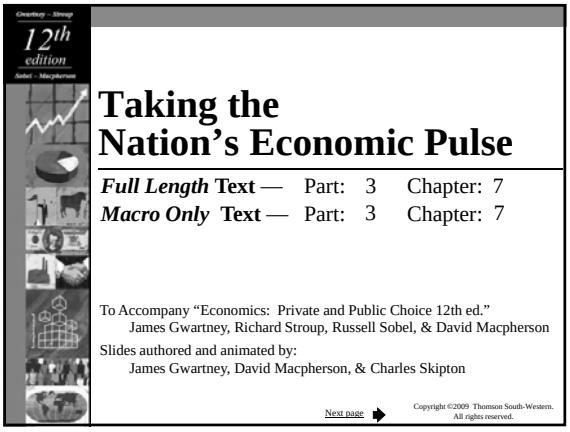
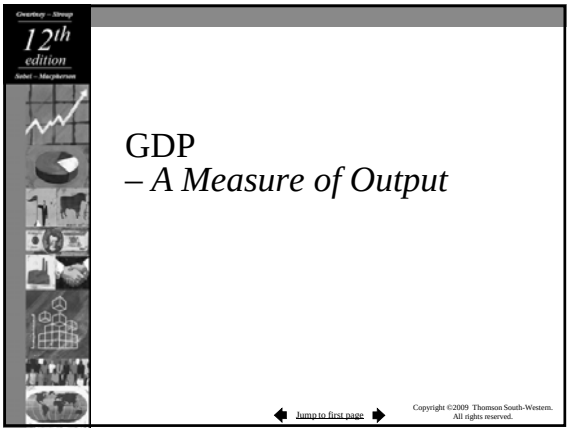


Taking the Nation's Economic Pulse

***Full Length* Text** — Part: 3 Chapter: 7
***Macro Only* Text** — Part: 3 Chapter: 7

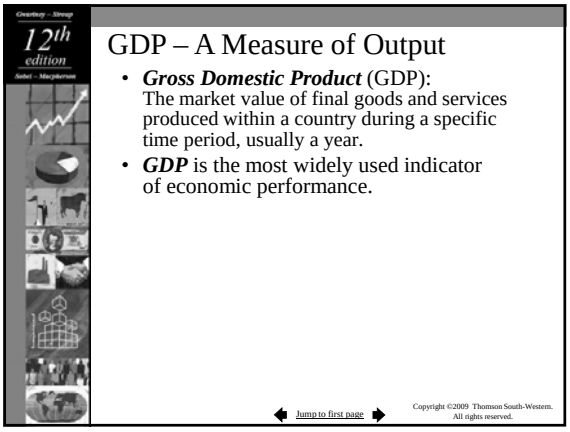
To Accompany "Economics: Private and Public Choice 12th ed."
James Gwartney, Richard Stroup, Russell Sobel, & David Macpherson
Slides authored and animated by:
James Gwartney, David Macpherson, & Charles Skipton

Next page
Copyright ©2009 Thomson South-Western. All rights reserved.



GDP – *A Measure of Output*

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.



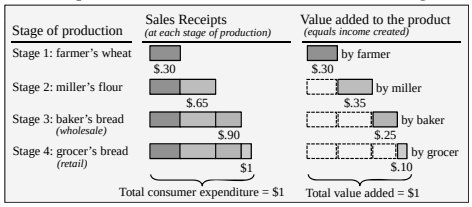
GDP – A Measure of Output

- ***Gross Domestic Product*** (GDP): The market value of final goods and services produced within a country during a specific time period, usually a year.
- ***GDP*** is the most widely used indicator of economic performance.

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

What Counts Toward GDP?

- Only ***final goods and services*** count.
  - Sales at intermediate stages of production are not counted as their value is embodied within the final-user good.
  - Including goods at intermediate stages of production would result in double counting.



Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

What Counts Toward GDP?

