

CHAPTER REVIEW

SUMMARY

1. National income accounting provides systematic measures of aggregate economic activity. Gross domestic product (GDP) is the key overall measure of economic activity in an economy. It can be viewed as total expenditure, total income, or total production in an economy.
2. The expenditure approach to GDP makes use of a fundamental *national income identity*, $Y = C + I + G + NX$, which says that total spending is the sum of spending on consumption, investment, government purchases, and net exports.
3. A key lesson of the income approach is that labor's share of GDP is relatively stable over time at about two-thirds.
4. In the production approach, it is only the value of final production that counts. Equivalently, GDP is the sum of *value added* at each stage of production.
5. Nominal GDP refers to the value of GDP measured in current prices in a given year. Real GDP involves computing GDP in two different years using the *same* set of prices. Changes in real GDP therefore reflect changes in actual production rather than changes in prices.
6. Chain weighting allows us to compare real GDP in 1950, for example, with real GDP in 2010 by gradually updating the prices: 1950 and 1951 prices are used to compare 1950 and 1951 real GDPs, 1951 and 1952 prices are then used to compare 1951 and 1952 real GDPs, and so on. By linking the chain of comparisons in this way, we construct a more accurate measure of real GDP. (If we used 2010 prices to value production in 1950, we'd get a distorted picture: telephone service that was extremely valuable and expensive in 1950, for example, would be valued according to the cheap modern prices.)
7. International comparisons of GDP involve two conversions. First, we need exchange rates to convert the measures into a common currency. Second, just as we need to use common prices to measure real GDP over time, we also need to use common prices to compare real GDP across countries.

KEY CONCEPTS

capital	gross domestic product (GDP)	labor's share of GDP
chain weighting	income	Laspeyres index
depreciation	inflation	national income identity
economic profits	inflation rate	nominal versus real GDP
exchange rate	intellectual property products (IPP)	Paasche index
expenditure		production
GDP deflator		trade balance
		value added

REVIEW QUESTIONS

1. What is GDP, and why is it a useful measure? What are the most important components of GDP in the U.S. economy today?
2. What are net exports, and how is this concept related to the trade deficit?
3. What are some problems with using GDP as a measure of overall economic welfare?
4. What is the difference between real and nominal GDP? How do you compare GDPs over time within an economy? How do you compare GDPs across different economies?

EXERCISES

1. **Real versus nominal GDP (a FRED question):** Using the FRED database, locate the data on real and nominal GDP for the U.S. economy. You may notice that there are both annual and quarterly data (i.e., measures of production every 3 months) available. For the purpose of this question, let's stick with the annual data. The easy way to find this is to type "annual nominal GDP" and "annual real GDP" into the FRED search box. (For an introduction to FRED, see the case study "The FRED Database" earlier in this chapter on page 34.)
 - (a) What is the value of real GDP and nominal GDP for the most recent year available? Explain why these numbers are different.
 - (b) What was the value of real GDP and nominal GDP in 1970?
 - (c) By what factor (e.g., a number like 2.0 if it doubled) did real GDP increase between 1970 and the most recent year? What about nominal GDP?
 - (d) What explains the difference between the two numbers in part (c)?
- * 2. **What counts as GDP (I)?** By how much does GDP rise in each of the following scenarios? Explain.
 - (a) You spend \$5,000 on college tuition this semester.
 - (b) You buy a used car from a friend for \$2,500.
 - (c) The government spends \$100 million to build a dam.
 - (d) Foreign graduate students work as teaching assistants at the local university and earn \$5,000 each.
3. **What counts as GDP (II)?** By how much does GDP rise in each of the following scenarios? Explain.
 - (a) A computer company buys parts from a local distributor for \$1 million, assembles the parts, and sells the resulting computers for \$2 million.
 - (b) A real estate agent sells a house for \$200,000 that the previous owners had bought 10 years earlier for \$100,000. The agent earns a commission of \$6,000.
 - (c) During a recession, the government raises unemployment benefits by \$100 million.
 - (d) A new U.S. airline purchases and imports \$50 million worth of airplanes from the European company Airbus.

- (e) A new European airline purchases \$50 million worth of airplanes from the American company Boeing.
- (f) A store buys \$100,000 of chocolate from Belgium and sells it to consumers in the United States for \$125,000.
4. **National accounting over time (I):** Look back at Table 2.4. Some missing entries are labeled with question marks. Compute the values that belong in these positions.
5. **National accounting over time (II):** Consider an economy that produces oranges and boomerangs. The prices and quantities of these goods in two different years are reported in the table below. Fill in the missing entries.

	2020	2021	Percentage change 2020–2021
Quantity of oranges	100	105	?
Quantity of boomerangs	20	22	?
Price of oranges (dollars)	1	1.10	?
Price of boomerangs (dollars)	3	3.10	?
Nominal GDP	?	?	?
Real GDP in 2020 prices	?	?	?
Real GDP in 2021 prices	?	?	?
Real GDP in chained prices, benchmarked to 2021	?	?	?

6. **Inflation in the orange and boomerang economy:** Consider the economy from exercise 4. Calculate the inflation rate for the 2020–2021 period using the GDP deflator based on the Laspeyres, Paasche, and chain-weighted indexes of GDP.
7. **How large is the economy of India?** Indian GDP in 2014 was 119 trillion rupees, while U.S. GDP was \$16.5 trillion. The exchange rate in 2014 was 61.0 rupees per dollar. India turns out to have lower prices than the United States (this is true more generally for poor countries): the price level in India (converted to dollars) divided by the price level in the United States was 0.280 in 2014.
- (a) What is the ratio of Indian GDP to U.S. GDP if we don't take into account the differences in relative prices and simply use the exchange rate to make the conversion?
- (b) What is the ratio of real GDP in India to real GDP in the United States in common prices?
- (c) Why are these two numbers different?
8. **How large is the economy of Japan?** Japanese GDP in 2012 was 468 trillion yen (U.S. GDP was \$16.2 trillion). The exchange rate in 2012 was 79.8 yen per dollar. Contrary to China and India, however, Japan had higher prices than the United States: the price level in Japan (converted to dollars) divided by the price level in the United States was 1.307 in 2012.
- (a) What is the ratio of Japanese GDP to U.S. GDP if we don't take into account the differences in relative prices and simply use the exchange rate to make the conversion?