

Unit 6 Lesson 33**Gross Domestic Product (GDP)
And How to Measure It****INTRODUCTION**

Economics *Gross Domestic Product (GDP)* is defined as the total market value of all final goods and services produced in a country in a year. Economists generally measure GDP using one of two equivalent methods: the expenditure approach or the income approach. This lesson focuses on the expenditure approach, which calls for computing GDP by totaling household spending on consumption, business investment spending, government spending on goods and services, and spending on net exports (exports minus imports). Understanding GDP is important in part because it relates to several other macroeconomic concepts. Fluctuations in GDP over time reflect periods of economic growth and decline (recessions). Economic forecasting frequently involves trying to predict GDP fluctuations and turnarounds.

Reasoning When one person spends money, it becomes someone else's income. This idea is often represented by the "circular flow" diagrams commonly found in high school economics textbooks. This idea also leads to the two major ways in which government accountants compute GDP: by measuring total spending (as in this lesson) or by measuring national income.

The definition of GDP could in itself lead to several lessons in economics. What is meant by market value? What are final goods? What is the difference between GDP and GNP? What is the difference between nominal and real GDP? What is excluded from GDP calculations, and why? These and other related topics could be addressed following this introductory lesson, in which students apply reasoning skills to classify different economic events and determine their likely effects on GDP.

CONCEPTS

- Consumption
- Exports
- Gross domestic product (GDP)
- Government spending on goods and services
- Imports
- Investment
- Net exports

OBJECTIVES

Students will:

1. Discuss GDP and how economists measure it.

2. Classify economic events by reference to four macroeconomic categories, and predict the effects the events will have on GDP.

CONTENT STANDARD

- A nation's overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy. (NCEE Content Standard 18)

LESSON DESCRIPTION

Students examine GDP. They distinguish between nominal and real GDP. They study how GDP is comprised of household spending on consumption goods and services (C), business investment spending (I), government spending on goods and services (G), and net exports (X-M). They participate in a simulation in which they classify economic events into the categories C, I, G, or (X-M), and predict whether the event will lead to an increase or decrease in GDP.

Time Required: 60 minutes

MATERIALS

- A transparency of Visual 1. (You may also wish to copy it as a handout for students.)
- Six signs (on 8.5 by 11-inch paper — or larger, and brightly colored, if possible), each containing one of the following inscriptions printed in large letters: **GDP, =, C, I, G, and X=M**
- One copy (on brightly colored card stock, if possible) of Handout Material (see p. 218), cut apart and put into a paper bag or shoe box

PROCEDURE

1. Explain that the purpose of this lesson is to introduce the definition of GDP and to show how various events may lead to changes in GDP.
2. Display Visual 1. Discuss the definition of GDP and its components.
3. Using Visual 1, make sure that students understand the following points:
 - When C, I, or G increase, GDP increases.
 - When C, I, or G decrease, GDP decreases.
 - When exports (X) go up, GDP goes up because it means more is produced in the United States.
 - When imports (M) go up, GDP goes down because it means people in the United States are buying what is produced in other countries.

GROSS DOMESTIC PRODUCT (GDP) AND HOW TO MEASURE IT

- When GDP increases, the economy experiences economic growth and unemployment goes down.
 - When GDP decreases for two consecutive quarters, the economy is in a recession and unemployment goes up.
 - In macroeconomics, the term investment is used to mean spending by business on capital goods, such as tools and machinery.
4. Announce that the students will now participate in an activity to test their understanding of some factors that cause GDP to increase or decrease. (*For this activity, assume that the overall price level in the economy is constant, so that changes in GDP are changes in real GDP.*) Ask for six volunteers to come to the front of the room. Give the volunteers the signs **GDP**, **=**, **C**, **I**, **G**, and **(X-M)**. Arrange the students facing the class so that the signs spell out the following equation: $GDP = C + I + G + (X-M)$. Make sure the students understand the abbreviations. Explain that the plus signs are implicit (or, if you wish, make three plus signs and have the students hold them also). Tell the students that the equation shows that GDP can be measured by adding consumption spending, investment spending, government spending, and net exports (X for exports, minus M for imports.) Remind them that an example of this equation for 2000 was given on Visual 1.
5. Show the students the cards from the Handout Material. Tell them that all the cards describe macroeconomic events that affect one of the components of GDP: consumption, investment, government spending, or net exports. Divide the class into two teams.
- Choose a student from one of the teams to come to the front of the room and draw one of the cards from the bag (*for example, "Due to a tax cut, consumers decide to buy more new cars"*). Ask the students to identify (1) which of the parts of GDP is affected, and (2) whether this event would cause GDP to go up or down. (The rest of the class must be silent and not help with the answers.) When both answers have been given, the students holding the signs should raise or lower their signs as appropriate to show the proposed answer. (*For example, if the student says that consumption would increase and GDP would increase, the student holding the C sign would raise it up, and the student holding the GDP sign would raise it up.*)
 - To involve the rest of the students, ask whether they agree with both parts of the answer. If so, they should give a "thumbs up" sign. If they disagree, they should give a "thumbs down" sign. (These responses can lead to discussion.) If

the student is correct, award his or her team one point. If the student is incorrect, choose one of the opposing team's students who gave a "thumbs down" and have him or her come up and suggest an answer. Have the students holding the signs raise them or lower them according to the suggested answer. Give the team that gets the correct answer to both parts of the question first a point.

- To reinforce the concept, read the card again and the correct answer while the students holding the signs raise or lower them as indicated.
6. Follow the steps of Procedure 5 until all the cards have been drawn. Give a round of applause for the winning team and for the sign-holders. (Note: if you don't wish to divide the class into teams and play the game as a competition, you could conduct the activity in a different way. For example, the students could come up, draw a card and read it to the class, and then the class as a whole could suggest the answer. The students holding the signs could still demonstrate the effects by raising or lowering the signs.)

