measures the value of output in *current dollars*, e.g., in the dollar values at the time the output is produced
- This technique of basing GDP on current dollars → the national income accounts measure *nominal GDP*
- This system allows for comparisons among income or expenditure components in a particular year

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Real GDP

- Real GDP refers to GDP adjusted for changes in prices → measures the changes which occurred in output or production
- This process of adjusting nominal GDP for price changes is called *deflating* GDP

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Unemployment and Inflation

CHAPTER

23

Measuring Unemployment

- Civilian Noninstitutional Adult Population
  - All civilians 16 years of age and older
  - Excludes institutionalized in prisons or mental hospitals
  - Excludes those in military
- Labor force
  - Those in the adult population who are either working or looking for work

Measuring Unemployment

- *Unemployed*
  - Those with no job who are looking for work
- *Unemployment rate*
  - Measures the percentage of those in the labor force who are unemployed
  - Equals the number unemployed divided by the number in the labor force
  - Does not include discouraged workers
- *Discouraged workers*
  - Those who are no longer looking for work but are unemployed

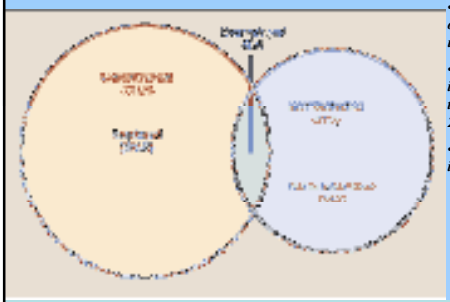
Labor Force Participation Rate

- *Labor Force Participation Rate*
  - The number in the labor force divided by the adult population
  - On average, two out of three adults are in the labor force
  - Increased from about 60% in 1970 to approximately 67% in 1990 and has remained relatively constant since
  - Can change more quickly than can the population
  - Convergence of the participation rates of men and women over last 40 years as more women enter the labor force

Trend of Unemployment Rate

- Decline in the unemployment rate over last 20 years
  - Overall growth in the economy
  - Relatively fewer teenagers in the work force
- Unemployment rate says nothing about who is unemployed or for how long
  - Unemployment rates differ across
    - Race
    - Gender
    - Age
    - Geographical area
    - Occupational group

Exhibit 1: Composition of Adult Population, 8/01 (in millions)



- *Labor force consists of employed and unemployed persons*
- *Those* not working *include 1) those not in the working force, and 2) those unemployed*
- *The adult population includes the*
  - *employed*
  - *unemployed*
  - *people not in the labor force*

Types of Unemployment

- Four sources of unemployment
  - Frictional unemployment
  - Structural unemployment
  - Seasonal unemployment
  - Cyclical unemployment

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Frictional Unemployment

- *Time required to bring together labor suppliers and labor demanders*
  - Employers need time to learn about the talent available
  - Job seekers need time to learn about employment opportunities
- Generally short-term and voluntary

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Structural Unemployment

- Exists because unemployed workers often
  - do not have the skills demanded by employers, or
  - do not live where their skills are in demand
    - That is, there is a mismatch of skills or geographic location
    - More of a problem than is frictional unemployment
- Occurs because changes in tastes, technology, taxes, or competition reduce the demand for certain skills and increase the demand for other skills

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Seasonal Unemployment

- Unemployment caused by seasonal changes in labor demand during the year
  - For example, during the winter months the demand for farm hands declines while during the Christmas season demand for retail employees increases
- To eliminate the impact of such changes, monthly unemployment statistics are seasonally adjusted which smoothes out these factors

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Cyclical Unemployment

- Occurs because of business cycle fluctuations in output that occurs during recessions
- Government policies to stimulate aggregate demand recessions is aimed at reducing this type of unemployment

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Full Employment

- Changes in product demand and technology continually alter the supply and demand for particular types of labor ➔ even in a healthy economy there will be some frictional, structural, and seasonal unemployment
- Full employment
  - Occurs when the only unemployment is frictional, structural, or seasonal
  - Does not mean zero unemployment
  - Counts only cyclical unemployment

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Unemployment Compensation

- Applies to unemployed workers who meet certain qualifications
  - Last for up to six months – longer in certain cases - provided the individual looks for work
  - Fewer than half of all unemployed workers receive these benefits
  - Replaces on average about 40% of a person's take home pay