- What Counts Toward GDP?
  - Only transactions involving production count.
    - ***Financial transactions*** & ***income transfers*** are ***excluded*** because they do not reflect actual production.
  - Only production ***within the geographic borders*** of the country is counted.
  - Only those goods produced ***during the current period*** are counted.
    - Thus, the purchase and sale of goods produced during earlier years are not counted in this year's GDP.

Jump to first page

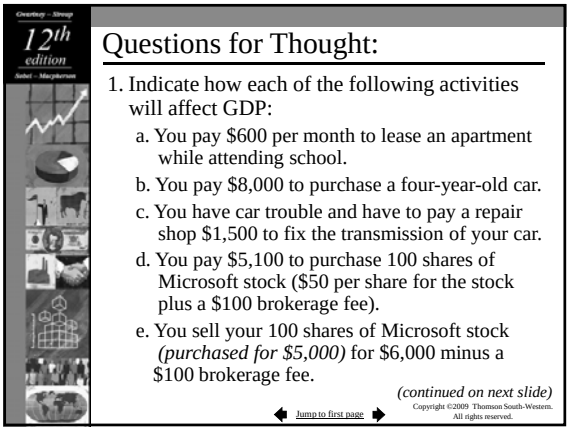
Copyright ©2009 Thomson South-Western. All rights reserved.

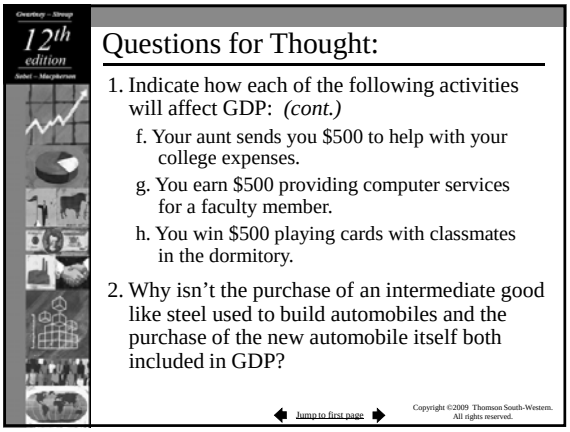
Dollars are the Common Denominator for GDP

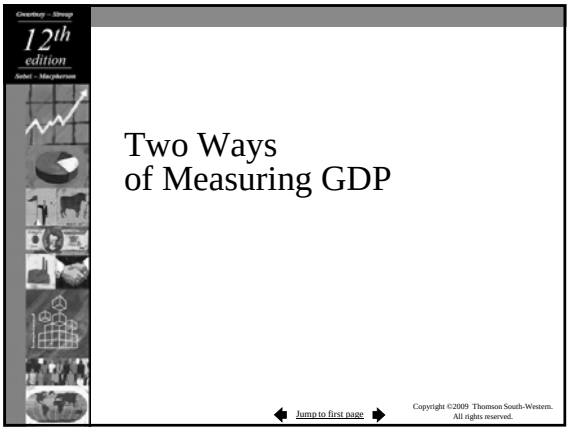
- GDP is measured in dollars.
  - Each good produced increases output by the amount the purchaser pays for the good.
  - The total spending on all final-user goods and services produced during the year is summed, in dollar terms, to obtain the annual ***GDP***.

