

CH.25 EXTRA QUESTIONS

1. What's the relationship between a stock concept and a flow concept?
2. What expenditure category of production is largest for most countries?
3. How do wealth accounts differ from national income accounts?
4. State whether the following actions will increase or decrease GDP:
 - a. The United States legalizes LGBTQ marriages.
 - b. An individual sells her house on her own.
 - c. An individual sells his house through a broker.
 - d. Government increases Social Security payments.
 - e. Stock prices rise by 20 percent.
 - f. An unemployed worker gets a job.
5. If you add up all the transactions in an economy, do you arrive at GDP, GNP, or something else?
6. The United States is considering introducing a value added tax. What tax rate on value added is needed to get the same revenue as is gotten from an income tax rate of 15 percent?
7. There are three firms in an economy: A, B, and C. Firm A buys \$350 worth of goods from firm B and \$200 worth of goods from firm C, and produces 200 units of output, which it sells at \$4 per unit. Firm B buys \$200 worth of goods from firm A and \$150 worth of goods from firm C, and produces 300 units of output, which it sells at \$7 per unit. Firm C buys \$50 worth of goods from firm A and nothing from firm B. It produces output worth \$1,000. All other products are sold to consumers.
 - a. Calculate GDP.
 - b. If a value-added tax (a tax on the total value added of each firm) of 10 percent is introduced, how much revenue will the government get?
 - c. How much would government get if it introduced a 10 percent income tax?
 - d. How much would government get if it introduced a 10 percent sales tax on final output?
8. If the government increases transfer payments, what happens to aggregate output?
9. Economists normally talk about GDP even though they know NDP is a better measure of economic activity. Why?

10. Which will be larger, gross domestic product or gross national product?

11. You've been given the following data:

Net exports \$ 6

Net foreign factor income 3

Investment 162

Government spending 173

Consumption 597

Depreciation 49

From these data, calculate GDP, GNP, and NDP.

12. What is the largest component of aggregate income for most countries?

13. Given the following data about the economy:

Profit \$ 268

Consumption 700

Investment 500

Government spending 300

Net exports 269

Rent 25

Depreciation 25

Net foreign factor income 3

Interest 150

Compensation to employees 1,329

a. Calculate aggregate output (GDP) and aggregate income.

b. Compare the two calculations in *a*. Why are they not precisely equal?

c. Calculate GNP.

d. Calculate NDP.

14. You have been hired as a research assistant and are given the following data:

Compensation to employees \$356

Consumption 397

Exports 55

Net foreign factor income 3

Government spending 43

Investment 80

Imports 63

Interest 49

Profit 96

Rent 14
Net investment 72

- a. Calculate GNP, GDP, and aggregate income.
- b. What is depreciation in this year?
- c. What is NDP?

15. What income category keeps aggregate output and aggregate income equal?

16. If an economy has a trade surplus, is domestic production higher or lower than domestic expenditures? Explain your answer.

17. What makes it difficult to compare GDP over time? How is the problem addressed?

18. Below are nominal GDP and GDP deflators for four years:

Year	Nominal GDP (in billions)	GDP Deflator
Year 1	\$18,000	100
Year 2	18,540	103
Year 3	19,467	104
Year 4	20,246	106

- a. Calculate real GDP in each year.
- b. Did the percentage change in nominal GDP exceed the percentage change in real GDP in any of the last three years listed?
- c. In which year did society's welfare increase the most?

19. Fill in the missing values in the table below:

Real Interest Rate	Nominal Interest Rate	Inflation
6	7	—
9	—	5
—	19	4

20. You find that real GDP per capita in Burundi is \$800 while real GDP per capita in the United States is \$70,000. What is misleading about these figures when comparing standards of living?

21. When more and more women entered the labor force in the 1970s and 1980s, the economy's potential output rose.

- a. To the extent that real output rose because of their entry into the labor market, what was the effect on measured GDP?
- b. What was the impact on welfare?

22. The Genuine Progress Indicator is an alternative measure to economic activity.

- a. Is the Genuine Progress Indicator a subjective measure of the economy? Explain your answer.
- b. Is GDP a subjective measure? Explain your answer.