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Unemployment Compensation

- Problems with unemployment compensation
  - Evidence suggests that unemployed workers who receive benefits tend to search less actively than those who don't
  - May reduce the urgency of finding work thereby increasing the average duration of unemployment and unemployment rate
- On the plus side, it allows for a higher-quality job search

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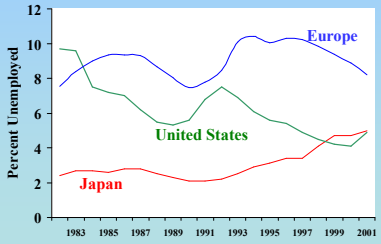
Exhibit 4: Unemployment Rates

In the last two decades, the unemployment rate:

Remained high in Europe Fell in the U.S. Rose in Japan



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Problems with Unemployment Figures

- Unemployment figures understate the actual amount of unemployment because of discouraged workers and underemployment
  - *Discouraged workers* are those who have stopped looking for work
  - Underemployment occurs when
    - People are counted as employed even if they can find only part-time jobs or
    - Are vastly overqualified for their job

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Problems with Unemployment Figures

- Official figures tend to overstate unemployment because
  - Employment insurance and most welfare programs require recipients to seek employment → some may act as if they are looking for work just to qualify for such programs
  - Some who would prefer to work part time can find only full time work
  - Some are forced to work overtime and weekends but would prefer to work fewer hours
  - People in the underground economy may not readily acknowledge such jobs since their intent is to evade taxes

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Inflation

- *Inflation* is a sustained increase in the average price level
- Hyperinflation: Extremely high inflation
- A sustained decline in the average price level is called deflation
- A reduction in the rate of inflation is called disinflation

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Inflation

- Typically measure inflation on an annual basis
- *Annual inflation rate* is the percentage increase in the average price level from one year to the next
- Two sources of inflation
  - Demand-pull inflation
  - Cost-push inflation

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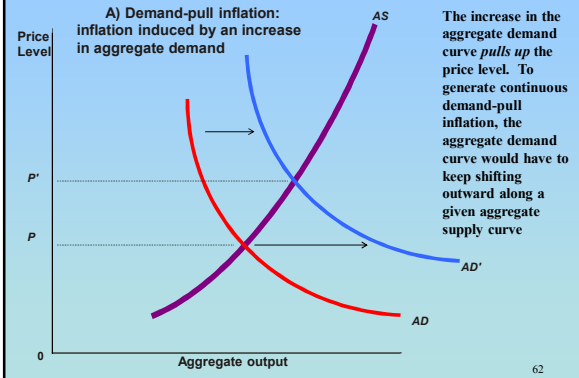
Exhibit 5a: Sources of Inflation



The increase in the aggregate demand curve *pulls up* the price level. To generate continuous demand-pull inflation, the aggregate demand curve would have to keep shifting outward along a given aggregate supply curve

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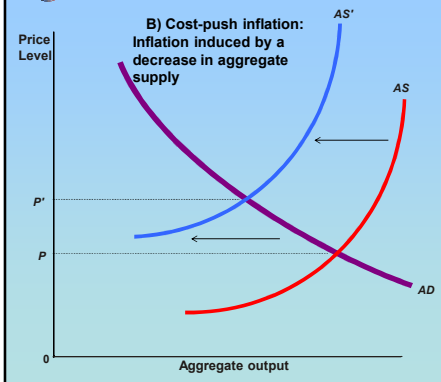
Exhibit 5b: Sources of Inflation



The increase in costs of production *push up* the price level. This combination is sometimes called stagflation. To generate continuous cost-push inflation, the aggregate supply curve would have to keep shifting to the left along a given aggregate demand curve.

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Consumer Price Index

- The *consumer price index*, CPI, measures changes over time in the cost of buying a "market basket" of goods and services purchased by a typical family
- A simplified version of the process used in the CPI is presented in Exhibit 4

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Exhibit 4a

Hypothetical Market Basket Used to Develop Consumer Price Index

Good or Service	Quantity in Market Basket (1)	Price in Base Year (2)	Cost of Basket in Base Year (3) = (1) x (2)
Twinkies	365 packages	$0.84/pkg.	$ 324.85
Fuel Oil	500 gallons	1.00/gallon	500.00
Cable TV	12 months	30.00/month	360.00
			$1,184.85

Prices in the base year are listed in column (2) while the total cost – found by multiplying price by quantity – is in column (3). Thus, the cost of the typical market basket in the base year is $1,184.85.