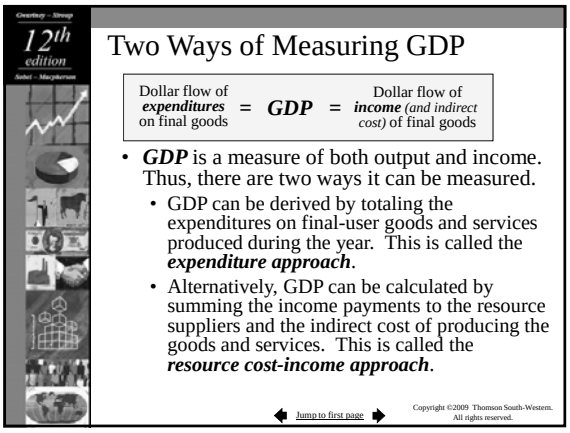
Jump to first page

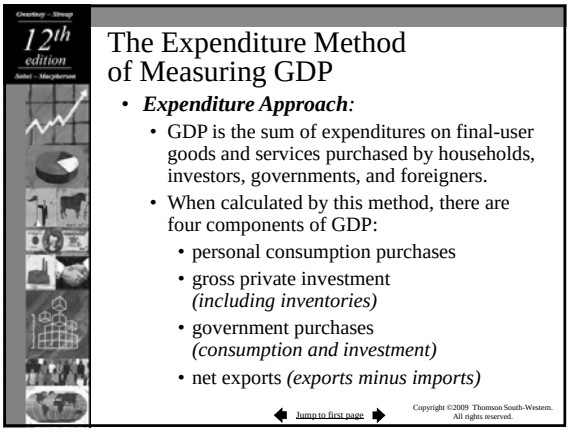
Copyright ©2009 Thomson South-Western. All rights reserved.

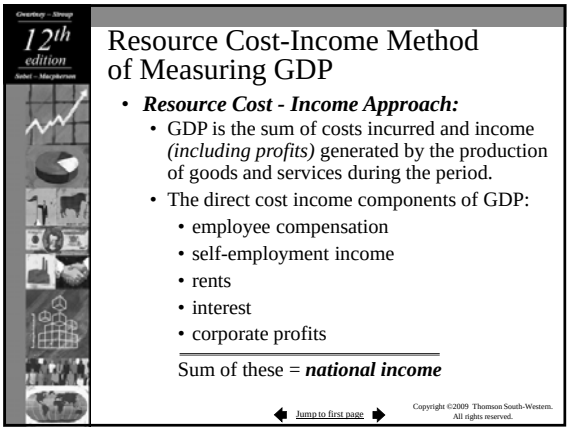

12th edition
Questions for Thought:
1. Indicate how each of the following activities will affect GDP:
a. You pay $600 per month to lease an apartment while attending school.
b. You pay $8,000 to purchase a four-year-old car.
c. You have car trouble and have to pay a repair shop $1,500 to fix the transmission of your car.
d. You pay $5,100 to purchase 100 shares of Microsoft stock ($50 per share for the stock plus a $100 brokerage fee).
e. You sell your 100 shares of Microsoft stock *(purchased for $5,000)* for $6,000 minus a $100 brokerage fee.
(continued on next slide)
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
Questions for Thought:
1. Indicate how each of the following activities will affect GDP: *(cont.)*
f. Your aunt sends you $500 to help with your college expenses.
g. You earn $500 providing computer services for a faculty member.
h. You win $500 playing cards with classmates in the dormitory.
2. Why isn't the purchase of an intermediate good like steel used to build automobiles and the purchase of the new automobile itself both included in GDP?
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
Two Ways of Measuring GDP
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
Two Ways of Measuring GDP
Dollar flow of expenditures on final goods = GDP = Dollar flow of income (and indirect cost) of final goods
• GDP is a measure of both output and income. Thus, there are two ways it can be measured.
• GDP can be derived by totaling the expenditures on final-user goods and services produced during the year. This is called the expenditure approach.
• Alternatively, GDP can be calculated by summing the income payments to the resource suppliers and the indirect cost of producing the goods and services. This is called the resource cost-income approach.
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
The Expenditure Method of Measuring GDP
• Expenditure Approach:
• GDP is the sum of expenditures on final-user goods and services purchased by households, investors, governments, and foreigners.
• When calculated by this method, there are four components of GDP:
• personal consumption purchases
• gross private investment (including inventories)
• government purchases (consumption and investment)
• net exports (exports minus imports)
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
Resource Cost-Income Method of Measuring GDP
• Resource Cost - Income Approach:
• GDP is the sum of costs incurred and income (including profits) generated by the production of goods and services during the period.
• The direct cost income components of GDP:
• employee compensation
• self-employment income
• rents
• interest
• corporate profits
Sum of these = national income
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

Resource Cost-Income Method of Measuring GDP

- ***Resource Cost - Income Approach****: (cont.)*
  - Not all cost components of GDP result in an income payment to a resource supplier. To get GDP, we need to account for 3 other factors:
    - ***Indirect business taxes:*** Taxes that increase the firm's production costs and therefore final prices.
    - ***Depreciation:*** The cost of wear and tear on the machines and other capital assets used to produce goods and services.
    - ***Net Income of Foreigners:*** The income that foreigners earn producing goods within the borders of the U.S. minus the income Americans earn abroad.