Answers

1. A stock concept is the amount of something at a given point in time. A flow concept is an amount over a specific time period. For example, a stock concept is the amount of water in a reservoir; a flow concept is the amount of water that flows over Niagara Falls every hour. (*Note: the question does not require an example.*)
2. Consumption spending is the largest expenditure category of production for most countries.
3. Wealth accounts are a balance sheet of an economy's stock of assets and liabilities while national income accounts show the flow of income and expenditures in a country. Wealth accounts reflect stock measures and national accounts reflect flow measures.
4.
 - a. If more same-sex couples decide to live together because they are allowed to marry, then GDP would fall as non-market transactions increase. In the short-run, however, GDP would rise due to marriage-related expenditures.
 - b. GDP would not change. There is a transfer of assets, not the creation of new market output. Hence GDP does not change.
 - c. GDP would rise by the broker's commission. While the transfer of assets does not affect GDP, that transfer can be assumed to increase both the seller's and buyer's welfare since both did it voluntarily. The commission paid by an individual to a broker for services associated with the sale of a house facilitated that increase in welfare and is considered as a market output, increasing GDP.
 - d. GDP would not change. There is a transfer of income from taxpayers to recipients. GDP attempts to measure increases in market output.
 - e. GDP would not change. The increase or decrease in the value of the stock market is a change in the value of an asset, but because there is no market output that has increased, GDP has not changed.
 - f. GDP does not change when the person gets the job. GDP rises only when the person begins to produce a good or provides a service that is sold in the market.

5. If you add up all transactions in an economy, you will include intermediate goods—so the amount will far exceed both GDP and GNP, which are measures of final output of an economy. You will not arrive at either GDP or GNP.
6. The aggregate value added at each stage of production is, by definition, precisely equal to the value of final sales and income. Thus, the value-added tax rate should also be 15 percent. (Technical note: This is assuming the value-added tax is income-based rather than consumption-based.)
7.
 - a. GDP is the sum of the value added by the three firms $\$250 + \$1,750 + \$950 = \$2,950$.
 - b. A 10 percent value-added tax would generate $0.10 \times \$2,950 = \295 of revenue.
 - c. A 10 percent income tax would generate the same \$295 of revenue because total income and total value added are the same by definition.
 - d. A 10 percent sales tax would generate the same \$295 of revenue because final output, total income, and total value added are the same by definition.
8. Transfer payments are not included in aggregate output so nothing would happen to it.
9. NDP is preferable to GDP as the expression of a country's domestic output because NDP takes depreciation, a relevant cost of producing goods, into account. However, measuring true depreciation is difficult because asset values fluctuate, and so GDP rather than NDP is generally used in discussions of economic activity.
10. It depends on whether net foreign factor income is positive or negative. GDP measures output produced in a country, regardless of whether or not it was produced by a citizen or American company. GNP measures output produced by a citizen or company or a country regardless of where it was produced. If American companies and citizens produce more output outside the United States than non-American companies and non-American citizens produce in the United States, then GNP will be greater than GDP. If not, it will be the opposite. Remember, $GNP = GDP + \text{Net foreign factor income}$.