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Exhibit 4 continued

Notice in column (4) that not all prices have changed by the same percent since the base year. The cost of purchasing this same market basket in the current year is $1,398.35 as seen in column (5).

Good or Service	Prices in Current Year (4)	Cost of Basket in Base Year (5) = (1) x (4)
Twinkies	$ 0.79	$ 288.35
Fuel Oil	1.50	750.00
Cable TV	30.00	360.00
		$1,398.35

To compute the price index for the current year, divide the total cost in the current year by the total cost of the same basket in the base year ($1,398.35 / $1,184.85) then multiply by 100, resulting in a price index of 118. Between the base year and the current year, the "cost of living" increased by 18%.

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Consumer Price Index

- The federal government uses the years 1982 – 1984 as the base period for calculating the CPI for a market basket of 400 goods and services in eight major categories
- It is based on prices collected from about 23,000 sellers across the country

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Problems with the CPI

- CPI tends to overstate inflation for the following reasons
  - There is a quality bias because the CPI assumes the quality of the market basket remains relatively constant over time
  - Because the CPI holds constant the kind and amount of goods and services in the typical market basket, it is slow to incorporate consumer responses to changes in relative prices ➔ the process used does not allow households to shift away from goods that have become relatively more costly

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Problems with the CPI

- CPI has also failed to keep up with the consumer shift toward discount stores because the statisticians consider goods sold at discount retailers as distinct from similar or identical goods sold by traditional retailers
- Researchers conclude the CPI has overestimated inflation by about 1 percent per year

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Impact of These Problems

- Overstatement of the rate of inflation causes a number of problems
  - Changes in the index determine changes in tax brackets
  - Changes in the index determine changes in an array of payments
    - Wage agreements that include a cost-of-living (COLA) allowance
    - Social Security benefits
    - Welfare payments
    - About 30% of federal outlays are tied to changes in the CPI and a 1% overstatement cost the federal government approximately $180 billion per year
  - Distorts other measures of the economy. For example, based on the official CPI, the average real wage fell by a total of about 2% between 1980 and 2000. However, if the CPI overstates inflation by 1% per year, the real wage increased by 20%

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GDP Price Index

- The GDP price index measures the average level of prices of all goods and services included in GDP
- *GDP price index* = (nominal GDP / real GDP) x 100
  - Where nominal GDP is the dollar value of this year's GDP measured in base-year prices
  - Real GDP is the dollar value of this year's GDP measured in base year prices
- If we know both nominal GDP and real GDP, then finding the GDP price index is easy

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GDP Price Index

- Any measure of real GDP is constructed as the weighted sum of thousands of different goods and services
- The question is what weights, or prices, to use
  - Between World War II and 1995, the Bureau of Economic Analysis used prices of a particular base year, most recently, 1997, to estimate real GDP
  - In this case, the quantity of each output in a particular year was valued by using the 1987 price of each output

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GDP Price Index

- So long as the base year used is close to the year in question, the process of using prices from a base year yields an accurate measure of real GDP
- In early 1996, the BEA switched from a fixed-price weighting system to a chain-weighted system
  - Uses a complicated process that changes price weights from year to year
  - That is, real GDP adjusts the weights in calculating a price index more or less continuously from year to year

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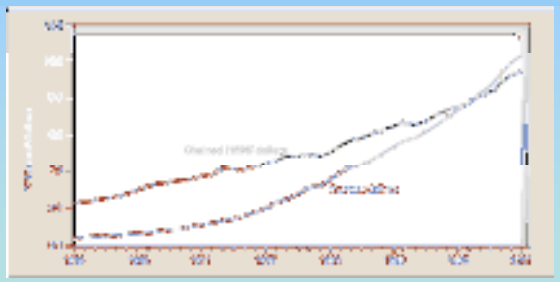
Exhibit 5: U.S. GDP in Current Dollars and Chained (1996) Dollars



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GDP Price Index

- To provide the reference point, BEA measures U.S. real GDP and its components in chained 1996 dollars
- To summarize
  - Current-dollar GDP growth reflects growth in real GDP and in the price level
  - Chained-dollar GDP growth reflects only growth in output or production

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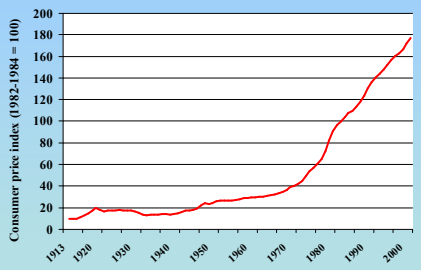
Exhibit 6a: Consumer Price Index

CPI, consumer price index, measures the cost of a "market basket" of consumer goods and services over time.