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

Resource Cost-Income Method of Measuring GDP

- When derived by the ***Resource Cost - Income Approach***, GDP is equal to the sum of
  - national income, *(employee compensation, self-employment income, rents, interest, corporate profits)*
  - indirect business taxes,
  - depreciation, and,
  - net income of foreigners.

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

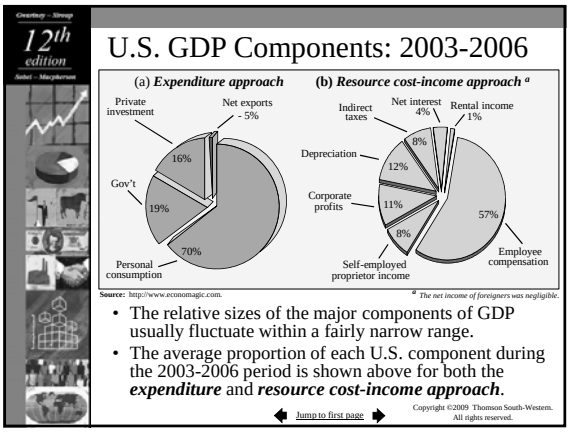
Two Ways of Measuring GDP: *A Summary*

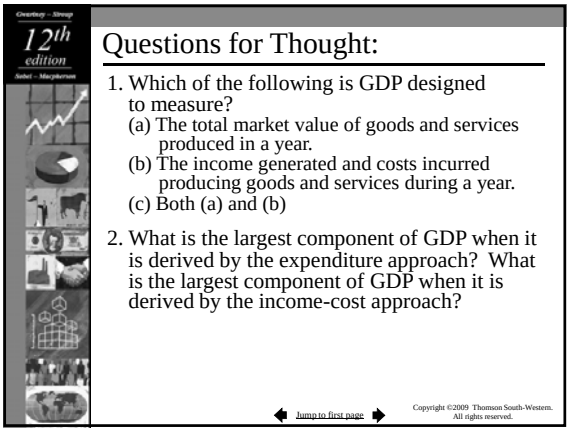
- The two methods of calculating GDP are summarized below:

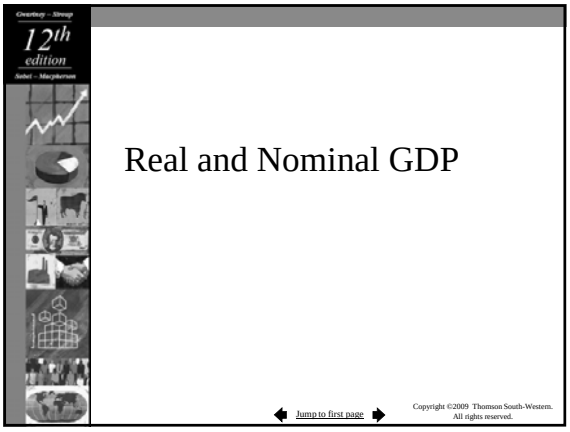
Expenditure Approach
Personal consumption expenditures
+
Gross private domestic investment
+
Government consumption and gross investment
+
Net exports of goods and services
= *GDP*