CLOSURE

Display Visual 1 again. Review the idea that GDP can be measured by adding spending by households (consumption), by business (investment), by the government on goods and services, and in the foreign sector (net exports, or exports minus imports). Emphasize the example at the bottom of the Visual 1.

MULTIPLE-CHOICE QUESTIONS

(CORRECT ANSWERS SHOWN IN BOLD)

1. Investment is a major component of GDP, along with consumption, government spending, and net exports. Which of the following best describes investment in this context?
 - A. Members of the public buy shares of stock.
 - B. Businesses spend money on items such as machinery and factories.**
 - C. Citizens deposit money into savings accounts in banks and credit unions.
 - D. U.S. citizens and foreigners deposit savings into the Federal Reserve Bank.
2. Which of the following makes up the largest part of GDP?
 - A. Consumption spending**
 - B. Investment spending
 - C. Government spending
 - D. Net exports

ESSAY QUESTION

Give an example of each of the following spending categories that make up GDP: Consumption spending, investment spending, government spending, net exports.

(Sample answer: An example of consumption spending is when households purchase food or clothing. An example of investment spending is when a business buys new computers. An example of government spending is when the government builds new freeways or buys new military equipment. An example of net exports is when the United States imports cars from Japan and exports computer chips to Mexico.)

Answers to the Handout Material:

(Numbers correspond to the numbers on the bottom right corner on the cards. Note that the responses refer to immediate or short-run impacts of the events.)

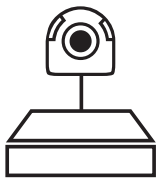
1. Consumption increases, GDP increases.
2. Government spending decreases, GDP decreases.
3. Imports to the U.S. increase (net exports decrease), GDP decreases.
4. Consumption decreases, GDP decreases.
5. U.S. exports increase (net exports increase), GDP increases.
6. U.S. exports decrease (net exports decrease), GDP decreases.
7. Investment increases, GDP increases.
8. Imports to the U.S. increase (net exports decrease), GDP decreases.
9. Consumption decreases, GDP decreases.
10. Investment decreases, GDP decreases.
11. Consumption increases, GDP increases.
12. Investment increases, GDP increases.
13. Government spending increases, GDP increases.
14. Investment increases, GDP increases.
15. Government spending increases, GDP increases.

Unit 6, Lesson 33

Handout Material

Events Affecting Spending on Consumption, Investment, Government Spending, or Net Exports

<p><i>Due to a tax cut, consumers decide to buy more new cars.</i></p> <p style="text-align: right;">1</p>	<p><i>Worried about an increasing budget deficit, the government decides to buy fewer military planes.</i></p> <p style="text-align: right;">2</p>	<p><i>Increasing prices in the U.S. encourage Americans to buy more foreign goods.</i></p> <p style="text-align: right;">3</p>
<p><i>Due to a tax increase, consumers decrease purchases on vacation travel.</i></p> <p style="text-align: right;">4</p>	<p><i>Due to increased incomes, Europeans buy more U.S. goods and services.</i></p> <p style="text-align: right;">5</p>	<p><i>A foreign government imposes a tariff that discourages its citizens from buying goods from the U.S.</i></p> <p style="text-align: right;">6</p>
<p><i>Businesses are optimistic about the future and increase construction of new factories.</i></p> <p style="text-align: right;">7</p>	<p><i>Many more Americans decide to buy Japanese cars rather than American cars.</i></p> <p style="text-align: right;">8</p>	<p><i>Households worry about future unemployment and decide to spend less income.</i></p> <p style="text-align: right;">9</p>
<p><i>Because interest rates increased, businesses cut back on spending for new machinery.</i></p> <p style="text-align: right;">10</p>	<p><i>Consumers feel good about the future and take out loans to buy more durable goods such as washing machines.</i></p> <p style="text-align: right;">11</p>	<p><i>Decreases in interest rates encourage businesses to take out loans to construct more buildings.</i></p> <p style="text-align: right;">12</p>
<p><i>To fight unemployment, the government decides to hire more people to work in national parks.</i></p> <p style="text-align: right;">13</p>	<p><i>Tax cuts to businesses give businesses incentives to buy more computers.</i></p> <p style="text-align: right;">14</p>	<p><i>To stimulate the economy and provide jobs, the government builds more bridges in California.</i></p> <p style="text-align: right;">15</p>



Unit 6, Lesson 33

Visual 1

GROSS DOMESTIC PRODUCT (GDP):

- The market value of all final goods and services produced in a country in a year.
- Final goods and services have been purchased for final use. They are not for resale or further manufacture.
- Economists often measure GDP by totaling the money spent on four major categories of goods and services:

Consumption (C): Spending by households on goods and services. Includes spending on things such as cars, food, and visits to the dentist. Makes up two-thirds of GDP spending.

Investment (I): Spending by businesses on machinery, factories, equipment, tools, and construction of new buildings.

Government (G): Spending by all levels of government on goods and services. Includes spending on the military, schools, and highways.

Net Exports (X - M): Spending by people abroad on U.S. goods and services (exports, or X) minus spending by people in the U.S. on foreign goods and services (imports, or M).

EXAMPLE:

In 2000, in trillions of U.S. dollars, third-quarter GDP estimates were:

$$\begin{aligned} \text{GDP} &= \text{C} + \text{I} + \text{G} + (\text{X} - \text{M}) \\ \$10.04 &= \$6.81 + \$1.87 + \$1.75 + (\$1.13 - \$1.52)^* \end{aligned}$$

* Source: *Economic Report of the President, 2001, page 274.*