11. $GDP = C + I + G + (X - M) = \$597 + \$162 + \$173 + \$6 = \938
 $GNP = GDP + \text{Net foreign factor income} = \$938 + \$3 = \941
 $NDP = GDP - \text{Depreciation} = \$938 - \$49 = \889
12. Employee compensation is the largest component of national income for most countries.
13. a. The expenditure approach:
 $\text{Aggregate output (GDP)} = C + I + G + (X - M) = \$700 + \$500 + \$300 + \$269 = \$1,769$
 $\text{Aggregate income} = \text{Employee compensation} + \text{rent} + \text{interest} + \text{profit} = \$1,329 + \$25 + \$150 + \$268 = \$1,772$
- b. Aggregate income is greater than aggregate output. There are a number of complicated accounting decisions involved in the calculations (such as, but not limited to, net foreign factor income) and this makes them close, but not perfectly equal.
- c. $GNP = GDP + NFFI = \$1,769 + \$3 = \$1,772$
- If you are wondering why, in this example, GNP does not equal national income, good for you! You're really thinking critically. There are a number of differences between GNP and national income. This is depreciation. National income doesn't include depreciation. The figures to compare would be net national product and net national income.
- d. $NDP = GDP - \text{depreciation} = \$1,769 - \$25 = \$1,744$
14. a. $GDP = C + I + G + (X - M) = \$397 + \$80 + \$43 + (\$55 - \$63) = \$512$
 $GNP = GDP + \text{Net foreign factor income} = \$512 + \$3 = \515
 $\text{Aggregate income} = \text{Employee compensation} + \text{Rent} + \text{Profit} + \text{Interest} = \$356 + \$14 + \$96 + \$49 = \515
- b. $\text{Depreciation} = \text{Investment} - \text{Net investment} = \$80 - \$72 = 8$
- c. $NDP = GDP - \text{Depreciation} = \$512 - \$8 = \504
15. Profit is the income category that keeps output and income the same. Aggregate output and aggregate income are essentially the same because aggregate output must create an equal amount of aggregate income. The income is either paid to factors of production or is profit.

16. In an economy that has a trade surplus, domestic production is higher than domestic expenditures because some of the domestic production is for foreign expenditures.
17. It is difficult to compare GDP over time because prices change. That is, because GDP is measured in prices, a rise in GDP could reflect either a rise in prices or a rise in the amount of goods and services produced. Economists collect data on prices and adjust GDP for those price level increases to calculate real GDP. A rise in real GDP keeps prices constant and therefore reflects an increase in the amount of goods and services produced.
18. a. $\text{Real GDP} = (\text{Nominal GDP} / \text{GDP Deflator}) \times 100$
 For Year 1: $(\$18,000 / 100) \times 100 = \$18,000$ billion.
 For Year 2: $(\$18,540 / 103) \times 100 = \$18,000$ billion.
 For Year 3: $(\$19,467 / 104) \times 100 = \$18,718$ billion.
 For Year 4: $(\$20,246 / 106) \times 100 = \$19,100$ billion.
- b. Since inflation was positive in every year, nominal GDP growth exceeded real GDP growth in each of the last three years. You do not have to calculate the growth rate to answer this question, simply recognize that inflation was positive in every year.
- c. It is impossible to say in which year society's welfare increased the most. GDP measures market activity, not welfare.
- 19.
- | Real Interest Rate | Nominal Interest Rate | Inflation |
|---------------------------|------------------------------|------------------|
| 6 | 7 | 1 |
| 9 | 14 | 5 |
| 15 | 19 | 4 |
- Inflation = Nominal interest rate – Real interest rate
 Nominal interest rate = Real interest rate + Inflation
 Real interest rate = Nominal interest rate – Inflation
20. One must be careful when comparing real GDP per capita between countries. Two reasons are: (1) GDP includes only market activities, and it is likely that many people in Burundi grow their own food and barter—activities that would not be included in measured output. (2) GDP measures activities at the market price and relative prices in Burundi are likely to be lower compared to prices in the United States. Both issues suggest that \$800 is an underestimate of output in Burundi.

21. a. To the extent that a larger labor force contributed to higher market production, measured GDP also rose.
- b. The effect on welfare is uncertain. To the extent that the value of the non-market activities women were engaged in before entering the workforce is of equal or greater than the value of the market activities they took on when entering the labor force, welfare may have changed. To the extent the nonmarket activities are less valued, welfare rose. There are other considerations related to women entering the labor force, including greater financial independence, the move toward more equitable decision-making, and greater respect for women as members of society, all of which likely increased welfare.
22. a. Like all measures that focus on different aspects of what is being measured, including GDP, the Genuine Progress Indicator (GPI) is a subjective measure of the economy. What is included in the indicator is a matter of judgment. For example, the GPI adjusts for income distribution with greater inequality lowering the GPI. Someone who believes that income distribution is not a concern would not include it in the measure.
- b. GDP is a subjective measure of economic activity for a variety of reasons. One is that it does not include non-market activities such as unpaid household production, barter exchanges such as when a person exchanges clothing for food, and sales of illegal drugs. All of these activities are a type of production but not included in GDP.