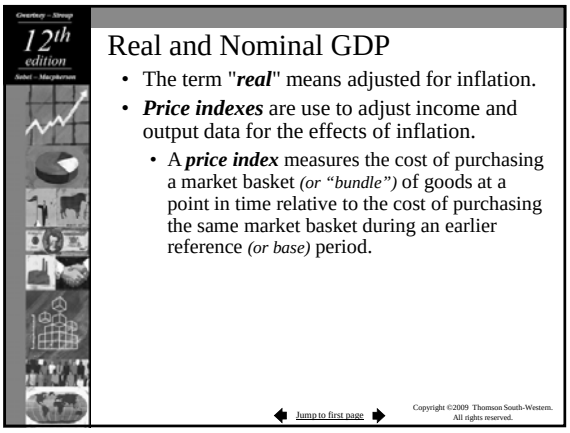
Resource Cost-Income Approach
Aggregate income:
Employee Compensation
Income of self-employed
Rents
Profits
Interest
+
Non-income cost items:
Indirect business taxes and depreciation
+
Net income of foreigners
= *GDP*

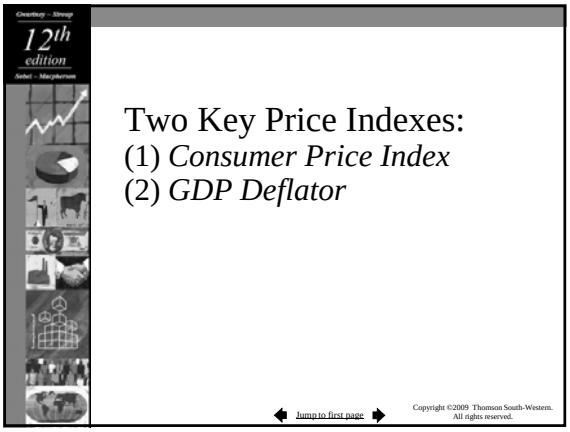
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

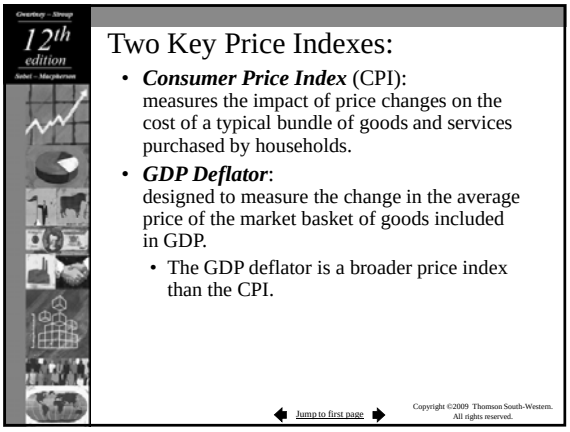

12th edition
U.S. GDP Components: 2003-2006
(a) Expenditure approach
(b) Resource cost-income approach a
Private investment
Net exports - 5%
16%
Gov't
19%
70%
Personal consumption
Indirect taxes
Net interest 4%
Rental income 1%
8%
Depreciation
12%
Corporate profits
11%
8%
57%
Employee compensation
Self-employed proprietor income
Source: http://www.economagic.com.
a The net income of foreigners was negligible.
• The relative sizes of the major components of GDP usually fluctuate within a fairly narrow range.
• The average proportion of each U.S. component during the 2003-2006 period is shown above for both the expenditure and resource cost-income approach.
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
Questions for Thought:
1. Which of the following is GDP designed to measure?
(a) The total market value of goods and services produced in a year.
(b) The income generated and costs incurred producing goods and services during a year.
(c) Both (a) and (b)
2. What is the largest component of GDP when it is derived by the expenditure approach? What is the largest component of GDP when it is derived by the income-cost approach?
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th edition
Real and Nominal GDP
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


Gwartney – Stroup
12th edition
Sobel – Macpherson
Real and Nominal GDP
• The term "real" means adjusted for inflation.
• Price indexes are use to adjust income and output data for the effects of inflation.
• A price index measures the cost of purchasing a market basket (or "bundle") of goods at a point in time relative to the cost of purchasing the same market basket during an earlier reference (or base) period.
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


Gwartney – Stroup
12th edition
Sobel – Macpherson
Two Key Price Indexes:
(1) Consumer Price Index
(2) GDP Deflator
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


Gwartney – Stroup
12th edition
Sobel – Macpherson
Two Key Price Indexes:
• Consumer Price Index (CPI): measures the impact of price changes on the cost of a typical bundle of goods and services purchased by households.
• GDP Deflator: designed to measure the change in the average price of the market basket of goods included in GDP.
• The GDP deflator is a broader price index than the CPI.
Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

What is Inflation?