Source: The CPI Home page of the U.S. Bureau of Labor Statistics at http:\\ftp.bls.gov\pub\special requests.cpi\cpia.html

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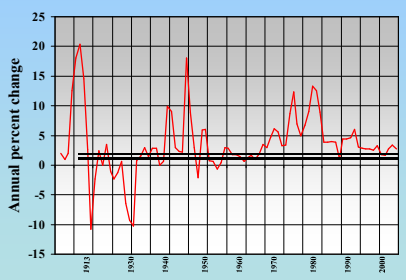
Exhibit 6b: Consumer Price Index

Shows the annual rate of change in the CPI, or the annual rate of inflation or deflation



Source: The CPI Home page of the U.S. Bureau of Labor Statistics at http:\\ftp.bls.gov\pub\special requests.cpi\cpia.html

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Anticipated versus Unanticipated Inflation

- *Unanticipated* inflation creates more problems for the economy than does *anticipated* inflation
- To the extent that inflation is higher or lower than anticipated, it arbitrarily creates winners and losers
  - If it is higher than expected, the winners are all those who had contracted to pay a price that anticipates lower inflation
  - The losers are all those who agreed to sell at that price
  - If inflation is lower is lower than expected, the situation is reversed

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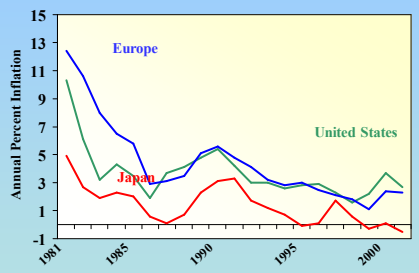
Exhibit 7: Inflation Rates in Major Economies Have Trended Lower in Last Two Decades



Developed from annual CPI inflation reported in *OECD Economic Outlook*, 69 (June 2001). Annex Table 16. Europe averages France, Germany, Italy, and U.K. For latest data go to www.oecd.org/eco/.

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Inflation and Interest Rates

- ***Interest*** **is the dollar amount paid by borrowers to lenders because lenders must be rewarded for forgoing present consumption**
- **The interest rate is the interest per year as a percentage of the amount loaned**
- **Exhibit 8 provides information on the loanable funds market**

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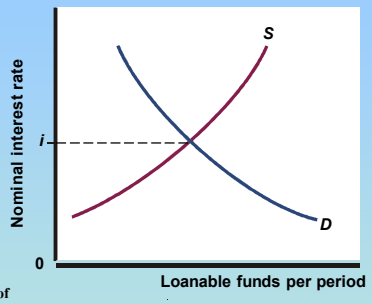
Exhibit 8: The Market for Loanable Funds

Loanable funds are demanded by households, firms, and governments to finance purchases. The higher the interest rate, other things constant, the higher cost of borrowing ➔ the quantity of loanable funds demanded decreases as the interest rate increases, other things constant ➔ The demand curve for loanable funds is downward sloping.

The equilibrium interest rate is determined by the intersection of the supply of and demand for loanable funds.



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Interest Rates

- ***Nominal interest rate***
  - **Measures interest in terms of the current dollars paid**
  - **Appears on the borrowing agreement**
  - **The rate quoted in the news media**
- ***Real interest rate***
  - **Equals the nominal rate of interest minus the inflation rate**
  - **Expressed in dollars of constant purchasing power**

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Why is Inflation Unpopular?

- **Perspectives on inflation**
  - **If you think of inflation in terms of spending, then the problem is one of paying higher prices**
  - **However, if you think of inflation in terms of higher money incomes – including higher wages – inflation is not all bad**
- **Most individuals view their higher incomes as well-deserved rewards for their labor and see inflation as a penalty that unjustly robs them of purchasing power**

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Why is Inflation Unpopular?

- **Problems with unanticipated inflation**
  - **It hits those whose incomes are fixed in nominal terms**
  - **Arbitrarily redistributes income and wealth from one group to another**
  - **Reduces the ability to make long-term plans**
    - **The more variable and unpredictable inflation is, the greater the difficulty of negotiating long-term contracts**
  - **Forces buyers and sellers to pay more attention to prices**
    - **Because people must spend more time coping with uncertainty created by inflation, they have less time for production ➔ overall productivity of economy falls**

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