

1. A farmer grows a bushel of wheat and sells it to a miller for \$1. The miller turns it into flour and then sells the flour to a baker for \$3. The baker uses the flour to make bread and sells the bread to an engineer for \$6. The engineer eats the bread. What is the value added by each person? What is the bread's contribution to GDP?
2. Suppose a woman marries her butler. After they are married, her husband continues to wait on her as before, and she continues to support him as before (but as a husband rather than as an employee). How does the marriage affect GDP? How do you think it should affect GDP?
3. Place each of the following transactions in one of the four components of expenditure: consumption, investment, government purchases, and net exports.
  - a. Boeing sells an airplane to the U.S. Air Force.
  - b. Boeing sells an airplane to American Airlines.
  - c. Boeing sells an airplane to Air France.
  - d. Boeing sells an airplane to Amelia Earhart.
  - e. Boeing builds an airplane to be sold next year.
4. Tina is the sole owner of Tina's Lawn Mowing, Incorporated (TLM). In one year, TLM collects \$1,000,000 from customers to mow their lawns. TLM's equipment depreciates in value by \$125,000. TLM pays \$600,000 to its workers, who pay \$140,000 in taxes on this income. TLM pays \$50,000 in corporate income taxes and pays Tina a dividend of \$150,000. Tina pays taxes of \$60,000 on this dividend income. TLM retains \$75,000 of earnings in the business to finance future expansion. How much does this economic activity contribute to each of the following?
  - a. GDP
  - b. NNP
  - c. National income
  - d. Compensation of employees
  - e. Proprietors' income
  - f. Corporate profits
  - g. Personal income
  - h. Disposable personal income
5. Consider an economy that produces and consumes hot dogs and hamburgers. In the following table are data for two different years.

Good	Quantity-2010	Price-2010	Quantity-2015	Price-2015
Hot dogs	200	2\$	250	4\$
Hamburgers	200	3\$	500	4\$

- a. Using 2010 as the base year, compute the following statistics for each year: nominal GDP, real GDP, the implicit price deflator for GDP, and a fixed-weight price index such as the CPI.
  - b. By what percentage did prices rise between 2010 and 2015? Give the answer for each good and also for the two measures of the overall price level. Compare the answers given by the Laspeyres and Paasche price indexes. Explain the difference.
6. Abby consumes only apples. In year 1, red apples cost \$1 each, green apples cost \$2 each, and Abby buys 10 red apples. In year 2, red apples cost \$2, green apples cost \$1, and Abby buys 10 green apples.
- a. Compute a consumer price index for apples for each year. Assume that year 1 is the base year in which the consumer basket is fixed. How does your index change from year 1 to year 2?
  - b. Compute Abby's nominal spending on apples in each year. How does it change from year 1 to year 2?
  - c. Using year 1 as the base year, compute Abby's real spending on apples in each year. How does it change from year 1 to year 2?
  - d. Defining the implicit price deflator as nominal spending divided by real spending, compute the deflator for each year. How does the deflator change from year 1 to year 2?
  - e. Suppose that Abby is equally happy eating red or green apples. How much has the true cost of living increased for Abby? Compare this answer to your answers to parts (a) and (d). What does this example tell you about the Laspeyres and Paasche price indexes?
7. In a speech that Senator Robert Kennedy gave when he was running for president in 1968, he said the following about GDP:

“[It] does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our courage, nor our wisdom, nor our devotion to our country. It measures everything, in short, except that which makes life worthwhile, and it can tell us everything about America except why we are proud that we are Americans.”

Was Robert Kennedy right? If so, why do we care about GDP?

8. Consider whether each of the following events is likely to increase or decrease real GDP. In each case, do you think the well-being of the average person in society most likely changes in the same direction as real GDP? Why or why not?
- a. A hurricane in Florida forces Disney World to shut down for a month.
  - b. The discovery of a new, easy-to-grow strain of wheat increases farm harvests.
  - c. Increased hostility between unions and management sparks a rash of strikes.
  - d. Firms throughout the economy experience falling demand, causing them to lay off workers.
  - e. Congress passes new environmental laws that prohibit firms from using production methods that emit large quantities of pollution.
  - f. More high school students drop out of school to take jobs mowing lawns.
  - g. Fathers around the country reduce their workweeks to spend more time with their children.