- ***Inflation*** is an increase in the general level of prices. It is typically calculated annually.
- Inflation can be calculated using either the CPI or the GDP deflator.
- The ***Rate of Inflation*** is calculated as:

$$\textit{Inflation rate} = \frac{\text{This year's price index} - \text{Last year's price index}}{\text{Last year's price index}} \times 100$$

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

CPI and GDP Deflator: 1996-2006

Year	CPI *(1982-84 = 100)*	Inflation rate *(percent)*	GDP deflator *(2000 = 100)*	Inflation rate *(percent)*
1996	156.9	3.0	93.9	1.9
1997	160.5	2.3	95.4	1.7
1998	163.0	1.5	96.5	1.1
1999	166.6	2.2	97.9	1.4
2000	172.2	3.4	100.0	2.2
2001	177.1	2.8	102.4	2.4
2002	179.9	1.6	104.1	1.7
2003	184.0	2.3	106.0	1.8
2004	188.9	2.7	109.4	2.8
2005	195.3	3.4	112.7	3.0
2006	201.6	3.2	116.0	2.9

Source: http://www.economagic.com.

- Even though the CPI and the GDP deflator are based on different market baskets and procedures, they yield similar estimates of the rate of inflation.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Using the GDP Deflator to Derive Real GDP

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Using the GDP Deflator to Derive Real GDP

- The formula for converting nominal GDP into real GDP (in period 1 prices) is:

$$\text{Real GDP}_2 = \text{Nominal GDP}_2 \times \frac{\text{GDP Deflator}_1}{\text{GDP Deflator}_2}$$

- Data on both money (nominal) GDP and price changes are essential for meaningful comparisons of output between two time periods.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Using the GDP Deflator to Derive Real GDP

- Between 2000 and 2006, nominal GDP increased by 34.9%.
- But, when the 2006 GDP is deflated to account for price increases … we can see that real GDP increased by only 16.3%.

	Nominal GDP *(billions of U.S. $)*	Price index *(GDP deflator, 2000 = 100)*	Real GDP *(billions of 2000 $)*
2000	$9,817	100.0	$9,817
2006	$13,247	116.0	$11,420
% increase	34.9%	16.0%	16.3%

Source: http://www.economagic.com.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Converting Earlier Figures into Current Dollars

- Sometimes we will want to make real data *(e.g. income)* comparisons in terms of the purchasing power of the dollar during the current year.
- This can be done by "inflating" the data for earlier years for increases in the price level.
- The formula for converting the figures for an earlier year into ***current dollars*** is:

$$\text{Figure}_{\textit{current \$}} = \text{Figure}_{\textit{earlier \$}} \times \frac{\text{price index}_{\textit{current year}}}{\text{price index}_{\textit{earlier year}}}$$

- If prices have risen, this will "inflate" the data for earlier years and bring them into line with the current purchasing power of the dollar.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Questions for Thought:

1. What do price indexes measure?
2. What is the difference between the CPI and the GDP deflator? Which would you use if you wanted to measure whether your own earnings this year were higher than they were last year?
3. The CPI was 210 in 2007 compared to 100 in 1983. Suppose that the price of a ticket at a local movie theater rose from $4 to $8 between 1983 and 2007. Did the real ticket price increase or decrease? Calculate the 1983 ticket price measured in 2007 dollars.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Questions for Thought:

4. Use the following data to answer this question.

	Nominal GDP *(trillions of $)*	GDP deflator *(2000=100.0)*
2004	$11.69	109.4
2005	12.43	112.7
2006	13.19	116.0

   a. Calculate the real GDP in 2004, 2005, and 2006 measured in 2000 dollars.
   b. What was the percent change in real GDP between 2004 and 2005? What was the percent change between 2005 and 2006?
   c. What was the inflation rate as measured by the GDP deflator in 2005 and 2006?

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Shortcomings and Strengths of GDP as a Measuring Rod

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

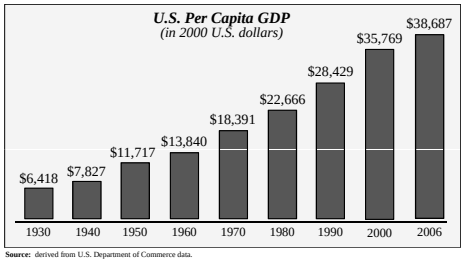
Shortcomings of GDP as a Measuring Rod

- Shortcomings of GDP:
  - It does not count non-market production.
  - It does not count the underground economy.
  - It makes no adjustment for leisure.
  - It probably understates output increases because of the problem of estimating improvements in the *quality* of products.
  - It does not adjust for harmful side effects.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Differences in GDP Over Time



Source: derived from U.S. Department of Commerce data.

- Per capita GDP is GDP divided by population.
- As shown here, the real 2006 GDP per capita of the U.S. was more than six times the figure for 1930.
- How meaningful is this comparison?

Jump to first page

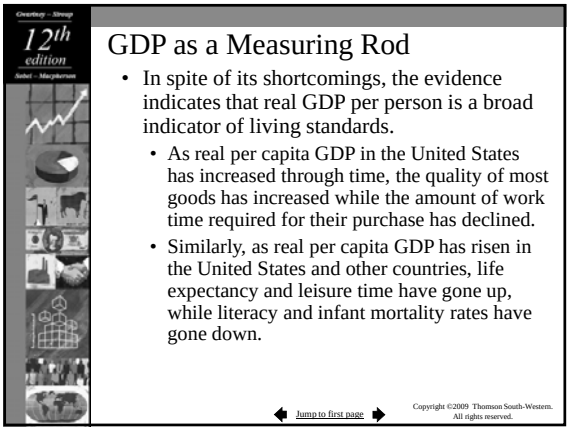
Copyright ©2009 Thomson South-Western. All rights reserved.

Per Capita GDP Comparisons Across Time Periods

- As was shown in the previous exhibit, real U.S. per capita GDP has increased substantially over the past 76 years.
- Compared to earlier periods, current GDP is probably biased upward because more output now takes place in the market sector and less in the household sector.
- However, it is also probably biased downward because of failure to adjust for increased leisure, improvements in the work environment, and the introduction of improved products and new technologies.
- The direction of the overall bias is uncertain.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

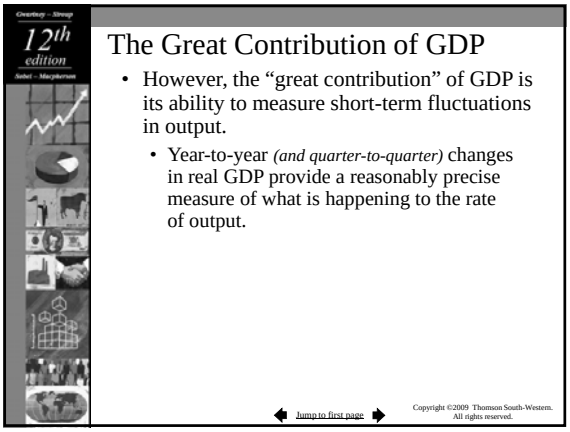


GDP as a Measuring Rod

- In spite of its shortcomings, the evidence indicates that real GDP per person is a broad indicator of living standards.
  - As real per capita GDP in the United States has increased through time, the quality of most goods has increased while the amount of work time required for their purchase has declined.
  - Similarly, as real per capita GDP has risen in the United States and other countries, life expectancy and leisure time have gone up, while literacy and infant mortality rates have gone down.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

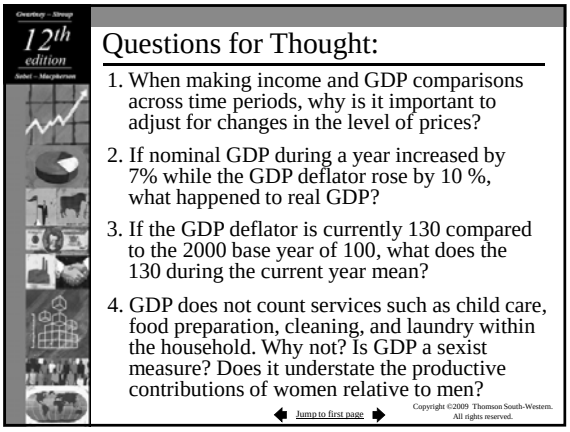


The Great Contribution of GDP

- However, the "great contribution" of GDP is its ability to measure short-term fluctuations in output.
  - Year-to-year *(and quarter-to-quarter)* changes in real GDP provide a reasonably precise measure of what is happening to the rate of output.

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.



Questions for Thought:

1. When making income and GDP comparisons across time periods, why is it important to adjust for changes in the level of prices?
2. If nominal GDP during a year increased by 7% while the GDP deflator rose by 10 %, what happened to real GDP?
3. If the GDP deflator is currently 130 compared to the 2000 base year of 100, what does the 130 during the current year mean?
4. GDP does not count services such as child care, food preparation, cleaning, and laundry within the household. Why not? Is GDP a sexist measure? Does it understate the productive contributions of women relative to men?

Jump to first page

Copyright ©2009 Thomson South-Western. All rights reserved.

Questions for Thought:

5. On Sept. 11, 2001, terrorists crashed 2 planes into the World Trade Center in New York, killing 3,000 people and causing the towers to collapse. Which of the following best indicates how GDP was influenced by the damages from the attack and the cleanup that followed?
   (a) The damage from the attack was subtracted from GDP, while the expenditures from the cleanup were added.
   (b) Neither the damages from the attack nor the expenditures from the cleanup affected GDP.
   (c) No adjustment was made for the damages from the attack, while the expenditures from the cleanup were added to GDP.

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

Questions for Thought:

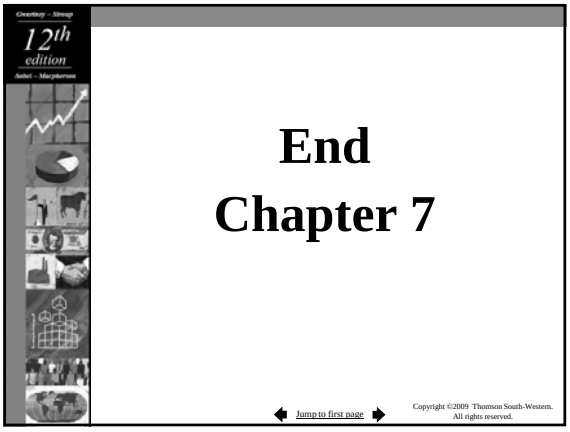
6. Which of the following are included in GDP?
   a. the value of goods produced in the underground economy
   b. the value of leisure
   c. increases in the value of housing and financial assets
   d. depreciation in the value of real assets such as equipment and buildings
   e. the value of services such as food preparation and house cleaning that we provide for ourselves

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.

Questions for Thought:

7. Your father tells you he earned $1.50 per hour when he was 16 in 1969; you made $6.00 per hour when you were 16 in 2006. Given that the CPI was 36.7 in 1969 and 201.6 in 2006, which of the following is the 2006 equivalent of your father's hourly earnings when he was 16?
   (a) $3.02
   (b) $7.50
   (c) $8.24
   (d) $10.40

Jump to first page
Copyright ©2009 Thomson South-Western. All rights reserved.


12th
edition
End
Chapter 7
Jump to first page
Copyright ©2009 Thomson South-Western.
All rights reserved.